

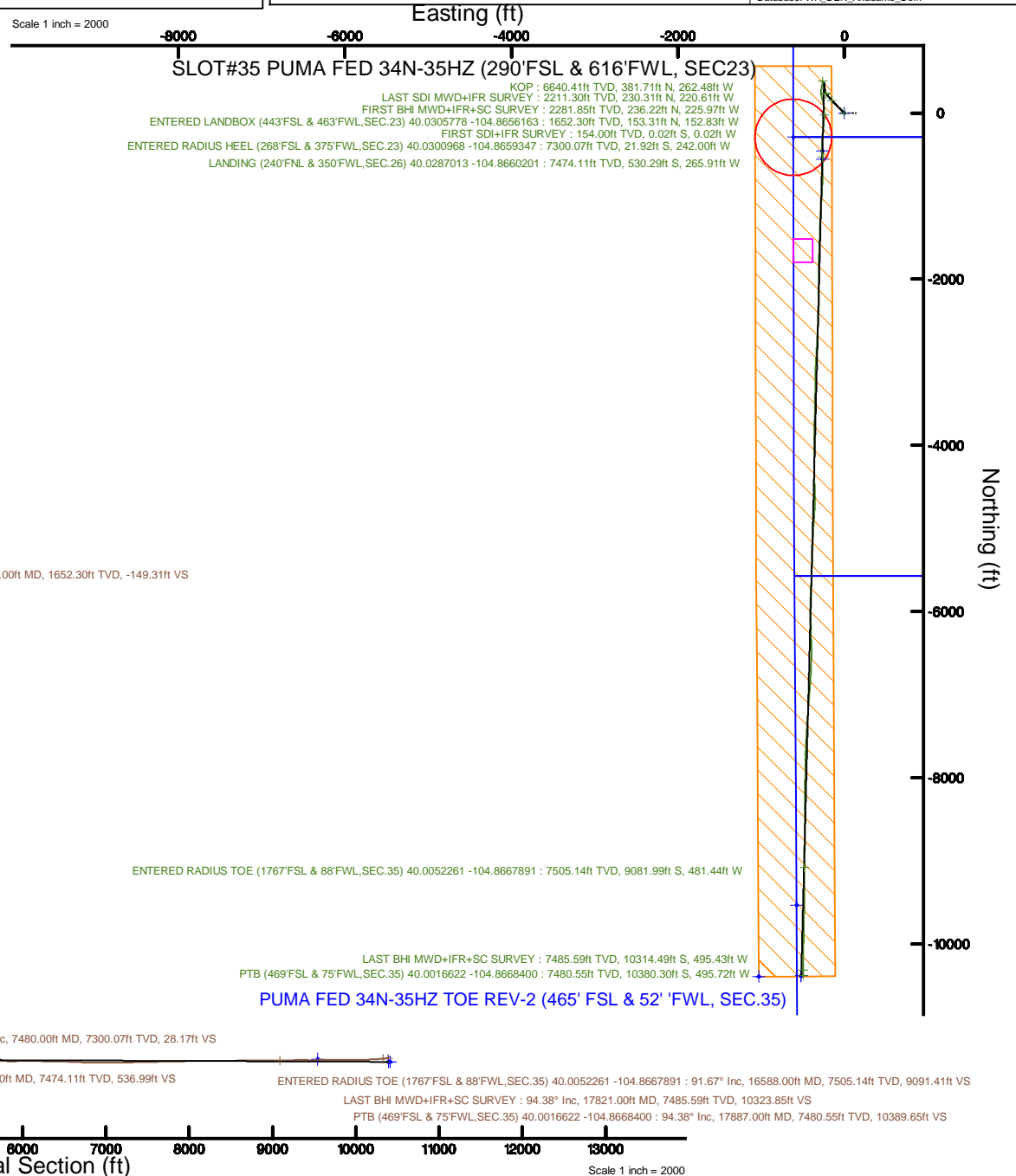
# KERR-MCGEE OIL & GAS ONSHORE LP (WA)

Location: COLORADO Slot: SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)  
Field: WELD COUNTY (UTM/TRUE NORTH) Well: PUMA FED 34N-35HZ  
Facility: SEC.23-T1N-R67W Wellbore: PUMA FED 34N-35HZ PWB

Plot reference wellpath is PUMA FED 34N-35HZ REV B.0 PWP	Grid System: NAD83 / UTM Zone 13 North, US feet
True vertical depths are referenced to NABORS X22 (RKB 32') (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to NABORS X22 (RKB 32') (RKB)	North Reference: True north
NABORS X22 (RKB 32') (RKB) to Mean Sea Level: 5023 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr on 2017-03-28
	Database: WA_DEN_Anadarko_Defn



Scale 1 inch = 2000



# Actual Wellpath Report

PUMA FED 34N-35HZ AWP

Page 1 of 8

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-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	3/28/2017 at 8:33 AM
Convergence at slot	0.09° East	Database/Source file	WA_DEN_Anadarko_Defn/PUMA_FED_34N-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	-1.89	-3928.28	1678187.16	14537743.47	40°01'48.565"N	104°51'54.254"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#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23))	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	181.48°

