

Donald C. Cook (41.98° N, 86.56° E), Control Point Hazard

| SA (g) | AFE 0.5 Hz | AFE 1 Hz | AFE 2.5 Hz | AFE 5 Hz | AFE 10 Hz | AFE 25 Hz | AFE 100 Hz |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0.001000 | 5.211957e-03 | 8.551804e-03 | 1.267395e-02 | 1.346462e-02 | 1.360888e-02 | 1.342880e-02 | 1.252376e-02 |
| 0.001122 | 5.139113e-03 | 8.542729e-03 | 1.267386e-02 | 1.346462e-02 | 1.360888e-02 | 1.342880e-02 | 1.252376e-02 |
| 0.001259 | 4.909455e-03 | 8.395316e-03 | 1.267341e-02 | 1.346461e-02 | 1.360888e-02 | 1.342880e-02 | 1.252376e-02 |
| 0.001413 | 4.650561e-03 | 8.126522e-03 | 1.267163e-02 | 1.346455e-02 | 1.360888e-02 | 1.342880e-02 | 1.252376e-02 |
| 0.001585 | 4.404792e-03 | 7.795833e-03 | 1.266607e-02 | 1.346432e-02 | 1.360885e-02 | 1.342880e-02 | 1.252376e-02 |
| 0.001778 | 4.172280e-03 | 7.420446e-03 | 1.265221e-02 | 1.346354e-02 | 1.360863e-02 | 1.342879e-02 | 1.252376e-02 |
| 0.001995 | 3.951697e-03 | 7.022084e-03 | 1.262405e-02 | 1.346118e-02 | 1.360706e-02 | 1.342841e-02 | 1.252361e-02 |
| 0.002239 | 3.741711e-03 | 6.627006e-03 | 1.257628e-02 | 1.345467e-02 | 1.359874e-02 | 1.342430e-02 | 1.252106e-02 |
| 0.002512 | 3.540525e-03 | 6.243845e-03 | 1.250614e-02 | 1.343836e-02 | 1.357032e-02 | 1.339973e-02 | 1.250230e-02 |
| 0.002818 | 3.346599e-03 | 5.874376e-03 | 1.241282e-02 | 1.340293e-02 | 1.350816e-02 | 1.331734e-02 | 1.243166e-02 |
| 0.003162 | 3.157889e-03 | 5.519399e-03 | 1.229439e-02 | 1.333812e-02 | 1.341028e-02 | 1.317856e-02 | 1.226654e-02 |
| 0.003548 | 2.973004e-03 | 5.179245e-03 | 1.214420e-02 | 1.323757e-02 | 1.328113e-02 | 1.300869e-02 | 1.199721e-02 |
| 0.003981 | 2.789975e-03 | 4.853546e-03 | 1.194934e-02 | 1.309979e-02 | 1.312280e-02 | 1.281132e-02 | 1.166198e-02 |
| 0.004467 | 2.607823e-03 | 4.541703e-03 | 1.169753e-02 | 1.292551e-02 | 1.293485e-02 | 1.258360e-02 | 1.128985e-02 |
| 0.005012 | 2.425132e-03 | 4.242338e-03 | 1.138928e-02 | 1.271569e-02 | 1.271599e-02 | 1.232436e-02 | 1.088664e-02 |
| 0.005623 | 2.241698e-03 | 3.954184e-03 | 1.103706e-02 | 1.247117e-02 | 1.246473e-02 | 1.203298e-02 | 1.045477e-02 |
| 0.006310 | 2.057229e-03 | 3.675303e-03 | 1.065299e-02 | 1.219260e-02 | 1.217989e-02 | 1.170895e-02 | 9.997444e-03 |
| 0.007079 | 1.872580e-03 | 3.404248e-03 | 1.024411e-02 | 1.188047e-02 | 1.186092e-02 | 1.135248e-02 | 9.517883e-03 |
| 0.007943 | 1.690527e-03 | 3.139281e-03 | 9.814831e-03 | 1.153541e-02 | 1.150814e-02 | 1.096485e-02 | 9.019404e-03 |
| 0.008913 | 1.518261e-03 | 2.879365e-03 | 9.368778e-03 | 1.115843e-02 | 1.112252e-02 | 1.054798e-02 | 8.505638e-03 |
| 0.010000 | 1.353376e-03 | 2.623792e-03 | 8.909356e-03 | 1.075114e-02 | 1.070569e-02 | 1.010420e-02 | 7.980344e-03 |
| 0.011220 | 1.193290e-03 | 2.372655e-03 | 8.439919e-03 | 1.031563e-02 | 1.025978e-02 | 9.636263e-03 | 7.447211e-03 |
