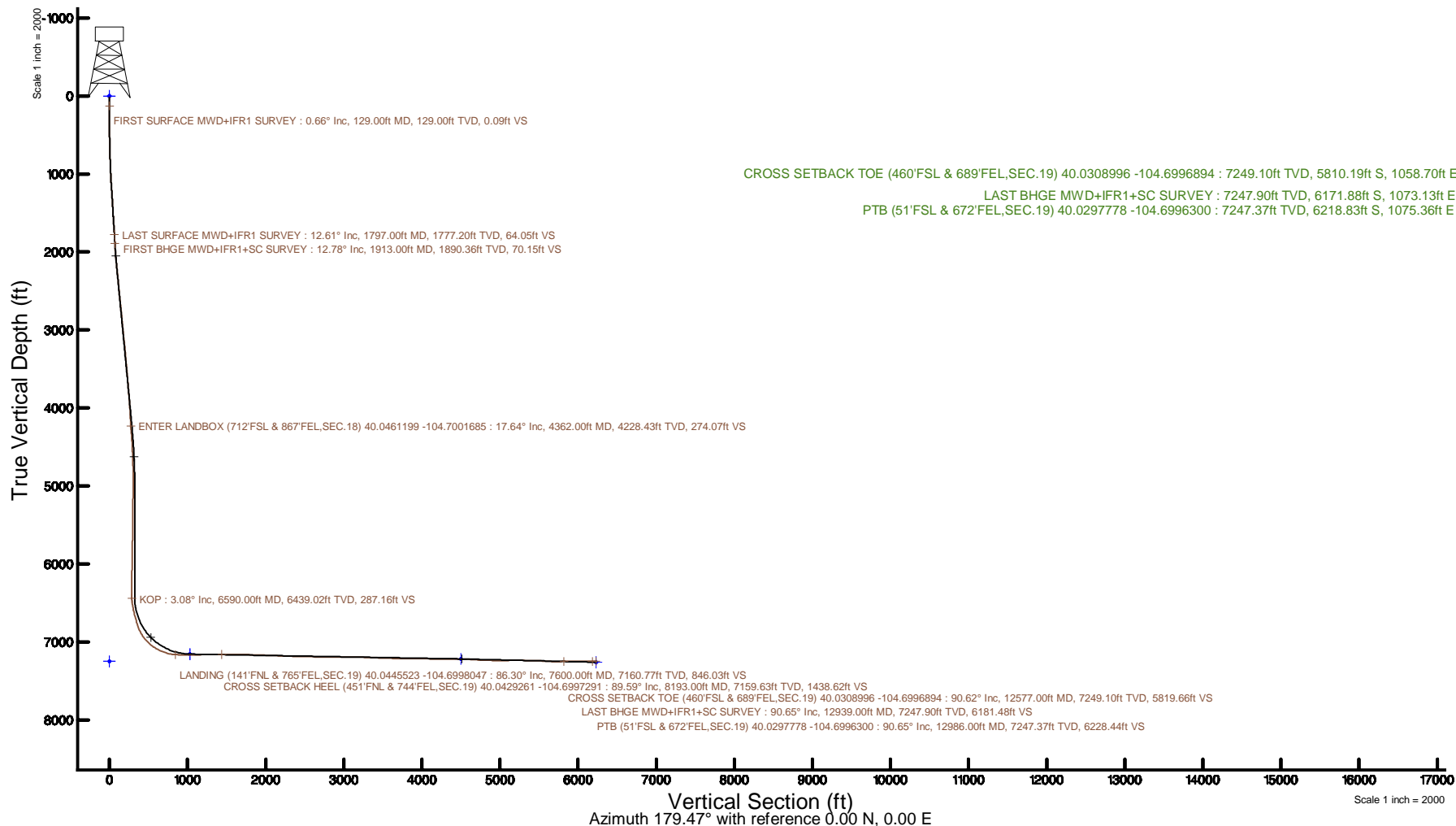
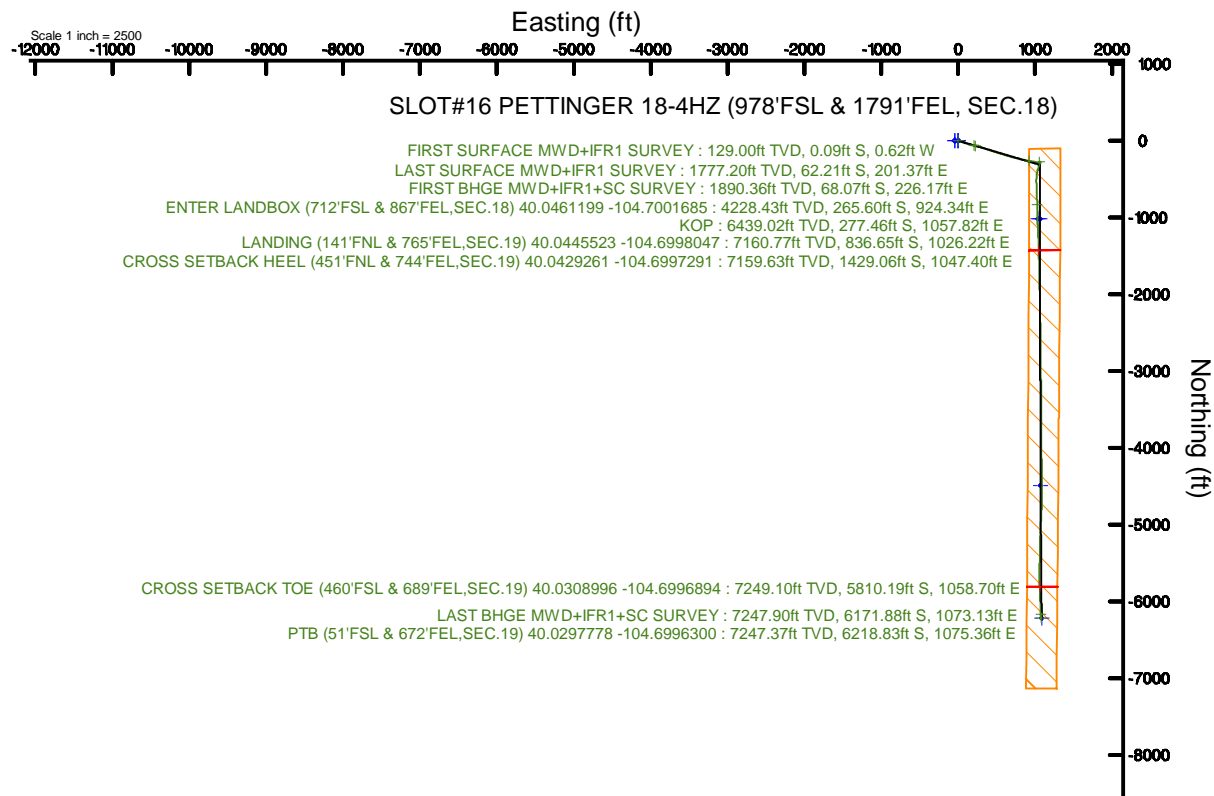


Location:	COLORADO	Slot:	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Field:	WELD COUNTY (UTM/TRUE NORTH)	Well:	PETTINGER 18-4HZ
Facility:	SEC.18-T1N-R65W	Wellbore:	PETTINGER 18-4HZ PWB

Plot reference wellpath is PETTINGER 18-4H PWP Rev-8.0	Grid System: NAD83 / UTM Zone 13 North, US feet
True vertical depths are referenced to PD 464 (21') (RT)	- Wellpath was transformed from a different geodetic datum
Measured depths are referenced to PD 464 (21') (RT)	North Reference: True north
PD 464 (21') (RT) to Mean Sea Level: 5017 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#16 PETTINGER 18-4H (978/FSL & 1791/FEL, SEC.18)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painseir on 2018-10-11
	Database: WA_DEN_Anadarko_Defn



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWB
Facility	SEC.18-T1N-R65W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Painsetr
Scale	0.999608	Report Generated	10/11/2018 at 12:23 PM
Convergence at slot	0.20° East	Database/Source file	WA_DEN_Anadarko_Defn/PETTINGER_18-4HZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	559.83	-116.50	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W
Facility Reference Pt			1723521.78	14543372.11	40°02'43.124"N	104°42'10.994"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	5017.00ft
Horizontal Reference Pt	Slot	PD 464 (21') (RT) to Mean Sea Level	5017.00ft
Vertical Reference Pt	PD 464 (21') (RT)	PD 464 (21') (RT) to Mud Line at Slot (SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18))	5017.00ft
MD Reference Pt	PD 464 (21') (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.47°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWB
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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	261.510	0.00	0.00	0.00	0.00	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W	0.00	
21.00	0.000	261.510	21.00	0.00	0.00	0.00	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W	0.00	
129.00	0.660	261.510	129.00	0.09	-0.09	-0.62	1723402.84	14543931.24	40°02'48.655"N	104°42'12.500"W	0.61	FIRST SURFACE MWD+IFR1 SURVEY
161.00	0.880	251.750	160.99	0.19	-0.20	-1.03	1723402.43	14543931.13	40°02'48.654"N	104°42'12.505"W	0.80	
192.00	1.140	249.910	191.99	0.36	-0.38	-1.55	1723401.91	14543930.95	40°02'48.653"N	104°42'12.512"W	0.85	
224.00	0.880	238.300	223.98	0.60	-0.61	-2.05	1723401.41	14543930.71	40°02'48.650"N	104°42'12.518"W	1.03	
256.00	0.530	240.500	255.98	0.79	-0.82	-2.39	1723401.07	14543930.50	40°02'48.648"N	104°42'12.523"W	1.10	
288.00	0.260	227.490	287.98	0.92	-0.94	-2.57	1723400.89	14543930.38	40°02'48.647"N	104°42'12.525"W	0.88	
319.00	0.130	218.790	318.98	0.99	-1.01	-2.65	1723400.81	14543930.31	40°02'48.646"N	104°42'12.526"W	0.43	
351.00	0.180	196.470	350.98	1.07	-1.09	-2.69	1723400.78	14543930.23	40°02'48.646"N	104°42'12.527"W	0.24	
383.00	0.180	168.430	382.98	1.16	-1.19	-2.69	1723400.77	14543930.13	40°02'48.645"N	104°42'12.527"W	0.27	
415.00	0.700	121.230	414.98	1.32	-1.34	-2.51	1723400.95	14543929.98	40°02'48.643"N	104°42'12.524"W	1.85	
479.00	1.670	110.070	478.97	1.85	-1.86	-1.30	1723402.16	14543929.46	40°02'48.638"N	104°42'12.509"W	1.55	
510.00	1.800	111.210	509.95	2.19	-2.19	-0.42	1723403.04	14543929.14	40°02'48.635"N	104°42'12.497"W	0.43	
