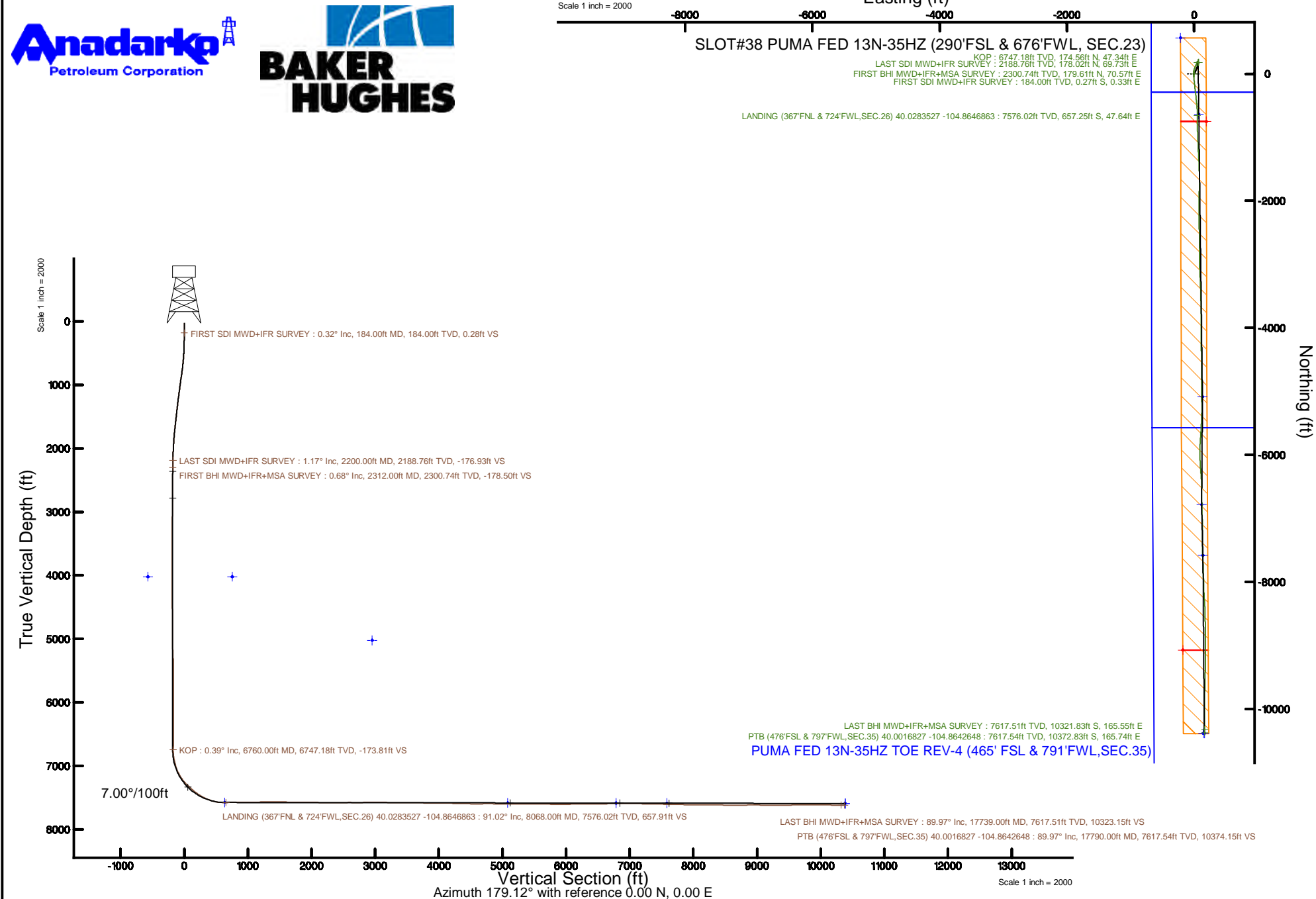


Location:	COLORADO	Slot:	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Field:	WELD COUNTY (UTM/TRUE NORTH)	Well:	PUMA FED 13N-35HZ
Facility:	SEC.23-T1N-R67W	Wellbore:	PUMA FED 13N-35HZ PWB

Plot reference wellpath is PUMA FWD 13N-35HZ REV.C.1 PWP	Grid System: NAD83 / UTM Zone 13 North, US feet
True vertical depths are referenced to NABORS X22 (RKB 322) (RKB)	* = Wellpath was transformed from a different geocentric datum
Measured depths are referenced to NABORS X22 (RKB 322) (RKB)	North Reference: True north
NABORS X22 (RKB 322) (RKB) to Mean Sea Level: 5023 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#38 PUMA FWD 13N-35HZ (290°FSL & 676°FWL, SEC.23): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr on 2017-04-12
	Database: WA DEN Anadarko Defn



Actual Wellpath Report

PUMA FED 13N-35HZ AWP

Page 1 of 8

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-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	4/12/2017 at 2:49 PM
Convergence at slot	0.09° East	Database/Source file	WA_DEN_Anadarko_Defn/PUMA_FED_13N-35HZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1.90	-3868.30	1678247.12	14537743.56	40°01'48.565"N	104°51'53.483"W
Facility Reference Pt			1682113.86	14537751.93	40°01'48.587"N	104°51'03.755"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	NABORS X22 (RKB 32') (RKB) to Facility Vertical Datum	5023.00ft
Horizontal Reference Pt	Slot	NABORS X22 (RKB 32') (RKB) to Mean Sea Level	5023.00ft
Vertical Reference Pt	NABORS X22 (RKB 32') (RKB)	NABORS X22 (RKB 32') (RKB) to Mud Line at Slot (SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23))	5023.00ft
MD Reference Pt	NABORS X22 (RKB 32') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.12°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (191 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)	
0.00†	0.000	129.800	0.00	0.00	0.00	0.00	1678247.11	14537743.56	40°01'48.565"N	104°51'53.483"W	0.00	
32.00	0.000	129.800	32.00	0.00	0.00	0.00	1678247.11	14537743.56	40°01'48.565"N	104°51'53.483"W	0.00	
184.00	0.320	129.800	184.00	0.28	-0.27	0.33	1678247.44	14537743.29	40°01'48.562"N	104°51'53.479"W	0.21	FIRST SDI MWD+IFR SURVEY
240.00	0.650	48.570	240.00	0.17	-0.16	0.68	1678247.80	14537743.40	40°01'48.563"N	104°51'53.474"W	1.21	
461.00	2.780	35.130	460.89	-4.98	5.05	4.71	1678251.81	14537748.62	40°01'48.615"N	104°51'53.422"W	0.97	
506.00	3.500	28.020	505.82	-7.06	7.16	5.98	1678253.08	14537750.72	40°01'48.636"N	104°51'53.406"W	1.82	
593.00	5.010	20.990	592.58	-12.91	13.05	8.59	1678255.68	14537756.62	40°01'48.694"N	104°51'53.373"W	1.83	
679.00	6.610	22.840	678.13	-20.93	21.12	11.86	1678258.93	14537764.69	40°01'48.774"N	104°51'53.331"W	1.87	
810.00	8.790	23.940	807.94	-36.92	37.22	18.85	1678265.90	14537780.79	40°01'48.933"N	104°51'53.241"W	1.67	
897.00	8.600	19.570	893.94	-49.05	49.42	23.72	1678270.75	14537793.00	40°01'49.053"N	104°51'53.178"W	0.79	
986.00	8.420	18.070	981.96	-61.45	61.88	27.97	1678274.98	14537805.46	40°01'49.177"N	104°51'53.123"W	0.32	
1072.00	8.590	23.870	1067.02	-73.24	73.74	32.52	1678279.51	14537817.33	40°01'49.294"N	104°51'53.065"W	1.02	
1161.00	7.890	24.580	1155.10	-84.79	85.38	37.76	1678284.73	14537828.96	40°01'49.409"N	104°51'52.998"W	0.79	
1250.00	7.960	21.920	1243.25	-95.98	96.65	42.60	1678289.55	14537840.24	40°01'49.520"N	104°51'52.935"W	0.42	