| 0.012589 | 1.040078e-03 | 2.126765e-03 | 7.963801e-03 | 9.854502e-03 | 9.787412e-03 | 9.147320e-03 | 6.909971e-03 |
| 0.014125 | 8.951332e-04 | 1.887609e-03 | 7.484224e-03 | 9.370669e-03 | 9.291712e-03 | 8.641015e-03 | 6.372574e-03 |
| 0.015849 | 7.610340e-04 | 1.658493e-03 | 7.004172e-03 | 8.867344e-03 | 8.776228e-03 | 8.121355e-03 | 5.839330e-03 |
| 0.017783 | 6.382914e-04 | 1.442982e-03 | 6.526337e-03 | 8.347952e-03 | 8.244891e-03 | 7.592738e-03 | 5.314933e-03 |
| 0.019953 | 5.279474e-04 | 1.243215e-03 | 6.053125e-03 | 7.816105e-03 | 7.702018e-03 | 7.059714e-03 | 4.804303e-03 |
| 0.022387 | 4.302046e-04 | 1.059665e-03 | 5.586683e-03 | 7.275625e-03 | 7.152335e-03 | 6.527263e-03 | 4.312450e-03 |
| 0.025119 | 3.460798e-04 | 8.939887e-04 | 5.128958e-03 | 6.730588e-03 | 6.600910e-03 | 6.000406e-03 | 3.843944e-03 |
| 0.028184 | 2.747034e-04 | 7.457085e-04 | 4.681774e-03 | 6.185374e-03 | 6.053057e-03 | 5.484193e-03 | 3.400988e-03 |
| 0.031623 | 2.151081e-04 | 6.146838e-04 | 4.246955e-03 | 5.644670e-03 | 5.514200e-03 | 4.982898e-03 | 2.979075e-03 |
| 0.035481 | 1.662297e-04 | 5.005599e-04 | 3.826451e-03 | 5.113429e-03 | 4.989659e-03 | 4.497271e-03 | 2.568585e-03 |
| 0.039811 | 1.269466e-04 | 4.027753e-04 | 3.422391e-03 | 4.596758e-03 | 4.484287e-03 | 4.010083e-03 | 2.174959e-03 |
| 0.044668 | 9.575552e-05 | 3.200443e-04 | 3.037007e-03 | 4.099725e-03 | 4.001784e-03 | 3.508126e-03 | 1.819175e-03 |
| 0.050119 | 7.141247e-05 | 2.513928e-04 | 2.672480e-03 | 3.627100e-03 | 3.543074e-03 | 3.027941e-03 | 1.510953e-03 |
| 0.056234 | 5.269409e-05 | 1.953618e-04 | 2.330816e-03 | 3.182983e-03 | 3.106842e-03 | 2.591851e-03 | 1.248991e-03 |
| 0.063096 | 3.855421e-05 | 1.503923e-04 | 2.013777e-03 | 2.770408e-03 | 2.694956e-03 | 2.203539e-03 | 1.028745e-03 |
| 0.070795 | 2.797205e-05 | 1.148070e-04 | 1.722765e-03 | 2.391149e-03 | 2.314030e-03 | 1.861806e-03 | 8.450768e-04 |
| 0.079433 | 2.017630e-05 | 8.704194e-05 | 1.458585e-03 | 2.045932e-03 | 1.970129e-03 | 1.564183e-03 | 6.928990e-04 |
| 0.089125 | 1.450285e-05 | 6.564090e-05 | 1.221424e-03 | 1.734859e-03 | 1.665612e-03 | 1.307390e-03 | 5.674466e-04 |
| 0.100000 | 1.041539e-05 | 4.930764e-05 | 1.011252e-03 | 1.457781e-03 | 1.399781e-03 | 1.087693e-03 | 4.644074e-04 |
| 0.112202 | 7.501516e-06 | 3.698808e-05 | 8.279567e-04 | 1.214335e-03 | 1.170233e-03 | 9.011700e-04 | 3.797022e-04 |
| 0.125893 | 5.430105e-06 | 2.777045e-05 | 6.708773e-04 | 1.003624e-03 | 9.737953e-04 | 7.438036e-04 | 3.080546e-04 |
| 0.141254 | 3.946874e-06 | 2.090713e-05 | 5.385203e-04 | 8.238995e-04 | 8.070147e-04 | 6.114811e-04 | 2.457481e-04 |
| 0.158489 | 2.886391e-06 | 1.580280e-05 | 4.287269e-04 | 6.725649e-04 | 6.663870e-04 | 5.005096e-04 | 1.928502e-04 |

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| 0.177828 | 2.124697e-06 | 1.200934e-05 | 3.389443e-04 | 5.464523e-04 | 5.484323e-04 | 4.079269e-04 | 1.505623e-04 |