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWP
Facility	SEC.23-T1N-R67W		

## WELLPATH DATA (198 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.00	228.320	0.00	0.00	0.00	0.00	1678187.16	14537743.47	40°01'48.565"N	104°51'54.254"W	0.00	
32.00	0.00	228.320	32.00	0.00	0.00	0.00	1678187.16	14537743.47	40°01'48.565"N	104°51'54.254"W	0.00	
154.00	0.030	228.320	154.00	0.02	-0.02	-0.02	1678187.14	14537743.45	40°01'48.565"N	104°51'54.254"W	0.02	FIRST SDI+IFR SURVEY
239.00	0.570	257.060	239.00	0.14	-0.13	-0.45	1678186.71	14537743.34	40°01'48.564"N	104°51'54.260"W	0.64	
328.00	2.090	298.400	327.97	-0.48	0.54	-2.31	1678184.85	14537744.01	40°01'48.570"N	104°51'54.284"W	1.91	
417.00	3.110	306.910	416.88	-2.62	2.76	-5.67	1678181.49	14537746.23	40°01'48.592"N	104°51'54.327"W	1.22	
506.00	4.310	309.030	505.69	-6.05	6.32	-10.20	1678176.96	14537749.77	40°01'48.627"N	104°51'54.385"W	1.36	
592.00	4.810	313.150	591.42	-10.42	10.82	-15.34	1678171.81	14537754.26	40°01'48.672"N	104°51'54.451"W	0.69	
679.00	6.150	316.970	678.02	-16.17	16.72	-21.18	1678165.97	14537760.15	40°01'48.730"N	104°51'54.526"W	1.60	
854.00	7.290	318.670	851.82	-31.00	31.91	-34.91	1678152.22	14537775.32	40°01'48.880"N	104°51'54.703"W	0.66	
941.00	8.230	315.990	938.02	-39.42	40.54	-42.88	1678144.24	14537783.93	40°01'48.966"N	104°51'54.805"W	1.16	
1030.00	9.190	313.230	1025.99	-48.61	49.99	-52.49	1678134.62	14537793.36	40°01'49.059"N	104°51'54.929"W	1.18	
1117.00	10.640	311.480	1111.69	-58.40	60.06	-63.57	1678123.53	14537803.42	40°01'49.159"N	104°51'55.071"W	1.70	
1205.00	11.750	312.930	1198.01	-69.56	71.55	-76.21	1678110.87	14537814.88	40°01'49.272"N	104°51'55.234"W	1.30	
1336.00	13.250	317.070	1325.91	-89.11	91.63	-96.21	1678090.86	14537834.92	40°01'49.470"N	104°51'55.491"W	1.33	
1421.00	13.310	316.320	1408.64	-102.97	105.84	-109.60	1678077.45	14537849.10	40°01'49.611"N	104°51'55.663"W	0.21	
1510.00	14.970	317.260	1494.94	-118.43	121.69	-124.48	1678062.55	14537864.92	40°01'49.768"N	104°51'55.854"W	1.88	
1598.00	15.230	318.370	1579.90	-135.02	138.68	-139.87	1678047.14	14537881.88	40°01'49.935"N	104°51'56.052"W	0.44	
1673.00†	14.989	318.594	1652.30	-149.31	153.31	-152.83	1678034.17	14537896.49	40°01'50.080"N	104°51'56.219"W	0.33	ENTERED LANDBOX (443'FSL & 463'FWL, SEC.23) 40.0305778 -104.8656163
1685.00	14.950	318.630	1663.90	-151.59	155.64	-154.88	1678032.11	14537898.81	40°01'50.103"N	104°51'56.245"W	0.33	
1774.00	13.990	319.650	1750.07	-168.02	172.45	-169.43	1678017.54	14537915.60	40°01'50.269"N	104°51'56.432"W	1.12	
1905.00	10.910	319.210	1877.98	-189.00	193.91	-187.79	1677999.16	14537937.02	40°01'50.481"N	104°51'56.668"W	2.35	
1991.00	9.500	319.640	1962.62	-200.31	205.48	-197.70	1677989.23	14537948.57	40°01'50.596"N	104°51'56.795"W	1.64	
2080.00	7.970	317.800	2050.58	-210.24	215.65	-206.60	1677980.32	14537958.72	40°01'50.696"N	104°51'56.910"W	1.75	
2169.00	7.040	315.170	2138.82	-218.47	224.09	-214.59	1677972.32	14537967.14	40°01'50.779"N	104°51'57.013"W	1.11	
2242.00	6.590	316.760	2211.30	-224.54	230.31	-220.61	1677966.29	14537973.36	40°01'50.841"N	104°51'57.090"W	0.67	LAST SDI MWD+IFR SURVEY
2313.00	6.320	318.870	2281.85	-230.31	236.22	-225.97	1677960.92	14537979.26	40°01'50.899"N	104°51'57.159"W	0.51	FIRST BHI MWD+IFR+SC SURVEY
2407.00	6.090	327.620	2375.30	-238.26	244.33	-232.05	1677954.84	14537987.35	40°01'50.980"N	104°51'57.237"W	1.03	
2501.00	6.830	339.290	2468.71	-247.57	253.77	-236.70	1677950.18	14537996.78	40°01'51.073"N	104°51'57.297"W	1.60	
2594.00	5.400	350.280	2561.18	-256.99	263.26	-239.39	1677947.47	14538006.26	40°01'51.167"N	104°51'57.331"W	1.98	