1337.00	6.420	18.490	1329.57	-106.13	106.85	46.39	1678293.32	14537850.44	40°01'49.621"N	104°51'52.887"W	1.84	
1421.00	7.090	16.790	1412.98	-115.50	116.27	49.38	1678296.29	14537859.86	40°01'49.714"N	104°51'52.848"W	0.83	
1510.00	7.140	15.550	1501.30	-126.03	126.86	52.44	1678299.35	14537870.45	40°01'49.819"N	104°51'52.809"W	0.18	
1598.00	6.890	22.990	1588.64	-136.11	136.98	55.97	1678302.86	14537880.57	40°01'49.919"N	104°51'52.763"W	1.07	
1685.00	6.610	21.020	1675.04	-145.53	146.46	59.81	1678306.67	14537890.05	40°01'50.012"N	104°51'52.714"W	0.42	
1774.00	5.640	20.740	1763.53	-154.34	155.33	63.19	1678310.05	14537898.93	40°01'50.100"N	104°51'52.671"W	1.09	
1860.00	4.560	17.480	1849.19	-161.52	162.55	65.72	1678312.56	14537906.14	40°01'50.171"N	104°51'52.638"W	1.30	
1947.00	3.320	15.870	1935.98	-167.21	168.27	67.44	1678314.28	14537911.86	40°01'50.228"N	104°51'52.616"W	1.43	
2036.00	2.950	9.580	2024.85	-171.93	173.01	68.53	1678315.35	14537916.60	40°01'50.275"N	104°51'52.602"W	0.57	
2124.00	1.490	14.450	2112.78	-175.26	176.35	69.19	1678316.01	14537919.94	40°01'50.308"N	104°51'52.594"W	1.67	
2200.00	1.170	22.140	2188.76	-176.93	178.02	69.73	1678316.55	14537921.62	40°01'50.324"N	104°51'52.587"W	0.48	LAST SDI MWD+IFR SURVEY
2312.00	0.680	37.310	2300.74	-178.50	179.61	70.57	1678317.38	14537923.21	40°01'50.340"N	104°51'52.576"W	0.49	Begin Run 1; FIRST BHI MWD+IFR+MSA SURVEY
2406.00	2.360	317.040	2394.71	-180.38	181.47	69.58	1678316.40	14537925.06	40°01'50.358"N	104°51'52.588"W	2.49	
2500.00	1.520	282.330	2488.66	-182.10	183.15	67.05	1678313.86	14537926.74	40°01'50.375"N	104°51'52.621"W	1.50	
2593.00	1.510	274.050	2581.63	-182.49	183.50	64.62	1678311.43	14537927.09	40°01'50.378"N	104°51'52.652"W	0.24	
2687.00	1.740	263.970	2675.59	-182.47	183.44	61.97	1678308.78	14537927.02	40°01'50.378"N	104°51'52.686"W	0.39	
2781.00	0.230	82.120	2769.58	-182.36	183.32	60.73	1678307.54	14537926.90	40°01'50.377"N	104°51'52.702"W	2.10	
2875.00	0.770	7.460	2863.57	-183.01	183.97	61.00	1678307.81	14537927.55	40°01'50.383"N	104°51'52.699"W	0.79	
2968.00	1.210	342.000	2956.56	-184.57	185.52	60.78	1678307.59	14537929.10	40°01'50.398"N	104°51'52.702"W	0.66	
3063.00	1.390	339.120	3051.54	-186.61	187.55	60.06	1678306.86	14537931.13	40°01'50.418"N	104°51'52.711"W	0.20	
3157.00	3.940	277.360	3145.44	-188.14	189.03	56.45	1678303.25	14537932.60	40°01'50.433"N	104°51'52.757"W	3.73	
3250.00	2.160	277.570	3238.30	-188.86	189.67	51.54	1678298.35	14537933.24	40°01'50.439"N	104°51'52.820"W	1.91	
3345.00	0.940	24.600	3333.28	-189.82	190.62	50.09	1678296.90	14537934.18	40°01'50.449"N	104°51'52.839"W	2.73	
3438.00	1.410	346.650	3426.26	-191.63	192.42	50.14	1678296.95	14537935.98	40°01'50.467"N	104°51'52.838"W	0.95	
3533.00	0.350	169.550	3521.25	-192.49	193.28	49.93	1678296.73	14537936.84	40°01'50.475"N	104°51'52.841"W	1.85	
3626.00	2.360	101.850	3614.23	-191.78	192.60	51.85	1678298.65	14537936.17	40°01'50.468"N	104°51'52.816"W	2.42	
3720.00	1.520	89.640	3708.17	-191.35	192.21	54.99	1678301.79	14537935.78	40°01'50.465"N	104°51'52.776"W	0.99	
3813.00	1.380	75.680	3801.14	-191.59	192.50	57.31	1678304.11	14537936.07	40°01'50.467"N	104°51'52.746"W	0.41	
3907.00	2.350	110.660	3895.09	-191.15	192.10	60.21	1678307.01	14537935.67	40°01'50.463"N	104°51'52.709"W	1.55	
4002.00	0.840	161.650	3990.06	-189.77	190.75	62.25	1678309.05	14537934.33	40°01'50.450"N	104°51'52.683"W	2.04	