542.00	2.110	112.530	541.93	2.61	-2.60	0.59	1723404.06	14543928.73	40°02'48.631"N	104°42'12.484"W	0.98	
574.00	2.370	115.960	573.91	3.13	-3.12	1.73	1723405.20	14543928.22	40°02'48.626"N	104°42'12.470"W	0.91	
605.00	2.720	112.880	604.88	3.71	-3.68	2.98	1723406.45	14543927.66	40°02'48.620"N	104°42'12.454"W	1.21	
637.00	3.300	112.880	636.83	4.38	-4.34	4.53	1723408.00	14543927.01	40°02'48.614"N	104°42'12.434"W	1.81	
669.00	3.780	113.150	668.77	5.17	-5.11	6.35	1723409.82	14543926.24	40°02'48.606"N	104°42'12.410"W	1.50	
700.00	4.390	109.090	699.69	5.97	-5.90	8.41	1723411.88	14543925.46	40°02'48.598"N	104°42'12.384"W	2.18	
732.00	5.100	106.820	731.58	6.81	-6.71	10.93	1723414.40	14543924.66	40°02'48.590"N	104°42'12.351"W	2.29	
764.00	5.670	106.730	763.44	7.70	-7.58	13.80	1723417.28	14543923.80	40°02'48.582"N	104°42'12.315"W	1.78	
796.00	6.110	105.150	795.27	8.63	-8.48	16.96	1723420.44	14543922.91	40°02'48.573"N	104°42'12.274"W	1.47	
827.00	6.770	104.090	826.08	9.54	-9.35	20.33	1723423.81	14543922.05	40°02'48.564"N	104°42'12.231"W	2.16	
859.00	7.160	104.530	857.84	10.53	-10.31	24.09	1723427.57	14543921.10	40°02'48.554"N	104°42'12.182"W	1.23	
891.00	7.730	104.270	889.57	11.60	-11.34	28.10	1723431.59	14543920.08	40°02'48.544"N	104°42'12.131"W	1.78	
923.00	8.310	105.060	921.26	12.77	-12.47	32.42	1723435.91	14543918.97	40°02'48.533"N	104°42'12.075"W	1.84	
954.00	8.790	104.010	951.91	13.97	-13.63	36.88	1723440.37	14543917.83	40°02'48.522"N	104°42'12.018"W	1.63	
986.00	9.580	104.530	983.50	15.27	-14.89	41.83	1723445.32	14543916.58	40°02'48.509"N	104°42'11.954"W	2.48	
1018.00	10.590	104.800	1015.01	16.74	-16.31	47.25	1723450.75	14543915.18	40°02'48.495"N	104°42'11.884"W	3.16	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWP
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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
1050.00	11.210	106.380	1046.43	18.42	-17.94	53.08	1723456.58	14543913.58	40°02'48.479"N	104°42'11.809"W	2.15	
1081.00	11.690	106.200	1076.81	20.20	-19.66	58.99	1723462.49	14543911.87	40°02'48.462"N	104°42'11.734"W	1.55	
1113.00	12.260	106.470	1108.12	22.13	-21.53	65.36	1723468.86	14543910.02	40°02'48.444"N	104°42'11.652"W	1.79	
1145.00	12.660	107.080	1139.36	24.18	-23.52	71.97	1723475.48	14543908.05	40°02'48.424"N	104°42'11.567"W	1.32	
1177.00	13.010	107.610	1170.56	26.37	-25.64	78.75	1723482.27	14543905.96	40°02'48.403"N	104°42'11.479"W	1.15	
1208.00	12.000	107.870	1200.83	28.47	-27.69	85.15	1723488.66	14543903.94	40°02'48.383"N	104°42'11.397"W	3.26	
1240.00	11.560	108.140	1232.15	30.54	-29.71	91.36	1723494.88	14543901.94	40°02'48.363"N	104°42'11.317"W	1.39	
1272.00	11.690	107.960	1263.50	32.60	-31.71	97.49	1723501.02	14543899.96	40°02'48.343"N	104°42'11.238"W	0.42	
1303.00	11.780	106.990	1293.85	34.55	-33.60	103.50	1723507.03	14543898.09	40°02'48.324"N	104°42'11.161"W	0.70	
1335.00	12.170	106.640	1325.15	36.53	-35.52	109.86	1723513.39	14543896.19	40°02'48.305"N	104°42'11.079"W	1.24	
1366.00	12.390	105.680	1355.44	38.42	-37.35	116.19	1723519.73	14543894.38	40°02'48.287"N	104°42'10.998"W	0.97	
1398.00	11.560	105.410	1386.75	40.26	-39.13	122.59	1723526.13	14543892.62	40°02'48.270"N	104°42'10.916"W	2.60	
1430.00	11.290	105.240	1418.11	41.99	-40.81	128.70	1723532.25	14543890.97	40°02'48.253"N	104°42'10.837"W	0.85	
