CAP88-PC Version 4.1

Sample Datasets and Reports

Sample run MODTEST41.DAT

Sample run CAP88DEF41.DAT

Contents

CAP88-PC Version 4.1

Sample Input Dataset MODTEST41.DAT

NOTE: The sample input dataset in this document appears to differ from actual input dataset because of text wrapping. The values are identical.

```
4.1
Modtest41.
Oct 27, 2019 04:01 PM
Oct 27, 2019 04:02 PM
CAP88-PC Version 4
1111 Simulation Dr

Portsmouth
45111
Single Stack
2006
Modtest problem
for Version 4 User Manual
1
C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop
Adult
100
10
0
0
800       2400      4000      5600      7250      12100     24150     40250     56350     72200     0         0
0         0         0         0         0         0         0         0
T         T         T         T
C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
100.00
10.01
1000.00
8.00
0
1
1.000e+01
1.000e+00
0
1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
1
0.7000    0.3000    0.0000
0.4000    0.6000    0.0000
0.4400    0.5600    0.0000
OH
2.030e-01
4.560e-02
1.700e-02
86400
```

```
5
F
3
0         U-238     Particulate                              M         1.0000    1.000e+01
0         U-235     Particulate                              M         1.0000    1.000e+01
0         U-234     Particulate                              M         1.0000    8.000e+00
84        93        53        84        493       5263
Adrenals  UB_Wall   Bone_Sur  Brain     Breasts   St_Wall   SI_Wall   ULI_Wall  LLI_Wall  Kidneys   Liver
Muscle    Ovaries   Pancreas  R_Marrow  Skin      Spleen    Testes    Thymus    Thyroid   GB_Wall   Ht_Wall
Uterus    ET_Reg    Lung      E_50
esophagus stomach   colon     liver     lung      bone      skin      breast    ovary     bladder   kidney
thyroid   leukemia  residual  Total
5
U-238     Particulate                                        M         1.0000    1.410e+17 1.800e-03 1.000e-07 5.480e-05
2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
2.455e-08 2.463e-08 7.114e-07 2.455e-08 2.454e-08 2.552e-08 2.696e-08 3.938e-08 6.929e-08 2.541e-07 9.556e-08
2.455e-08 2.456e-08 2.455e-08 7.458e-08 2.454e-08 2.455e-08 2.454e-08 2.454e-08 2.455e-08 2.455e-08 2.455e-08
2.455e-08 2.455e-08 2.455e-08 4.454e-08
1.184e-07 1.187e-07 3.445e-06 1.183e-07 1.183e-07 1.185e-07 1.188e-07 1.216e-07 1.283e-07 1.233e-06 4.633e-07
1.183e-07 1.186e-07 1.183e-07 3.635e-07 1.183e-07 1.183e-07 1.185e-07 1.183e-07 1.183e-07 1.183e-07 1.184e-07
1.183e-07 4.150e-06 1.709e-05 2.236e-06
1.330e-18 1.550e-18 9.160e-18 1.750e-18 8.690e-18 1.630e-18 1.220e-18 1.320e-18 1.230e-18 1.860e-18 1.630e-18
4.240e-18 1.150e-18 1.160e-18 2.030e-18 2.790e-17 1.580e-18 4.900e-18 2.020e-18 3.450e-18 1.290e-18 1.550e-18
1.170e-18 1.160e-18 1.910e-18 3.200e-18
5.180e-20 7.030e-20 7.570e-19 4.020e-20 1.140e-18 6.580e-20 3.900e-20 4.270e-20 4.280e-20 1.000e-19 6.140e-20
7.060e-19 7.850e-20 3.490e-20 1.320e-19 6.630e-18 5.230e-20 8.620e-19 9.120e-20 1.990e-19 4.340e-20 5.890e-20
3.850e-20 3.100e-20 6.980e-20 3.910e-19
1.910e-11 5.440e-11 6.160e-10 1.330e-10 1.350e-10 8.390e-11 1.380e-12 2.690e-11 2.190e-11 4.680e-11 1.520e-10
3.880e-12 4.050e-11 1.730e-10 1.510e-09
8.430e-11 1.970e-10 5.270e-10 5.720e-10 2.340e-07 3.680e-10 5.650e-12 1.120e-10 1.010e-10 1.990e-10 6.560e-10
1.580e-11 1.980e-10 6.830e-10 2.380e-07
1.330e-21 6.580e-21 1.320e-20 2.470e-21 1.870e-20 8.700e-22 2.780e-21 4.200e-20 1.640e-21 3.750e-21 9.680e-22
1.100e-21 1.140e-20 3.340e-20 1.400e-19
3.570e-23 2.660e-22 4.410e-22 9.310e-23 6.820e-22 7.190e-23 6.620e-22 5.510e-21 1.120e-22 1.700e-22 5.200e-23
6.340e-23 7.410e-22 3.930e-21 1.280e-20
Th-234    Particulate                                        S         1.0000    2.082e+06 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 1.000e-04 5.000e-06 1.000e-03 1.000e-01
1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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4.165e-12 3.546e-11 4.177e-12 2.943e-11 1.782e-12 3.356e-12 4.818e-12 8.432e-13 6.864e-13 9.676e-12 1.322e-12
1.476e-11 6.864e-13 1.095e-12 3.398e-09
1.608e-11 3.103e-12 7.134e-11 1.962e-12 1.671e-11 1.949e-10 4.675e-10 2.760e-09 7.858e-09 2.640e-11 2.144e-11
8.471e-12 9.479e-12 1.248e-11 4.131e-11 4.169e-12 1.232e-11 3.445e-12 2.012e-11 6.942e-12 7.363e-12 2.975e-11
3.909e-12 2.504e-09 5.130e-08 6.787e-09
2.380e-16 2.620e-16 1.230e-15 3.170e-16 4.420e-16 2.780e-16 2.230e-16 2.410e-16 2.250e-16 2.910e-16 2.830e-16
3.310e-16 2.080e-16 2.160e-16 2.720e-16 8.230e-16 2.830e-16 3.700e-16 3.140e-16 3.560e-16 2.340e-16 2.670e-16
2.150e-16 2.140e-16 3.300e-16 3.220e-16
6.280e-18 7.240e-18 2.910e-17 6.590e-18 9.860e-18 7.200e-18 6.410e-18 6.760e-18 6.670e-18 7.320e-18 7.260e-18
9.020e-18 6.410e-18 6.160e-18 7.010e-18 1.810e-17 7.320e-18 9.630e-18 7.390e-18 8.050e-18 6.550e-18 6.930e-18
6.410e-18 5.610e-18 7.850e-18 8.190e-18
1.260e-15 5.910e-12 5.000e-10 1.620e-14 1.770e-14 6.450e-15 2.550e-16 7.160e-15 5.880e-14 3.400e-14 1.210e-14
3.520e-16 3.020e-13 8.100e-14 5.070e-10
2.530e-14 1.340e-12 1.070e-10 3.740e-14 6.040e-10 8.590e-15 4.900e-16 9.290e-14 1.890e-14 1.080e-14 1.550e-14
2.800e-15 3.440e-13 2.280e-13 7.130e-10
2.460e-19 1.120e-18 2.420e-18 4.290e-19 3.230e-18 1.170e-19 8.210e-20 2.140e-18 2.960e-19 6.340e-19 1.510e-19
1.130e-19 1.530e-18 3.890e-18 1.640e-17
6.450e-21 2.910e-20 6.940e-20 1.100e-20 7.680e-20 2.760e-21 1.810e-21 4.760e-20 9.120e-21 1.750e-20 3.810e-21
2.560e-21 3.930e-20 1.060e-19 4.240e-19
Pa-234m   B                                         B         0.0000    7.020e+01 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 5.000e-06 5.000e-06 1.000e-02 1.000e-01
0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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7.570e-16 7.570e-16 1.570e-15 9.760e-16 1.060e-15 8.150e-16 7.380e-16 7.630e-16 7.520e-16 8.230e-16 8.280e-16
8.980e-16 7.530e-16 7.260e-16 8.900e-16 5.470e-14 8.300e-16 9.280e-16 8.600e-16 9.470e-16 7.530e-16 8.100e-16
7.170e-16 7.670e-16 9.170e-16 1.420e-15
1.650e-17 1.770e-17 3.110e-17 1.730e-17 2.000e-17 1.760e-17 1.710e-17 1.740e-17 1.780e-17 1.790e-17 1.770e-17
2.030e-17 1.670e-17 1.620e-17 1.870e-17 9.340e-15 1.780e-17 2.070e-17 1.720e-17 1.900e-17 1.640e-17 1.730e-17
1.700e-17 1.560e-17 1.850e-17 1.120e-16
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00
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0.000e+00 0.000e+00 0.000e+00 0.000e+00
8.820e-19 3.290e-18 7.830e-18 1.250e-18 8.970e-18 1.490e-19 5.460e-18 5.120e-18 1.070e-18 1.830e-18 4.280e-19
3.020e-19 5.000e-18 1.180e-17 5.340e-17
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1.790e-20 7.110e-20 1.810e-19 2.680e-20 1.810e-19 2.950e-21 9.320e-19 9.660e-20 2.380e-20 4.280e-20 9.310e-21
6.050e-21 1.050e-19 2.630e-19 1.960e-18
Pa-234    Particulate                               M         1.0000    2.412e+04 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 5.000e-06 5.000e-06 1.000e-02 1.000e-01
0.000e+00 0.000e+00 1.600e-03 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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3.131e-11 7.024e-11 2.600e-11 2.089e-13 6.592e-12 6.243e-10 1.080e-09 2.515e-09 1.977e-09 6.105e-11 4.321e-11
3.690e-11 2.667e-10 7.501e-11 5.392e-11 1.368e-11 5.057e-11 1.834e-11 4.704e-12 9.918e-13 1.374e-10 1.630e-11
1.525e-10 9.918e-13 9.996e-12 4.194e-10
1.640e-11 1.262e-11 3.287e-11 6.927e-12 1.376e-11 9.691e-11 1.586e-10 3.662e-10 2.876e-10 1.699e-11 1.688e-11
1.473e-11 4.067e-11 1.988e-11 1.952e-11 6.932e-12 1.610e-11 3.971e-12 1.964e-11 1.042e-11 2.494e-11 2.305e-11
2.401e-11 2.335e-09 1.011e-09 2.461e-10
5.760e-14 5.730e-14 1.160e-13 7.420e-14 7.950e-14 6.180e-14 5.600e-14 5.790e-14 5.710e-14 6.230e-14 6.270e-14
6.780e-14 5.690e-14 5.520e-14 6.760e-14 9.510e-14 6.300e-14 6.990e-14 6.490e-14 7.150e-14 5.710e-14 6.140e-14
5.440e-14 5.840e-14 6.940e-14 6.670e-14
1.210e-15 1.290e-15 2.070e-15 1.270e-15 1.420e-15 1.280e-15 1.260e-15 1.270e-15 1.310e-15 1.300e-15 1.290e-15
1.460e-15 1.240e-15 1.190e-15 1.370e-15 2.750e-15 1.290e-15 1.480e-15 1.250e-15 1.380e-15 1.200e-15 1.270e-15
1.250e-15 1.160e-15 1.340e-15 1.380e-15
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8.990e-16 3.530e-13 1.040e-12 4.660e-11
3.170e-14 6.640e-13 7.170e-12 3.610e-14 1.440e-11 4.230e-15 9.970e-16 9.200e-14 8.730e-14 4.780e-14 1.240e-14
4.300e-15 1.470e-13 3.850e-13 2.310e-11
6.720e-17 2.490e-16 5.940e-16 9.500e-17 6.790e-16 1.100e-17 9.490e-18 3.840e-16 8.090e-17 1.390e-16 3.240e-17
2.280e-17 3.790e-16 8.960e-16 3.640e-15
1.330e-18 5.170e-18 1.330e-17 1.960e-18 1.310e-17 1.970e-19 2.740e-19 6.860e-18 1.760e-18 3.120e-18 6.760e-19
4.390e-19 7.690e-18 1.920e-17 7.500e-17
U-234     Particulate                               M         1.0000    7.747e+12 1.800e-03 1.000e-07 5.480e-05
2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
0.000e+00 0.000e+00 9.984e-01 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
2.762e-08 2.771e-08 7.857e-07 2.762e-08 2.762e-08 2.873e-08 3.035e-08 4.417e-08 7.618e-08 2.869e-07 1.076e-07
2.762e-08 2.762e-08 2.762e-08 8.118e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08
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1.330e-07 1.330e-07 1.330e-07 3.924e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07
1.330e-07 4.811e-06 2.086e-05 2.708e-06
3.100e-18 3.540e-18 2.000e-17 4.120e-18 1.440e-17 3.740e-18 2.840e-18 3.090e-18 2.870e-18 4.130e-18 3.780e-18
7.620e-18 2.660e-18 2.720e-18 4.220e-18 4.230e-17 3.700e-18 8.780e-18 4.490e-18 6.700e-18 3.000e-18 3.560e-18
2.730e-18 2.700e-18 4.430e-18 6.140e-18
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1.070e-19 1.380e-19 1.210e-18 9.310e-20 1.620e-18 1.320e-19 8.990e-20 9.710e-20 9.670e-20 1.790e-19 1.260e-19
1.020e-18 1.430e-19 8.300e-20 2.200e-19 9.060e-18 1.140e-19 1.230e-18 1.660e-19 3.180e-19 9.750e-20 1.210e-19
8.950e-20 7.460e-20 1.410e-19 5.800e-19
2.150e-11 6.130e-11 6.780e-10 1.500e-10 1.520e-10 9.340e-11 1.550e-12 2.990e-11 2.450e-11 5.270e-11 1.720e-10
4.370e-12 2.410e-11 1.950e-10 1.660e-09
9.470e-11 2.220e-10 5.770e-10 6.430e-10 2.870e-07 4.090e-10 6.350e-12 1.250e-10 1.130e-10 2.240e-10 7.400e-10
1.780e-11 1.050e-10 7.660e-10 2.910e-07
3.110e-21 1.510e-20 3.090e-20 5.730e-21 4.330e-20 1.900e-21 4.220e-21 6.960e-20 3.780e-21 8.560e-21 2.150e-21
2.130e-21 2.370e-20 6.670e-20 2.810e-19
8.580e-23 5.330e-22 1.000e-21 1.910e-22 1.380e-21 1.150e-22 9.040e-22 7.830e-21 2.030e-22 3.340e-22 9.310e-23
1.010e-22 1.230e-21 6.000e-21 2.000e-20
5
U-235     Particulate                                 M         1.0000    2.222e+16 1.800e-03 1.000e-07 5.480e-05
2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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1.240e-07 1.238e-07 3.580e-06 1.235e-07 1.237e-07 1.238e-07 1.240e-07 1.269e-07 1.340e-07 1.286e-06 4.824e-07
1.236e-07 1.235e-07 1.238e-07 3.668e-07 1.234e-07 1.237e-07 1.233e-07 1.239e-07 1.236e-07 1.236e-07 1.242e-07
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7.000e-15 5.230e-15 5.350e-15 6.530e-15 9.150e-15 6.350e-15 7.480e-15 6.780e-15 7.480e-15 5.500e-15 6.140e-15
5.270e-15 5.450e-15 7.160e-15 6.870e-15
1.300e-16 1.380e-16 3.320e-16 1.340e-16 1.600e-16 1.390e-16 1.300e-16 1.350e-16 1.350e-16 1.380e-16 1.390e-16
1.590e-16 1.310e-16 1.260e-16 1.440e-16 2.060e-16 1.400e-16 1.620e-16 1.330e-16 1.470e-16 1.280e-16 1.340e-16
1.310e-16 1.190e-16 1.470e-16 1.490e-16
2.000e-11 5.750e-11 7.080e-10 1.390e-10 1.410e-10 8.740e-11 1.440e-12 2.790e-11 2.330e-11 4.910e-11 1.590e-10
4.060e-12 2.790e-11 1.820e-10 1.630e-09
8.850e-11 2.070e-10 5.560e-10 5.960e-10 2.530e-07 3.830e-10 5.900e-12 1.180e-10 1.060e-10 2.080e-10 6.850e-10
1.660e-11 1.220e-10 7.180e-10 2.570e-07
6.270e-18 2.510e-17 5.750e-17 9.620e-18 7.000e-17 1.840e-18 9.130e-19 4.150e-17 7.440e-18 1.420e-17 3.290e-18
2.380e-18 3.670e-17 8.930e-17 3.660e-16
1.370e-19 5.610e-19 1.390e-18 2.110e-19 1.440e-18 3.150e-20 2.060e-20 7.730e-19 1.860e-19 3.340e-19 7.180e-20
4.680e-20 8.080e-19 2.060e-18 8.070e-18
Th-231    Particulate                                 S         1.0000    9.187e+04 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 1.000e-04 5.000e-06 1.000e-03 1.000e-01
1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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4.912e-13 2.863e-12 5.785e-12 1.780e-14 6.054e-14 1.936e-10 4.374e-10 1.918e-09 3.378e-09 1.376e-12 9.872e-13
1.343e-12 1.778e-11 1.524e-12 1.833e-12 2.888e-13 9.686e-13 5.707e-13 4.358e-14 1.983e-14 4.473e-12 2.013e-13
4.864e-12 1.983e-14 1.253e-13 3.337e-10
7.058e-13 5.860e-13 5.641e-11 2.098e-13 6.716e-13 3.112e-11 6.958e-11 3.048e-10 5.366e-10 1.167e-12 2.261e-12
9.335e-13 3.302e-12 6.972e-13 2.753e-12 2.796e-13 6.751e-13 5.705e-13 7.987e-13 3.425e-13 9.508e-13 1.358e-12
9.000e-13 8.519e-10 1.570e-09 2.426e-10
3.200e-16 3.530e-16 1.650e-15 4.220e-16 6.760e-16 3.730e-16 2.990e-16 3.220e-16 3.010e-16 3.950e-16 3.800e-16
4.770e-16 2.780e-16 2.880e-16 3.750e-16 2.490e-15 3.780e-16 5.400e-16 4.260e-16 5.040e-16 3.110e-16 3.580e-16
2.880e-16 2.880e-16 4.410e-16 4.630e-16
8.690e-18 1.050e-17 4.700e-17 8.740e-18 2.590e-17 1.030e-17 8.550e-18 9.130e-18 8.870e-18 1.140e-17 1.030e-17
1.960e-17 8.920e-18 8.030e-18 1.070e-17 7.980e-17 1.020e-17 2.300e-17 1.120e-17 1.390e-17 8.760e-18 9.660e-18
8.460e-18 7.310e-18 1.120e-17 1.520e-17
8.060e-17 1.150e-12 4.700e-11 2.470e-15 2.640e-15 6.020e-16 4.500e-17 6.960e-16 3.470e-14 9.910e-15 9.650e-16
1.410e-17 1.300e-14 2.810e-14 4.830e-11
1.180e-15 2.230e-13 9.070e-12 2.750e-15 2.260e-11 2.810e-15 2.750e-17 3.990e-15 7.620e-15 2.120e-15 5.230e-16
1.130e-16 5.250e-15 1.650e-14 3.190e-11
3.310e-19 1.510e-18 3.230e-18 5.760e-19 4.310e-18 1.570e-19 2.480e-19 3.270e-18 3.950e-19 8.540e-19 2.050e-19
1.600e-19 2.100e-18 5.380e-18 2.270e-17