2688.00	6.680	2.000	2654.66	-266.80	273.08	-239.95	1677946.90	14538016.08	40°01'51.264"N	104°51'57.339"W	1.88	
2782.00	5.800	359.610	2748.10	-277.01	283.30	-239.79	1677947.04	14538026.29	40°01'51.365"N	104°51'57.337"W	0.98	
2876.00	5.300	357.540	2841.66	-286.09	292.38	-240.01	1677946.81	14538035.37	40°01'51.454"N	104°51'57.339"W	0.57	
2970.00	7.000	349.930	2935.12	-296.03	302.36	-241.19	1677945.61	14538045.35	40°01'51.553"N	104°51'57.355"W	2.00	
3064.00	6.500	352.190	3028.47	-306.89	313.27	-242.92	1677943.87	14538056.25	40°01'51.661"N	104°51'57.377"W	0.60	
3158.00	6.360	349.910	3121.88	-317.25	323.67	-244.55	1677942.22	14538066.64	40°01'51.764"N	104°51'57.398"W	0.31	
3251.00	6.000	345.150	3214.34	-326.96	333.44	-246.70	1677940.06	14538076.40	40°01'51.860"N	104°51'57.425"W	0.67	
3346.00	5.680	343.070	3308.84	-336.18	342.74	-249.34	1677937.40	14538085.69	40°01'51.952"N	104°51'57.459"W	0.40	
3439.00	5.370	337.900	3401.41	-344.54	351.17	-252.32	1677934.41	14538094.12	40°01'52.035"N	104°51'57.498"W	0.63	
3534.00	5.740	350.860	3495.97	-353.28	359.98	-254.75	1677931.97	14538102.92	40°01'52.122"N	104°51'57.529"W	1.37	
3627.00	5.250	347.330	3588.54	-361.98	368.72	-256.42	1677930.29	14538111.66	40°01'52.209"N	104°51'57.550"W	0.64	
3721.00	4.060	24.950	3682.25	-369.20	375.94	-255.96	1677930.74	14538118.87	40°01'52.280"N	104°51'57.544"W	3.41	
3814.00	1.760	20.290	3775.12	-373.57	380.26	-254.08	1677932.61	14538123.20	40°01'52.323"N	104°51'57.520"W	2.48	
3908.00	1.500	11.300	3869.09	-376.15	382.82	-253.33	1677933.35	14538125.76	40°01'52.348"N	104°51'57.511"W	0.39	
4003.00	1.330	2.690	3964.06	-378.48	385.14	-253.04	1677933.64	14538128.08	40°01'52.371"N	104°51'57.507"W	0.29	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWP
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (198 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4097.00	0.760	343.150	4058.04	-380.16	386.83	253.17	1677933.51	14538129.76	40°01'52.388"N	104°51'57.509"W	0.71	
4191.00	1.590	195.310	4152.03	-379.49	386.17	-253.69	1677932.99	14538129.10	40°01'52.381"N	104°51'57.515"W	2.41	
4286.00	1.120	194.440	4247.01	-377.30	384.00	-254.27	1677932.41	14538126.93	40°01'52.360"N	104°51'57.523"W	0.50	
4380.00	0.970	208.620	4340.99	-375.70	382.41	-254.88	1677931.80	14538125.34	40°01'52.344"N	104°51'57.531"W	0.32	
4473.00	0.830	223.420	4433.98	-374.50	381.23	-255.72	1677930.97	14538124.16	40°01'52.332"N	104°51'57.541"W	0.29	
4567.00	0.960	239.890	4527.97	-373.58	380.34	-256.87	1677929.82	14538123.27	40°01'52.324"N	104°51'57.556"W	0.31	
4662.00	0.860	252.110	4622.96	-372.93	379.72	-258.24	1677928.45	14538122.65	40°01'52.318"N	104°51'57.574"W	0.23	
4756.00	1.340	255.210	4716.94	-372.39	379.23	-259.97	1677926.72	14538122.15	40°01'52.313"N	104°51'57.596"W	0.51	
4850.00	4.090	230.560	4810.83	-369.88	376.82	-263.63	1677923.07	14538119.74	40°01'52.289"N	104°51'57.643"W	3.11	
4944.00	1.330	164.200	4904.73	-366.64	373.64	-265.92	1677920.79	14538116.55	40°01'52.257"N	104°51'57.673"W	4.00	
5038.00	1.130	181.820	4998.71	-364.67	371.66	-265.65	1677921.06	14538114.58	40°01'52.238"N	104°51'57.669"W	0.45	
5155.00	1.160	170.400	5115.68	-362.36	369.34	-265.49	1677921.22	14538112.26	40°01'52.215"N	104°51'57.667"W	0.20	
5249.00	0.890	155.220	5209.67	-360.77	367.74	-265.02	1677921.69	14538110.66	40°01'52.199"N	104°51'57.661"W	0.41	
5343.00	0.930	132.750	5303.66	-359.61	366.56	-264.16	1677922.56	14538109.48	40°01'52.187"N	104°51'57.650"W	0.38	