1461.00	11.510	105.060	1448.50	43.64	-42.41	134.62	1723538.16	14543889.38	40°02'48.237"N	104°42'10.761"W	0.72	
1493.00	11.910	104.970	1479.84	45.38	-44.09	140.89	1723544.44	14543887.72	40°02'48.221"N	104°42'10.680"W	1.25	
1525.00	12.130	105.240	1511.13	47.18	-45.83	147.32	1723550.88	14543886.01	40°02'48.204"N	104°42'10.598"W	0.71	
1556.00	11.510	106.730	1541.48	48.98	-47.58	153.43	1723556.98	14543884.28	40°02'48.186"N	104°42'10.519"W	2.23	
1587.00	11.290	108.400	1571.87	50.88	-49.42	159.27	1723562.83	14543882.46	40°02'48.168"N	104°42'10.444"W	1.28	
1619.00	11.470	108.490	1603.24	52.94	-51.42	165.26	1723568.82	14543880.48	40°02'48.148"N	104°42'10.367"W	0.57	
1651.00	11.820	108.310	1634.58	55.03	-53.46	171.39	1723574.96	14543878.46	40°02'48.128"N	104°42'10.288"W	1.10	
1683.00	12.220	107.960	1665.88	57.16	-55.53	177.72	1723581.29	14543876.41	40°02'48.108"N	104°42'10.207"W	1.27	
1714.00	12.570	106.730	1696.15	59.20	-57.52	184.07	1723587.65	14543874.45	40°02'48.088"N	104°42'10.125"W	1.41	
1746.00	12.300	105.320	1727.40	61.17	-59.42	190.69	1723594.27	14543872.57	40°02'48.069"N	104°42'10.040"W	1.27	
1778.00	12.570	104.270	1758.65	62.99	-61.18	197.36	1723600.94	14543870.83	40°02'48.052"N	104°42'09.954"W	1.10	
1797.00	12.610	104.450	1777.20	64.05	-62.21	201.37	1723604.95	14543869.82	40°02'48.042"N	104°42'09.903"W	0.29	LAST SURFACE MWD+IFR1 SURVEY
1913.00	12.780	102.190	1890.36	70.15	-68.07	226.17	1723629.77	14543864.03	40°02'47.984"N	104°42'09.584"W	0.45	FIRST BHGE MWD+IFR1+SC SURVEY
2006.00	14.520	104.230	1980.73	75.38	-73.11	247.53	1723651.13	14543859.07	40°02'47.934"N	104°42'09.309"W	1.94	
2099.00	16.550	105.810	2070.33	82.08	-79.59	271.58	1723675.19	14543852.68	40°02'47.870"N	104°42'09.000"W	2.23	
2192.00	17.260	108.350	2159.31	90.27	-87.54	297.42	1723701.05	14543844.81	40°02'47.791"N	104°42'08.668"W	1.10	
2284.00	18.440	108.510	2246.88	99.43	-96.46	324.17	1723727.82	14543835.99	40°02'47.703"N	104°42'08.324"W	1.28	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWP
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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
2376.00	17.620	107.590	2334.36	108.50	-105.28	351.24	1723754.91	14543827.26	40°02'47.616"N	104°42'07.976"W	0.94	
2468.00	18.430	106.220	2421.85	117.02	-113.55	378.48	1723782.16	14543819.08	40°02'47.534"N	104°42'07.625"W	0.99	
2561.00	16.940	104.310	2510.45	124.73	-121.01	405.72	1723809.42	14543811.72	40°02'47.461"N	104°42'07.275"W	1.72	
2653.00	17.050	109.890	2598.44	132.87	-128.91	431.40	1723835.11	14543803.90	40°02'47.382"N	104°42'06.945"W	1.78	
2745.00	18.140	110.920	2686.13	142.81	-138.61	457.46	1723861.19	14543794.29	40°02'47.287"N	104°42'06.610"W	1.23	
2837.00	16.030	107.760	2774.07	152.03	-147.60	482.94	1723886.69	14543785.39	40°02'47.198"N	104°42'06.282"W	2.50	
2929.00	15.350	108.310	2862.64	159.95	-155.30	506.59	1723910.37	14543777.77	40°02'47.122"N	104°42'05.978"W	0.76	
3021.00	16.660	108.460	2951.07	168.17	-163.31	530.66	1723934.45	14543769.85	40°02'47.043"N	104°42'05.669"W	1.42	
3115.00	18.340	107.870	3040.72	177.22	-172.11	557.52	1723961.33	14543761.14	40°02'46.955"N	104°42'05.323"W	1.80	
3207.00	19.990	107.880	3127.62	186.76	-181.38	586.27	1723990.09	14543751.97	40°02'46.864"N	104°42'04.954"W	1.79	
3299.00	18.440	106.560	3214.49	196.00	-190.36	615.18	1724019.03	14543743.10	40°02'46.775"N	104°42'04.582"W	1.75	