8.410e-21 4.160e-20 9.310e-20 1.560e-20 1.100e-19 4.460e-21 7.960e-21 1.250e-19 1.270e-20 2.540e-20 5.930e-21
4.430e-21 6.010e-20 1.800e-19 6.940e-19
Pa-231    Particulate                              M         1.0000    1.034e+12 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 5.000e-06 5.000e-06 1.000e-02 1.000e-01
0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
5.606e-08 5.611e-08 2.511e-05 5.602e-08 5.597e-08 5.722e-08 5.911e-08 8.342e-08 1.354e-07 3.406e-07 6.554e-07
5.601e-08 2.153e-07 5.602e-08 9.261e-07 5.598e-08 5.622e-08 2.184e-07 5.599e-08 5.600e-08 5.604e-08 5.600e-08
5.603e-08 5.600e-08 5.601e-08 4.793e-07
1.039e-05 1.040e-05 4.665e-03 1.039e-05 1.038e-05 1.038e-05 1.039e-05 1.206e-05 1.513e-05 6.341e-05 1.222e-04
1.039e-05 3.999e-05 1.039e-05 1.728e-04 1.038e-05 1.042e-05 4.058e-05 1.038e-05 1.038e-05 1.039e-05 1.038e-05
1.039e-05 1.555e-05 3.321e-05 9.117e-05
1.210e-15 1.240e-15 3.440e-15 1.550e-15 1.840e-15 1.310e-15 1.140e-15 1.200e-15 1.160e-15 1.330e-15 1.330e-15
1.490e-15 1.090e-15 1.140e-15 1.400e-15 2.410e-15 1.340e-15 1.580e-15 1.410e-15 1.570e-15 1.170e-15 1.290e-15
1.120e-15 1.170e-15 1.490e-15 1.450e-15
2.760e-17 3.010e-17 6.830e-17 2.870e-17 4.330e-17 2.980e-17 2.770e-17 2.870e-17 2.870e-17 3.060e-17 2.980e-17
3.950e-17 2.950e-17 2.640e-17 3.180e-17 8.810e-17 2.990e-17 4.200e-17 3.020e-17 3.420e-17 2.710e-17 2.880e-17
2.780e-17 2.530e-17 3.180e-17 3.470e-17
3.970e-11 8.910e-11 8.100e-10 6.830e-10 2.580e-10 1.420e-09 2.510e-12 4.490e-11 1.980e-10 1.010e-10 1.370e-10
6.880e-12 2.200e-10 2.790e-10 4.290e-09
6.170e-09 1.140e-08 2.510e-08 1.050e-07 3.510e-07 2.350e-07 3.620e-10 6.420e-09 3.310e-08 1.520e-08 2.110e-08
9.820e-10 3.480e-08 3.770e-08 8.840e-07
1.350e-18 5.290e-18 1.220e-17 2.020e-18 1.460e-17 3.270e-19 2.400e-19 8.890e-18 1.550e-18 3.000e-18 6.920e-19
5.000e-19 7.860e-18 1.910e-17 7.750e-17
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2.910e-20 1.200e-19 2.960e-19 4.520e-20 3.110e-19 6.490e-21 8.790e-21 2.090e-19 4.200e-20 7.280e-20 1.590e-20
1.090e-20 1.780e-19 4.640e-19 1.810e-18
Ac-227    Particulate                               M         1.0000    6.871e+08 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 2.000e-05 2.000e-06 1.000e-03 1.000e-01
0.000e+00 0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
4.735e-08 4.737e-08 9.354e-06 4.728e-08 4.726e-08 4.732e-08 4.744e-08 5.584e-08 7.513e-08 7.116e-08 2.022e-06
4.728e-08 1.871e-07 4.732e-08 4.921e-07 4.726e-08 4.754e-08 1.858e-07 4.727e-08 4.727e-08 4.737e-08 4.729e-08
4.729e-08 4.727e-08 4.729e-08 3.225e-07
8.711e-06 8.713e-06 1.726e-03 8.697e-06 8.695e-06 8.699e-06 8.707e-06 1.003e-05 1.247e-05 1.337e-05 3.726e-04
8.698e-06 3.443e-05 8.706e-06 9.110e-05 8.693e-06 8.743e-06 3.419e-05 8.696e-06 8.696e-06 8.715e-06 8.701e-06
8.699e-06 2.999e-05 9.251e-05 6.945e-05
2.270e-18 2.510e-18 1.160e-17 2.970e-18 7.020e-18 2.640e-18 2.100e-18 2.260e-18 2.120e-18 2.860e-18 2.680e-18
4.230e-18 1.960e-18 2.030e-18 2.860e-18 1.590e-17 2.650e-18 4.810e-18 3.070e-18 4.060e-18 2.180e-18 2.540e-18
2.030e-18 2.040e-18 3.110e-18 3.650e-18
6.870e-20 8.510e-20 5.300e-19 6.340e-20 5.900e-19 8.230e-20 6.130e-20 6.640e-20 6.430e-20 1.030e-19 8.040e-20
3.860e-19 7.770e-20 5.640e-20 1.100e-19 3.190e-18 7.640e-20 4.590e-19 9.670e-20 1.550e-19 6.430e-20 7.530e-20
6.070e-20 5.110e-20 8.940e-20 2.370e-19
4.070e-11 1.110e-10 3.770e-10 2.880e-09 2.930e-10 6.890e-10 3.050e-12 6.120e-11 1.910e-10 9.700e-11 3.740e-11
8.650e-12 1.540e-10 3.990e-10 5.340e-09
6.470e-09 1.540e-08 3.900e-08 4.660e-07 1.140e-06 1.140e-07 4.390e-10 8.640e-09 3.300e-08 1.500e-08 5.860e-09
1.210e-09 2.370e-08 5.380e-08 1.920e-06
2.350e-21 1.070e-20 2.270e-20 4.060e-21 3.040e-20 1.100e-21 1.590e-21 3.390e-20 2.790e-21 6.070e-21 1.490e-21
1.290e-21 1.610e-20 4.230e-20 1.770e-19
5.880e-23 3.320e-22 6.760e-22 1.220e-22 8.740e-22 5.030e-23 3.180e-22 2.850e-21 1.110e-22 2.060e-22 5.360e-23
4.940e-23 6.170e-22 2.540e-21 8.860e-21
Th-227    Particulate                               S         1.0000    1.614e+06 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 1.000e-04 5.000e-06 1.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 9.862e-01 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
3.219e-10 3.736e-10 8.795e-08 3.129e-10 3.139e-10 1.817e-09 4.215e-09 2.659e-08 9.149e-08 2.594e-09 4.947e-09
3.320e-10 7.097e-10 3.315e-10 7.865e-09 3.186e-10 3.291e-10 5.533e-10 3.137e-10 3.129e-10 3.619e-10 3.162e-10
3.914e-10 3.129e-10 3.150e-10 9.115e-09
4.005e-10 2.276e-10 6.816e-08 2.217e-10 4.000e-10 6.823e-10 1.183e-09 6.573e-09 2.107e-08 3.018e-09 4.227e-09
2.945e-10 5.205e-10 3.501e-10 5.937e-09 2.483e-10 3.455e-10 4.870e-10 4.424e-10 2.832e-10 2.819e-10 5.591e-10
2.333e-10 4.921e-06 6.373e-05 7.651e-06
4.360e-15 4.480e-15 1.320e-14 5.600e-15 6.510e-15 4.740e-15 4.120e-15 4.340e-15 4.180e-15 4.810e-15 4.830e-15
5.330e-15 3.970e-15 4.100e-15 5.030e-15 7.850e-15 4.830e-15 5.650e-15 5.110e-15 5.660e-15 4.240e-15 4.670e-15
4.030e-15 4.210e-15 5.420e-15 5.220e-15
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9.910e-17 1.060e-16 2.380e-16 1.030e-16 1.270e-16 1.060e-16 1.000e-16 1.030e-16 1.040e-16 1.060e-16 1.060e-16
1.250e-16 1.040e-16 9.610e-17 1.110e-16 1.870e-16 1.070e-16 1.280e-16 1.050e-16 1.150e-16 9.750e-17 1.030e-16
1.010e-16 9.160e-17 1.130e-16 1.150e-16
5.030e-13 1.090e-11 1.000e-09 9.730e-12 5.280e-12 1.740e-11 5.300e-14 1.290e-12 1.220e-12 1.280e-12 1.650e-12
1.780e-13 4.860e-12 8.420e-12 1.060e-09
5.730e-13 3.950e-12 2.570e-10 7.320e-12 8.980e-07 9.380e-12 3.010e-14 1.650e-12 8.810e-13 6.810e-13 1.760e-12
1.130e-13 3.290e-12 6.290e-12 8.980e-07
4.840e-18 1.910e-17 4.410e-17 7.320e-18 5.300e-17 1.250e-18 7.830e-19 3.150e-17 5.650e-18 1.080e-17 2.500e-18
1.800e-18 2.820e-17 6.840e-17 2.790e-16
1.050e-19 4.280e-19 1.070e-18 1.610e-19 1.100e-18 2.260e-20 1.870e-20 6.140e-19 1.480e-19 2.560e-19 5.510e-20
3.660e-20 6.230e-19 1.590e-18 6.230e-18
5
U-234     Particulate                                M         1.0000    7.747e+12 1.800e-03 1.000e-07 5.480e-05
2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
2.762e-08 2.771e-08 7.857e-07 2.762e-08 2.762e-08 2.873e-08 3.035e-08 4.417e-08 7.618e-08 2.869e-07 1.076e-07
2.762e-08 2.762e-08 2.762e-08 8.118e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08 2.762e-08
2.762e-08 2.762e-08 2.762e-08 4.954e-08
1.330e-07 1.335e-07 3.801e-06 1.330e-07 1.330e-07 1.332e-07 1.336e-07 1.363e-07 1.426e-07 1.391e-06 5.205e-07
1.330e-07 1.330e-07 1.330e-07 3.924e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07 1.330e-07
1.330e-07 4.811e-06 2.086e-05 2.708e-06
3.100e-18 3.540e-18 2.000e-17 4.120e-18 1.440e-17 3.740e-18 2.840e-18 3.090e-18 2.870e-18 4.130e-18 3.780e-18
7.620e-18 2.660e-18 2.720e-18 4.220e-18 4.230e-17 3.700e-18 8.780e-18 4.490e-18 6.700e-18 3.000e-18 3.560e-18
2.730e-18 2.700e-18 4.430e-18 6.140e-18
1.070e-19 1.380e-19 1.210e-18 9.310e-20 1.620e-18 1.320e-19 8.990e-20 9.710e-20 9.670e-20 1.790e-19 1.260e-19
1.020e-18 1.430e-19 8.300e-20 2.200e-19 9.060e-18 1.140e-19 1.230e-18 1.660e-19 3.180e-19 9.750e-20 1.210e-19
8.950e-20 7.460e-20 1.410e-19 5.800e-19
2.150e-11 6.130e-11 6.780e-10 1.500e-10 1.520e-10 9.340e-11 1.550e-12 2.990e-11 2.450e-11 5.270e-11 1.720e-10
4.370e-12 2.410e-11 1.950e-10 1.660e-09
9.470e-11 2.220e-10 5.770e-10 6.430e-10 2.870e-07 4.090e-10 6.350e-12 1.250e-10 1.130e-10 2.240e-10 7.400e-10
1.780e-11 1.050e-10 7.660e-10 2.910e-07
3.110e-21 1.510e-20 3.090e-20 5.730e-21 4.330e-20 1.900e-21 4.220e-21 6.960e-20 3.780e-21 8.560e-21 2.150e-21
2.130e-21 2.370e-20 6.670e-20 2.810e-19
8.580e-23 5.330e-22 1.000e-21 1.910e-22 1.380e-21 1.150e-22 9.040e-22 7.830e-21 2.030e-22 3.340e-22 9.310e-23
1.010e-22 1.230e-21 6.000e-21 2.000e-20
Th-230    Particulate                                S         1.0000    2.379e+12 1.800e-03 1.000e-07 5.480e-05
5.000e-04 5.000e-04 1.000e-04 5.000e-06 1.000e-03 1.000e-01
1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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1.360e-08 1.360e-08 1.227e-05 1.360e-08 1.360e-08 1.470e-08 1.634e-08 3.019e-08 6.226e-08 1.852e-07 1.592e-07
1.360e-08 9.906e-08 1.360e-08 4.230e-07 1.360e-08 1.360e-08 1.008e-07 1.360e-08 1.360e-08 1.360e-08 1.360e-08
1.360e-08 1.360e-08 1.360e-08 2.139e-07
3.075e-07 3.073e-07 2.830e-04 3.075e-07 3.075e-07 3.076e-07 3.082e-07 3.119e-07 3.207e-07 4.421e-06 3.735e-06
3.075e-07 2.306e-06 3.075e-07 1.018e-05 3.073e-07 3.075e-07 2.347e-06 3.075e-07 3.075e-07 3.075e-07 3.075e-07
3.073e-07 2.818e-05 6.966e-05 1.322e-05
1.070e-17 1.170e-17 5.400e-17 1.420e-17 2.410e-17 1.240e-17 9.960e-18 1.070e-17 1.010e-17 1.300e-17 1.260e-17
1.650e-17 9.340e-18 9.670e-18 1.260e-17 4.580e-17 1.260e-17 1.830e-17 1.400e-17 1.670e-17 1.050e-17 1.190e-17
9.630e-18 9.640e-18 1.460e-17 1.520e-17
2.920e-19 3.330e-19 1.660e-18 2.950e-19 1.320e-18 3.320e-19 2.870e-19 3.020e-19 2.990e-19 3.550e-19 3.320e-19
9.410e-19 3.290e-19 2.750e-19 3.800e-19 7.230e-18 3.290e-19 1.050e-18 3.580e-19 4.510e-19 2.830e-19 3.170e-19
2.860e-19 2.480e-19 3.600e-19 6.410e-19
1.170e-11 3.780e-11 6.310e-10 1.980e-10 8.560e-11 7.420e-10 8.650e-13 1.760e-11 1.020e-10 2.800e-11 8.230e-11
2.520e-12 1.130e-10 1.120e-10 2.170e-09
1.910e-10 3.990e-10 9.020e-10 3.260e-09 6.970e-07 1.400e-08 1.190e-11 2.200e-10 1.810e-09 4.590e-10 1.370e-09
3.240e-11 1.940e-09 1.340e-09 7.230e-07
1.110e-20 5.010e-20 1.080e-19 1.910e-20 1.430e-19 5.130e-21 4.570e-21 1.160e-19 1.330e-20 2.830e-20 6.760e-21
5.320e-21 7.070e-20 1.830e-19 7.640e-19
2.850e-22 1.340e-21 3.100e-21 5.030e-22 3.520e-21 1.580e-22 7.210e-22 6.380e-21 4.680e-22 8.050e-22 1.850e-22
1.440e-22 2.130e-21 7.480e-21 2.720e-20
Ra-226    Particulate                              M         1.0000    5.049e+10 1.800e-03 1.000e-07 5.480e-05
1.000e-01 2.000e-01 2.000e-03 1.000e-03 4.000e-02 2.000e-01
0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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4.094e-08 4.003e-08 1.247e-05 4.067e-08 3.982e-08 4.105e-08 4.304e-08 6.671e-08 1.518e-07 5.959e-08 1.790e-07
4.028e-08 4.069e-08 4.026e-08 8.765e-07 3.999e-08 5.385e-08 3.982e-08 3.999e-08 4.022e-08 4.001e-08 4.009e-08
4.018e-08 4.022e-08 4.020e-08 2.796e-07
2.306e-08 2.249e-08 7.011e-06 2.290e-08 2.244e-08 2.269e-08 2.327e-08 3.009e-08 5.446e-08 3.347e-08 1.008e-07
2.267e-08 2.280e-08 2.268e-08 4.934e-07 2.251e-08 3.033e-08 2.240e-08 2.253e-08 2.265e-08 2.251e-08 2.261e-08
2.257e-08 4.942e-06 2.103e-05 2.677e-06
2.550e-16 2.650e-16 8.690e-16 3.290e-16 3.870e-16 2.800e-16 2.430e-16 2.560e-16 2.450e-16 2.850e-16 2.870e-16
3.160e-16 2.370e-16 2.420e-16 2.950e-16 5.230e-16 2.860e-16 3.370e-16 3.060e-16 3.370e-16 2.490e-16 2.770e-16
2.380e-16 2.470e-16 3.230e-16 3.110e-16
5.860e-18 6.210e-18 1.480e-17 6.060e-18 7.120e-18 6.280e-18 5.880e-18 6.080e-18 6.080e-18 6.240e-18 6.270e-18
7.120e-18 5.920e-18 5.690e-18 6.510e-18 8.880e-18 6.330e-18 7.260e-18 6.010e-18 6.630e-18 5.740e-18 6.040e-18
5.930e-18 5.380e-18 6.620e-18 6.680e-18
5.770e-11 2.290e-10 1.750e-09 4.470e-10 5.280e-10 2.410e-09 5.400e-12 1.280e-10 6.810e-11 1.280e-10 4.940e-11
1.730e-11 4.920e-10 3.260e-09 9.560e-09
2.570e-11 8.380e-11 5.230e-10 1.880e-10 2.900e-07 9.490e-10 2.080e-12 4.770e-11 3.130e-11 5.640e-11 1.960e-11
6.290e-12 2.090e-10 1.250e-09 2.930e-07
2.840e-19 1.130e-18 2.590e-18 4.350e-19 3.160e-18 8.250e-20 5.220e-20 1.870e-18 3.370e-19 6.410e-19 1.480e-19
1.070e-19 1.660e-18 4.030e-18 1.650e-17
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6.190e-21 2.540e-20 6.280e-20 9.500e-21 6.470e-20 1.410e-21 8.860e-22 3.440e-20 8.420e-21 1.500e-20 3.250e-21
2.110e-21 3.650e-20 9.260e-20 3.630e-19
Rn-222    B                                         B         0.0000    3.304e+05 0.000e+00 0.000e+00 5.480e-05
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0.000e+00 0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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1.770e-17 1.350e-17 1.420e-17 1.740e-17 2.220e-17 1.640e-17 1.820e-17 1.680e-17 1.850e-17 1.470e-17 1.590e-17
1.390e-17 1.480e-17 1.810e-17 1.730e-17
3.240e-19 3.540e-19 5.640e-19 3.450e-19 3.880e-19 3.450e-19 3.360e-19 3.430e-19 3.480e-19 3.480e-19 3.470e-19
3.980e-19 3.670e-19 3.180e-19 3.710e-19 5.070e-19 3.470e-19 4.040e-19 3.540e-19 3.840e-19 3.300e-19 3.420e-19
3.360e-19 3.120e-19 3.680e-19 3.720e-19
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1.700e-20 6.500e-20 1.530e-19 2.470e-20 1.770e-19 3.060e-21 2.220e-21 1.000e-19 1.920e-20 3.650e-20 8.430e-21
5.890e-21 9.770e-20 2.330e-19 9.430e-19
3.590e-22 1.390e-21 3.560e-21 5.260e-22 3.600e-21 5.360e-23 5.060e-23 1.870e-21 5.220e-22 8.560e-22 1.810e-22
1.220e-22 2.080e-21 5.160e-21 2.030e-20
Po-218    B                                         B         0.0000    1.860e+02 1.800e-03 1.000e-07 5.480e-05
1.000e-01 1.000e-01 5.000e-03 4.000e-04 1.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
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7.690e-23 8.910e-23 4.820e-22 1.040e-22 2.130e-22 9.480e-23 6.810e-23 7.610e-23 6.880e-23 1.070e-22 9.610e-23
1.370e-22 6.120e-23 6.330e-23 9.250e-23 2.500e-19 9.450e-23 1.650e-22 1.150e-22 1.460e-22 7.350e-23 8.710e-23
6.430e-23 6.220e-23 1.150e-22 2.620e-21
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3.590e-24 4.610e-24 2.460e-23 3.550e-24 1.150e-23 4.580e-24 3.330e-24 3.710e-24 3.460e-24 5.370e-24 4.550e-24
8.590e-24 3.200e-24 2.970e-24 4.340e-24 2.890e-23 4.490e-24 1.050e-23 5.210e-24 6.650e-24 3.420e-24 4.070e-24
3.200e-24 2.530e-24 5.170e-24 6.650e-24
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7.160e-26 3.830e-25 7.530e-25 1.460e-25 1.120e-24 4.580e-26 2.490e-23 1.030e-24 8.710e-26 2.150e-25 5.570e-26
4.650e-26 5.190e-25 1.380e-24 3.080e-23
2.900e-27 1.850e-26 3.720e-26 6.900e-27 5.060e-26 2.300e-27 2.900e-27 5.560e-26 4.600e-27 1.110e-26 2.800e-27
2.100e-27 2.440e-26 7.520e-26 2.970e-25
```