5437.00	0.850	123.650	5397.64	-358.74	365.65	-263.02	1677923.70	14538108.58	40°01'52.178"N	104°51'57.635"W	0.17	
5531.00	0.590	131.430	5491.64	-358.06	364.95	-262.07	1677924.64	14538107.87	40°01'52.171"N	104°51'57.623"W	0.29	
5625.00	0.450	124.480	5585.63	-357.54	364.42	-261.41	1677925.31	14538107.35	40°01'52.166"N	104°51'57.615"W	0.16	
5718.00	0.450	49.760	5678.63	-357.59	364.45	-260.83	1677925.89	14538107.38	40°01'52.167"N	104°51'57.607"W	0.59	
5813.00	0.530	33.750	5773.63	-358.21	365.05	-260.30	1677926.42	14538107.98	40°01'52.173"N	104°51'57.600"W	0.17	
5907.00	1.000	21.790	5867.62	-359.34	366.18	-259.75	1677926.96	14538109.11	40°01'52.184"N	104°51'57.593"W	0.53	
6001.00	1.080	352.230	5961.60	-360.99	367.81	-259.57	1677927.14	14538110.74	40°01'52.200"N	104°51'57.591"W	0.57	
6095.00	1.140	337.310	6055.59	-362.72	369.56	-260.05	1677926.66	14538112.48	40°01'52.217"N	104°51'57.597"W	0.31	
6190.00	1.050	327.530	6150.57	-364.30	371.16	-260.88	1677925.83	14538114.09	40°01'52.233"N	104°51'57.608"W	0.22	
6284.00	1.150	323.630	6244.55	-365.76	372.65	-261.90	1677924.80	14538115.57	40°01'52.248"N	104°51'57.621"W	0.13	
6378.00	1.330	324.880	6338.53	-367.38	374.30	-263.09	1677923.61	14538117.22	40°01'52.264"N	104°51'57.636"W	0.19	
6472.00	1.530	336.020	6432.50	-369.39	376.34	-264.23	1677922.47	14538119.26	40°01'52.284"N	104°51'57.651"W	0.36	
6566.00	1.860	30.340	6526.47	-371.86	378.80	-263.97	1677922.73	14538121.72	40°01'52.308"N	104°51'57.647"W	1.68	
6660.00	1.870	19.860	6620.42	-374.65	381.56	-262.67	1677924.02	14538124.48	40°01'52.336"N	104°51'57.631"W	0.36	
6680.00†	1.025	151.723	6640.41	-374.80	381.71	-262.48	1677924.21	14538124.63	40°01'52.337"N	104°51'57.628"W	13.33	KOP
6754.00	10.750	180.400	6713.94	-367.31	374.21	-262.21	1677924.49	14538117.13	40°01'52.263"N	104°51'57.625"W	13.33	
6848.00	18.730	187.430	6804.78	-343.49	350.44	-264.23	1677922.51	14538093.37	40°01'52.028"N	104°51'57.651"W	8.68	
6942.00	24.910	196.810	6892.03	-309.35	316.48	-271.92	1677914.88	14538059.41	40°01'51.692"N	104°51'57.750"W	7.53	
7036.00	30.940	187.970	6975.08	-266.19	273.54	-281.00	1677905.86	14538016.47	40°01'51.268"N	104°51'57.866"W	7.77	
7130.00	40.280	167.390	7051.69	-212.39	219.64	-277.70	1677909.24	14537962.60	40°01'50.736"N	104°51'57.824"W	16.05	
7224.00	38.520	167.120	7124.33	-154.56	161.45	-264.54	1677922.48	14537904.45	40°01'50.160"N	104°51'57.655"W	1.88	
7318.00	45.620	169.270	7194.06	-93.29	99.83	-251.75	1677935.37	14537842.88	40°01'49.552"N	104°51'57.490"W	7.71	
7411.00	49.900	175.810	7256.60	-25.34	31.63	-242.95	1677944.26	14537774.72	40°01'48.878"N	104°51'57.377"W	6.94	
7480.00†	52.055	182.070	7300.07	28.16	-21.92	-242.00	1677945.29	14537721.19	40°01'48.348"N	104°51'57.365"W	7.71	ENTERED RADIUS HEEL (268'FSL & 375'FWL, SEC.23) 40.0300968 -104.8659347
7506.00	52.950	184.330	7315.90	48.78	-42.51	-243.16	1677944.17	14537700.61	40°01'48.145"N	104°51'57.380"W	7.71	
7600.00	62.080	184.150	7366.33	127.89	-121.50	-249.01	1677938.44	14537621.64	40°01'47.364"N	104°51'57.455"W	9.71	
7694.00	67.740	186.670	7406.18	212.78	-206.21	-257.07	1677930.51	14537536.96	40°01'46.527"N	104°51'57.559"W	6.49	
7787.00	70.780	184.350	7439.12	299.52	-292.76	-265.40	1677922.31	14537450.42	40°01'45.672"N	104°51'57.666"W	4.02	
7881.00	82.240	179.530	7461.02	390.74	-383.94	-268.40	1677919.45	14537359.28	40°01'44.771"N	104°51'57.704"W	13.17	
7975.00	86.050	179.040	7470.61	484.17	-477.42	-267.23	1677920.76	14537265.83	40°01'43.847"N	104°51'57.689"W	4.09	
8021.00	86.340	178.190	7473.66	530.01	-523.31	-266.12	1677921.94	14537219.97	40°01'43.394"N	104°51'57.675"W	1.95	