3393.00	19.140	105.480	3303.48	204.61	-198.71	644.28	1724048.14	14543734.85	40°02'46.693"N	104°42'04.208"W	0.83	
3488.00	16.390	103.850	3393.94	212.24	-206.07	672.31	1724076.19	14543727.57	40°02'46.620"N	104°42'03.847"W	2.94	
3584.00	17.420	107.800	3485.80	220.12	-213.71	699.14	1724103.04	14543720.03	40°02'46.544"N	104°42'03.502"W	1.61	
3678.00	17.890	104.650	3575.37	228.32	-221.66	726.51	1724130.42	14543712.17	40°02'46.466"N	104°42'03.150"W	1.13	
3773.00	18.070	101.990	3665.73	235.34	-228.41	755.04	1724158.96	14543705.52	40°02'46.399"N	104°42'02.783"W	0.88	
3868.00	18.460	104.460	3755.95	242.42	-235.23	784.02	1724187.95	14543698.80	40°02'46.332"N	104°42'02.411"W	0.91	
3963.00	18.630	104.440	3846.01	250.23	-242.77	813.28	1724217.22	14543691.36	40°02'46.257"N	104°42'02.035"W	0.18	
4055.00	18.130	101.940	3933.32	257.11	-249.40	841.51	1724245.46	14543684.83	40°02'46.192"N	104°42'01.672"W	1.01	
4149.00	14.530	101.380	4023.51	262.70	-254.75	867.39	1724271.35	14543679.57	40°02'46.139"N	104°42'01.339"W	3.83	
4241.00	15.050	100.420	4112.47	267.35	-259.19	890.45	1724294.42	14543675.21	40°02'46.095"N	104°42'01.042"W	0.62	
4333.00	17.460	100.590	4200.78	272.28	-263.89	915.77	1724319.74	14543670.60	40°02'46.048"N	104°42'00.717"W	2.62	
4362.00†	17.640	101.965	4228.43	274.07	-265.60	924.34	1724328.32	14543668.92	40°02'46.032"N	104°42'00.607"W	1.56	ENTER LANDBOX (712'FSL & 867'FEL, SEC.18) 40.0461199 -104.7001685
4426.00	18.070	104.900	4289.35	278.81	-270.16	943.42	1724347.40	14543664.42	40°02'45.986"N	104°42'00.361"W	1.56	
4518.00	15.850	103.100	4377.34	285.56	-276.68	969.45	1724373.44	14543657.99	40°02'45.922"N	104°42'00.027"W	2.48	
4611.00	12.560	99.390	4467.49	290.30	-281.21	991.80	1724395.80	14543653.54	40°02'45.877"N	104°41'59.739"W	3.67	
4704.00	12.760	105.510	4558.23	294.88	-285.60	1011.68	1724415.68	14543649.21	40°02'45.834"N	104°41'59.484"W	1.46	
4797.00	10.660	100.890	4649.30	299.42	-289.97	1030.02	1724434.04	14543644.90	40°02'45.791"N	104°41'59.248"W	2.47	
4889.00	9.150	97.560	4739.92	302.13	-292.54	1045.63	1724449.65	14543642.38	40°02'45.765"N	104°41'59.047"W	1.75	
4981.00	6.330	96.110	4831.07	303.75	-294.05	1057.93	1724461.94	14543640.92	40°02'45.750"N	104°41'58.889"W	3.07	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWP
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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
5074.00	3.670	99.780	4923.71	304.87	-295.10	1065.96	1724469.98	14543639.90	40°02'45.740"N	104°41'58.786"W	2.88	
5166.00	1.480	88.360	5015.61	305.38	-295.56	1070.05	1724474.07	14543639.44	40°02'45.735"N	104°41'58.733"W	2.43	
5258.00	1.950	17.190	5107.58	303.86	-294.04	1071.70	1724475.71	14543640.98	40°02'45.750"N	104°41'58.712"W	2.21	
5350.00	3.100	337.670	5199.50	300.06	-290.24	1071.22	1724475.21	14543644.77	40°02'45.788"N	104°41'58.718"W	2.20	
5442.00	0.900	226.750	5291.45	298.24	-288.43	1069.75	1724473.74	14543646.57	40°02'45.806"N	104°41'58.737"W	3.83	
5535.00	0.570	195.450	5384.45	299.18	-289.38	1069.09	1724473.09	14543645.63	40°02'45.796"N	104°41'58.745"W	0.55	
5628.00	0.250	79.770	5477.45	299.59	-289.79	1069.17	1724473.16	14543645.22	40°02'45.792"N	104°41'58.744"W	0.77	
5720.00	1.260	22.310	5569.44	298.62	-288.82	1069.75	1724473.74	14543646.19	40°02'45.802"N	104°41'58.737"W	1.24	
5814.00	1.510	21.590	5663.41	296.53	-286.71	1070.60	1724474.58	14543648.30	40°02'45.823"N	104°41'58.726"W	0.27	