4096.00	0.370	100.000	4084.05	-189.06	190.04	62.77	1678309.57	14537933.62	40°01'50.443"N	104°51'52.676"W	0.79	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (191 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
4190.00	0.200	352.100	4178.05	-189.16	190.15	63.05	1678309.85	14537933.73	40°01'50.444"N	104°51'52.673"W	0.50	
4284.00	0.910	293.900	4272.05	-189.64	190.62	62.34	1678309.14	14537934.20	40°01'50.449"N	104°51'52.682"W	0.87	
4378.00	1.010	267.830	4366.04	-189.93	190.89	60.83	1678307.63	14537934.47	40°01'50.451"N	104°51'52.701"W	0.47	
4472.00	1.890	209.200	4460.01	-188.57	189.50	59.25	1678306.05	14537933.08	40°01'50.438"N	104°51'52.721"W	1.72	
4566.00	1.680	243.790	4553.97	-186.64	187.54	57.25	1678304.06	14537931.12	40°01'50.418"N	104°51'52.747"W	1.15	
4661.00	1.630	259.710	4648.93	-185.82	186.69	54.68	1678301.49	14537930.26	40°01'50.410"N	104°51'52.780"W	0.49	
4755.00	1.580	261.330	4742.89	-185.43	186.25	52.08	1678298.89	14537929.82	40°01'50.406"N	104°51'52.814"W	0.07	
4849.00	1.970	262.730	4836.84	-185.07	185.85	49.20	1678296.01	14537929.41	40°01'50.402"N	104°51'52.851"W	0.42	
4942.00	2.130	268.060	4929.78	-184.86	185.59	45.88	1678292.70	14537929.15	40°01'50.399"N	104°51'52.893"W	0.27	
5060.00	2.380	264.040	5047.69	-184.61	185.26	41.25	1678288.07	14537928.81	40°01'50.396"N	104°51'52.953"W	0.25	
5155.00	3.510	204.110	5142.59	-181.80	182.40	38.10	1678284.93	14537925.95	40°01'50.368"N	104°51'52.993"W	3.26	
5248.00	4.010	137.320	5235.43	-176.79	177.41	39.15	1678285.98	14537920.96	40°01'50.318"N	104°51'52.980"W	4.47	
5343.00	1.750	140.020	5330.30	-173.19	173.86	42.33	1678289.16	14537917.41	40°01'50.283"N	104°51'52.939"W	2.38	
5437.00	0.980	133.630	5424.27	-171.51	172.20	43.83	1678290.67	14537915.76	40°01'50.267"N	104°51'52.919"W	0.83	
5530.00	0.720	129.070	5517.26	-170.58	171.29	44.86	1678291.70	14537914.85	40°01'50.258"N	104°51'52.906"W	0.29	
5624.00	0.720	122.260	5611.26	-169.87	170.60	45.82	1678292.66	14537914.16	40°01'50.251"N	104°51'52.894"W	0.09	
5718.00	0.780	109.060	5705.25	-169.33	170.07	46.93	1678293.76	14537913.64	40°01'50.246"N	104°51'52.880"W	0.19	
5812.00	0.710	113.940	5799.24	-168.87	169.63	48.06	1678294.90	14537913.20	40°01'50.241"N	104°51'52.865"W	0.10	
5907.00	0.810	89.710	5894.23	-168.62	169.39	49.27	1678296.11	14537912.96	40°01'50.239"N	104°51'52.850"W	0.35	
6001.00	0.570	79.310	5988.22	-168.69	169.48	50.40	1678297.23	14537913.05	40°01'50.240"N	104°51'52.835"W	0.29	
6095.00	0.340	57.000	6082.22	-168.92	169.72	51.09	1678297.93	14537913.29	40°01'50.242"N	104°51'52.826"W	0.30	
6190.00	0.310	305.980	6177.22	-169.22	170.03	51.12	1678297.95	14537913.60	40°01'50.245"N	104°51'52.826"W	0.56	
6284.00	0.440	260.420	6271.22	-169.32	170.12	50.56	1678297.39	14537913.69	40°01'50.246"N	104°51'52.833"W	0.33	
6378.00	0.450	321.340	6365.22	-169.56	170.34	49.97	1678296.81	14537913.91	40°01'50.248"N	104°51'52.841"W	0.48	
6472.00	0.870	327.930	6459.21	-170.46	171.24	49.36	1678296.19	14537914.80	40°01'50.257"N	104°51'52.848"W	0.45	
6566.00	0.960	318.090	6553.20	-171.66	172.43	48.45	1678295.29	14537915.99	40°01'50.269"N	104°51'52.860"W	0.19	
6659.00	0.570	330.310	6646.19	-172.66	173.41	47.71	1678294.54	14537916.97	40°01'50.279"N	104°51'52.870"W	0.45	
6753.00	0.840	350.910	6740.18	-173.75	174.50	47.36	1678294.20	14537918.06	40°01'50.289"N	104°51'52.874"W	0.39	