Sample Dataset MODTEST41.DAT

Modtest41 Output Reports

1. Synopsis
2. Summary
3. General
4. Dose and Risk Factors
5. Concentrations
6. Chi/Q
7. Weather

Synopsis

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

S Y N O P S I S R E P O R T

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006
DOSE Age Group: Adult

Comments: Modtest problem
for Version 4 User Manual

Effective Dose Equivalent
(mrem)

3.59E+02

At This Location: 800 Meters East Northeast

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\port
p File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 800 Meters East Northeast
Lifetime Fatal Cancer Risk: 3.07E-04

ORGAN DOSE EQUIVALENT SUMMARY
(RN-222 Working Level Calculations Excluded)

Organ	Selected Individual (mrem)	Collective Population (person-rem)
Adrenals	7.65E+01	1.50E+02
UB_Wall	8.04E+01	1.57E+02
Bone_Sur	8.79E+02	1.85E+03
Brain	7.81E+01	1.53E+02
Breasts	9.42E+01	1.83E+02
St_Wall	8.10E+01	1.59E+02
SI_Wall	7.81E+01	1.55E+02
ULI_Wall	8.72E+01	1.79E+02
LLI_Wall	1.04E+02	2.29E+02
Kidneys	3.22E+02	6.78E+02
Liver	1.55E+02	3.18E+02
Muscle	9.15E+01	1.78E+02
Ovaries	7.71E+01	1.51E+02
Pancreas	7.49E+01	1.47E+02
R_Marrow	1.34E+02	2.71E+02
Skin	3.02E+03	5.65E+03
Spleen	8.09E+01	1.58E+02
Testes	9.39E+01	1.83E+02
Thymus	7.88E+01	1.55E+02
Thyroid	8.49E+01	1.66E+02
GB_Wall	7.60E+01	1.49E+02
Ht_Wall	7.86E+01	1.54E+02
Uterus	7.70E+01	1.51E+02
ET_Reg	5.09E+02	7.13E+02
Lung	1.96E+03	2.62E+03
Effectiv	3.59E+02	5.59E+02

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

Risk Range	# of People	# of People in This Risk Range or Higher	Deaths in This Risk Range	Deaths in This Risk Range or Higher
1.0E+00 TO 1.0E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-01 TO 1.0E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-02 TO 1.0E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-03 TO 1.0E-04	1.94E+02	1.94E+02	2.45E+00	2.45E+00
1.0E-04 TO 1.0E-05	4.08E+03	4.27E+03	5.93E+00	8.38E+00
1.0E-05 TO 1.0E-06	5.25E+04	5.68E+04	1.40E+01	2.23E+01
LESS THAN 1.0E-06	6.05E+05	6.62E+05	3.58E+01	5.81E+01

RADIONUCLIDE EMISSIONS DURING THE YEAR 2006

Nuclide	Type	Size	Source #1 Ci/y	TOTAL Ci/y
U-238	M	1.000	1.0E+01	1.0E+01
U-235	M	1.000	1.0E+01	1.0E+01
U-234	M	1.000	8.0E+00	8.0E+00

SITE INFORMATION

Temperature:	10.010	degrees C
Precipitation:	100.000	cm/y
Humidity:	8.000	g/cu m
Mixing Height:	1000.0	m

SOURCE INFORMATION

Source Number: 1

Stack Height (m): 10.00
Diameter (m): 1.00

Plume Rise
Buoyant (cal/s): 1.00
(Heat Release Rate)

ADJUSTED AGRICULTURAL DATA

	Vegetable	Milk	Meat
Fraction Home Produced:	0.7000	0.4000	0.4400
Fraction From Assessment Area:	0.3000	0.6000	0.5600
Fraction Imported:	0.0000	0.0000	0.0000

Beef Cattle Density: 2.03E-01
Milk Cattle Density: 4.56E-02
Land Fraction Cultivated
for Vegetable Crops: 1.70E-02

POPULATION DATA

	Distance (m)						
Direction	800	2400	4000	5600	7250	12100	24150
N	0	0	19	443	803	3785	0
NNW	0	9	14	10	34	1069	3248
NW	0	121	0	371	141	1106	2284
WNW	0	0	0	0	33	922	1600
W	30	0	40	57	46	876	1348
WSW	57	6	9	16	20	569	1674
SW	46	7	57	224	20	707	1375
SSW	38	0	173	40	71	1631	3183
S	7	18	207	144	36	3518	30593
SSE	0	104	18	35	170	1656	13613
SE	7	39	10	3	75	986	4587
ESE	2	12	5	57	63	878	1980
E	6	54	40	2	96	1102	5808
ENE	1	65	37	93	95	1023	2435
NE	0	12	20	63	225	359	2329
NNE	0	10	82	79	567	2780	2266

	Distance (m)		
Direction	40250	56350	72200
N	42304	7518	26978
NNW	4628	4028	21176
NW	4111	12150	7605
WNW	6021	13838	9880
W	5591	7376	18285
WSW	2464	11058	17205
SW	1923	2702	5657
SSW	3732	6222	4633
S	4489	3037	14068
SSE	14145	43111	76266
SE	4108	4698	14064
ESE	6106	5645	25178
E	7400	4997	8015
ENE	11823	5583	9245
NE	2653	3232	16780
NNE	3879	7594	12216

Summaries

D O S E A N D R I S K S U M M A R I E S

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006
DOSE Age Group: Adult

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Pop File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)	Collective Population (person-rem)
Adrenals	7.65E+01	1.50E+02
UB_Wall	8.04E+01	1.57E+02
Bone_Sur	8.79E+02	1.85E+03
Brain	7.81E+01	1.53E+02
Breasts	9.42E+01	1.83E+02
St_Wall	8.10E+01	1.59E+02
SI_Wall	7.81E+01	1.55E+02
ULI_Wall	8.72E+01	1.79E+02
LLI_Wall	1.04E+02	2.29E+02
Kidneys	3.22E+02	6.78E+02
Liver	1.55E+02	3.18E+02
Muscle	9.15E+01	1.78E+02
Ovaries	7.71E+01	1.51E+02
Pancreas	7.49E+01	1.47E+02
R_Marrow	1.34E+02	2.71E+02
Skin	3.02E+03	5.65E+03
Spleen	8.09E+01	1.58E+02
Testes	9.39E+01	1.83E+02
Thymus	7.88E+01	1.55E+02
Thyroid	8.49E+01	1.66E+02
GB_Wall	7.60E+01	1.49E+02
Ht_Wall	7.86E+01	1.54E+02
Uterus	7.70E+01	1.51E+02
ET_Reg	5.09E+02	7.13E+02
Lung	1.96E+03	2.62E+03
Effectiv	3.59E+02	5.59E+02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)	Collective Population (person-rem)
INGESTION	2.37E+01	7.04E+01
INHALATION	2.46E+02	3.22E+02
AIR IMMERSION	1.49E-03	1.97E-03
GROUND SURFACE	8.93E+01	1.67E+02
INTERNAL	2.70E+02	3.92E+02
EXTERNAL	8.93E+01	1.67E+02
TOTAL	3.59E+02	5.59E+02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem)	Collective Population (person-rem)
U-238	8.91E+01	1.30E+02
Th-234	2.54E+00	4.75E+00
Pa-234m	3.47E+01	6.48E+01
Pa-234	6.85E-01	1.28E+00
U-234	8.57E+01	1.24E+02
U-235	1.42E+02	2.25E+02
Th-231	4.72E+00	8.81E+00
Pa-231	7.83E-03	1.46E-02
Ac-227	2.63E-05	4.90E-05
Th-227	1.25E-02	2.34E-02
Th-230	5.04E-05	9.74E-05
Ra-226	6.12E-06	1.14E-05
Rn-222	3.41E-07	6.36E-07
Po-218	6.09E-12	1.14E-11
TOTAL	3.59E+02	5.59E+02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
Esophagu	7.26E-07	1.84E-05
Stomach	2.71E-06	6.82E-05
Colon	9.39E-06	2.72E-04
Liver	2.15E-06	5.77E-05
LUNG	2.66E-04	4.56E-03
Bone	9.66E-07	2.69E-05
Skin	3.00E-06	7.26E-05
Breast	3.57E-06	8.75E-05
Ovary	9.54E-07	2.40E-05
Bladder	1.78E-06	4.51E-05
Kidneys	1.80E-06	5.00E-05
Thyroid	2.26E-07	5.64E-06
Leukemia	3.50E-06	8.57E-05
Residual	9.89E-06	2.47E-04
Total	3.07E-04	5.62E-03

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
INGESTION	8.08E-06	3.12E-04
INHALATION	2.63E-04	4.46E-03
AIR IMMERSION	7.93E-10	1.36E-08
GROUND SURFACE	3.51E-05	8.48E-04
INTERNAL	2.71E-04	4.77E-03
EXTERNAL	3.51E-05	8.48E-04
TOTAL	3.07E-04	5.62E-03

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
U-238	8.89E-05	1.56E-03
Th-234	1.32E-06	3.19E-05
Pa-234m	6.08E-06	1.47E-04
Pa-234	3.72E-07	8.99E-06
U-234	8.67E-05	1.52E-03
U-235	1.21E-04	2.29E-03
Th-231	2.16E-06	5.21E-05
Pa-231	4.08E-09	9.87E-08
Ac-227	9.82E-12	2.37E-10
Th-227	6.79E-09	1.64E-07
Th-230	2.14E-11	5.39E-10
Ra-226	3.33E-12	8.04E-11
Rn-222	1.86E-13	4.49E-12
Po-218	2.72E-18	6.57E-17
TOTAL	3.07E-04	5.62E-03

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	800	2400	4000	5600	7250	12100	24150
N	0.0E+00	0.0E+00	4.0E+01	2.4E+01	1.6E+01	7.3E+00	0.0E+00
NNW	0.0E+00	5.8E+01	2.6E+01	1.5E+01	1.0E+01	4.5E+00	1.4E+00
NW	0.0E+00	5.0E+01	0.0E+00	1.3E+01	8.5E+00	3.8E+00	1.1E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.4E+00	3.9E+00	1.3E+00
W	1.9E+02	0.0E+00	1.6E+01	9.6E+00	6.2E+00	2.8E+00	8.6E-01
WSW	1.8E+02	3.4E+01	1.5E+01	9.3E+00	6.1E+00	2.9E+00	9.7E-01
SW	2.1E+02	3.9E+01	1.8E+01	1.1E+01	7.1E+00	3.3E+00	1.1E+00
SSW	2.8E+02	0.0E+00	2.4E+01	1.4E+01	9.5E+00	4.4E+00	1.5E+00
S	2.2E+02	4.2E+01	1.9E+01	1.1E+01	7.6E+00	3.5E+00	1.2E+00
SSE	0.0E+00	3.2E+01	1.5E+01	8.8E+00	5.9E+00	2.7E+00	9.2E-01
SE	1.8E+02	3.4E+01	1.5E+01	9.2E+00	6.1E+00	2.8E+00	9.6E-01
ESE	1.9E+02	3.7E+01	1.6E+01	9.9E+00	6.6E+00	3.0E+00	1.0E+00
E	2.7E+02	5.6E+01	2.8E+01	1.8E+01	1.3E+01	7.0E+00	2.9E+00
ENE	3.6E+02	6.9E+01	3.1E+01	1.9E+01	1.2E+01	5.8E+00	1.9E+00
NE	0.0E+00	8.6E+01	3.9E+01	2.4E+01	1.6E+01	7.3E+00	2.4E+00
NNE	0.0E+00	8.9E+01	4.0E+01	2.4E+01	1.6E+01	7.3E+00	2.4E+00

	Distance (m)		
Direction	40250	56350	72200
N	1.1E+00	5.5E-01	2.9E-01
NNW	5.8E-01	2.9E-01	1.5E-01
NW	4.7E-01	2.4E-01	1.3E-01
WNW	6.1E-01	3.2E-01	1.6E-01
W	3.7E-01	1.9E-01	1.1E-01
WSW	4.5E-01	2.5E-01	1.3E-01
SW	4.9E-01	2.6E-01	1.5E-01
SSW	6.6E-01	3.6E-01	2.0E-01
S	5.4E-01	2.9E-01	1.7E-01
SSE	4.3E-01	2.4E-01	1.4E-01
SE	4.4E-01	2.5E-01	1.5E-01
ESE	4.6E-01	2.5E-01	1.4E-01
E	1.6E+00	8.8E-01	3.6E-01
ENE	8.7E-01	4.5E-01	2.3E-01
NE	1.1E+00	5.7E-01	2.9E-01
NNE	1.0E+00	5.3E-01	2.7E-01

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	800	2400	4000	5600	7250	12100	24150
N	0.0E+00	0.0E+00	7.5E-01	1.1E+01	1.3E+01	2.8E+01	0.0E+00
NNW	0.0E+00	5.2E-01	3.6E-01	1.5E-01	3.4E-01	4.8E+00	4.5E+00
NW	0.0E+00	6.0E+00	0.0E+00	4.8E+00	1.2E+00	4.2E+00	2.6E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-01	3.6E+00	2.1E+00
W	5.7E+00	0.0E+00	6.4E-01	5.5E-01	2.9E-01	2.5E+00	1.2E+00
WSW	1.0E+01	2.0E-01	1.4E-01	1.5E-01	1.2E-01	1.6E+00	1.6E+00
SW	9.6E+00	2.8E-01	1.0E+00	2.4E+00	1.4E-01	2.3E+00	1.5E+00
SSW	1.0E+01	0.0E+00	4.1E+00	5.7E-01	6.7E-01	7.2E+00	4.7E+00
S	1.6E+00	7.6E-01	3.9E+00	1.7E+00	2.7E-01	1.2E+01	3.6E+01
SSE	0.0E+00	3.4E+00	2.6E-01	3.1E-01	1.0E+00	4.5E+00	1.3E+01
SE	1.3E+00	1.3E+00	1.5E-01	2.8E-02	4.6E-01	2.8E+00	4.4E+00
ESE	3.8E-01	4.4E-01	8.2E-02	5.7E-01	4.1E-01	2.7E+00	2.0E+00
E	1.6E+00	3.1E+00	1.1E+00	3.6E-02	1.2E+00	7.7E+00	1.7E+01
ENE	3.6E-01	4.5E+00	1.1E+00	1.7E+00	1.2E+00	5.9E+00	4.6E+00
NE	0.0E+00	1.0E+00	7.8E-01	1.5E+00	3.5E+00	2.6E+00	5.6E+00
NNE	0.0E+00	8.9E-01	3.3E+00	1.9E+00	9.0E+00	2.0E+01	5.3E+00

	Distance (m)		
Direction	40250	56350	72200
N	4.5E+01	4.2E+00	8.0E+00
NNW	2.7E+00	1.2E+00	3.2E+00
NW	1.9E+00	2.9E+00	9.6E-01
WNW	3.7E+00	4.4E+00	1.5E+00
W	2.1E+00	1.4E+00	2.0E+00
WSW	1.1E+00	2.7E+00	2.3E+00
SW	9.4E-01	7.1E-01	8.5E-01
SSW	2.5E+00	2.2E+00	9.2E-01
S	2.4E+00	8.9E-01	2.4E+00
SSE	6.0E+00	1.0E+01	1.1E+01
SE	1.8E+00	1.2E+00	2.1E+00
ESE	2.8E+00	1.4E+00	3.6E+00
E	1.2E+01	4.4E+00	2.9E+00
ENE	1.0E+01	2.5E+00	2.2E+00
NE	2.9E+00	1.8E+00	4.8E+00
NNE	4.0E+00	4.0E+00	3.3E+00