5907.00	0.960	15.440	5756.39	294.64	-284.82	1071.26	1724475.23	14543650.19	40°02'45.842"N	104°41'58.717"W	0.61	
6000.00	1.370	20.730	5849.37	292.86	-283.03	1071.86	1724475.83	14543651.98	40°02'45.859"N	104°41'58.710"W	0.46	
6094.00	0.520	57.040	5943.35	291.58	-281.74	1072.61	1724476.58	14543653.27	40°02'45.872"N	104°41'58.700"W	1.06	
6188.00	2.220	319.920	6037.33	289.95	-280.12	1071.80	1724475.76	14543654.89	40°02'45.888"N	104°41'58.711"W	2.49	
6280.00	3.270	291.050	6129.23	287.61	-277.81	1068.20	1724472.16	14543657.18	40°02'45.911"N	104°41'58.757"W	1.85	
6372.00	1.760	297.300	6221.14	285.98	-276.22	1064.50	1724468.45	14543658.76	40°02'45.926"N	104°41'58.804"W	1.67	
6466.00	2.120	252.630	6315.09	285.81	-276.08	1061.55	1724465.51	14543658.89	40°02'45.928"N	104°41'58.842"W	1.61	
6559.00	1.500	263.430	6408.04	286.44	-276.73	1058.70	1724462.66	14543658.23	40°02'45.921"N	104°41'58.879"W	0.76	
6590.00†	3.076	215.570	6439.02	287.16	-277.46	1057.82	1724461.78	14543657.51	40°02'45.914"N	104°41'58.890"W	7.58	KOP
6652.00	7.550	198.400	6500.74	292.36	-282.68	1055.56	1724459.54	14543652.28	40°02'45.863"N	104°41'58.919"W	7.58	
6745.00	12.440	187.140	6592.31	308.07	-298.42	1052.39	1724456.42	14543636.53	40°02'45.707"N	104°41'58.960"W	5.64	
6837.00	15.880	184.930	6681.50	330.43	-320.80	1050.07	1724454.18	14543614.15	40°02'45.486"N	104°41'58.990"W	3.78	
6930.00	17.530	196.220	6770.60	356.52	-346.94	1045.06	1724449.26	14543588.01	40°02'45.228"N	104°41'59.054"W	3.91	
7025.00	25.690	197.920	6858.84	389.81	-380.32	1034.71	1724439.03	14543554.60	40°02'44.898"N	104°41'59.187"W	8.61	
7118.00	36.790	190.320	6938.27	436.44	-427.07	1023.48	1724427.96	14543507.84	40°02'44.436"N	104°41'59.332"W	12.64	
7210.00	45.630	182.310	7007.46	496.50	-487.19	1017.21	1724421.88	14543447.72	40°02'43.842"N	104°41'59.413"W	11.17	
7303.00	56.770	178.460	7065.65	568.84	-559.53	1016.91	1724421.83	14543375.41	40°02'43.127"N	104°41'59.416"W	12.40	
7395.00	63.880	177.120	7111.17	648.68	-639.35	1020.02	1724425.20	14543295.63	40°02'42.338"N	104°41'59.376"W	7.83	
7489.00	75.010	178.080	7144.13	736.51	-727.15	1023.68	1724429.15	14543207.88	40°02'41.470"N	104°41'59.329"W	11.88	
7581.00	85.780	179.070	7159.45	827.08	-817.69	1025.92	1724431.69	14543117.38	40°02'40.576"N	104°41'59.301"W	11.75	
7600.00†	86.300	179.087	7160.77	846.03	-836.65	1026.22	1724432.06	14543098.43	40°02'40.388"N	104°41'59.297"W	2.74	LANDING (141°FNL & 765°FEL, SEC.19) 40.0445523 -104.6998047

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWP
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 stations) † = interpolated/extrapolated station												Comments
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]	
7673.00	88.300	179.150	7164.20	918.94	-909.55	1027.34	1724433.42	14543025.56	40°02'39.668"N	104°41'59.282"W	2.74	
7765.00	90.310	178.050	7165.32	1010.92	-1001.51	1029.59	1724435.97	14542933.65	40°02'38.759"N	104°41'59.254"W	2.49	
7857.00	90.950	177.260	7164.31	1102.87	-1093.43	1033.36	1724440.04	14542841.78	40°02'37.851"N	104°41'59.205"W	1.11	
7951.00	91.760	176.930	7162.09	1196.76	-1187.28	1038.12	1724445.11	14542747.98	40°02'36.923"N	104°41'59.144"W	0.93	
8045.00	90.770	177.500	7160.01	1290.66	-1281.14	1042.68	1724449.99	14542654.17	40°02'35.996"N	104°41'59.085"W	1.22	