6760.00†	0.387	302.619	6747.18	-173.81	174.56	47.34	1678294.17	14537918.12	40°01'50.290"N	104°51'52.874"W	9.29	KOP
6848.00	8.080	199.930	6834.89	-168.19	168.90	44.97	1678291.81	14537912.46	40°01'50.234"N	104°51'52.905"W	9.29	
6942.00	14.010	206.900	6927.11	-151.93	152.52	37.57	1678284.44	14537896.08	40°01'50.072"N	104°51'53.000"W	6.46	
7036.00	19.580	209.800	7017.07	-128.30	128.69	24.58	1678271.49	14537872.24	40°01'49.837"N	104°51'53.167"W	5.99	
7129.00	28.310	202.550	7102.00	-94.59	94.73	8.35	1678255.31	14537838.26	40°01'49.501"N	104°51'53.376"W	9.89	
7224.00	33.580	192.820	7183.50	-48.33	48.24	-6.14	1678240.90	14537791.78	40°01'49.042"N	104°51'53.562"W	7.63	
7318.00	42.080	176.030	7257.88	8.63	-8.78	-9.75	1678237.39	14537734.77	40°01'48.478"N	104°51'53.608"W	14.14	
7411.00	46.300	174.210	7324.55	73.28	-73.35	-4.19	1678243.03	14537670.24	40°01'47.840"N	104°51'53.537"W	4.74	
7505.00	50.140	174.170	7387.17	143.10	-143.07	2.90	1678250.23	14537600.55	40°01'47.151"N	104°51'53.446"W	4.09	
7600.00	56.080	172.470	7444.17	218.65	-218.49	11.78	1678259.22	14537525.17	40°01'46.406"N	104°51'53.332"W	6.41	
7694.00	61.940	173.490	7492.55	298.73	-298.44	21.60	1678269.16	14537445.28	40°01'45.616"N	104°51'53.205"W	6.30	
7787.00	69.620	174.410	7530.67	383.14	-382.72	30.51	1678278.20	14537361.05	40°01'44.783"N	104°51'53.091"W	8.31	
7881.00	75.840	173.400	7558.57	472.48	-471.92	40.05	1678287.87	14537271.89	40°01'43.901"N	104°51'52.968"W	6.70	
7975.00	85.870	178.080	7573.50	564.99	-564.33	46.88	1678294.83	14537179.53	40°01'42.988"N	104°51'52.880"W	11.75	
8068.00	91.020	180.980	7576.02	657.91	-657.25	47.64	1678295.73	14537086.64	40°01'42.070"N	104°51'52.871"W	6.35	LANDING (367'FNL & 724'FWL, SEC.26) 40.0283527 -104.8646863
8162.00	91.450	178.900	7573.99	751.87	-751.23	47.74	1678295.97	14536992.71	40°01'41.141"N	104°51'52.869"W	2.26	
8256.00	89.630	177.710	7573.11	845.85	-845.18	50.52	1678298.90	14536898.80	40°01'40.213"N	104°51'52.834"W	2.31	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (191 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
8350.00	89.940	177.360	7573.46	939.81	-939.09	54.56	1678303.08	14536804.93	40°01'39.285"N	104°51'52.782"W	0.50	
8444.00	92.030	177.680	7571.84	1033.76	-1032.98	58.63	1678307.29	14536711.09	40°01'38.357"N	104°51'52.729"W	2.25	
8539.00	90.520	177.730	7569.73	1128.70	-1127.88	62.43	1678311.23	14536616.23	40°01'37.419"N	104°51'52.680"W	1.59	
8633.00	92.560	177.740	7567.21	1222.64	-1221.77	66.15	1678315.09	14536522.39	40°01'36.491"N	104°51'52.633"W	2.17	
8727.00	90.650	177.140	7564.57	1316.56	-1315.63	70.34	1678319.42	14536428.57	40°01'35.564"N	104°51'52.579"W	2.13	
8821.00	90.370	176.860	7563.74	1410.49	-1409.50	75.26	1678324.48	14536334.74	40°01'34.636"N	104°51'52.516"W	0.42	
8915.00	87.690	178.510	7565.33	1504.43	-1503.40	79.06	1678328.42	14536240.89	40°01'33.708"N	104°51'52.467"W	3.35	
9009.00	88.550	178.840	7568.41	1598.38	-1597.32	81.23	1678330.73	14536147.01	40°01'32.780"N	104°51'52.439"W	0.98	
9104.00	90.520	180.330	7569.18	1693.36	-1692.31	81.92	1678331.57	14536052.06	40°01'31.841"N	104°51'52.430"W	2.60	
9197.00	87.500	180.830	7570.79	1786.31	-1785.28	80.98	1678330.77	14535959.13	40°01'30.922"N	104°51'52.442"W	3.29	
9292.00	89.170	181.080	7573.55	1881.22	-1880.22	79.39	1678329.33	14535864.22	40°01'29.984"N	104°51'52.462"W	1.78	
9386.00	91.230	181.050	7573.22	1975.16	-1974.20	77.65	1678327.72	14535770.27	40°01'29.055"N	104°51'52.485"W	2.19	