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Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWP
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (198 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8028.00†	86.352	178.234	7474.11	536.98	-530.29	-265.91	1677922.17	14537212.99	40°01'43.325"N	104°51'57.672"W	0.65	LANDING (240'FNL & 350'FWL, SEC.26) 40.0287013 -104.8660201
8069.00	86.420	178.490	7476.69	577.84	-571.19	-264.74	1677923.40	14537172.11	40°01'42.920"N	104°51'57.657"W	0.65	
8162.00	88.920	179.390	7480.47	670.66	-664.09	-263.02	1677925.26	14537079.25	40°01'42.002"N	104°51'57.635"W	2.86	
8256.00	88.680	181.110	7482.44	764.62	-758.07	-263.43	1677924.99	14536985.31	40°01'41.074"N	104°51'57.640"W	1.85	
8351.00	92.000	181.520	7481.88	859.60	-853.03	-265.61	1677922.95	14536890.39	40°01'40.135"N	104°51'57.668"W	3.52	
8445.00	91.020	183.880	7479.40	953.54	-946.88	-270.03	1677918.67	14536796.56	40°01'39.208"N	104°51'57.725"W	2.72	
8539.00	88.280	184.940	7479.97	1047.40	-1040.59	-277.26	1677911.59	14536702.88	40°01'38.282"N	104°51'57.818"W	3.13	
8633.00	89.570	182.610	7481.74	1141.30	-1134.36	-283.45	1677905.55	14536609.14	40°01'37.355"N	104°51'57.898"W	2.83	
8727.00	90.610	182.970	7481.59	1235.28	-1228.25	-288.02	1677901.12	14536515.28	40°01'36.427"N	104°51'57.956"W	1.17	
8821.00	91.110	182.760	7480.18	1329.24	-1322.12	-292.72	1677896.56	14536421.44	40°01'35.499"N	104°51'58.017"W	0.58	
8915.00	88.400	181.700	7480.58	1423.22	-1416.04	-296.38	1677893.05	14536327.55	40°01'34.571"N	104°51'58.064"W	3.10	
9009.00	88.860	181.880	7482.83	1517.19	-1509.96	-299.31	1677890.26	14536233.66	40°01'33.643"N	104°51'58.102"W	0.53	
9104.00	89.510	182.150	7484.18	1612.18	-1604.90	-302.65	1677887.06	14536138.76	40°01'32.705"N	104°51'58.144"W	0.74	
9198.00	90.060	181.860	7484.53	1706.17	-1698.84	-305.94	1677883.92	14536044.85	40°01'31.777"N	104°51'58.187"W	0.66	
9292.00	90.770	181.950	7483.85	1800.17	-1792.78	-309.07	1677880.94	14535950.94	40°01'30.848"N	104°51'58.227"W	0.76	
9386.00	87.600	180.650	7485.19	1894.14	-1886.73	-311.20	1677878.95	14535857.02	40°01'29.920"N	104°51'58.254"W	3.64	
9481.00	88.670	180.320	7488.28	1989.08	-1981.68	-312.00	1677878.29	14535762.11	40°01'28.981"N	104°51'58.265"W	1.18	
9575.00	88.950	179.910	7490.23	2083.03	-2075.66	-312.19	1677878.24	14535668.17	40°01'28.053"N	104°51'58.267"W	0.53	
9669.00	89.050	179.820	7491.87	2176.98	-2169.64	-311.97	1677878.60	14535574.23	40°01'27.124"N	104°51'58.264"W	0.14	
9764.00	90.340	180.160	7492.38	2271.94	-2264.64	-311.95	1677878.76	14535479.27	40°01'26.185"N	104°51'58.264"W	1.40	
9858.00	90.950	180.170	7491.32	2365.91	-2358.63	-312.22	1677878.64	14535385.31	40°01'25.256"N	104°51'58.267"W	0.65	
9952.00	88.920	182.930	7491.43	2459.90	-2452.59	-314.77	1677876.24	14535291.39	40°01'24.328"N	104°51'58.300"W	3.64	
10046.00	89.350	182.580	7492.84	2553.86	-2546.47	-319.28	1677871.86	14535197.54	40°01'23.400"N	104°51'58.358"W	0.59	
10140.00	90.090	182.710	7493.30	2647.84	-2640.36	-323.62	1677867.67	14535103.68	40°01'22.472"N	104°51'58.414"W	0.80	
10234.00	90.490	182.780	7492.83	2741.82	-2734.25	-328.12	1677863.31	14535009.82	40°01'21.544"N	104°51'58.472"W	0.43	
10327.00	91.140	183.370	7491.51	2834.77	-2827.11	-333.11	1677858.47	14534916.99	40°01'20.627"N	104°51'58.536"W	0.94	
10421.00	86.610	183.480	7493.35	2928.67	-2920.90	-338.72	1677853.00	14534823.23	40°01'19.700"N	104°51'58.608"W	4.82	
10516.00	86.580	183.220	7498.99	3023.46	-3015.57	-344.27	1677847.60	14534728.59	40°01'18.764"N	104°51'58.679"W	0.28	
10609.00	89.480	181.300	7502.19	3116.38	-3108.43	-347.93	1677844.08	14534635.76	40°01'17.847"N	104°51'58.726"W	3.74	
10703.00	90.120	181.340	7502.52	3210.38	-3202.40	-350.09	1677842.06	14534541.82	40°01'16.918"N	104°51'58.754"W	0.68	
10797.00	89.480	180.590	7502.85	3304.37	-3296.39	-351.68	1677840.62	14534447.87	40°01'15.989"N	104°51'58.774"W	1.05	
10891.00	90.340	180.780	7502.99	3398.36	-3390.38	-352.80	1677839.64	14534353.92	40°01'15.060"N	104°51'58.789"W	0.94	
10984.00	88.800	181.160	7503.69	3491.35	-3483.36	-354.38	1677838.20	14534260.97	40°01'14.141"N	104°51'58.809"W	1.71	
11079.00	89.540	181.050	7505.07	3586.34	-3578.33	-356.21	1677836.52	14534166.04	40°01'13.203"N	104°51'58.832"W	0.79	
11173.00	91.170	181.890	7504.49	3680.33	-3672.30	-358.62	1677834.25	14534072.11	40°01'12.274"N	104°51'58.863"W	1.95	
11264.00	89.750	181.010	7503.75	3771.33	-3763.26	-360.92	1677832.08	14533981.18	40°01'11.375"N	104°51'58.893"W	1.84	
11356.00	90.280	181.450	7503.73	3863.33	-3855.24	-362.90	1677830.25	14533889.23	40°01'10.466"N	104°51'58.918"W	0.75	
11448.00	90.550	180.910	7503.06	3955.32	-3947.22	-364.79	1677828.50	14533797.29	40°01'09.557"N	104°51'58.943"W	0.66	
11540.00	91.350	180.370	7501.54	4047.30	-4039.20	-365.82	1677827.61	14533705.34	40°01'08.648"N	104°51'58.956"W	1.05	
11632.00	88.120	179.350	7501.96	4139.25	-4131.18	-365.59	1677827.97	14533613.39	40°01'07.739"N	104°51'58.953"W	3.68	
11723.00	88.650	179.330	7504.53	4230.15	-4222.14	-364.55	1677829.16	14533522.47	40°01'06.841"N	104°51'58.940"W	0.58	
11815.00	88.950	179.250	7506.46	4322.06	-4314.11	-363.41	1677830.44	14533430.54	40°01'05.932"N	104°51'58.925"W	0.34	
11907.00	89.110	178.420	7508.01	4413.95	-4406.08	-361.54	1677832.44	14533338.61	40°01'05.023"N	104°51'58.901"W	0.92	
11999.00	89.510	176.200	7509.12	4505.69	-4497.97	-357.22	1677836.90	14533246.77	40°01'04.115"N	104°51'58.845"W	2.45	
12091.00	90.680	178.700	7508.97	4597.45	-4589.87	-353.13	1677841.13	14533154.91	40°01'03.207"N	104°51'58.793"W	3.00	