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	800	2400	4000	5600	7250	12100	24150
N	0.0E+00	0.0E+00	3.3E-05	2.0E-05	1.3E-05	5.9E-06	0.0E+00
NNW	0.0E+00	4.9E-05	2.1E-05	1.3E-05	8.2E-06	3.6E-06	1.1E-06
NW	0.0E+00	4.2E-05	0.0E+00	1.1E-05	7.0E-06	3.0E-06	8.8E-07
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E-06	3.2E-06	1.0E-06
W	1.6E-04	0.0E+00	1.3E-05	7.9E-06	5.1E-06	2.3E-06	6.6E-07
WSW	1.5E-04	2.8E-05	1.3E-05	7.6E-06	5.0E-06	2.3E-06	7.5E-07
SW	1.8E-04	3.3E-05	1.5E-05	8.8E-06	5.8E-06	2.6E-06	8.3E-07
SSW	2.3E-04	0.0E+00	1.9E-05	1.2E-05	7.7E-06	3.5E-06	1.1E-06
S	1.9E-04	3.5E-05	1.6E-05	9.4E-06	6.2E-06	2.8E-06	9.0E-07
SSE	0.0E+00	2.7E-05	1.2E-05	7.2E-06	4.7E-06	2.2E-06	7.0E-07
SE	1.5E-04	2.8E-05	1.2E-05	7.5E-06	4.9E-06	2.3E-06	7.3E-07
ESE	1.6E-04	3.1E-05	1.4E-05	8.1E-06	5.3E-06	2.4E-06	7.7E-07
E	2.3E-04	4.7E-05	2.3E-05	1.5E-05	1.1E-05	5.7E-06	2.4E-06
ENE	3.1E-04	5.8E-05	2.6E-05	1.5E-05	1.0E-05	4.6E-06	1.5E-06
NE	0.0E+00	7.2E-05	3.2E-05	1.9E-05	1.3E-05	5.8E-06	1.9E-06
NNE	0.0E+00	7.4E-05	3.3E-05	2.0E-05	1.3E-05	5.9E-06	1.8E-06

	Distance (m)		
Direction	40250	56350	72200
N	8.1E-07	4.1E-07	2.0E-07
NNW	4.4E-07	2.1E-07	9.7E-08
NW	3.5E-07	1.7E-07	7.7E-08
WNW	4.7E-07	2.4E-07	1.0E-07
W	2.7E-07	1.3E-07	6.5E-08
WSW	3.4E-07	1.7E-07	8.2E-08
SW	3.6E-07	1.8E-07	9.3E-08
SSW	5.0E-07	2.5E-07	1.3E-07
S	3.9E-07	2.0E-07	1.1E-07
SSE	3.1E-07	1.6E-07	8.7E-08
SE	3.2E-07	1.7E-07	9.0E-08
ESE	3.3E-07	1.7E-07	8.8E-08
E	1.3E-06	7.0E-07	2.7E-07
ENE	6.6E-07	3.3E-07	1.6E-07
NE	8.4E-07	4.2E-07	2.0E-07
NNE	7.9E-07	3.9E-07	1.8E-07

COLLECTIVE FATAL CANCER RISK Per Year
(All Radionuclides and Pathways)

	Distance (m)						
Direction	800	2400	4000	5600	7250	12100	24150
N	0.0E+00	0.0E+00	8.1E-06	1.1E-04	1.3E-04	2.9E-04	0.0E+00
NNW	0.0E+00	5.7E-06	3.9E-06	1.6E-06	3.6E-06	5.0E-05	4.5E-05
NW	0.0E+00	6.6E-05	0.0E+00	5.2E-05	1.3E-05	4.4E-05	2.6E-05
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-06	3.8E-05	2.2E-05
W	6.3E-05	0.0E+00	6.9E-06	5.8E-06	3.0E-06	2.6E-05	1.2E-05
WSW	1.1E-04	2.2E-06	1.5E-06	1.6E-06	1.3E-06	1.7E-05	1.6E-05
SW	1.1E-04	3.0E-06	1.1E-05	2.5E-05	1.5E-06	2.4E-05	1.5E-05
SSW	1.2E-04	0.0E+00	4.4E-05	6.1E-06	7.1E-06	7.4E-05	4.7E-05
S	1.7E-05	8.2E-06	4.2E-05	1.7E-05	2.9E-06	1.3E-04	3.6E-04
SSE	0.0E+00	3.6E-05	2.8E-06	3.3E-06	1.0E-05	4.6E-05	1.2E-04
SE	1.4E-05	1.4E-05	1.6E-06	2.9E-07	4.8E-06	2.9E-05	4.3E-05
ESE	4.2E-06	4.8E-06	8.8E-07	6.0E-06	4.3E-06	2.8E-05	2.0E-05
E	1.8E-05	3.3E-05	1.2E-05	3.9E-07	1.3E-05	8.2E-05	1.8E-04
ENE	4.0E-06	4.9E-05	1.2E-05	1.9E-05	1.2E-05	6.2E-05	4.7E-05
NE	0.0E+00	1.1E-05	8.3E-06	1.6E-05	3.7E-05	2.7E-05	5.7E-05
NNE	0.0E+00	9.6E-06	3.5E-05	2.0E-05	9.5E-05	2.1E-04	5.4E-05

	Distance (m)		
Direction	40250	56350	72200
N	4.4E-04	4.0E-05	7.1E-05
NNW	2.6E-05	1.1E-05	2.7E-05
NW	1.9E-05	2.6E-05	7.6E-06
WNW	3.7E-05	4.2E-05	1.3E-05
W	2.0E-05	1.3E-05	1.5E-05
WSW	1.1E-05	2.5E-05	1.8E-05
SW	8.9E-06	6.4E-06	6.8E-06
SSW	2.4E-05	2.0E-05	7.9E-06
S	2.3E-05	8.0E-06	1.9E-05
SSE	5.7E-05	9.0E-05	8.6E-05
SE	1.7E-05	1.0E-05	1.6E-05
ESE	2.6E-05	1.3E-05	2.9E-05
E	1.2E-04	4.5E-05	2.8E-05
ENE	1.0E-04	2.4E-05	1.9E-05
NE	2.9E-05	1.8E-05	4.2E-05
NNE	4.0E-05	3.8E-05	2.9E-05

General

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

G E N E R A L D A T A

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

Nuclide	Clearance Type	Particle Size (microns)	Scavenging Coefficient (per second)	Dry Deposition Velocity (m/s)
U-238	M	1.000	1.00E-05	1.80E-03
U-235	M	1.000	1.00E-05	1.80E-03
U-234	M	1.000	1.00E-05	1.80E-03

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

	DECAY CONSTANT (PER DAY)			TRANSFER COEFFICIENT	
Nuclide	Radio-active	Surface	Water	Milk (1)	Meat (2)
U-238	4.25E-13	5.48E-05	0.00E+00	4.00E-04	8.00E-04
U-235	2.70E-12	5.48E-05	0.00E+00	4.00E-04	8.00E-04
U-234	7.73E-09	5.48E-05	0.00E+00	4.00E-04	8.00E-04

FOOTNOTES:

(1) Fraction of animal's daily intake of nuclide which appears in each L of milk (days/L)

(2) Fraction of animal's daily intake of nuclide which appears in each kg of meat (days/kg)

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

	CONCENTRATION UPTAKE FACTOR		GI UPTAKE FRACTION	
Nuclide	Forage (1)	Edible (2)	Inhalation	Ingestion
U-238	1.00E-01	2.00E-03	2.00E-02	2.00E-02
U-235	1.00E-01	2.00E-03	2.00E-02	2.00E-02
U-234	1.00E-01	2.00E-03	2.00E-02	2.00E-02

FOOTNOTES: (1) Concentration factor for uptake of nuclide from soil for pasture and forage (in pCi/kg dry weight per pCi/kg dry soil)

(2) Concentration factor for uptake of nuclide from soil by edible parts of crops (in pCi/kg wet weight per pCi/kg dry soil)

NUMBER OF BEEF CATTLE

	Distance (meters)						
Direction	800	2400	4000	5600	7250	12100	24150
N	10	31	51	71	98	772	3100
NNW	10	31	51	71	98	772	3100
NW	10	31	51	71	98	772	3100
WNW	10	31	51	71	98	772	3100
W	10	31	51	71	98	772	3100
WSW	10	31	51	71	98	772	3100
SW	10	31	51	71	98	772	3100
SSW	10	31	51	71	98	772	3100
S	10	31	51	71	98	772	3100
SSE	10	31	51	71	98	772	3100
SE	10	31	51	71	98	772	3100
ESE	10	31	51	71	98	772	3100
E	10	31	51	71	98	772	3100
ENE	10	31	51	71	98	772	3100
NE	10	31	51	71	98	772	3100
NNE	10	31	51	71	98	772	3100

	Distance (meters)		
Direction	40250	56350	72200
N	5166	7232	8979
NNW	5166	7232	8979
NW	5166	7232	8979
WNW	5166	7232	8979
W	5166	7232	8979
WSW	5166	7232	8979
SW	5166	7232	8979
SSW	5166	7232	8979
S	5166	7232	8979
SSE	5166	7232	8979
SE	5166	7232	8979
ESE	5166	7232	8979
E	5166	7232	8979
ENE	5166	7232	8979
NE	5166	7232	8979
NNE	5166	7232	8979

NUMBER OF MILK CATTLE

	Distance (meters)						
Direction	800	2400	4000	5600	7250	12100	24150
N	2	7	11	16	22	173	696
NNW	2	7	11	16	22	173	696
NW	2	7	11	16	22	173	696
WNW	2	7	11	16	22	173	696
W	2	7	11	16	22	173	696
WSW	2	7	11	16	22	173	696
SW	2	7	11	16	22	173	696
SSW	2	7	11	16	22	173	696
S	2	7	11	16	22	173	696
SSE	2	7	11	16	22	173	696
SE	2	7	11	16	22	173	696
ESE	2	7	11	16	22	173	696
E	2	7	11	16	22	173	696
ENE	2	7	11	16	22	173	696
NE	2	7	11	16	22	173	696
NNE	2	7	11	16	22	173	696

	Distance (meters)		
Direction	40250	56350	72200
N	1160	1625	2017
NNW	1160	1625	2017
NW	1160	1625	2017
WNW	1160	1625	2017
W	1160	1625	2017
WSW	1160	1625	2017
SW	1160	1625	2017
SSW	1160	1625	2017
S	1160	1625	2017
SSE	1160	1625	2017
SE	1160	1625	2017
ESE	1160	1625	2017
E	1160	1625	2017
ENE	1160	1625	2017
NE	1160	1625	2017
NNE	1160	1625	2017

AREA OF VEGETABLE CROP PRODUCTION (M**2)

	Distance (meters)						
Direction	800	2400	4000	5600	7250	12100	24150
N	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
NNW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
NW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
WNW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
W	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
WSW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
SW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
SSW	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
S	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
SSE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
SE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
ESE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
E	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
ENE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
NE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06
NNE	8.5E+03	2.6E+04	4.3E+04	6.0E+04	8.2E+04	6.5E+05	2.6E+06

	Distance (meters)		
Direction	40250	56350	72200
N	4.3E+06	6.1E+06	7.5E+06
NNW	4.3E+06	6.1E+06	7.5E+06
NW	4.3E+06	6.1E+06	7.5E+06
WNW	4.3E+06	6.1E+06	7.5E+06
W	4.3E+06	6.1E+06	7.5E+06
WSW	4.3E+06	6.1E+06	7.5E+06
SW	4.3E+06	6.1E+06	7.5E+06
SSW	4.3E+06	6.1E+06	7.5E+06
S	4.3E+06	6.1E+06	7.5E+06
SSE	4.3E+06	6.1E+06	7.5E+06
SE	4.3E+06	6.1E+06	7.5E+06
ESE	4.3E+06	6.1E+06	7.5E+06
E	4.3E+06	6.1E+06	7.5E+06
ENE	4.3E+06	6.1E+06	7.5E+06
NE	4.3E+06	6.1E+06	7.5E+06
NNE	4.3E+06	6.1E+06	7.5E+06

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

HUMAN INHALATION RATE	
Cubic meters/yr	5.26E+03
SOIL PARAMETERS	
Effective surface density (kg/sq m, dry weight) (Assumes 15 cm plow layer)	2.15E+02
BUILDUP TIMES	
For activity in soil (years)	1.00E+02
For radionuclides deposited on ground/water (days)	3.65E+04
DELAY TIMES	
Ingestion of pasture grass by animals (hr)	0.00E+00
Ingestion of stored feed by animals (hr)	2.16E+03
Ingestion of leafy vegetables by man (hr)	3.36E+02
Ingestion of produce by man (hr)	3.36E+02
Transport time from animal feed-milk-man (day)	2.00E+00
Time from slaughter to consumption (day)	2.00E+01
WEATHERING	
Removal rate constant for physical loss (per hr)	2.90E-03
CROP EXPOSURE DURATION	
Pasture grass (hr)	7.20E+02
Crops/leafy vegetables (hr)	1.44E+03
AGRICULTURAL PRODUCTIVITY	
Grass-cow-milk-man pathway (kg/sq m)	2.80E-01
Produce/leafy veg for human consumption (kg/sq m)	7.16E-01
FALLOUT INTERCEPTION FRACTIONS	
Vegetables	2.00E-01
Pasture	5.70E-01
GRAZING PARAMETERS	
Fraction of year animals graze on pasture	4.00E-01
Fraction of daily feed that is pasture grass when animal grazes on pasture	4.30E-01

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

ANIMAL FEED CONSUMPTION FACTORS	
Contaminated feed/forage (kg/day, dry weight)	1.56E+01
DAIRY PRODUCTIVITY	
Milk production of cow (L/day)	1.10E+01
MEAT ANIMAL SLAUGHTER PARAMETERS	
Muscle mass of animal at slaughter (kg)	2.00E+02
Fraction of herd slaughtered (per day)	3.81E-03
DECONTAMINATION	
Fraction of radioactivity retained after washing for leafy vegetables and produce	5.00E-01
FRACTIONS GROWN IN GARDEN OF INTEREST	
Produce ingested	1.00E+00
Leafy vegetables ingested	1.00E+00
ENTERED INGESTION RATIOS:	
IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA	
Vegetables	7.00E-01
Meat	4.40E-01
Milk	4.00E-01
MINIMUM INGESTION FRACTIONS FROM OUTSIDE AREA (Actual fractions of food types from outside area can be greater than the minimum fractions listed below.)	
Vegetables	0.00E+00
Meat	0.00E+00
Milk	0.00E+00
HUMAN FOOD UTILIZATION FACTORS	
Produce ingestion (kg/y)	7.62E+01
Milk ingestion (L/y)	5.30E+01
Meat ingestion (kg/y)	8.40E+01
Leafy vegetable ingestion (kg/y)	7.79E+00
SWIMMING PARAMETERS	
Fraction of time spent swimming	0.00E+00
Dilution factor for water (cm)	1.00E+00

Factors

D O S E A N D R I S K C O N V E R S I O N F A C T O R S

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006
DOSE Age Group: Adult

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Pop File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

DOSE AND RISK FACTOR UNITS

The units for each type of dose rate conversion factor are shown below, by pathway:

Pathway	Units
Ingestion	millirem/picocurie
Inhalation	millirem/picocurie
Immersion	millirem-cubic cm/microcurie-year
Surface	millirem-square cm/microcurie-year

Risks for internal exposures (inhalation and ingestion) are the lifetime risk of premature death in a birth cohort of 100,000 people for a 1 picocurie intake.

This is simplified to lifetime risk per 100,000 picocuries.

The units for each type of risk conversion factor are shown below, by pathway:

Pathway	Units
Ingestion	lifetime risk/100,000 picocuries
Inhalation	lifetime risk/100,000 picocuries
Immersion	lifetime risk-cubic cm/100,000 picocurie-yr
Surface	lifetime risk-square cm/100,000 picocurie-yr

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* NUCLIDE U-238 :Particulate
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	9.083E-05	4.381E-04	1.549E+05	6.035E+01
UB_Wall	9.113E-05	4.392E-04	1.806E+05	8.190E+01
Bone_Sur	2.632E-03	1.275E-02	1.067E+06	8.819E+02
Brain	9.083E-05	4.377E-04	2.039E+05	4.683E+01
Breasts	9.080E-05	4.377E-04	1.012E+06	1.328E+03
St_Wall	9.442E-05	4.384E-04	1.899E+05	7.666E+01
SI_Wall	9.975E-05	4.396E-04	1.421E+05	4.543E+01
ULI_Wall	1.457E-04	4.499E-04	1.538E+05	4.975E+01
LLI_Wall	2.564E-04	4.747E-04	1.433E+05	4.986E+01
Kidneys	9.402E-04	4.562E-03	2.167E+05	1.165E+02
Liver	3.536E-04	1.714E-03	1.899E+05	7.153E+01
Muscle	9.083E-05	4.377E-04	4.940E+05	8.225E+02
Ovaries	9.087E-05	4.388E-04	1.340E+05	9.145E+01
Pancreas	9.083E-05	4.377E-04	1.351E+05	4.066E+01
R_Marrow	2.759E-04	1.345E-03	2.365E+05	1.538E+02
Skin	9.080E-05	4.377E-04	3.250E+06	7.724E+03
Spleen	9.083E-05	4.377E-04	1.841E+05	6.093E+01
Testes	9.080E-05	4.384E-04	5.708E+05	1.004E+03
Thymus	9.080E-05	4.377E-04	2.353E+05	1.062E+02
Thyroid	9.083E-05	4.377E-04	4.019E+05	2.318E+02
GB_Wall	9.083E-05	4.377E-04	1.503E+05	5.056E+01
Ht_Wall	9.083E-05	4.381E-04	1.806E+05	6.862E+01
Uterus	9.083E-05	4.377E-04	1.363E+05	4.485E+01
ET_Reg	9.083E-05	1.536E-02	1.351E+05	3.611E+01
Lung	9.083E-05	6.323E-02	2.225E+05	8.132E+01
Effectiv	1.648E-04	8.273E-03	3.728E+05	4.555E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	7.067E-08	3.119E-07	1.549E-04	4.159E-08
Stomach	2.013E-07	7.289E-07	7.666E-04	3.099E-07
Colon	2.279E-06	1.950E-06	1.538E-03	5.138E-07
Liver	4.921E-07	2.116E-06	2.878E-04	1.085E-07
LUNG	4.995E-07	8.658E-04	2.179E-03	7.945E-07
Bone	3.104E-07	1.362E-06	1.014E-04	8.376E-08
Skin	5.106E-09	2.091E-08	3.239E-04	7.712E-07
Breast	9.953E-08	4.144E-07	4.893E-03	6.419E-06
Ovary	8.103E-08	3.737E-07	1.911E-04	1.305E-07
Bladder	1.732E-07	7.363E-07	4.369E-04	1.981E-07
Kidneys	5.624E-07	2.427E-06	1.128E-04	6.058E-08
Thyroid	1.436E-08	5.846E-08	1.282E-04	7.386E-08
Leukemia	1.498E-07	7.326E-07	1.328E-03	8.633E-07
Residual	6.401E-07	2.527E-06	3.891E-03	4.578E-06