9480.00	88.030	179.700	7573.83	2069.12	-2068.18	77.03	1678327.25	14535676.33	40°01'28.127"N	104°51'52.493"W	3.69	
9575.00	89.140	180.130	7576.17	2164.08	-2163.15	77.17	1678327.54	14535581.40	40°01'27.188"N	104°51'52.491"W	1.25	
9669.00	90.550	180.320	7576.43	2258.06	-2257.14	76.80	1678327.31	14535487.44	40°01'26.259"N	104°51'52.496"W	1.51	
9763.00	88.550	178.600	7577.17	2352.05	-2351.13	77.69	1678328.34	14535393.49	40°01'25.330"N	104°51'52.484"W	2.81	
9858.00	90.250	178.700	7578.16	2447.03	-2446.09	79.93	1678330.72	14535298.57	40°01'24.392"N	104°51'52.456"W	1.79	
9952.00	92.130	178.990	7576.21	2541.01	-2540.05	81.82	1678332.76	14535204.66	40°01'23.464"N	104°51'52.431"W	2.02	
10046.00	88.770	180.420	7575.47	2634.98	-2634.03	82.31	1678333.38	14535110.71	40°01'22.535"N	104°51'52.425"W	3.88	
10140.00	90.150	180.420	7576.36	2728.95	-2728.02	81.62	1678332.84	14535016.76	40°01'21.606"N	104°51'52.434"W	1.47	
10233.00	91.720	181.030	7574.84	2821.90	-2821.00	80.44	1678331.80	14534923.82	40°01'20.687"N	104°51'52.449"W	1.81	
10327.00	90.650	178.510	7572.89	2915.87	-2914.97	80.82	1678332.32	14534829.89	40°01'19.758"N	104°51'52.444"W	2.91	
10421.00	88.890	177.470	7573.27	3009.84	-3008.90	84.11	1678335.76	14534735.99	40°01'18.830"N	104°51'52.402"W	2.17	
10515.00	90.180	177.350	7574.03	3103.79	-3102.80	88.36	1678340.15	14534642.14	40°01'17.902"N	104°51'52.347"W	1.38	
10608.00	87.690	177.250	7575.76	3196.72	-3195.68	92.74	1678344.67	14534549.31	40°01'16.984"N	104°51'52.291"W	2.68	
10703.00	88.710	178.470	7578.75	3291.65	-3290.56	96.29	1678348.35	14534454.47	40°01'16.047"N	104°51'52.245"W	1.67	
10796.00	90.890	176.460	7579.07	3384.60	-3383.46	100.40	1678352.61	14534361.61	40°01'15.129"N	104°51'52.192"W	3.19	
10890.00	89.320	178.530	7578.90	3478.56	-3477.36	104.51	1678356.85	14534267.76	40°01'14.201"N	104°51'52.140"W	2.76	
10984.00	91.140	179.000	7578.52	3572.55	-3571.33	106.53	1678359.02	14534173.82	40°01'13.272"N	104°51'52.114"W	2.00	
11076.00	87.870	179.220	7579.32	3664.53	-3663.31	107.96	1678360.59	14534081.89	40°01'12.363"N	104°51'52.095"W	3.56	
11168.00	88.890	179.880	7581.92	3756.49	-3755.27	108.68	1678361.45	14533989.97	40°01'11.454"N	104°51'52.086"W	1.32	
11259.00	90.310	179.000	7582.55	3847.49	-3846.26	109.57	1678362.48	14533899.02	40°01'10.555"N	104°51'52.075"W	1.84	
11352.00	88.740	179.460	7583.32	3940.48	-3939.24	110.82	1678363.87	14533806.07	40°01'09.636"N	104°51'52.059"W	1.76	
11444.00	89.880	180.050	7584.43	4032.46	-4031.23	111.22	1678364.40	14533714.12	40°01'08.727"N	104°51'52.053"W	1.40	
11538.00	87.910	179.710	7586.24	4126.43	-4125.21	111.41	1678364.74	14533620.18	40°01'07.799"N	104°51'52.051"W	2.13	
11633.00	88.740	179.720	7589.02	4221.39	-4220.17	111.89	1678365.36	14533525.26	40°01'06.860"N	104°51'52.045"W	0.87	
11727.00	89.600	179.640	7590.38	4315.37	-4314.15	112.41	1678366.02	14533431.31	40°01'05.931"N	104°51'52.038"W	0.92	
11821.00	87.570	178.100	7592.70	4409.33	-4408.10	114.26	1678368.02	14533337.40	40°01'05.003"N	104°51'52.014"W	2.71	
11915.00	89.040	178.400	7595.48	4503.28	-4502.01	117.13	1678371.03	14533243.53	40°01'04.075"N	104°51'51.977"W	1.60	
12009.00	89.630	180.500	7596.58	4597.27	-4596.00	118.04	1678372.07	14533149.59	40°01'03.146"N	104°51'51.966"W	2.32	
12103.00	91.790	180.690	7595.41	4691.22	-4689.98	117.06	1678371.24	14533055.64	40°01'02.217"N	104°51'51.978"W	2.31	