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWP
Facility	SEC.23-T1N-R67W		

## WELLPATH DATA (198 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12184.00	89.850	181.880	7508.54	4690.42	-4682.85	-353.60	1677840.80	14533061.97	40°01'02.288"N	104°51'58.799"W	3.53	
12276.00	89.880	184.340	7508.76	4782.38	-4774.71	-358.59	1677835.95	14532970.14	40°01'01.380"N	104°51'58.863"W	2.67	
12369.00	90.960	184.520	7508.07	4875.25	-4867.43	-365.77	1677828.91	14532877.45	40°01'00.464"N	104°51'58.955"W	1.18	
12460.00	87.900	183.520	7508.98	4966.14	-4958.19	-372.15	1677822.67	14532786.71	40°00'59.567"N	104°51'59.037"W	3.54	
12552.00	88.610	182.920	7511.78	5058.06	-5050.00	-377.31	1677817.65	14532694.93	40°00'58.659"N	104°51'59.103"W	1.01	
12646.00	89.820	182.630	7513.07	5152.02	-5143.88	-381.86	1677813.24	14532601.08	40°00'57.732"N	104°51'59.162"W	1.32	
12740.00	90.180	181.750	7513.07	5246.01	-5237.81	-385.46	1677809.79	14532507.18	40°00'56.803"N	104°51'59.208"W	1.01	
12835.00	90.890	181.320	7512.18	5341.01	-5332.77	-388.00	1677807.39	14532412.26	40°00'55.865"N	104°51'59.241"W	0.87	
12929.00	88.740	182.110	7512.48	5435.00	-5426.72	-390.81	1677804.72	14532318.34	40°00'54.937"N	104°51'59.277"W	2.44	
13023.00	89.940	182.220	7513.57	5528.99	-5520.64	-394.36	1677801.32	14532224.45	40°00'54.008"N	104°51'59.323"W	1.28	
13117.00	91.080	181.770	7512.73	5622.98	-5614.58	-397.64	1677798.19	14532130.54	40°00'53.080"N	104°51'59.365"W	1.30	
13211.00	88.400	182.830	7513.16	5716.96	-5708.49	-401.41	1677794.56	14532036.66	40°00'52.152"N	104°51'59.413"W	3.07	
13305.00	89.140	181.790	7515.18	5810.92	-5802.39	-405.20	1677790.91	14531942.79	40°00'51.224"N	104°51'59.462"W	1.36	
13399.00	90.430	181.590	7515.53	5904.92	-5896.35	-407.97	1677788.29	14531848.87	40°00'50.296"N	104°51'59.497"W	1.39	
13493.00	92.070	180.230	7513.48	5998.89	-5990.31	-409.46	1677786.94	14531754.95	40°00'49.367"N	104°51'59.516"W	2.27	
13587.00	88.640	178.470	7512.89	6092.80	-6084.29	-408.40	1677788.14	14531661.01	40°00'48.438"N	104°51'59.503"W	4.10	
13681.00	89.110	177.910	7514.74	6186.63	-6178.22	-405.43	1677791.25	14531567.12	40°00'47.510"N	104°51'59.465"W	0.78	
13774.00	89.320	178.220	7516.01	6279.46	-6271.16	-402.29	1677794.53	14531474.22	40°00'46.592"N	104°51'59.424"W	0.40	
13868.00	87.810	176.810	7518.37	6373.20	-6365.03	-398.21	1677798.75	14531380.39	40°00'45.664"N	104°51'59.372"W	2.20	
13962.00	89.880	180.050	7520.26	6467.03	-6458.96	-395.64	1677801.46	14531286.50	40°00'44.736"N	104°51'59.339"W	4.09	
14056.00	87.600	182.520	7522.33	6560.99	-6552.90	-397.75	1677799.50	14531192.60	40°00'43.807"N	104°51'59.366"W	3.58	
14149.00	87.690	182.080	7526.15	6653.90	-6645.75	-401.48	1677795.91	14531099.78	40°00'42.890"N	104°51'59.414"W	0.48	
14243.00	87.720	181.740	7529.92	6747.82	-6739.62	-404.61	1677792.92	14531005.94	40°00'41.962"N	104°51'59.454"W	0.36	
14338.00	89.480	184.380	7532.24	6842.75	-6834.45	-409.68	1677788.00	14530911.15	40°00'41.025"N	104°51'59.519"W	3.34	
14431.00	89.880	184.230	7532.76	6935.63	-6927.18	-416.66	1677781.16	14530818.44	40°00'40.109"N	104°51'59.609"W	0.46	
14525.00	90.310	184.430	7532.60	7029.52	-7020.91	-423.75	1677774.21	14530724.74	40°00'39.182"N	104°51'59.700"W	0.50	
14620.00	90.460	184.280	7531.96	7124.39	-7115.64	-430.97	1677767.14	14530630.04	40°00'38.246"N	104°51'59.793"W	0.22	
14714.00	90.950	184.100	7530.81	7218.28	-7209.38	-437.83	1677760.42	14530536.33	40°00'37.320"N	104°51'59.881"W	0.56	
14808.00	91.320	183.980	7528.94	7312.17	-7303.13	-444.46	1677753.94	14530442.60	40°00'36.393"N	104°51'59.966"W	0.41	
14902.00	91.750	183.970	7526.43	7406.05	-7396.87	-450.97	1677747.57	14530348.89	40°00'35.467"N	104°52'00.050"W	0.46	
14996.00	90.590	182.910	7524.51	7499.97	-7490.67	-456.61	1677742.08	14530255.11	40°00'34.540"N	104°52'00.122"W	1.67	
15090.00	91.330	183.050	7522.93	7593.92	-7584.53	-461.49	1677737.34	14530161.28	40°00'33.612"N	104°52'00.185"W	0.80	