Total	5.587E-06	8.806E-04	1.631E-02	1.491E-05

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* NUCLIDE Th-234 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	8.473E-09	5.950E-08	2.773E+07	7.316E+03
UB_Wall	3.944E-08	1.148E-08	3.052E+07	8.435E+03
Bone_Sur	1.786E-07	2.640E-07	1.433E+08	3.390E+04
Brain	2.411E-09	7.259E-09	3.693E+07	7.677E+03
Breasts	3.392E-09	6.183E-08	5.149E+07	1.149E+04
St_Wall	3.696E-06	7.211E-07	3.239E+07	8.388E+03
SI_Wall	9.439E-06	1.730E-06	2.598E+07	7.468E+03
ULI_Wall	5.594E-05	1.021E-05	2.808E+07	7.875E+03
LLI_Wall	1.594E-04	2.907E-05	2.621E+07	7.771E+03
Kidneys	7.126E-08	9.768E-08	3.390E+07	8.528E+03
Liver	3.023E-08	7.933E-08	3.297E+07	8.458E+03
Muscle	1.541E-08	3.134E-08	3.856E+07	1.051E+04
Ovaries	1.312E-07	3.507E-08	2.423E+07	7.468E+03
Pancreas	1.545E-08	4.618E-08	2.516E+07	7.176E+03
R_Marrow	1.089E-07	1.528E-07	3.169E+07	8.167E+03
Skin	6.593E-09	1.543E-08	9.588E+07	2.109E+04
Spleen	1.242E-08	4.558E-08	3.297E+07	8.528E+03
Testes	1.783E-08	1.275E-08	4.310E+07	1.122E+04
Thymus	3.120E-09	7.444E-08	3.658E+07	8.609E+03
Thyroid	2.540E-09	2.569E-08	4.147E+07	9.378E+03
GB_Wall	3.580E-08	2.724E-08	2.726E+07	7.631E+03
Ht_Wall	4.891E-09	1.101E-07	3.111E+07	8.073E+03
Uterus	5.461E-08	1.446E-08	2.505E+07	7.468E+03
ET_Reg	2.540E-09	9.265E-06	2.493E+07	6.536E+03
Lung	4.052E-09	1.898E-04	3.844E+07	9.145E+03
Effectiv	1.257E-05	2.511E-05	3.751E+07	9.541E+03

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	4.662E-12	9.361E-11	2.866E-02	7.514E-06
Stomach	2.187E-08	4.958E-09	1.305E-01	3.390E-05
Colon	1.850E-06	3.959E-07	2.819E-01	8.085E-05
Liver	5.994E-11	1.384E-10	4.998E-02	1.281E-05
LUNG	6.549E-11	2.235E-06	3.763E-01	8.947E-05
Bone	2.387E-11	3.178E-11	1.363E-02	3.215E-06
Skin	9.435E-13	1.813E-12	9.565E-03	2.109E-06
Breast	2.649E-11	3.437E-10	2.493E-01	5.545E-05
Ovary	2.176E-10	6.993E-11	3.448E-02	1.062E-05
Bladder	1.258E-10	3.996E-11	7.386E-02	2.039E-05
Kidneys	4.477E-11	5.735E-11	1.759E-02	4.439E-06
Thyroid	1.302E-12	1.036E-11	1.316E-02	2.982E-06
Leukemia	1.117E-09	1.273E-09	1.782E-01	4.578E-05
Residual	2.997E-10	8.436E-10	4.532E-01	1.235E-04
Total	1.876E-06	2.638E-06	1.911E+00	4.940E-04

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* NUCLIDE Pa-234m :B *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	0.000E+00	0.000E+00	8.819E+07	1.922E+04
UB_Wall	0.000E+00	0.000E+00	8.819E+07	2.062E+04
Bone_Sur	0.000E+00	0.000E+00	1.829E+08	3.623E+04
Brain	0.000E+00	0.000E+00	1.137E+08	2.015E+04
Breasts	0.000E+00	0.000E+00	1.235E+08	2.330E+04
St_Wall	0.000E+00	0.000E+00	9.495E+07	2.050E+04
SI_Wall	0.000E+00	0.000E+00	8.598E+07	1.992E+04
ULI_Wall	0.000E+00	0.000E+00	8.889E+07	2.027E+04
LLI_Wall	0.000E+00	0.000E+00	8.761E+07	2.074E+04
Kidneys	0.000E+00	0.000E+00	9.588E+07	2.085E+04
Liver	0.000E+00	0.000E+00	9.646E+07	2.062E+04
Muscle	0.000E+00	0.000E+00	1.046E+08	2.365E+04
Ovaries	0.000E+00	0.000E+00	8.772E+07	1.946E+04
Pancreas	0.000E+00	0.000E+00	8.458E+07	1.887E+04
R_Marrow	0.000E+00	0.000E+00	1.037E+08	2.179E+04
Skin	0.000E+00	0.000E+00	6.373E+09	1.088E+07
Spleen	0.000E+00	0.000E+00	9.670E+07	2.074E+04
Testes	0.000E+00	0.000E+00	1.081E+08	2.412E+04
Thymus	0.000E+00	0.000E+00	1.002E+08	2.004E+04
Thyroid	0.000E+00	0.000E+00	1.103E+08	2.214E+04
GB_Wall	0.000E+00	0.000E+00	8.772E+07	1.911E+04
Ht_Wall	0.000E+00	0.000E+00	9.436E+07	2.015E+04
Uterus	0.000E+00	0.000E+00	8.353E+07	1.980E+04
ET_Reg	0.000E+00	0.000E+00	8.936E+07	1.817E+04
Lung	0.000E+00	0.000E+00	1.068E+08	2.155E+04
Effectiv	0.000E+00	0.000E+00	1.654E+08	1.305E+05

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	0.000E+00	0.000E+00	1.028E-01	2.085E-05
Stomach	0.000E+00	0.000E+00	3.833E-01	8.283E-05
Colon	0.000E+00	0.000E+00	9.122E-01	2.109E-04
Liver	0.000E+00	0.000E+00	1.456E-01	3.122E-05
LUNG	0.000E+00	0.000E+00	1.045E+00	2.109E-04
Bone	0.000E+00	0.000E+00	1.736E-02	3.437E-06
Skin	0.000E+00	0.000E+00	6.361E-01	1.086E-03
Breast	0.000E+00	0.000E+00	5.965E-01	1.125E-04
Ovary	0.000E+00	0.000E+00	1.247E-01	2.773E-05
Bladder	0.000E+00	0.000E+00	2.132E-01	4.986E-05
Kidneys	0.000E+00	0.000E+00	4.986E-02	1.085E-05
Thyroid	0.000E+00	0.000E+00	3.518E-02	7.048E-06
Leukemia	0.000E+00	0.000E+00	5.825E-01	1.223E-04
Residual	0.000E+00	0.000E+00	1.375E+00	3.064E-04

Total	0.000E+00	0.000E+00	6.221E+00	2.283E-03

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* NUCLIDE Pa-234 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.158E-07	6.068E-08	6.710E+09	1.410E+06
UB_Wall	2.599E-07	4.669E-08	6.675E+09	1.503E+06
Bone_Sur	9.620E-08	1.216E-07	1.351E+10	2.412E+06
Brain	7.729E-10	2.563E-08	8.644E+09	1.480E+06
Breasts	2.439E-08	5.091E-08	9.262E+09	1.654E+06
St_Wall	2.310E-06	3.586E-07	7.200E+09	1.491E+06
SI_Wall	3.996E-06	5.868E-07	6.524E+09	1.468E+06
ULI_Wall	9.305E-06	1.355E-06	6.745E+09	1.480E+06
LLI_Wall	7.315E-06	1.064E-06	6.652E+09	1.526E+06
Kidneys	2.259E-07	6.286E-08	7.258E+09	1.514E+06
Liver	1.599E-07	6.246E-08	7.305E+09	1.503E+06
Muscle	1.365E-07	5.450E-08	7.899E+09	1.701E+06
Ovaries	9.868E-07	1.505E-07	6.629E+09	1.445E+06
Pancreas	2.775E-07	7.356E-08	6.431E+09	1.386E+06
R_Marrow	1.995E-07	7.222E-08	7.875E+09	1.596E+06
Skin	5.062E-08	2.565E-08	1.108E+10	3.204E+06
Spleen	1.871E-07	5.957E-08	7.340E+09	1.503E+06
Testes	6.786E-08	1.469E-08	8.143E+09	1.724E+06
Thymus	1.740E-08	7.267E-08	7.561E+09	1.456E+06
Thyroid	3.670E-09	3.855E-08	8.330E+09	1.608E+06
GB_Wall	5.084E-07	9.228E-08	6.652E+09	1.398E+06
Ht_Wall	6.031E-08	8.528E-08	7.153E+09	1.480E+06
Uterus	5.643E-07	8.884E-08	6.338E+09	1.456E+06
ET_Reg	3.670E-09	8.640E-06	6.804E+09	1.351E+06
Lung	3.699E-08	3.741E-06	8.085E+09	1.561E+06
Effectiv	1.552E-06	9.106E-07	7.771E+09	1.608E+06

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	2.716E-11	1.173E-10	7.829E+00	1.549E-03
Stomach	1.328E-08	2.457E-09	2.901E+01	6.023E-03
Colon	1.502E-07	2.653E-08	6.920E+01	1.549E-02
Liver	3.478E-10	1.336E-10	1.107E+01	2.283E-03
LUNG	6.105E-10	5.328E-08	7.910E+01	1.526E-02
Bone	1.162E-11	1.565E-11	1.281E+00	2.295E-04
Skin	7.178E-12	3.689E-12	1.106E+00	3.192E-04
Breast	2.072E-10	3.404E-10	4.474E+01	7.992E-03
Ovary	1.602E-09	3.230E-10	9.425E+00	2.050E-03
Bladder	8.436E-10	1.769E-10	1.619E+01	3.635E-03
Kidneys	1.513E-10	4.588E-11	3.775E+00	7.875E-04
Thyroid	3.326E-12	1.591E-11	2.656E+00	5.114E-04
Leukemia	1.306E-09	5.439E-10	4.415E+01	8.959E-03
Residual	3.848E-09	1.424E-09	1.044E+02	2.237E-02

Total	1.724E-07	8.547E-08	4.241E+02	8.738E-02

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* NUCLIDE U-234 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.022E-04	4.921E-04	3.612E+05	1.247E+02
UB_Wall	1.025E-04	4.939E-04	4.124E+05	1.608E+02
Bone_Sur	2.907E-03	1.406E-02	2.330E+06	1.410E+03
Brain	1.022E-04	4.921E-04	4.800E+05	1.085E+02
Breasts	1.022E-04	4.921E-04	1.678E+06	1.887E+03
St_Wall	1.063E-04	4.928E-04	4.357E+05	1.538E+02
SI_Wall	1.123E-04	4.943E-04	3.309E+05	1.047E+02
ULI_Wall	1.634E-04	5.043E-04	3.600E+05	1.131E+02
LLI_Wall	2.819E-04	5.276E-04	3.344E+05	1.127E+02
Kidneys	1.062E-03	5.147E-03	4.811E+05	2.085E+02
Liver	3.981E-04	1.926E-03	4.404E+05	1.468E+02
Muscle	1.022E-04	4.921E-04	8.877E+05	1.188E+03
Ovaries	1.022E-04	4.921E-04	3.099E+05	1.666E+02
Pancreas	1.022E-04	4.921E-04	3.169E+05	9.669E+01
R_Marrow	3.004E-04	1.452E-03	4.916E+05	2.563E+02
Skin	1.022E-04	4.921E-04	4.928E+06	1.055E+04
Spleen	1.022E-04	4.921E-04	4.310E+05	1.328E+02
Testes	1.022E-04	4.921E-04	1.023E+06	1.433E+03
Thymus	1.022E-04	4.921E-04	5.231E+05	1.934E+02
Thyroid	1.022E-04	4.921E-04	7.806E+05	3.705E+02
GB_Wall	1.022E-04	4.921E-04	3.495E+05	1.136E+02
Ht_Wall	1.022E-04	4.921E-04	4.147E+05	1.410E+02
Uterus	1.022E-04	4.921E-04	3.180E+05	1.043E+02
ET_Reg	1.022E-04	1.780E-02	3.146E+05	8.691E+01
Lung	1.022E-04	7.718E-02	5.161E+05	1.643E+02
Effectiv	1.833E-04	1.002E-02	7.153E+05	6.757E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	7.955E-08	3.504E-07	3.623E-04	9.996E-08
Stomach	2.268E-07	8.214E-07	1.759E-03	6.209E-07
Colon	2.509E-06	2.135E-06	3.600E-03	1.165E-06
Liver	5.550E-07	2.379E-06	6.675E-04	2.225E-07
LUNG	5.624E-07	1.062E-03	5.044E-03	1.608E-06
Bone	3.456E-07	1.513E-06	2.213E-04	1.340E-07
Skin	5.735E-09	2.349E-08	4.916E-04	1.053E-06
Breast	1.106E-07	4.625E-07	8.108E-03	9.122E-06
Ovary	9.065E-08	4.181E-07	4.404E-04	2.365E-07
Bladder	1.950E-07	8.288E-07	9.972E-04	3.891E-07
Kidneys	6.364E-07	2.738E-06	2.505E-04	1.085E-07
Thyroid	1.617E-08	6.586E-08	2.481E-04	1.177E-07
Leukemia	8.917E-08	3.885E-07	2.761E-03	1.433E-06
Residual	7.215E-07	2.834E-06	7.771E-03	6.990E-06
Total	6.142E-06	1.077E-03	3.274E-02	2.330E-05

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* NUCLIDE U-235 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	9.498E-05	4.588E-04	6.582E+08	1.514E+05
UB_Wall	9.531E-05	4.581E-04	6.850E+08	1.608E+05
Bone_Sur	2.740E-03	1.325E-02	2.260E+09	3.868E+05
Brain	9.479E-05	4.570E-04	8.504E+08	1.561E+05
Breasts	9.465E-05	4.577E-04	1.002E+09	1.864E+05
St_Wall	9.894E-05	4.581E-04	7.235E+08	1.619E+05
SI_Wall	1.055E-04	4.588E-04	6.268E+08	1.514E+05
ULI_Wall	1.587E-04	4.695E-04	6.606E+08	1.573E+05
LLI_Wall	2.892E-04	4.958E-04	6.326E+08	1.573E+05
Kidneys	9.823E-04	4.758E-03	7.363E+08	1.608E+05
Liver	3.685E-04	1.785E-03	7.398E+08	1.619E+05
Muscle	9.483E-05	4.573E-04	8.155E+08	1.852E+05
Ovaries	9.561E-05	4.570E-04	6.093E+08	1.526E+05
Pancreas	9.491E-05	4.581E-04	6.233E+08	1.468E+05
R_Marrow	2.806E-04	1.357E-03	7.607E+08	1.678E+05
Skin	9.468E-05	4.566E-04	1.066E+09	2.400E+05
Spleen	9.483E-05	4.577E-04	7.398E+08	1.631E+05
Testes	9.472E-05	4.562E-04	8.714E+08	1.887E+05
Thymus	9.472E-05	4.584E-04	7.899E+08	1.549E+05
Thyroid	9.476E-05	4.573E-04	8.714E+08	1.713E+05
GB_Wall	9.502E-05	4.573E-04	6.408E+08	1.491E+05
Ht_Wall	9.476E-05	4.595E-04	7.153E+08	1.561E+05
Uterus	9.513E-05	4.570E-04	6.140E+08	1.526E+05
ET_Reg	9.476E-05	1.635E-02	6.349E+08	1.386E+05
Lung	9.479E-05	6.819E-02	8.341E+08	1.713E+05
Effectiv	1.728E-04	8.895E-03	8.004E+08	1.736E+05

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	7.400E-08	3.275E-07	7.305E-01	1.596E-04
Stomach	2.128E-07	7.659E-07	2.924E+00	6.536E-04
Colon	2.620E-06	2.057E-06	6.699E+00	1.619E-03
Liver	5.143E-07	2.205E-06	1.121E+00	2.458E-04
LUNG	5.217E-07	9.361E-04	8.155E+00	1.678E-03
Bone	3.234E-07	1.417E-06	2.144E-01	3.670E-05
Skin	5.328E-09	2.183E-08	1.064E-01	2.400E-05
Breast	1.032E-07	4.366E-07	4.835E+00	9.005E-04
Ovary	8.621E-08	3.922E-07	8.668E-01	2.167E-04
Bladder	1.817E-07	7.696E-07	1.654E+00	3.891E-04
Kidneys	5.883E-07	2.535E-06	3.833E-01	8.365E-05
Thyroid	1.502E-08	6.142E-08	2.773E-01	5.452E-05
Leukemia	1.032E-07	4.514E-07	4.276E+00	9.413E-04
Residual	6.734E-07	2.657E-06	1.040E+01	2.400E-03