12197.00	89.630	179.470	7594.25	4785.20	-4783.96	116.93	1678371.25	14532961.70	40°01'01.289"N	104°51'51.980"W	2.64	
12292.00	88.150	179.770	7596.09	4880.17	-4878.94	117.56	1678372.02	14532866.76	40°01'00.350"N	104°51'51.972"W	1.59	
12385.00	90.180	179.890	7597.44	4973.15	-4971.93	117.83	1678372.44	14532773.81	40°00'59.431"N	104°51'51.968"W	2.19	
12480.00	89.510	179.210	7597.70	5068.14	-5066.92	118.58	1678373.33	14532678.85	40°00'58.492"N	104°51'51.959"W	1.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (191 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
12574.00	88.920	179.280	7598.99	5162.14	-5160.90	119.82	1678374.71	14532584.91	40°00'57.563"N	104°51'51.943"W	0.63	
12668.00	90.650	179.600	7599.34	5256.13	-5254.90	120.74	1678375.77	14532490.96	40°00'56.635"N	104°51'51.931"W	1.87	
12761.00	89.080	181.650	7599.56	5349.09	-5347.88	119.72	1678374.90	14532398.01	40°00'55.716"N	104°51'51.944"W	2.78	
12855.00	90.770	182.290	7599.68	5442.97	-5441.82	116.49	1678371.81	14532304.10	40°00'54.787"N	104°51'51.986"W	1.92	
12949.00	89.140	182.690	7599.76	5536.80	-5535.73	112.41	1678367.87	14532210.23	40°00'53.859"N	104°51'52.038"W	1.79	
13043.00	90.990	183.900	7599.65	5630.55	-5629.57	107.01	1678362.61	14532116.42	40°00'52.932"N	104°51'52.108"W	2.35	
13136.00	87.750	184.080	7600.67	5723.19	-5722.32	100.54	1678356.29	14532023.69	40°00'52.015"N	104°51'52.191"W	3.49	
13230.00	87.660	183.870	7604.44	5816.78	-5816.02	94.02	1678349.92	14531930.02	40°00'51.089"N	104°51'52.275"W	0.24	
13324.00	90.120	181.260	7606.26	5910.58	-5909.90	89.82	1678345.86	14531836.17	40°00'50.162"N	104°51'52.329"W	3.81	
13418.00	92.000	178.890	7604.52	6004.54	-6003.87	89.70	1678345.88	14531742.24	40°00'49.233"N	104°51'52.330"W	3.22	
13512.00	92.470	176.590	7600.85	6098.43	-6097.72	93.40	1678349.72	14531648.43	40°00'48.306"N	104°51'52.283"W	2.50	
13606.00	92.000	176.100	7597.19	6192.25	-6191.46	99.39	1678355.85	14531554.74	40°00'47.379"N	104°51'52.206"W	0.72	
13700.00	89.200	175.690	7596.20	6286.09	-6285.20	106.12	1678362.72	14531461.05	40°00'46.453"N	104°51'52.119"W	3.01	
13795.00	89.820	175.510	7597.01	6380.90	-6379.92	113.40	1678370.15	14531366.38	40°00'45.517"N	104°51'52.026"W	0.68	
13889.00	90.370	179.590	7596.86	6474.85	-6473.81	117.42	1678374.31	14531272.53	40°00'44.589"N	104°51'51.974"W	4.38	
13983.00	90.490	179.540	7596.15	6568.84	-6567.80	118.14	1678375.16	14531178.57	40°00'43.660"N	104°51'51.965"W	0.14	
14077.00	90.980	179.590	7594.95	6662.83	-6661.79	118.85	1678376.02	14531084.62	40°00'42.731"N	104°51'51.956"W	0.52	
14171.00	91.420	178.720	7592.98	6756.81	-6755.76	120.23	1678377.55	14530990.70	40°00'41.803"N	104°51'51.938"W	1.04	
14265.00	90.710	179.010	7591.23	6850.79	-6849.73	122.10	1678379.55	14530896.77	40°00'40.874"N	104°51'51.914"W	0.82	
14360.00	88.770	177.850	7591.66	6945.78	-6944.68	124.70	1678382.29	14530801.86	40°00'39.936"N	104°51'51.880"W	2.38	
14454.00	90.250	179.220	7592.47	7039.77	-7038.64	127.10	1678384.84	14530707.94	40°00'39.007"N	104°51'51.850"W	2.15	
14548.00	88.270	180.000	7593.68	7133.75	-7132.63	127.74	1678385.62	14530613.99	40°00'38.078"N	104°51'51.841"W	2.26	
14643.00	88.370	180.180	7596.46	7228.69	-7227.59	127.59	1678385.62	14530519.07	40°00'37.140"N	104°51'51.843"W	0.22	
14736.00	89.450	180.430	7598.23	7321.66	-7320.57	127.10	1678385.26	14530426.13	40°00'36.221"N	104°51'51.850"W	1.19	