15184.00	92.150	182.500	7520.08	7687.85	-7678.38	-466.04	1677732.93	14530067.47	40°00'32.685"N	104°52'00.243"W	1.05	
15279.00	90.520	181.190	7517.86	7782.82	-7773.30	-469.10	1677730.02	14529972.58	40°00'31.747"N	104°52'00.283"W	2.20	
15373.00	91.050	180.990	7516.58	7876.81	-7867.27	-470.89	1677728.38	14529878.65	40°00'30.818"N	104°52'00.305"W	0.60	
15467.00	91.080	180.260	7514.83	7970.78	-7961.25	-471.91	1677727.49	14529784.70	40°00'29.890"N	104°52'00.319"W	0.78	
15562.00	90.430	181.630	7513.58	8065.77	-8056.22	-473.48	1677726.07	14529689.76	40°00'28.951"N	104°52'00.339"W	1.60	
15655.00	91.200	181.190	7512.26	8158.76	-8149.19	-475.77	1677723.92	14529596.84	40°00'28.032"N	104°52'00.368"W	0.95	
15750.00	89.140	180.810	7511.97	8253.75	-8244.17	-477.43	1677722.41	14529501.89	40°00'27.094"N	104°52'00.389"W	2.21	
15844.00	89.910	180.090	7512.75	8347.73	-8338.16	-478.16	1677721.82	14529407.94	40°00'26.165"N	104°52'00.399"W	1.12	
15938.00	90.920	179.830	7512.07	8441.69	-8432.16	-478.10	1677722.02	14529313.98	40°00'25.236"N	104°52'00.398"W	1.11	
16033.00	91.970	179.640	7509.68	8536.61	-8527.12	-477.66	1677722.61	14529219.05	40°00'24.297"N	104°52'00.392"W	1.12	
16127.00	91.020	179.200	7507.22	8630.52	-8621.08	-476.71	1677723.70	14529125.13	40°00'23.369"N	104°52'00.380"W	1.11	
16221.00	91.020	180.480	7505.55	8724.47	-8715.07	-476.45	1677724.10	14529031.18	40°00'22.440"N	104°52'00.377"W	1.36	
16315.00	88.670	181.090	7505.80	8818.45	-8809.05	-477.73	1677722.96	14528937.23	40°00'21.511"N	104°52'00.393"W	2.58	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (198 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16410.00	89.630	180.730	7507.21	8913.43	-8904.03	-479.24	1677721.59	14528842.29	40°00'20.573"N	104°52'00.413"W	1.08	
16504.00	90.740	180.790	7506.91	9007.43	-8998.02	-480.49	1677720.49	14528748.34	40°00'19.644"N	104°52'00.429"W	1.18	
16588.00†	91.669	180.513	7505.14	9091.40	-9081.99	-481.44	1677719.66	14528664.40	40°00'18.814"N	104°52'00.441"W	1.15	ENTERED RADIUS TOE (1767'FSL & 88'FWL, SEC.35) 40.0052261 -104.8667891
16598.00	91.780	180.480	7504.84	9101.39	-9091.99	-481.53	1677719.59	14528654.41	40°00'18.715"N	104°52'00.442"W	1.15	
16692.00	90.460	180.480	7503.01	9195.36	-9185.96	-482.32	1677718.95	14528560.47	40°00'17.787"N	104°52'00.452"W	1.40	
16787.00	91.230	180.380	7501.61	9290.33	-9280.95	-483.03	1677718.38	14528465.52	40°00'16.848"N	104°52'00.461"W	0.82	
16881.00	89.080	180.500	7501.35	9384.31	-9374.94	-483.75	1677717.80	14528371.56	40°00'15.919"N	104°52'00.470"W	2.29	
16975.00	90.060	180.570	7502.06	9478.29	-9468.93	-484.63	1677717.06	14528277.61	40°00'14.990"N	104°52'00.482"W	1.05	
17069.00	91.350	180.160	7500.90	9572.26	-9562.92	-485.23	1677716.61	14528183.65	40°00'14.061"N	104°52'00.489"W	1.44	
17164.00	90.220	181.080	7499.60	9667.24	-9657.91	-486.26	1677715.72	14528088.71	40°00'13.123"N	104°52'00.503"W	1.53	
17257.00	89.820	181.130	7499.57	9760.24	-9750.89	-488.05	1677714.07	14527995.76	40°00'12.204"N	104°52'00.526"W	0.43	
17351.00	90.740	181.160	7499.11	9854.24	-9844.87	-489.93	1677712.34	14527901.82	40°00'11.275"N	104°52'00.550"W	0.98	
17445.00	89.660	180.870	7498.78	9948.23	-9938.85	-491.59	1677710.81	14527807.87	40°00'10.346"N	104°52'00.571"W	1.19	
17538.00	90.890	180.790	7498.33	10041.22	-10031.84	-492.94	1677709.61	14527714.92	40°00'09.427"N	104°52'00.588"W	1.33	
17633.00	91.910	180.720	7496.01	10136.19	-10126.80	-494.19	1677708.50	14527619.99	40°00'08.489"N	104°52'00.604"W	1.08	
17727.00	93.210	180.270	7491.81	10230.08	-10220.70	-495.00	1677707.83	14527526.13	40°00'07.561"N	104°52'00.615"W	1.46	
17821.00	94.380	180.250	7485.59	10323.85	-10314.49	-495.43	1677707.55	14527432.37	40°00'06.634"N	104°52'00.620"W	1.24	LAST BHI MWD+IFR+SC SURVEY
17887.00	94.380	180.250	7480.55	10389.64	-10380.30	-495.72	1677707.36	14527366.59	40°00'05.984"N	104°52'00.624"W	0.00	PTB (469'FSL & 75'FWL, SEC.35) 40.0016622 -104.8668400