Total	6.031E-06	9.509E-04	4.264E+01	9.402E-03

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* NUCLIDE Th-231 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.817E-09	2.611E-09	3.728E+07	1.012E+04
UB_Wall	1.059E-08	2.168E-09	4.112E+07	1.223E+04
Bone_Sur	2.140E-08	2.087E-07	1.922E+08	5.476E+04
Brain	6.586E-11	7.763E-10	4.916E+07	1.018E+04
Breasts	2.240E-10	2.485E-09	7.875E+07	3.017E+04
St_Wall	7.163E-07	1.151E-07	4.345E+07	1.200E+04
SI_Wall	1.618E-06	2.574E-07	3.483E+07	9.961E+03
ULI_Wall	7.097E-06	1.128E-06	3.751E+07	1.064E+04
LLI_Wall	1.250E-05	1.985E-06	3.507E+07	1.033E+04
Kidneys	5.091E-09	4.318E-09	4.602E+07	1.328E+04
Liver	3.653E-09	8.366E-09	4.427E+07	1.200E+04
Muscle	4.969E-09	3.454E-09	5.557E+07	2.283E+04
Ovaries	6.579E-08	1.222E-08	3.239E+07	1.039E+04
Pancreas	5.639E-09	2.580E-09	3.355E+07	9.355E+03
R_Marrow	6.782E-09	1.019E-08	4.369E+07	1.247E+04
Skin	1.069E-09	1.035E-09	2.901E+08	9.297E+04
Spleen	3.584E-09	2.498E-09	4.404E+07	1.188E+04
Testes	2.112E-09	2.111E-09	6.291E+07	2.680E+04
Thymus	1.612E-10	2.955E-09	4.963E+07	1.305E+04
Thyroid	7.337E-11	1.267E-09	5.872E+07	1.619E+04
GB_Wall	1.655E-08	3.518E-09	3.623E+07	1.021E+04
Ht_Wall	7.448E-10	5.025E-09	4.171E+07	1.125E+04
Uterus	1.800E-08	3.330E-09	3.355E+07	9.856E+03
ET_Reg	7.337E-11	3.152E-06	3.355E+07	8.516E+03
Lung	4.636E-10	5.809E-06	5.138E+07	1.305E+04
Effectiv	1.235E-06	8.976E-07	5.394E+07	1.771E+04

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	2.982E-13	4.366E-12	3.856E-02	9.798E-06
Stomach	4.255E-09	8.251E-10	1.759E-01	4.846E-05
Colon	1.739E-07	3.356E-08	3.763E-01	1.085E-04
Liver	9.139E-12	1.017E-11	6.710E-02	1.817E-05
LUNG	9.768E-12	8.362E-08	5.021E-01	1.282E-04
Bone	2.227E-12	1.040E-11	1.829E-02	5.196E-06
Skin	1.665E-13	1.018E-13	2.889E-02	9.273E-06
Breast	2.575E-12	1.476E-11	3.810E-01	1.456E-04
Ovary	1.284E-10	2.819E-11	4.602E-02	1.480E-05
Bladder	3.667E-11	7.844E-12	9.949E-02	2.959E-05
Kidneys	3.570E-12	1.935E-12	2.388E-02	6.908E-06
Thyroid	5.217E-14	4.181E-13	1.864E-02	5.161E-06
Leukemia	4.810E-11	1.942E-11	2.447E-01	7.002E-05
Residual	1.040E-10	6.105E-11	6.268E-01	2.097E-04

Total	1.787E-07	1.180E-07	2.645E+00	8.085E-04

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* NUCLIDE Pa-231 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	2.074E-04	3.844E-02	1.410E+08	3.215E+04
UB_Wall	2.076E-04	3.848E-02	1.445E+08	3.507E+04
Bone_Sur	9.291E-02	1.726E+01	4.008E+08	7.957E+04
Brain	2.073E-04	3.844E-02	1.806E+08	3.344E+04
Breasts	2.071E-04	3.841E-02	2.144E+08	5.044E+04
St_Wall	2.117E-04	3.841E-02	1.526E+08	3.472E+04
SI_Wall	2.187E-04	3.844E-02	1.328E+08	3.227E+04
ULI_Wall	3.087E-04	4.462E-02	1.398E+08	3.344E+04
LLI_Wall	5.010E-04	5.598E-02	1.351E+08	3.344E+04
Kidneys	1.260E-03	2.346E-01	1.549E+08	3.565E+04
Liver	2.425E-03	4.521E-01	1.549E+08	3.472E+04
Muscle	2.072E-04	3.844E-02	1.736E+08	4.602E+04
Ovaries	7.966E-04	1.480E-01	1.270E+08	3.437E+04
Pancreas	2.073E-04	3.844E-02	1.328E+08	3.076E+04
R_Marrow	3.427E-03	6.394E-01	1.631E+08	3.705E+04
Skin	2.071E-04	3.841E-02	2.808E+08	1.026E+05
Spleen	2.080E-04	3.855E-02	1.561E+08	3.483E+04
Testes	8.081E-04	1.501E-01	1.841E+08	4.893E+04
Thymus	2.072E-04	3.841E-02	1.643E+08	3.518E+04
Thyroid	2.072E-04	3.841E-02	1.829E+08	3.984E+04
GB_Wall	2.073E-04	3.844E-02	1.363E+08	3.157E+04
Ht_Wall	2.072E-04	3.841E-02	1.503E+08	3.355E+04
Uterus	2.073E-04	3.844E-02	1.305E+08	3.239E+04
ET_Reg	2.072E-04	5.754E-02	1.363E+08	2.947E+04
Lung	2.072E-04	1.229E-01	1.736E+08	3.705E+04
Effectiv	1.773E-03	3.373E-01	1.689E+08	4.043E+04

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	1.469E-07	2.283E-05	1.573E-01	3.390E-05
Stomach	3.297E-07	4.218E-05	6.163E-01	1.398E-04
Colon	2.997E-06	9.287E-05	1.421E+00	3.448E-04
Liver	2.527E-06	3.885E-04	2.353E-01	5.266E-05
LUNG	9.546E-07	1.299E-03	1.701E+00	3.623E-04
Bone	5.254E-06	8.695E-04	3.810E-02	7.561E-06
Skin	9.287E-09	1.339E-06	2.796E-02	1.024E-05
Breast	1.661E-07	2.375E-05	1.036E+00	2.435E-04
Ovary	7.326E-07	1.225E-04	1.806E-01	4.893E-05
Bladder	3.737E-07	5.624E-05	3.495E-01	8.481E-05
Kidneys	5.069E-07	7.807E-05	8.062E-02	1.852E-05
Thyroid	2.546E-08	3.633E-06	5.825E-02	1.270E-05
Leukemia	8.140E-07	1.288E-04	9.157E-01	2.074E-04
Residual	1.032E-06	1.395E-04	2.225E+00	5.406E-04
Total	1.587E-05	3.271E-03	9.029E+00	2.109E-03

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* NUCLIDE Ac-227 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.752E-04	3.223E-02	2.645E+05	8.004E+01
UB_Wall	1.753E-04	3.224E-02	2.924E+05	9.914E+01
Bone_Sur	3.461E-02	6.386E+00	1.351E+06	6.175E+02
Brain	1.749E-04	3.218E-02	3.460E+05	7.386E+01
Breasts	1.749E-04	3.217E-02	8.178E+05	6.874E+02
St_Wall	1.751E-04	3.219E-02	3.076E+05	9.588E+01
SI_Wall	1.755E-04	3.222E-02	2.446E+05	7.141E+01
ULI_Wall	2.066E-04	3.711E-02	2.633E+05	7.736E+01
LLI_Wall	2.780E-04	4.614E-02	2.470E+05	7.491E+01
Kidneys	2.633E-04	4.947E-02	3.332E+05	1.200E+02
Liver	7.481E-03	1.379E+00	3.122E+05	9.367E+01
Muscle	1.749E-04	3.218E-02	4.928E+05	4.497E+02
Ovaries	6.923E-04	1.274E-01	2.283E+05	9.052E+01
Pancreas	1.751E-04	3.221E-02	2.365E+05	6.571E+01
R_Marrow	1.821E-03	3.371E-01	3.332E+05	1.282E+02
Skin	1.749E-04	3.216E-02	1.852E+06	3.716E+03
Spleen	1.759E-04	3.235E-02	3.087E+05	8.901E+01
Testes	6.875E-04	1.265E-01	5.604E+05	5.347E+02
Thymus	1.749E-04	3.218E-02	3.577E+05	1.127E+02
Thyroid	1.749E-04	3.218E-02	4.730E+05	1.806E+02
GB_Wall	1.753E-04	3.225E-02	2.540E+05	7.491E+01
Ht_Wall	1.750E-04	3.219E-02	2.959E+05	8.772E+01
Uterus	1.750E-04	3.219E-02	2.365E+05	7.072E+01
ET_Reg	1.749E-04	1.110E-01	2.377E+05	5.953E+01
Lung	1.750E-04	3.423E-01	3.623E+05	1.042E+02
Effectiv	1.193E-03	2.570E-01	4.252E+05	2.761E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	1.506E-07	2.394E-05	2.738E-04	6.850E-08
Stomach	4.107E-07	5.698E-05	1.247E-03	3.868E-07
Colon	1.395E-06	1.443E-04	2.645E-03	7.875E-07
Liver	1.066E-05	1.724E-03	4.730E-04	1.421E-07
LUNG	1.084E-06	4.218E-03	3.542E-03	1.018E-06
Bone	2.549E-06	4.218E-04	1.282E-04	5.860E-08
Skin	1.128E-08	1.624E-06	1.852E-04	3.705E-07
Breast	2.264E-07	3.197E-05	3.949E-03	3.320E-06
Ovary	7.067E-07	1.221E-04	3.250E-04	1.293E-07
Bladder	3.589E-07	5.550E-05	7.072E-04	2.400E-07
Kidneys	1.384E-07	2.168E-05	1.736E-04	6.244E-08
Thyroid	3.201E-08	4.477E-06	1.503E-04	5.755E-08
Leukemia	5.698E-07	8.769E-05	1.876E-03	7.188E-07
Residual	1.476E-06	1.991E-04	4.928E-03	2.959E-06

Total	1.976E-05	7.104E-03	2.062E-02	1.032E-05

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* NUCLIDE Th-227 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.191E-06	1.482E-06	5.079E+08	1.155E+05
UB_Wall	1.382E-06	8.421E-07	5.219E+08	1.235E+05
Bone_Sur	3.254E-04	2.522E-04	1.538E+09	2.773E+05
Brain	1.158E-06	8.203E-07	6.524E+08	1.200E+05
Breasts	1.161E-06	1.480E-06	7.584E+08	1.480E+05
St_Wall	6.723E-06	2.525E-06	5.522E+08	1.235E+05
SI_Wall	1.560E-05	4.377E-06	4.800E+08	1.165E+05
ULI_Wall	9.838E-05	2.432E-05	5.056E+08	1.200E+05
LLI_Wall	3.385E-04	7.796E-05	4.870E+08	1.212E+05
Kidneys	9.598E-06	1.117E-05	5.604E+08	1.235E+05
Liver	1.830E-05	1.564E-05	5.627E+08	1.235E+05
Muscle	1.228E-06	1.090E-06	6.209E+08	1.456E+05
Ovaries	2.626E-06	1.926E-06	4.625E+08	1.212E+05
Pancreas	1.227E-06	1.295E-06	4.776E+08	1.120E+05
R_Marrow	2.910E-05	2.197E-05	5.860E+08	1.293E+05
Skin	1.179E-06	9.187E-07	9.145E+08	2.179E+05
Spleen	1.218E-06	1.278E-06	5.627E+08	1.247E+05
Testes	2.047E-06	1.802E-06	6.582E+08	1.491E+05
Thymus	1.161E-06	1.637E-06	5.953E+08	1.223E+05
Thyroid	1.158E-06	1.048E-06	6.594E+08	1.340E+05
GB_Wall	1.339E-06	1.043E-06	4.940E+08	1.136E+05
Ht_Wall	1.170E-06	2.069E-06	5.441E+08	1.200E+05
Uterus	1.448E-06	8.632E-07	4.695E+08	1.177E+05
ET_Reg	1.158E-06	1.821E-02	4.905E+08	1.067E+05
Lung	1.165E-06	2.358E-01	6.314E+08	1.316E+05
Effectiv	3.373E-05	2.831E-02	6.081E+08	1.340E+05

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	1.861E-09	2.120E-09	5.639E-01	1.223E-04
Stomach	4.033E-08	1.461E-08	2.225E+00	4.986E-04
Colon	3.700E-06	9.509E-07	5.138E+00	1.247E-03
Liver	3.600E-08	2.708E-08	8.528E-01	1.876E-04
LUNG	1.954E-08	3.323E-03	6.174E+00	1.281E-03
Bone	6.438E-08	3.471E-08	1.456E-01	2.633E-05
Skin	1.961E-10	1.114E-10	9.122E-02	2.179E-05
Breast	4.773E-09	6.105E-09	3.670E+00	7.153E-04
Ovary	4.514E-09	3.260E-09	6.582E-01	1.724E-04
Bladder	4.736E-09	2.520E-09	1.258E+00	2.982E-04
Kidneys	6.105E-09	6.512E-09	2.912E-01	6.419E-05
Thyroid	6.586E-10	4.181E-10	2.097E-01	4.264E-05
Leukemia	1.798E-08	1.217E-08	3.285E+00	7.258E-04
Residual	3.115E-08	2.327E-08	7.969E+00	1.852E-03

Total	3.922E-06	3.323E-03	3.250E+01	7.258E-03

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* NUCLIDE U-234 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.022E-04	4.921E-04	3.612E+05	1.247E+02
UB_Wall	1.025E-04	4.939E-04	4.124E+05	1.608E+02
Bone_Sur	2.907E-03	1.406E-02	2.330E+06	1.410E+03
Brain	1.022E-04	4.921E-04	4.800E+05	1.085E+02
Breasts	1.022E-04	4.921E-04	1.678E+06	1.887E+03
St_Wall	1.063E-04	4.928E-04	4.357E+05	1.538E+02
SI_Wall	1.123E-04	4.943E-04	3.309E+05	1.047E+02
ULI_Wall	1.634E-04	5.043E-04	3.600E+05	1.131E+02
LLI_Wall	2.819E-04	5.276E-04	3.344E+05	1.127E+02
Kidneys	1.062E-03	5.147E-03	4.811E+05	2.085E+02
Liver	3.981E-04	1.926E-03	4.404E+05	1.468E+02
Muscle	1.022E-04	4.921E-04	8.877E+05	1.188E+03
Ovaries	1.022E-04	4.921E-04	3.099E+05	1.666E+02
Pancreas	1.022E-04	4.921E-04	3.169E+05	9.669E+01
R_Marrow	3.004E-04	1.452E-03	4.916E+05	2.563E+02
Skin	1.022E-04	4.921E-04	4.928E+06	1.055E+04
Spleen	1.022E-04	4.921E-04	4.310E+05	1.328E+02
Testes	1.022E-04	4.921E-04	1.023E+06	1.433E+03
Thymus	1.022E-04	4.921E-04	5.231E+05	1.934E+02
Thyroid	1.022E-04	4.921E-04	7.806E+05	3.705E+02
GB_Wall	1.022E-04	4.921E-04	3.495E+05	1.136E+02
Ht_Wall	1.022E-04	4.921E-04	4.147E+05	1.410E+02
Uterus	1.022E-04	4.921E-04	3.180E+05	1.043E+02
ET_Reg	1.022E-04	1.780E-02	3.146E+05	8.691E+01
Lung	1.022E-04	7.718E-02	5.161E+05	1.643E+02
Effectiv	1.833E-04	1.002E-02	7.153E+05	6.757E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	7.955E-08	3.504E-07	3.623E-04	9.996E-08
Stomach	2.268E-07	8.214E-07	1.759E-03	6.209E-07
Colon	2.509E-06	2.135E-06	3.600E-03	1.165E-06
Liver	5.550E-07	2.379E-06	6.675E-04	2.225E-07
LUNG	5.624E-07	1.062E-03	5.044E-03	1.608E-06
Bone	3.456E-07	1.513E-06	2.213E-04	1.340E-07
Skin	5.735E-09	2.349E-08	4.916E-04	1.053E-06
Breast	1.106E-07	4.625E-07	8.108E-03	9.122E-06
Ovary	9.065E-08	4.181E-07	4.404E-04	2.365E-07
Bladder	1.950E-07	8.288E-07	9.972E-04	3.891E-07
Kidneys	6.364E-07	2.738E-06	2.505E-04	1.085E-07
Thyroid	1.617E-08	6.586E-08	2.481E-04	1.177E-07
Leukemia	8.917E-08	3.885E-07	2.761E-03	1.433E-06
Residual	7.215E-07	2.834E-06	7.771E-03	6.990E-06
Total	6.142E-06	1.077E-03	3.274E-02	2.330E-05

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* NUCLIDE Th-230 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	5.032E-05	1.138E-03	1.247E+06	3.402E+02
UB_Wall	5.032E-05	1.137E-03	1.363E+06	3.879E+02
Bone_Sur	4.540E-02	1.047E+00	6.291E+06	1.934E+03
Brain	5.032E-05	1.138E-03	1.654E+06	3.437E+02
Breasts	5.032E-05	1.138E-03	2.808E+06	1.538E+03
St_Wall	5.439E-05	1.138E-03	1.445E+06	3.868E+02
SI_Wall	6.046E-05	1.140E-03	1.160E+06	3.344E+02
ULI_Wall	1.117E-04	1.154E-03	1.247E+06	3.518E+02
LLI_Wall	2.304E-04	1.187E-03	1.177E+06	3.483E+02
Kidneys	6.852E-04	1.636E-02	1.514E+06	4.136E+02
Liver	5.890E-04	1.382E-02	1.468E+06	3.868E+02
Muscle	5.032E-05	1.138E-03	1.922E+06	1.096E+03
Ovaries	3.665E-04	8.532E-03	1.088E+06	3.833E+02
Pancreas	5.032E-05	1.138E-03	1.127E+06	3.204E+02
R_Marrow	1.565E-03	3.767E-02	1.468E+06	4.427E+02
Skin	5.032E-05	1.137E-03	5.336E+06	8.423E+03
Spleen	5.032E-05	1.138E-03	1.468E+06	3.833E+02
Testes	3.730E-04	8.684E-03	2.132E+06	1.223E+03
Thymus	5.032E-05	1.138E-03	1.631E+06	4.171E+02
Thyroid	5.032E-05	1.138E-03	1.946E+06	5.254E+02
GB_Wall	5.032E-05	1.138E-03	1.223E+06	3.297E+02
Ht_Wall	5.032E-05	1.138E-03	1.386E+06	3.693E+02
Uterus	5.032E-05	1.137E-03	1.122E+06	3.332E+02
ET_Reg	5.032E-05	1.043E-01	1.123E+06	2.889E+02
Lung	5.032E-05	2.577E-01	1.701E+06	4.194E+02
Effectiv	7.914E-04	4.891E-02	1.771E+06	7.468E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	4.329E-08	7.067E-07	1.293E-03	3.320E-07
Stomach	1.399E-07	1.476E-06	5.837E-03	1.561E-06
Colon	2.335E-06	3.337E-06	1.258E-02	3.611E-06
Liver	7.326E-07	1.206E-05	2.225E-03	5.860E-07
LUNG	3.167E-07	2.579E-03	1.666E-02	4.101E-06
Bone	2.745E-06	5.180E-05	5.976E-04	1.841E-07
Skin	3.201E-09	4.403E-08	5.324E-04	8.400E-07
Breast	6.512E-08	8.140E-07	1.351E-02	7.433E-06
Ovary	3.774E-07	6.697E-06	1.549E-03	5.452E-07
Bladder	1.036E-07	1.698E-06	3.297E-03	9.378E-07
Kidneys	3.045E-07	5.069E-06	7.875E-04	2.155E-07
Thyroid	9.324E-09	1.199E-07	6.198E-04	1.678E-07
Leukemia	4.181E-07	7.178E-06	8.237E-03	2.481E-06
Residual	4.144E-07	4.958E-06	2.132E-02	8.714E-06