8137.00	89.970	178.410	7159.42	1382.63	-1373.08	1045.97	1724453.58	14542562.28	40°02'35.087"N	104°41'59.043"W	1.32	
8193.00†	89.593	178.660	7159.63	1438.62	-1429.06	1047.40	1724455.20	14542506.32	40°02'34.534"N	104°41'59.025"W	0.81	CROSS SETBACK HEEL (451'FNL & 744'FEL, SEC.19) 40.0429261 -104.6997291
8229.00	89.350	178.820	7159.96	1474.61	-1465.05	1048.19	1724456.11	14542470.35	40°02'34.178"N	104°41'59.015"W	0.81	
8322.00	89.510	178.510	7160.89	1567.60	-1558.02	1050.36	1724458.58	14542377.43	40°02'33.259"N	104°41'58.987"W	0.38	
8414.00	90.000	178.770	7161.28	1659.59	-1650.00	1052.54	1724461.07	14542285.50	40°02'32.351"N	104°41'58.959"W	0.60	
8507.00	88.980	179.160	7162.11	1752.58	-1742.98	1054.22	1724463.06	14542192.56	40°02'31.432"N	104°41'58.937"W	1.17	
8599.00	89.260	178.640	7163.52	1844.56	-1834.95	1055.99	1724465.13	14542100.63	40°02'30.523"N	104°41'58.915"W	0.64	
8691.00	87.160	178.940	7166.40	1936.51	-1926.88	1057.93	1724467.38	14542008.74	40°02'29.614"N	104°41'58.890"W	2.31	
8784.00	87.100	178.940	7171.05	2029.39	-2019.74	1059.65	1724469.41	14541915.92	40°02'28.697"N	104°41'58.868"W	0.06	
8876.00	87.970	179.460	7175.01	2121.30	-2111.65	1060.93	1724470.99	14541824.06	40°02'27.788"N	104°41'58.851"W	1.10	
8968.00	87.480	178.590	7178.66	2213.22	-2203.56	1062.49	1724472.86	14541732.18	40°02'26.880"N	104°41'58.831"W	1.08	
9061.00	88.460	178.000	7181.96	2306.14	-2296.46	1065.26	1724475.94	14541639.33	40°02'25.962"N	104°41'58.796"W	1.23	
9154.00	88.430	180.110	7184.48	2399.10	-2389.41	1066.79	1724477.78	14541546.43	40°02'25.043"N	104°41'58.776"W	2.27	
9247.00	88.060	179.730	7187.33	2492.05	-2482.36	1066.92	1724478.22	14541453.51	40°02'24.125"N	104°41'58.774"W	0.57	
9341.00	89.540	180.260	7189.30	2586.03	-2576.34	1066.93	1724478.54	14541359.57	40°02'23.196"N	104°41'58.774"W	1.67	
9433.00	89.410	179.430	7190.14	2678.02	-2668.34	1067.18	1724479.09	14541267.61	40°02'22.287"N	104°41'58.771"W	0.91	
9526.00	89.780	179.130	7190.80	2771.02	-2761.33	1068.35	1724480.57	14541174.66	40°02'21.368"N	104°41'58.756"W	0.51	
9621.00	89.910	178.990	7191.05	2866.01	-2856.31	1069.91	1724482.45	14541079.72	40°02'20.429"N	104°41'58.736"W	0.20	
9714.00	90.150	178.920	7191.01	2959.01	-2949.30	1071.60	1724484.45	14540986.78	40°02'19.510"N	104°41'58.714"W	0.27	
9807.00	89.350	178.520	7191.41	3052.00	-3042.27	1073.68	1724486.84	14540893.85	40°02'18.592"N	104°41'58.688"W	0.96	
9901.00	88.340	179.010	7193.31	3145.97	-3136.23	1075.71	1724489.17	14540799.93	40°02'17.663"N	104°41'58.662"W	1.19	
9993.00	88.800	178.830	7195.60	3237.94	-3228.18	1077.44	1724491.21	14540708.02	40°02'16.754"N	104°41'58.640"W	0.54	
10086.00	88.000	180.360	7198.20	3330.90	-3321.14	1078.10	1724492.18	14540615.10	40°02'15.836"N	104°41'58.631"W	1.86	
10178.00	87.170	180.130	7202.07	3422.81	-3413.06	1077.70	1724492.09	14540523.22	40°02'14.927"N	104°41'58.636"W	0.94	
10270.00	87.320	180.730	7206.50	3514.69	-3504.95	1077.01	1724491.71	14540431.37	40°02'14.019"N	104°41'58.645"W	0.67	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWP
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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
10363.00	89.050	180.310	7209.44	3607.62	-3597.90	1076.17	1724491.18	14540338.45	40°02'13.101"N	104°41'58.656"W	1.91	
10456.00	87.940	179.190	7211.89	3700.59	-3690.86	1076.58	1724491.89	14540245.53	40°02'12.182"N	104°41'58.651"W	1.70	