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290'FSL & 616'FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWB
Facility	SEC.23-T1N-R67W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.14-T1N-R67W LINES	5023.00	7619.60	1999.89	1680174.71	14545363.04	40°03'03.863"N	104°51'28.537"W	polygon
SEC.23-T1N-R67W LINES	5023.00	2331.01	2019.86	1680202.68	14540076.60	40°02'11.600"N	104°51'28.286"W	polygon
SEC.26-T1N-R67W LINES	5023.00	-2922.49	2035.69	1680226.46	14534825.24	40°01'19.683"N	104°51'28.088"W	polygon
SEC.35-T1N-R67W LINES	5023.00	-8209.35	2052.50	1680251.27	14529540.52	40°00'27.437"N	104°51'27.877"W	polygon
PUMA FED 34N-35HZ HEEL REV-2 (268' FNL & 350' FWL, SEC.26)	7478.00	-558.47	-265.03	1677923.08	14537184.82	40°01'43.046"N	104°51'57.661"W	point
PUMA FED 34N-35HZ HEEL REV-3 (168' FNL & 350' FWL, SEC.26)	7478.00	-458.47	-265.03	1677922.93	14537284.78	40°01'44.034"N	104°51'57.661"W	point
PUMA FED 34N-35HZ CIRCLE-1	7491.00	-9531.93	-573.63	1677628.20	14528214.50	40°00'14.368"N	104°52'01.625"W	circle
PUMA FED 34N-35HZ CIRCLE-2	7491.00	-292.66	-613.05	1677574.80	14537450.00	40°01'45.673"N	104°52'02.135"W	circle
FEDERAL LAND - SEC.26-T1N-67W	7523.00	0.00	0.00	1678187.16	14537743.47	40°01'48.565"N	104°51'54.254"W	polygon
PUMA FED 34N-35HZ LANDBOX	7523.00	-10391.59	-1028.21	1677175.10	14527354.50	40°00'05.872"N	104°52'07.466"W	polygon
PUMA FED 34N-35HZ TOE REV-1 (465' FSL & 52' 'FWL, SEC.35)	7523.00	-10384.00	-519.26	1677683.83	14527362.85	40°00'05.947"N	104°52'00.926"W	point
PUMA FED 34N-35HZ TOE REV-2 (465' FSL & 52' 'FWL, SEC.35)	7523.00	-10384.02	-519.23	1677683.87	14527362.83	40°00'05.947"N	104°52'00.926"W	point

WELLPATH COMPOSITION - Ref Wellbore: PUMA FED 34N-35HZ AWB      Ref Wellpath: PUMA FED 34N-35HZ AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	2242.00	Custom APC_ISCWSA REV 2 MWD+IFR1 (approximation)	SDI MWD+IFR SURVEYS <154 - 2242>	PUMA FED 34N-35HZ AWB
2242.00	17821.00	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)	BHI APC_ISCWSA REV 2 MWD+IFR1+SC <2313 - 17821>	PUMA FED 34N-35HZ AWB
17821.00	17887.00	Blind Drilling (std)	Projection to bit	PUMA FED 34N-35HZ AWB



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 PUMA FED 34N-35HZ (290°FSL & 616°FWL, SEC23)
Area	COLORADO	Well	PUMA FED 34N-35HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUMA FED 34N-35HZ AWB
Facility	SEC.23-T1N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
154.00	0.030	228.320	154.00	FIRST SDI+IFR SURVEY
1673.00	14.989	318.594	1652.30	ENTERED LANDBOX (443°FSL & 463°FWL, SEC.23) 40.0305778 -104.8656163
2242.00	6.590	316.760	2211.30	LAST SDI MWD+IFR SURVEY
2313.00	6.320	318.870	2281.85	FIRST BHI MWD+IFR+SC SURVEY
6680.00	1.025	151.723	6640.41	KOP
7480.00	52.055	182.070	7300.07	ENTERED RADIUS HEEL (268°FSL & 375°FWL, SEC.23) 40.0300968 -104.8659347
8028.00	86.352	178.234	7474.11	LANDING (240°FNL & 350°FWL, SEC.26) 40.0287013 -104.8660201
16588.00	91.669	180.513	7505.14	ENTERED RADIUS TOE (1767°FSL & 88°FWL, SEC.35) 40.0052261 -104.8667891
17821.00	94.380	180.250	7485.59	LAST BHI MWD+IFR+SC SURVEY
17887.00	94.380	180.250	7480.55	PTB (469°FSL & 75°FWL, SEC.35) 40.0016622 -104.8668400