Total	8.029E-06	2.675E-03	8.901E-02	3.169E-05

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* NUCLIDE Ra-226 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.515E-04	8.532E-05	2.971E+07	6.827E+03
UB_Wall	1.481E-04	8.321E-05	3.087E+07	7.235E+03
Bone_Sur	4.614E-02	2.594E-02	1.012E+08	1.724E+04
Brain	1.505E-04	8.473E-05	3.833E+07	7.060E+03
Breasts	1.473E-04	8.303E-05	4.509E+07	8.295E+03
St_Wall	1.519E-04	8.395E-05	3.262E+07	7.316E+03
SI_Wall	1.592E-04	8.610E-05	2.831E+07	6.850E+03
ULI_Wall	2.468E-04	1.113E-04	2.982E+07	7.083E+03
LLI_Wall	5.617E-04	2.015E-04	2.854E+07	7.083E+03
Kidneys	2.205E-04	1.238E-04	3.320E+07	7.270E+03
Liver	6.623E-04	3.730E-04	3.344E+07	7.305E+03
Muscle	1.490E-04	8.388E-05	3.681E+07	8.295E+03
Ovaries	1.506E-04	8.436E-05	2.761E+07	6.897E+03
Pancreas	1.490E-04	8.392E-05	2.819E+07	6.629E+03
R_Marrow	3.243E-03	1.826E-03	3.437E+07	7.584E+03
Skin	1.480E-04	8.329E-05	6.093E+07	1.035E+04
Spleen	1.992E-04	1.122E-04	3.332E+07	7.374E+03
Testes	1.473E-04	8.288E-05	3.926E+07	8.458E+03
Thymus	1.480E-04	8.336E-05	3.565E+07	7.002E+03
Thyroid	1.488E-04	8.380E-05	3.926E+07	7.724E+03
GB_Wall	1.480E-04	8.329E-05	2.901E+07	6.687E+03
Ht_Wall	1.483E-04	8.366E-05	3.227E+07	7.037E+03
Uterus	1.487E-04	8.351E-05	2.773E+07	6.908E+03
ET_Reg	1.488E-04	1.829E-02	2.878E+07	6.268E+03
Lung	1.487E-04	7.781E-02	3.763E+07	7.712E+03
Effectiv	1.035E-03	9.905E-03	3.623E+07	7.782E+03

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	2.135E-07	9.509E-08	3.309E-02	7.211E-06
Stomach	8.473E-07	3.101E-07	1.316E-01	2.959E-05
Colon	6.475E-06	1.935E-06	3.017E-01	7.316E-05
Liver	1.654E-06	6.956E-07	5.068E-02	1.107E-05
LUNG	1.954E-06	1.073E-03	3.681E-01	7.538E-05
Bone	8.917E-06	3.511E-06	9.611E-03	1.643E-06
Skin	1.998E-08	7.696E-09	6.081E-03	1.032E-06
Breast	4.736E-07	1.765E-07	2.179E-01	4.008E-05
Ovary	2.520E-07	1.158E-07	3.926E-02	9.809E-06
Bladder	4.736E-07	2.087E-07	7.468E-02	1.747E-05
Kidneys	1.828E-07	7.252E-08	1.724E-02	3.786E-06
Thyroid	6.401E-08	2.327E-08	1.247E-02	2.458E-06
Leukemia	1.820E-06	7.733E-07	1.934E-01	4.252E-05
Residual	1.206E-05	4.625E-06	4.695E-01	1.079E-04

Total	3.537E-05	1.084E-03	1.922E+00	4.229E-04

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* NUCLIDE Rn-222 :B *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	0.000E+00	0.000E+00	1.759E+06	3.775E+02
UB_Wall	0.000E+00	0.000E+00	1.759E+06	4.124E+02
Bone_Sur	0.000E+00	0.000E+00	3.751E+06	6.571E+02
Brain	0.000E+00	0.000E+00	2.248E+06	4.019E+02
Breasts	0.000E+00	0.000E+00	2.423E+06	4.520E+02
St_Wall	0.000E+00	0.000E+00	1.876E+06	4.019E+02
SI_Wall	0.000E+00	0.000E+00	1.666E+06	3.914E+02
ULI_Wall	0.000E+00	0.000E+00	1.736E+06	3.996E+02
LLI_Wall	0.000E+00	0.000E+00	1.701E+06	4.054E+02
Kidneys	0.000E+00	0.000E+00	1.887E+06	4.054E+02
Liver	0.000E+00	0.000E+00	1.899E+06	4.043E+02
Muscle	0.000E+00	0.000E+00	2.062E+06	4.637E+02
Ovaries	0.000E+00	0.000E+00	1.573E+06	4.276E+02
Pancreas	0.000E+00	0.000E+00	1.654E+06	3.705E+02
R_Marrow	0.000E+00	0.000E+00	2.027E+06	4.322E+02
Skin	0.000E+00	0.000E+00	2.586E+06	5.907E+02
Spleen	0.000E+00	0.000E+00	1.911E+06	4.043E+02
Testes	0.000E+00	0.000E+00	2.120E+06	4.707E+02
Thymus	0.000E+00	0.000E+00	1.957E+06	4.124E+02
Thyroid	0.000E+00	0.000E+00	2.155E+06	4.474E+02
GB_Wall	0.000E+00	0.000E+00	1.713E+06	3.845E+02
Ht_Wall	0.000E+00	0.000E+00	1.852E+06	3.984E+02
Uterus	0.000E+00	0.000E+00	1.619E+06	3.914E+02
ET_Reg	0.000E+00	0.000E+00	1.724E+06	3.635E+02
Lung	0.000E+00	0.000E+00	2.109E+06	4.287E+02
Effectiv	0.000E+00	0.000E+00	2.015E+06	4.334E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	0.000E+00	0.000E+00	1.980E-03	4.182E-07
Stomach	0.000E+00	0.000E+00	7.573E-03	1.619E-06
Colon	0.000E+00	0.000E+00	1.782E-02	4.147E-06
Liver	0.000E+00	0.000E+00	2.878E-03	6.128E-07
LUNG	0.000E+00	0.000E+00	2.062E-02	4.194E-06
Bone	0.000E+00	0.000E+00	3.565E-04	6.244E-08
Skin	0.000E+00	0.000E+00	2.586E-04	5.895E-08
Breast	0.000E+00	0.000E+00	1.165E-02	2.179E-06
Ovary	0.000E+00	0.000E+00	2.237E-03	6.081E-07
Bladder	0.000E+00	0.000E+00	4.252E-03	9.972E-07
Kidneys	0.000E+00	0.000E+00	9.821E-04	2.109E-07
Thyroid	0.000E+00	0.000E+00	6.862E-04	1.421E-07
Leukemia	0.000E+00	0.000E+00	1.138E-02	2.423E-06
Residual	0.000E+00	0.000E+00	2.714E-02	6.011E-06
Total	0.000E+00	0.000E+00	1.099E-01	2.365E-05

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* NUCLIDE Po-218 :B *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	0.000E+00	0.000E+00	8.959E+00	4.182E-03
UB_Wall	0.000E+00	0.000E+00	1.038E+01	5.371E-03
Bone_Sur	0.000E+00	0.000E+00	5.615E+01	2.866E-02
Brain	0.000E+00	0.000E+00	1.212E+01	4.136E-03
Breasts	0.000E+00	0.000E+00	2.481E+01	1.340E-02
St_Wall	0.000E+00	0.000E+00	1.104E+01	5.336E-03
SI_Wall	0.000E+00	0.000E+00	7.934E+00	3.879E-03
ULI_Wall	0.000E+00	0.000E+00	8.866E+00	4.322E-03
LLI_Wall	0.000E+00	0.000E+00	8.015E+00	4.031E-03
Kidneys	0.000E+00	0.000E+00	1.247E+01	6.256E-03
Liver	0.000E+00	0.000E+00	1.120E+01	5.301E-03
Muscle	0.000E+00	0.000E+00	1.596E+01	1.001E-02
Ovaries	0.000E+00	0.000E+00	7.130E+00	3.728E-03
Pancreas	0.000E+00	0.000E+00	7.374E+00	3.460E-03
R_Marrow	0.000E+00	0.000E+00	1.078E+01	5.056E-03
Skin	0.000E+00	0.000E+00	2.912E+04	3.367E-02
Spleen	0.000E+00	0.000E+00	1.101E+01	5.231E-03
Testes	0.000E+00	0.000E+00	1.922E+01	1.223E-02
Thymus	0.000E+00	0.000E+00	1.340E+01	6.070E-03
Thyroid	0.000E+00	0.000E+00	1.701E+01	7.747E-03
GB_Wall	0.000E+00	0.000E+00	8.563E+00	3.984E-03
Ht_Wall	0.000E+00	0.000E+00	1.015E+01	4.742E-03
Uterus	0.000E+00	0.000E+00	7.491E+00	3.728E-03
ET_Reg	0.000E+00	0.000E+00	7.246E+00	2.947E-03
Lung	0.000E+00	0.000E+00	1.340E+01	6.023E-03
Effectiv	0.000E+00	0.000E+00	3.052E+02	7.747E-03

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	0.000E+00	0.000E+00	8.341E-09	3.378E-12
Stomach	0.000E+00	0.000E+00	4.462E-08	2.155E-11
Colon	0.000E+00	0.000E+00	8.772E-08	4.334E-11
Liver	0.000E+00	0.000E+00	1.701E-08	8.038E-12
LUNG	0.000E+00	0.000E+00	1.305E-07	5.895E-11
Bone	0.000E+00	0.000E+00	5.336E-09	2.679E-12
Skin	0.000E+00	0.000E+00	2.901E-06	3.378E-12
Breast	0.000E+00	0.000E+00	1.200E-07	6.477E-11
Ovary	0.000E+00	0.000E+00	1.015E-08	5.359E-12
Bladder	0.000E+00	0.000E+00	2.505E-08	1.293E-11
Kidneys	0.000E+00	0.000E+00	6.489E-09	3.262E-12
Thyroid	0.000E+00	0.000E+00	5.417E-09	2.446E-12
Leukemia	0.000E+00	0.000E+00	6.046E-08	2.843E-11
Residual	0.000E+00	0.000E+00	1.608E-07	8.761E-11

Total	0.000E+00	0.000E+00	3.588E-06	3.460E-10

Concentrations

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

C O N C E N T R A T I O N T A B L E S

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
N	800	U-238	2.41E+00	4.34E-07	7.39E-08	5.07E-07
N	800	Th-234	5.47E-04	9.84E-11	1.55E-11	1.14E-10
N	800	Pa-234m	4.66E-04	8.39E-11	1.30E-11	9.69E-11
N	800	Pa-234	7.06E-09	1.27E-15	1.83E-16	1.45E-15
N	800	U-234	1.93E+00	3.47E-07	5.91E-08	4.06E-07
N	800	U-235	2.41E+00	4.34E-07	7.39E-08	5.07E-07
N	800	Th-231	1.24E-02	2.22E-09	3.50E-10	2.57E-09
N	800	Pa-231	3.06E-12	5.51E-19	8.07E-20	6.31E-19
N	800	Ac-227	8.04E-19	1.45E-25	2.01E-26	1.65E-25
N	800	Th-227	1.00E-22	1.81E-29	2.35E-30	2.04E-29
N	800	Th-230	3.83E-10	6.89E-17	1.08E-17	7.98E-17
N	800	Ra-226	1.94E-18	3.49E-25	5.12E-26	4.00E-25
N	800	Rn-222	1.96E-21	0.00E+00	0.00E+00	0.00E+00
N	800	Po-218	1.27E-21	2.29E-28	2.96E-29	2.59E-28
N	2400	U-238	4.40E-01	7.92E-08	2.30E-08	1.02E-07
N	2400	Th-234	3.10E-04	5.58E-11	1.43E-11	7.01E-11
N	2400	Pa-234m	2.95E-04	5.31E-11	1.35E-11	6.66E-11
N	2400	Pa-234	1.45E-08	2.61E-15	5.94E-16	3.21E-15
N	2400	U-234	3.52E-01	6.33E-08	1.84E-08	8.17E-08
N	2400	U-235	4.40E-01	7.92E-08	2.30E-08	1.02E-07
N	2400	Th-231	6.97E-03	1.25E-09	3.21E-10	1.57E-09
N	2400	Pa-231	5.33E-12	9.59E-19	2.20E-19	1.18E-18
N	2400	Ac-227	4.28E-18	7.71E-25	1.63E-25	9.34E-25
N	2400	Th-227	1.29E-21	2.31E-28	4.66E-29	2.78E-28
N	2400	Th-230	2.17E-10	3.91E-17	9.98E-18	4.91E-17
N	2400	Ra-226	3.39E-18	6.10E-25	1.40E-25	7.50E-25
N	2400	Rn-222	1.23E-20	0.00E+00	0.00E+00	0.00E+00
N	2400	Po-218	8.98E-21	1.62E-27	3.60E-28	1.98E-27
N	4000	U-238	1.94E-01	3.49E-08	1.30E-08	4.79E-08
N	4000	Th-234	2.28E-04	4.10E-11	1.33E-11	5.43E-11
N	4000	Pa-234m	2.21E-04	3.98E-11	1.29E-11	5.27E-11
N	4000	Pa-234	1.81E-08	3.26E-15	9.38E-16	4.20E-15
N	4000	U-234	1.55E-01	2.79E-08	1.04E-08	3.83E-08
N	4000	U-235	1.94E-01	3.49E-08	1.30E-08	4.79E-08
N	4000	Th-231	5.09E-03	9.16E-10	2.98E-10	1.21E-09
N	4000	Pa-231	6.50E-12	1.17E-18	3.37E-19	1.51E-18
N	4000	Ac-227	8.72E-18	1.57E-24	4.13E-25	1.98E-24
N	4000	Th-227	4.01E-21	7.23E-28	1.79E-28	9.02E-28
N	4000	Th-230	1.59E-10	2.87E-17	9.32E-18	3.80E-17
N	4000	Ra-226	4.15E-18	7.47E-25	2.15E-25	9.63E-25
N	4000	Rn-222	2.12E-20	0.00E+00	0.00E+00	0.00E+00
N	4000	Po-218	1.44E-20	2.58E-27	7.04E-28	3.29E-27
N	5600	U-238	1.15E-01	2.07E-08	8.92E-09	2.97E-08
N	5600	Th-234	1.90E-04	3.41E-11	1.27E-11	4.68E-11
N	5600	Pa-234m	1.86E-04	3.34E-11	1.24E-11	4.58E-11
N	5600	Pa-234	2.11E-08	3.81E-15	1.25E-15	5.05E-15
N	5600	U-234	9.22E-02	1.66E-08	7.13E-09	2.37E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
N	5600	U-235	1.15E-01	2.07E-08	8.92E-09	2.97E-08
N	5600	Th-231	4.21E-03	7.59E-10	2.83E-10	1.04E-09
N	5600	Pa-231	7.54E-12	1.36E-18	4.45E-19	1.80E-18
N	5600	Ac-227	1.42E-17	2.55E-24	7.59E-25	3.31E-24
N	5600	Th-227	8.94E-21	1.61E-27	4.47E-28	2.06E-27
N	5600	Th-230	1.33E-10	2.39E-17	8.88E-18	3.28E-17
N	5600	Ra-226	4.84E-18	8.71E-25	2.85E-25	1.16E-24
N	5600	Rn-222	3.22E-20	0.00E+00	0.00E+00	0.00E+00
N	5600	Po-218	2.08E-20	3.74E-27	1.14E-27	4.88E-27
N	7250	U-238	7.51E-02	1.35E-08	6.56E-09	2.01E-08
N	7250	Th-234	1.59E-04	2.87E-11	1.20E-11	4.06E-11
N	7250	Pa-234m	1.57E-04	2.82E-11	1.17E-11	4.00E-11
N	7250	Pa-234	2.28E-08	4.10E-15	1.50E-15	5.60E-15
N	7250	U-234	6.01E-02	1.08E-08	5.25E-09	1.61E-08
N	7250	U-235	7.51E-02	1.35E-08	6.56E-09	2.01E-08
N	7250	Th-231	3.52E-03	6.34E-10	2.65E-10	8.99E-10
N	7250	Pa-231	8.14E-12	1.47E-18	5.37E-19	2.00E-18
N	7250	Ac-227	1.98E-17	3.56E-24	1.18E-24	4.74E-24
N	7250	Th-227	1.58E-20	2.85E-27	8.75E-28	3.73E-27
N	7250	Th-230	1.12E-10	2.01E-17	8.38E-18	2.85E-17
N	7250	Ra-226	5.25E-18	9.44E-25	3.45E-25	1.29E-24
N	7250	Rn-222	4.62E-20	0.00E+00	0.00E+00	0.00E+00
N	7250	Po-218	2.77E-20	4.98E-27	1.68E-27	6.66E-27
N	12100	U-238	3.37E-02	6.07E-09	3.57E-09	9.64E-09
N	12100	Th-234	1.19E-04	2.14E-11	1.07E-11	3.21E-11
N	12100	Pa-234m	1.18E-04	2.12E-11	1.06E-11	3.17E-11
N	12100	Pa-234	2.73E-08	4.92E-15	2.15E-15	7.07E-15
N	12100	U-234	2.70E-02	4.86E-09	2.86E-09	7.71E-09
N	12100	U-235	3.37E-02	6.07E-09	3.57E-09	9.64E-09
N	12100	Th-231	2.58E-03	4.65E-10	2.34E-10	6.99E-10
N	12100	Pa-231	9.97E-12	1.80E-18	7.80E-19	2.57E-18
N	12100	Ac-227	4.04E-17	7.27E-24	2.82E-24	1.01E-23
N	12100	Th-227	5.32E-20	9.58E-27	3.41E-27	1.30E-26
N	12100	Th-230	8.33E-11	1.50E-17	7.49E-18	2.25E-17
N	12100	Ra-226	6.50E-18	1.17E-24	5.07E-25	1.68E-24
N	12100	Rn-222	2.52E-19	0.00E+00	0.00E+00	0.00E+00
N	12100	Po-218	1.33E-19	2.39E-26	8.47E-27	3.24E-26
N	24150	U-238	1.06E-02	1.90E-09	1.41E-09	3.32E-09
N	24150	Th-234	7.25E-05	1.30E-11	8.07E-12	2.11E-11
N	24150	Pa-234m	7.21E-05	1.30E-11	8.02E-12	2.10E-11
N	24150	Pa-234	2.97E-08	5.35E-15	2.87E-15	8.23E-15
N	24150	U-234	8.46E-03	1.52E-09	1.13E-09	2.65E-09
N	24150	U-235	1.06E-02	1.90E-09	1.41E-09	3.32E-09
N	24150	Th-231	1.52E-03	2.73E-10	1.71E-10	4.44E-10
N	24150	Pa-231	1.16E-11	2.09E-18	1.10E-18	3.18E-18
N	24150	Ac-227	9.27E-17	1.67E-23	7.62E-24	2.43E-23
N	24150	Th-227	2.41E-19	4.34E-26	1.78E-26	6.12E-26