10548.00	89.780	179.960	7213.72	3792.56	-3782.83	1077.26	1724492.88	14540153.59	40°02'11.273"N	104°41'58.642"W	2.17	
10640.00	89.780	178.970	7214.07	3884.56	-3874.83	1078.12	1724494.04	14540061.64	40°02'10.364"N	104°41'58.631"W	1.08	
10734.00	89.350	178.420	7214.78	3978.55	-3968.80	1080.26	1724496.50	14539967.71	40°02'09.435"N	104°41'58.604"W	0.74	
10826.00	89.290	179.440	7215.87	4070.54	-4060.78	1081.98	1724498.52	14539875.78	40°02'08.527"N	104°41'58.582"W	1.11	
10918.00	88.000	178.770	7218.05	4162.51	-4152.74	1083.41	1724500.26	14539783.86	40°02'07.618"N	104°41'58.563"W	1.58	
11012.00	90.890	179.690	7218.96	4256.49	-4246.71	1084.68	1724501.84	14539689.92	40°02'06.689"N	104°41'58.547"W	3.23	
11104.00	91.200	178.810	7217.28	4348.48	-4338.69	1085.88	1724503.35	14539597.99	40°02'05.780"N	104°41'58.532"W	1.01	
11198.00	89.630	180.000	7216.60	4442.47	-4432.68	1086.86	1724504.63	14539504.04	40°02'04.851"N	104°41'58.519"W	2.10	
11291.00	87.970	180.130	7218.55	4535.44	-4525.65	1086.75	1724504.84	14539411.10	40°02'03.933"N	104°41'58.521"W	1.79	
11384.00	85.500	179.830	7223.85	4628.28	-4618.50	1086.78	1724505.18	14539318.30	40°02'03.015"N	104°41'58.520"W	2.68	
11478.00	87.010	181.020	7229.99	4722.06	-4712.29	1086.09	1724504.80	14539224.54	40°02'02.088"N	104°41'58.529"W	2.04	
11571.00	87.690	181.970	7234.28	4814.90	-4805.15	1083.66	1724502.68	14539131.70	40°02'01.170"N	104°41'58.560"W	1.26	
11663.00	89.690	183.370	7236.39	4906.73	-4897.02	1079.38	1724498.70	14539039.86	40°02'00.263"N	104°41'58.616"W	2.65	
11755.00	89.910	183.020	7236.71	4998.53	-4988.88	1074.25	1724493.88	14538948.02	40°01'59.355"N	104°41'58.682"W	0.45	
11850.00	90.400	182.980	7236.45	5093.35	-5083.75	1069.28	1724489.23	14538853.17	40°01'58.417"N	104°41'58.746"W	0.52	
11943.00	90.830	182.370	7235.45	5186.20	-5176.64	1064.94	1724485.20	14538760.30	40°01'57.499"N	104°41'58.801"W	0.80	
12035.00	89.230	181.010	7235.41	5278.13	-5268.60	1062.22	1724482.80	14538668.37	40°01'56.591"N	104°41'58.836"W	2.28	
12127.00	88.150	180.750	7237.51	5370.07	-5360.56	1060.81	1724481.69	14538576.44	40°01'55.682"N	104°41'58.855"W	1.21	
12220.00	88.240	180.910	7240.44	5463.00	-5453.50	1059.47	1724480.65	14538483.53	40°01'54.763"N	104°41'58.872"W	0.20	
12313.00	87.470	181.300	7243.92	5555.90	-5546.42	1057.67	1724479.17	14538390.65	40°01'53.845"N	104°41'58.895"W	0.93	
12407.00	86.240	179.630	7249.08	5649.74	-5640.27	1056.91	1724478.72	14538296.83	40°01'52.918"N	104°41'58.905"W	2.20	
12500.00	91.760	179.710	7250.70	5742.69	-5733.22	1057.45	1724479.57	14538203.92	40°01'51.999"N	104°41'58.898"W	5.94	
12577.00†	90.622	178.420	7249.10	5819.66	-5810.19	1058.70	1724481.08	14538126.99	40°01'51.238"N	104°41'58.882"W	2.23	CROSS SETBACK TOE (460'FSL & 689'FEL, SEC.19) 40.0308996 -104.6996894
12617.00	90.030	177.750	7248.87	5859.65	-5850.17	1060.04	1724482.55	14538087.03	40°01'50.843"N	104°41'58.865"W	2.23	
12710.00	91.110	177.370	7247.95	5952.59	-5943.08	1064.00	1724486.81	14537994.17	40°01'49.925"N	104°41'58.814"W	1.23	
12803.00	89.380	178.080	7247.55	6045.55	-6036.00	1067.69	1724490.81	14537901.30	40°01'49.007"N	104°41'58.766"W	2.01	
12895.00	89.910	177.590	7248.12	6137.51	-6127.93	1071.16	1724494.59	14537809.41	40°01'48.098"N	104°41'58.722"W	0.78	
12939.00	90.650	177.280	7247.90	6181.48	-6171.88	1073.13	1724496.71	14537765.48	40°01'47.664"N	104°41'58.697"W	1.82	LAST BHGE MWD+IFR1+SC SURVEY