| 0.199526 | 1.575453e-06 | 9.190759e-06 | 2.664366e-04 | 4.421815e-04 | 4.497462e-04 | 3.306036e-04 | 1.171513e-04 |
| 0.223872 | 1.177201e-06 | 7.089778e-06 | 2.084458e-04 | 3.564477e-04 | 3.672179e-04 | 2.662516e-04 | 9.050305e-05 |
| 0.251189 | 8.859797e-07 | 5.513979e-06 | 1.623559e-04 | 2.862146e-04 | 2.982693e-04 | 2.134786e-04 | 6.905277e-05 |
| 0.281838 | 6.713876e-07 | 4.322466e-06 | 1.258932e-04 | 2.288333e-04 | 2.408359e-04 | 1.704810e-04 | 5.213971e-05 |
| 0.316228 | 5.122693e-07 | 3.410773e-06 | 9.722328e-05 | 1.820917e-04 | 1.932685e-04 | 1.355387e-04 | 3.912072e-05 |
| 0.354813 | 3.932443e-07 | 2.704269e-06 | 7.485062e-05 | 1.441742e-04 | 1.541457e-04 | 1.071205e-04 | 2.910145e-05 |
| 0.398107 | 3.037970e-07 | 2.151768e-06 | 5.749682e-05 | 1.135610e-04 | 1.221400e-04 | 8.401690e-05 | 2.138842e-05 |
| 0.446684 | 2.360553e-07 | 1.717451e-06 | 4.408116e-05 | 8.896195e-05 | 9.615103e-05 | 6.529812e-05 | 1.544399e-05 |
| 0.501187 | 1.845176e-07 | 1.375561e-06 | 3.372565e-05 | 6.930151e-05 | 7.522306e-05 | 5.030474e-05 | 1.096016e-05 |
| 0.562341 | 1.449724e-07 | 1.105830e-06 | 2.573566e-05 | 5.369330e-05 | 5.842252e-05 | 3.843017e-05 | 7.657695e-06 |
| 0.630957 | 1.142751e-07 | 8.922981e-07 | 1.956470e-05 | 4.138681e-05 | 4.495357e-05 | 2.906147e-05 | 5.246491e-06 |
| 0.707946 | 9.018902e-08 | 7.220685e-07 | 1.480598e-05 | 3.173112e-05 | 3.420653e-05 | 2.169518e-05 | 3.518782e-06 |
| 0.794328 | 7.116520e-08 | 5.850408e-07 | 1.117135e-05 | 2.417343e-05 | 2.570813e-05 | 1.595146e-05 | 2.313306e-06 |
| 0.891251 | 5.606659e-08 | 4.736724e-07 | 8.415592e-06 | 1.826700e-05 | 1.906753e-05 | 1.153432e-05 | 1.485915e-06 |
| 1.000000 | 4.400800e-08 | 3.825604e-07 | 6.319087e-06 | 1.366447e-05 | 1.394335e-05 | 8.199978e-06 | 9.279655e-07 |
| 1.122019 | 3.435058e-08 | 3.077407e-07 | 4.711285e-06 | 1.009797e-05 | 1.004033e-05 | 5.729122e-06 | 5.630473e-07 |
| 1.258925 | 2.663151e-08 | 2.462638e-07 | 3.470215e-06 | 7.360244e-06 | 7.114178e-06 | 3.922460e-06 | 3.313151e-07 |
| 1.412538 | 2.047648e-08 | 1.958414e-07 | 2.516269e-06 | 5.288089e-06 | 4.952454e-06 | 2.619277e-06 | 1.870907e-07 |
| 1.584893 | 1.559841e-08 | 1.546002e-07 | 1.800052e-06 | 3.745948e-06 | 3.374207e-06 | 1.698759e-06 | 9.974787e-08 |
| 1.778279 | 1.177392e-08 | 1.209619e-07 | 1.278974e-06 | 2.616232e-06 | 2.240602e-06 | 1.066608e-06 | 4.925765e-08 |
| 1.995262 | 8.797794e-09 | 9.361182e-08 | 9.047748e-07 | 1.799656e-06 | 1.445803e-06 | 6.460484e-07 | 2.217591e-08 |
| 2.238721 | 6.493679e-09 | 7.151545e-08 | 6.351625e-07 | 1.216900e-06 | 9.036861e-07 | 3.755797e-07 | 8.989084e-09 |
| 2.511886 | 4.724503e-09 | 5.388147e-08 | 4.414818e-07 | 8.061964e-07 | 5.437002e-07 | 2.081034e-07 | 3.210237e-09 |
| 2.818383 | 3.383954e-09 | 4.004014e-08 | 3.036749e-07 | 5.209945e-07 | 3.116395e-07 | 1.089736e-07 | 9.674353e-10 |