14831.00	89.540	179.380	7599.07	7416.64	-7415.56	127.25	1678385.56	14530331.17	40°00'35.282"N	104°51'51.848"W	1.11	
14925.00	87.720	177.220	7601.32	7510.60	-7509.48	130.04	1678388.49	14530237.29	40°00'34.354"N	104°51'51.812"W	3.00	
15019.00	88.860	177.170	7604.12	7604.50	-7603.33	134.64	1678393.23	14530143.49	40°00'33.427"N	104°51'51.753"W	1.21	
15114.00	89.880	177.340	7605.17	7699.44	-7698.21	139.19	1678397.92	14530048.65	40°00'32.489"N	104°51'51.694"W	1.09	
15208.00	87.940	178.310	7606.96	7793.40	-7792.12	142.76	1678401.63	14529954.78	40°00'31.561"N	104°51'51.648"W	2.31	
15302.00	88.640	178.570	7609.76	7887.35	-7886.05	145.31	1678404.33	14529860.90	40°00'30.633"N	104°51'51.616"W	0.79	
15396.00	89.720	178.700	7611.11	7981.33	-7980.01	147.55	1678406.71	14529766.98	40°00'29.704"N	104°51'51.587"W	1.16	
15491.00	90.150	178.650	7611.21	8076.33	-8074.98	149.75	1678409.05	14529672.05	40°00'28.766"N	104°51'51.559"W	0.46	
15585.00	89.880	177.190	7611.19	8170.31	-8168.92	153.16	1678412.60	14529578.16	40°00'27.837"N	104°51'51.515"W	1.58	
15679.00	90.000	176.820	7611.29	8264.24	-8262.79	158.07	1678417.65	14529484.33	40°00'26.910"N	104°51'51.452"W	0.41	
15773.00	88.860	175.070	7612.22	8358.09	-8356.54	164.72	1678424.44	14529390.62	40°00'25.983"N	104°51'51.366"W	2.22	
15868.00	88.210	177.960	7614.65	8452.95	-8451.33	170.49	1678430.35	14529295.89	40°00'25.047"N	104°51'51.292"W	3.12	
15962.00	89.010	179.580	7616.93	8546.91	-8545.27	172.51	1678432.51	14529201.98	40°00'24.118"N	104°51'51.266"W	1.92	
16056.00	90.150	179.550	7617.62	8640.91	-8639.27	173.22	1678433.37	14529108.03	40°00'23.189"N	104°51'51.257"W	1.21	
16150.00	90.920	179.060	7616.74	8734.90	-8733.25	174.36	1678434.65	14529014.08	40°00'22.260"N	104°51'51.242"W	0.97	
16244.00	90.650	180.020	7615.46	8828.89	-8827.24	175.12	1678435.55	14528920.13	40°00'21.332"N	104°51'51.233"W	1.06	
16338.00	90.650	180.290	7614.39	8922.87	-8921.23	174.86	1678435.44	14528826.17	40°00'20.403"N	104°51'51.236"W	0.29	
16432.00	88.800	179.530	7614.84	9016.85	-9015.23	175.01	1678435.73	14528732.22	40°00'19.474"N	104°51'51.234"W	2.13	
16526.00	88.460	179.990	7617.09	9110.82	-9109.20	175.40	1678436.26	14528638.28	40°00'18.545"N	104°51'51.229"W	0.61	
16619.00	88.980	178.610	7619.17	9203.79	-9202.17	176.54	1678437.54	14528545.36	40°00'17.626"N	104°51'51.214"W	1.59	
16714.00	90.090	181.210	7619.94	9298.77	-9297.16	176.69	1678437.83	14528450.41	40°00'16.688"N	104°51'51.212"W	2.98	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (191 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
16808.00	91.850	181.640	7618.35	9392.68	-9391.11	174.35	1678435.64	14528356.49	40°00'15.759"N	104°51'51.242"W	1.93	
16902.00	90.580	181.350	7616.35	9486.57	-9485.05	171.90	1678433.33	14528262.58	40°00'14.831"N	104°51'51.274"W	1.39	
16996.00	91.820	181.660	7614.38	9580.47	-9579.00	169.43	1678431.00	14528168.67	40°00'13.903"N	104°51'51.306"W	1.36	
17090.00	89.080	180.690	7613.65	9674.40	-9672.97	167.50	1678429.22	14528074.73	40°00'12.974"N	104°51'51.330"W	3.09	
17184.00	89.540	181.740	7614.78	9768.33	-9766.94	165.51	1678427.37	14527980.80	40°00'12.045"N	104°51'51.356"W	1.22	
17278.00	91.050	180.900	7614.29	9862.25	-9860.91	163.35	1678425.35	14527886.86	40°00'11.117"N	104°51'51.384"W	1.84	
17372.00	90.620	180.110	7612.92	9956.21	-9954.89	162.52	1678424.66	14527792.91	40°00'10.188"N	104°51'51.395"W	0.96	