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWB
Facility	SEC.18-T1N-R65W		

WELLPATH DATA (181 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
12986.00	90.650	177.280	7247.37	6228.44	-6218.83	1075.36	1724499.09	14537718.57	40°01'47.200"N	104°41'58.668"W	0.00	PTB (51'FSL & 672'FEL, SEC.19) 40.0297778 -104.6996300

HOLE & CASING SECTIONS - Ref Wellbore: PETTINGER 18-4HZ AWB Ref Wellpath: PETTINGER 18-4HZ AWP									
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]
9.625in Casing Surface	21.00	1835.00	1814.00	21.00	1814.27	0.00	0.00	-64.23	209.43

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWB
Facility	SEC.18-T1N-R65W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.18-T1N-R65W	0.00	0.36	-45.08	1723358.40	14543931.54	40°02'48.660"N	104°42'13.072"W	polygon
SEC.19-T1N-R65W	0.00	0.36	-45.08	1723358.40	14543931.54	40°02'48.660"N	104°42'13.072"W	polygon
PETTINGER 18-4HZ HEEL REV-1 (50'FNL & 751'FEL, SEC.19)	7155.00	-1018.92	1037.65	1724444.09	14542916.27	40°02'38.587"N	104°41'59.150"W	point
PETTINGER 18-4HZ HEEL REV-2 (50'FNL & 726'FEL, SEC.19)	7155.00	-1018.92	1062.65	1724469.08	14542916.35	40°02'38.587"N	104°41'58.829"W	point
PETTINGER 18-4HZ INT TARGET @ 4500' VS	7217.00	-4490.41	1069.36	1724487.34	14539446.27	40°02'04.281"N	104°41'58.744"W	point
PETTINGER 18-4HZ LANDBOX	7249.00	0.00	0.00	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W	polygon
PETTINGER 18-4HZ SETBACK 1	7249.00	0.00	0.00	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W	polygon
PETTINGER 18-4HZ SETBACK 2	7249.00	0.00	0.00	1723403.46	14543931.33	40°02'48.656"N	104°42'12.492"W	polygon
PETTINGER 18-4HZ BHL REV-1 (49'FSL & 662'FEL, SEC.19)	7259.00	-6220.97	1085.16	1724508.89	14537716.46	40°01'47.179"N	104°41'58.542"W	point

WELLPATH COMPOSITION - Ref Wellbore: PETTINGER 18-4HZ AWB					Ref Wellpath: PETTINGER 18-4HZ AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
21.00	1797.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)		Custom APC ISCWSA Rev-2 MWD+IFR1 <129 - 1797>		PETTINGER 18-4HZ AWB
1797.00	12939.00	Custom APC ISCWSA REV 2 MWD+IFR1+SC (approximation)		BHGE Custom APC ISCWSA Rev-2 MWD+IFR1+SC <1913 - 12939>		PETTINGER 18-4HZ AWB
12939.00	12986.00	Blind Drilling (std)		Projection to bit		PETTINGER 18-4HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#16 PETTINGER 18-4HZ (978'FSL & 1791'FEL, SEC.18)
Area	COLORADO	Well	PETTINGER 18-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PETTINGER 18-4HZ AWB
Facility	SEC.18-T1N-R65W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
129.00	0.660	261.510	129.00	FIRST SURFACE MWD+IFR1 SURVEY
1797.00	12.610	104.450	1777.20	LAST SURFACE MWD+IFR1 SURVEY
1913.00	12.780	102.190	1890.36	FIRST BHGE MWD+IFR1+SC SURVEY
4362.00	17.640	101.965	4228.43	ENTER LANDBOX (712'FSL & 867'FEL, SEC.18) 40.0461199 -104.7001685
6590.00	3.076	215.570	6439.02	KOP
7600.00	86.300	179.087	7160.77	LANDING (141'FNL & 765'FEL, SEC.19) 40.0445523 -104.6998047
8193.00	89.593	178.660	7159.63	CROSS SETBACK HEEL (451'FNL & 744'FEL, SEC.19) 40.0429261 -104.6997291
12577.00	90.622	178.420	7249.10	CROSS SETBACK TOE (460'FSL & 689'FEL, SEC.19) 40.0308996 -104.6996894
12939.00	90.650	177.280	7247.90	LAST BHGE MWD+IFR1+SC SURVEY
12986.00	90.650	177.280	7247.37	PTB (51'FSL & 672'FEL, SEC.19) 40.0297778 -104.6996300