| 3.162278 | 2.517529e-09 | 3.064789e-08 | 2.209018e-07 | 3.601846e-07 | 1.980315e-07 | 6.664369e-08 | 5.044483e-10 |
| 3.548134 | 1.651105e-09 | 2.125564e-08 | 1.381287e-07 | 1.993748e-07 | 8.442341e-08 | 2.431382e-08 | 4.146139e-11 |

Donald C. Cook (41.98° N, 86.56° E), Response Spectra

| Frequency (Hz) | UHRS 1E-4 (g) | GMRS (g) | UHRS 1E-5 (g) |
|----------------|---------------|----------|---------------|
| 0.500000 | 0.043884 | 0.051472 | 0.101438 |
| 0.561009 | 0.047141 | 0.055813 | 0.110250 |
| 0.629463 | 0.050772 | 0.060748 | 0.120314 |
| 0.706269 | 0.054977 | 0.066687 | 0.132530 |
| 0.792447 | 0.060050 | 0.073895 | 0.147384 |
| 0.889140 | 0.066544 | 0.083217 | 0.166646 |
| 0.997631 | 0.074793 | 0.095337 | 0.191832 |
| 1.000000 | 0.074979 | 0.095614 | 0.192409 |
| 1.122019 | 0.087017 | 0.117912 | 0.240912 |
| 1.258925 | 0.104376 | 0.148822 | 0.307959 |
| 1.412538 | 0.131275 | 0.190174 | 0.395097 |
| 1.584893 | 0.170419 | 0.239469 | 0.493734 |
| 1.778279 | 0.212809 | 0.286618 | 0.584714 |
| 1.995262 | 0.252087 | 0.332598 | 0.675030 |
| 2.238721 | 0.284718 | 0.374312 | 0.759014 |
| 2.500000 | 0.312285 | 0.409924 | 0.830906 |
| 2.805046 | 0.341908 | 0.459268 | 0.936302 |

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|------------|----------|----------|----------|
| 3.147313 | 0.367524 | 0.498500 | 1.018759 |
| 3.531344 | 0.387194 | 0.526064 | 1.075542 |
| 3.962233 | 0.403451 | 0.544771 | 1.112066 |
| 4.445698 | 0.414208 | 0.550642 | 1.119677 |
| 4.988156 | 0.422713 | 0.555384 | 1.126008 |
| 5.000000 | 0.422901 | 0.555482 | 1.126132 |
| 5.610092 | 0.424967 | 0.557504 | 1.129879 |
| 6.294627 | 0.431542 | 0.560388 | 1.132834 |
| 7.062688 | 0.433895 | 0.563442 | 1.139006 |
| 7.924466 | 0.442137 | 0.567589 | 1.144100 |
| 8.891397 | 0.440809 | 0.560154 | 1.126245 |
| 9.976312 | 0.438264 | 0.558374 | 1.123398 |
| 10.000000 | 0.438326 | 0.558442 | 1.123529 |
| 11.220185 | 0.428919 | 0.545704 | 1.097523 |
| 12.589254 | 0.414055 | 0.530447 | 1.068684 |
| 14.125375 | 0.411261 | 0.528058 | 1.064471 |
| 15.848932 | 0.405973 | 0.514976 | 1.034952 |
| 17.782794 | 0.389067 | 0.497566 | 1.002001 |
| 19.952623 | 0.381978 | 0.484382 | 0.973388 |
| 22.387211 | 0.366570 | 0.465283 | 0.935229 |
| 25.000000 | 0.355773 | 0.449913 | 0.903499 |
| 28.050461 | 0.341300 | 0.425371 | 0.851112 |
| 31.473135 | 0.324458 | 0.403816 | 0.807702 |
| 35.313439 | 0.315174 | 0.387592 | 0.772932 |
| 39.622330 | 0.303510 | 0.369764 | 0.735653 |
| 44.456985 | 0.294451 | 0.357280 | 0.710098 |
| 49.881558 | 0.285119 | 0.343117 | 0.680545 |
| 55.968028 | 0.275859 | 0.330181 | 0.654002 |
| 62.797161 | 0.266585 | 0.317863 | 0.629002 |
| 70.459573 | 0.257215 | 0.306219 | 0.605728 |
| 79.056942 | 0.247499 | 0.294937 | 0.583553 |
| 88.703347 | 0.237183 | 0.284276 | 0.563269 |
| 99.526793 | 0.227954 | 0.275090 | 0.545999 |
| 100.000000 | 0.214125 | 0.259724 | 0.516161 |