17466.00	89.290	179.560	7613.00	10050.20	-10048.89	162.79	1678425.08	14527698.95	40°00'09.259"N	104°51'51.391"W	1.53	
17560.00	88.370	179.130	7614.92	10144.18	-10142.86	163.86	1678426.29	14527605.02	40°00'08.330"N	104°51'51.377"W	1.08	
17739.00	89.970	179.790	7617.51	10323.15	-10321.83	165.55	1678428.25	14527426.13	40°00'06.562"N	104°51'51.356"W	0.97	LAST BHI MWD+IFR+MSA SURVEY
17790.00	89.970	179.790	7617.54	10374.15	-10372.83	165.74	1678428.51	14527375.15	40°00'06.058"N	104°51'51.353"W	0.00	PTB (476'FSL & 797'FWL, SEC.35) 40.0016827 -104.8642648

TARGETS								
Name	TVD (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Shape
PUMA FED 13N-35HZ 460'SETBACK-1	4021.00	-9071.54	-176.34	1678084.60	14528675.40	40°00'18.917"N	104°51'55.749"W	polygon
PUMA FED 13N-35HZ 460'SETBACK-2	4021.00	-751.75	189.62	1678437.80	14536992.40	40°01'41.136"N	104°51'51.045"W	polygon
PUMA FED 13N-35HZ LANDBOX	4021.00	565.79	-214.24	1678032.10	14538308.80	40°01'54.156"N	104°51'56.237"W	polygon
SEC.23-T1N-R67W LINES	5023.00	2331.00	1959.89	1680202.68	14540076.60	40°02'11.600"N	104°51'28.286"W	polygon
SEC.26-T1N-R67W LINES	5023.00	-2922.49	1975.71	1680226.46	14534825.24	40°01'19.683"N	104°51'28.088"W	polygon
SEC.35-T1N-R67W LINES	5023.00	-8209.36	1992.51	1680251.27	14529540.52	40°00'27.437"N	104°51'27.877"W	polygon
PUMA FED 13N-35HZ HEEL REV-2 (345'FNL & 748'FWL, SEC.26)	7575.00	-634.98	72.89	1678320.94	14537108.95	40°01'42.290"N	104°51'52.546"W	point
PUMA FED 13N-35HZ LATERAL TARGET 1	7582.30	-5082.62	130.00	1678384.77	14532663.18	40°00'58.337"N	104°51'51.812"W	point
PUMA FED 13N-35HZ LATERAL TARGET 2	7585.09	-6782.54	118.00	1678375.35	14530963.92	40°00'41.538"N	104°51'51.966"W	point
PUMA FED 13N-35HZ LATERAL TARGET 3	7586.40	-7582.16	137.00	1678395.56	14530164.65	40°00'33.636"N	104°51'51.722"W	point
PUMA FED 13N-35HZ TOE REV-3 (465' FSL & 771'FWL, SEC.35)	7591.00	-10383.64	140.18	1678402.99	14527364.30	40°00'05.951"N	104°51'51.682"W	point
PUMA FED 13N-35HZ TOE REV-4 (465' FSL & 791'FWL, SEC.35)	7591.00	-10383.64	160.00	1678422.80	14527364.33	40°00'05.951"N	104°51'51.427"W	point

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH COMPOSITION - Ref Wellbore: PUMA FED 13N-35HZ AWB				Ref Wellpath: PUMA FED 13N-35HZ AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment	Wellbore
32.00	2200.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)		SDI MWD+IFR SURVEYS <184 - 2200>	PUMA FED 13N-35HZ AWB
2200.00	17739.00	Custom APC ISCWSA REV 2 MWD+IFR1+MSA (approximation)		BHI APC ISCWSA REV 2 MWD+IFR1+MSA <2312 - 17739>	PUMA FED 13N-35HZ AWB
17739.00	17790.00	Blind Drilling (std)		Projection to bit	PUMA FED 13N-35HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#38 PUMA FED 13N-35HZ (290'FSL & 676'FWL, SEC.23)
Area	COLORADO	Well	PUMA FED 13N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 13N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
184.00	0.320	129.800	184.00	FIRST SDI MWD+IFR SURVEY
2200.00	1.170	22.140	2188.76	LAST SDI MWD+IFR SURVEY
2312.00	0.680	37.310	2300.74	FIRST BHI MWD+IFR+MSA SURVEY
6760.00	0.387	302.619	6747.18	KOP
8068.00	91.020	180.980	7576.02	LANDING (367'FNL & 724'FWL,SEC.26) 40.0283527 -104.8646863
17739.00	89.970	179.790	7617.51	LAST BHI MWD+IFR+MSA SURVEY
17790.00	89.970	179.790	7617.54	PTB (476'FSL & 797'FWL,SEC.35) 40.0016827 -104.8642648

SURVEY LOG COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
2312.00	0.680	37.310	2300.74	Begin Run 1