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
N	24150	Th-230	5.09E-11	9.16E-18	5.67E-18	1.48E-17
N	24150	Ra-226	7.77E-18	1.40E-24	7.31E-25	2.13E-24
N	24150	Rn-222	6.42E-19	0.00E+00	0.00E+00	0.00E+00
N	24150	Po-218	2.29E-19	4.13E-26	2.06E-26	6.19E-26
N	40250	U-238	4.45E-03	8.01E-10	6.98E-10	1.50E-09
N	40250	Th-234	5.00E-05	9.00E-12	6.47E-12	1.55E-11
N	40250	Pa-234m	4.99E-05	8.98E-12	6.44E-12	1.54E-11
N	40250	Pa-234	3.00E-08	5.39E-15	3.38E-15	8.77E-15
N	40250	U-234	3.56E-03	6.41E-10	5.59E-10	1.20E-09
N	40250	U-235	4.45E-03	8.01E-10	6.98E-10	1.50E-09
N	40250	Th-231	9.97E-04	1.80E-10	1.32E-10	3.11E-10
N	40250	Pa-231	1.27E-11	2.29E-18	1.39E-18	3.67E-18
N	40250	Ac-227	1.69E-16	3.04E-23	1.57E-23	4.61E-23
N	40250	Th-227	7.29E-19	1.31E-25	5.97E-26	1.91E-25
N	40250	Th-230	3.52E-11	6.34E-18	4.55E-18	1.09E-17
N	40250	Ra-226	8.84E-18	1.59E-24	9.51E-25	2.54E-24
N	40250	Rn-222	1.28E-18	0.00E+00	0.00E+00	0.00E+00
N	40250	Po-218	3.27E-19	5.89E-26	3.25E-26	9.13E-26
N	56350	U-238	2.15E-03	3.88E-10	3.99E-10	7.87E-10
N	56350	Th-234	3.30E-05	5.93E-12	5.01E-12	1.09E-11
N	56350	Pa-234m	3.29E-05	5.92E-12	4.99E-12	1.09E-11
N	56350	Pa-234	2.43E-08	4.37E-15	3.24E-15	7.61E-15
N	56350	U-234	1.72E-03	3.10E-10	3.19E-10	6.30E-10
N	56350	U-235	2.15E-03	3.88E-10	3.99E-10	7.87E-10
N	56350	Th-231	6.28E-04	1.13E-10	9.83E-11	2.11E-10
N	56350	Pa-231	1.11E-11	2.00E-18	1.41E-18	3.41E-18
N	56350	Ac-227	2.04E-16	3.68E-23	2.17E-23	5.85E-23
N	56350	Th-227	1.22E-18	2.20E-25	1.12E-25	3.32E-25
N	56350	Th-230	2.33E-11	4.19E-18	3.53E-18	7.72E-18
N	56350	Ra-226	7.99E-18	1.44E-24	9.97E-25	2.43E-24
N	56350	Rn-222	2.07E-18	0.00E+00	0.00E+00	0.00E+00
N	56350	Po-218	3.48E-19	6.27E-26	3.92E-26	1.02E-25
N	72200	U-238	1.00E-03	1.80E-10	2.43E-10	4.24E-10
N	72200	Th-234	1.79E-05	3.23E-12	3.68E-12	6.91E-12
N	72200	Pa-234m	1.79E-05	3.22E-12	3.68E-12	6.90E-12
N	72200	Pa-234	1.45E-08	2.61E-15	2.68E-15	5.29E-15
N	72200	U-234	8.01E-04	1.44E-10	1.95E-10	3.39E-10
N	72200	U-235	1.00E-03	1.80E-10	2.43E-10	4.24E-10
N	72200	Th-231	3.32E-04	5.98E-11	7.05E-11	1.30E-10
N	72200	Pa-231	6.94E-12	1.25E-18	1.22E-18	2.47E-18
N	72200	Ac-227	1.52E-16	2.74E-23	2.21E-23	4.94E-23
N	72200	Th-227	1.10E-18	1.98E-25	1.34E-25	3.32E-25
N	72200	Th-230	1.27E-11	2.28E-18	2.60E-18	4.88E-18
N	72200	Ra-226	5.11E-18	9.19E-25	8.75E-25	1.79E-24
N	72200	Rn-222	3.14E-18	0.00E+00	0.00E+00	0.00E+00
N	72200	Po-218	2.55E-19	4.60E-26	3.84E-26	8.44E-26
NNW	800	U-238	1.58E+00	2.84E-07	4.56E-08	3.29E-07

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNW	800	Th-234	4.31E-04	7.75E-11	1.15E-11	8.90E-11
NNW	800	Pa-234m	3.78E-04	6.80E-11	9.99E-12	7.80E-11
NNW	800	Pa-234	6.78E-09	1.22E-15	1.69E-16	1.39E-15
NNW	800	U-234	1.26E+00	2.27E-07	3.65E-08	2.64E-07
NNW	800	U-235	1.58E+00	2.84E-07	4.56E-08	3.29E-07
NNW	800	Th-231	9.73E-03	1.75E-09	2.60E-10	2.01E-09
NNW	800	Pa-231	2.83E-12	5.10E-19	7.16E-20	5.81E-19
NNW	800	Ac-227	8.56E-19	1.54E-25	2.08E-26	1.75E-25
NNW	800	Th-227	1.25E-22	2.25E-29	2.88E-30	2.54E-29
NNW	800	Th-230	3.02E-10	5.43E-17	8.07E-18	6.23E-17
NNW	800	Ra-226	1.80E-18	3.23E-25	4.54E-26	3.69E-25
NNW	800	Rn-222	2.66E-21	0.00E+00	0.00E+00	0.00E+00
NNW	800	Po-218	1.92E-21	3.46E-28	4.36E-29	3.89E-28
NNW	2400	U-238	2.93E-01	5.28E-08	1.39E-08	6.67E-08
NNW	2400	Th-234	2.47E-04	4.44E-11	1.04E-11	5.48E-11
NNW	2400	Pa-234m	2.37E-04	4.26E-11	9.91E-12	5.25E-11
NNW	2400	Pa-234	1.36E-08	2.45E-15	5.22E-16	2.97E-15
NNW	2400	U-234	2.35E-01	4.22E-08	1.11E-08	5.33E-08
NNW	2400	U-235	2.93E-01	5.28E-08	1.39E-08	6.67E-08
NNW	2400	Th-231	5.54E-03	9.97E-10	2.33E-10	1.23E-09
NNW	2400	Pa-231	4.94E-12	8.88E-19	1.91E-19	1.08E-18
NNW	2400	Ac-227	4.54E-18	8.17E-25	1.65E-25	9.81E-25
NNW	2400	Th-227	1.49E-21	2.69E-28	5.25E-29	3.21E-28
NNW	2400	Th-230	1.73E-10	3.11E-17	7.27E-18	3.84E-17
NNW	2400	Ra-226	3.14E-18	5.66E-25	1.21E-25	6.87E-25
NNW	2400	Rn-222	1.20E-20	0.00E+00	0.00E+00	0.00E+00
NNW	2400	Po-218	8.54E-21	1.54E-27	3.25E-28	1.86E-27
NNW	4000	U-238	1.28E-01	2.30E-08	7.72E-09	3.07E-08
NNW	4000	Th-234	1.79E-04	3.22E-11	9.50E-12	4.17E-11
NNW	4000	Pa-234m	1.74E-04	3.14E-11	9.24E-12	4.06E-11
NNW	4000	Pa-234	1.66E-08	2.99E-15	8.01E-16	3.80E-15
NNW	4000	U-234	1.02E-01	1.84E-08	6.17E-09	2.46E-08
NNW	4000	U-235	1.28E-01	2.30E-08	7.72E-09	3.07E-08
NNW	4000	Th-231	3.99E-03	7.18E-10	2.12E-10	9.30E-10
NNW	4000	Pa-231	5.94E-12	1.07E-18	2.87E-19	1.36E-18
NNW	4000	Ac-227	9.10E-18	1.64E-24	4.10E-25	2.05E-24
NNW	4000	Th-227	4.65E-21	8.38E-28	2.01E-28	1.04E-27
NNW	4000	Th-230	1.25E-10	2.25E-17	6.66E-18	2.92E-17
NNW	4000	Ra-226	3.80E-18	6.84E-25	1.83E-25	8.67E-25
NNW	4000	Rn-222	2.17E-20	0.00E+00	0.00E+00	0.00E+00
NNW	4000	Po-218	1.42E-20	2.56E-27	6.54E-28	3.21E-27
NNW	5600	U-238	7.52E-02	1.35E-08	5.23E-09	1.88E-08
NNW	5600	Th-234	1.47E-04	2.65E-11	8.94E-12	3.54E-11
NNW	5600	Pa-234m	1.45E-04	2.61E-11	8.76E-12	3.48E-11
NNW	5600	Pa-234	1.91E-08	3.44E-15	1.05E-15	4.48E-15
NNW	5600	U-234	6.01E-02	1.08E-08	4.18E-09	1.50E-08
NNW	5600	U-235	7.52E-02	1.35E-08	5.23E-09	1.88E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNW	5600	Th-231	3.26E-03	5.88E-10	1.98E-10	7.86E-10
NNW	5600	Pa-231	6.81E-12	1.23E-18	3.73E-19	1.60E-18
NNW	5600	Ac-227	1.46E-17	2.63E-24	7.45E-25	3.38E-24
NNW	5600	Th-227	1.03E-20	1.85E-27	4.98E-28	2.35E-27
NNW	5600	Th-230	1.03E-10	1.86E-17	6.26E-18	2.48E-17
NNW	5600	Ra-226	4.38E-18	7.88E-25	2.40E-25	1.03E-24
NNW	5600	Rn-222	3.41E-20	0.00E+00	0.00E+00	0.00E+00
NNW	5600	Po-218	2.10E-20	3.78E-27	1.09E-27	4.87E-27
NNW	7250	U-238	4.83E-02	8.69E-09	3.79E-09	1.25E-08
NNW	7250	Th-234	1.22E-04	2.19E-11	8.28E-12	3.02E-11
NNW	7250	Pa-234m	1.20E-04	2.16E-11	8.15E-12	2.98E-11
NNW	7250	Pa-234	2.02E-08	3.64E-15	1.23E-15	4.87E-15
NNW	7250	U-234	3.86E-02	6.95E-09	3.03E-09	9.98E-09
NNW	7250	U-235	4.83E-02	8.69E-09	3.79E-09	1.25E-08
NNW	7250	Th-231	2.68E-03	4.83E-10	1.83E-10	6.66E-10
NNW	7250	Pa-231	7.24E-12	1.30E-18	4.42E-19	1.75E-18
NNW	7250	Ac-227	2.01E-17	3.62E-24	1.13E-24	4.76E-24
NNW	7250	Th-227	1.80E-20	3.25E-27	9.64E-28	4.21E-27
NNW	7250	Th-230	8.55E-11	1.54E-17	5.80E-18	2.12E-17
NNW	7250	Ra-226	4.68E-18	8.42E-25	2.85E-25	1.13E-24
NNW	7250	Rn-222	7.88E-20	0.00E+00	0.00E+00	0.00E+00
NNW	7250	Po-218	4.54E-20	8.17E-27	2.40E-27	1.06E-26
NNW	12100	U-238	2.10E-02	3.79E-09	2.00E-09	5.79E-09
NNW	12100	Th-234	8.81E-05	1.59E-11	7.16E-12	2.30E-11
NNW	12100	Pa-234m	8.74E-05	1.57E-11	7.10E-12	2.28E-11
NNW	12100	Pa-234	2.33E-08	4.20E-15	1.69E-15	5.89E-15
NNW	12100	U-234	1.68E-02	3.03E-09	1.60E-09	4.63E-09
NNW	12100	U-235	2.10E-02	3.79E-09	2.00E-09	5.79E-09
NNW	12100	Th-231	1.90E-03	3.43E-10	1.56E-10	4.99E-10
NNW	12100	Pa-231	8.59E-12	1.55E-18	6.20E-19	2.17E-18
NNW	12100	Ac-227	3.98E-17	7.17E-24	2.63E-24	9.80E-24
NNW	12100	Th-227	5.91E-20	1.06E-26	3.66E-27	1.43E-26
NNW	12100	Th-230	6.18E-11	1.11E-17	5.03E-18	1.62E-17
NNW	12100	Ra-226	5.62E-18	1.01E-24	4.05E-25	1.42E-24
NNW	12100	Rn-222	2.78E-19	0.00E+00	0.00E+00	0.00E+00
NNW	12100	Po-218	1.35E-19	2.44E-26	8.69E-27	3.31E-26
NNW	24150	U-238	6.05E-03	1.09E-09	7.44E-10	1.83E-09
NNW	24150	Th-234	4.94E-05	8.89E-12	5.00E-12	1.39E-11
NNW	24150	Pa-234m	4.92E-05	8.85E-12	4.98E-12	1.38E-11
NNW	24150	Pa-234	2.30E-08	4.15E-15	2.05E-15	6.20E-15
NNW	24150	U-234	4.84E-03	8.71E-10	5.95E-10	1.47E-09
NNW	24150	U-235	6.05E-03	1.09E-09	7.44E-10	1.83E-09
NNW	24150	Th-231	1.02E-03	1.84E-10	1.05E-10	2.89E-10
NNW	24150	Pa-231	9.15E-12	1.65E-18	8.00E-19	2.45E-18
NNW	24150	Ac-227	8.41E-17	1.51E-23	6.52E-24	2.17E-23
NNW	24150	Th-227	2.47E-19	4.45E-26	1.76E-26	6.21E-26
NNW	24150	Th-230	3.47E-11	6.25E-18	3.52E-18	9.77E-18

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNW	24150	Ra-226	6.19E-18	1.11E-24	5.37E-25	1.65E-24
NNW	24150	Rn-222	6.34E-19	0.00E+00	0.00E+00	0.00E+00
NNW	24150	Po-218	1.88E-19	3.38E-26	1.58E-26	4.96E-26
NNW	40250	U-238	2.37E-03	4.27E-10	3.52E-10	7.79E-10
NNW	40250	Th-234	3.17E-05	5.70E-12	3.79E-12	9.49E-12
NNW	40250	Pa-234m	3.16E-05	5.69E-12	3.78E-12	9.47E-12
NNW	40250	Pa-234	2.12E-08	3.82E-15	2.23E-15	6.04E-15
NNW	40250	U-234	1.90E-03	3.42E-10	2.81E-10	6.23E-10
NNW	40250	U-235	2.37E-03	4.27E-10	3.52E-10	7.79E-10
NNW	40250	Th-231	6.18E-04	1.11E-10	7.58E-11	1.87E-10
NNW	40250	Pa-231	9.28E-12	1.67E-18	9.43E-19	2.61E-18
NNW	40250	Ac-227	1.42E-16	2.55E-23	1.25E-23	3.80E-23
NNW	40250	Th-227	6.92E-19	1.25E-25	5.48E-26	1.79E-25
NNW	40250	Th-230	2.23E-11	4.02E-18	2.67E-18	6.69E-18
NNW	40250	Ra-226	6.54E-18	1.18E-24	6.56E-25	1.83E-24
NNW	40250	Rn-222	1.33E-18	0.00E+00	0.00E+00	0.00E+00
NNW	40250	Po-218	2.60E-19	4.67E-26	2.40E-26	7.07E-26
NNW	56350	U-238	1.06E-03	1.90E-10	1.93E-10	3.83E-10
NNW	56350	Th-234	1.91E-05	3.44E-12	2.77E-12	6.22E-12
NNW	56350	Pa-234m	1.91E-05	3.44E-12	2.77E-12	6.20E-12
NNW	56350	Pa-234	1.55E-08	2.80E-15	1.98E-15	4.78E-15
NNW	56350	U-234	8.46E-04	1.52E-10	1.54E-10	3.07E-10
NNW	56350	U-235	1.06E-03	1.90E-10	1.93E-10	3.83E-10
NNW	56350	Th-231	3.54E-04	6.38E-11	5.33E-11	1.17E-10
NNW	56350	Pa-231	7.39E-12	1.33E-18	8.95E-19	2.23E-18
NNW	56350	Ac-227	1.57E-16	2.82E-23	1.60E-23	4.43E-23
NNW	56350	Th-227	1.06E-18	1.91E-25	9.51E-26	2.86E-25
NNW	56350	Th-230	1.35E-11	2.43E-18	1.96E-18	4.39E-18
NNW	56350	Ra-226	5.42E-18	9.76E-25	6.42E-25	1.62E-24
NNW	56350	Rn-222	2.23E-18	0.00E+00	0.00E+00	0.00E+00
NNW	56350	Po-218	2.64E-19	4.76E-26	2.80E-26	7.55E-26
NNW	72200	U-238	4.37E-04	7.86E-11	1.13E-10	1.92E-10
NNW	72200	Th-234	9.16E-06	1.65E-12	1.93E-12	3.57E-12
NNW	72200	Pa-234m	9.15E-06	1.65E-12	1.92E-12	3.57E-12
NNW	72200	Pa-234	8.11E-09	1.46E-15	1.51E-15	2.97E-15
NNW	72200	U-234	3.49E-04	6.29E-11	9.05E-11	1.53E-10
NNW	72200	U-235	4.37E-04	7.86E-11	1.13E-10	1.92E-10
NNW	72200	Th-231	1.64E-04	2.96E-11	3.60E-11	6.56E-11
NNW	72200	Pa-231	4.07E-12	7.32E-19	7.14E-19	1.45E-18
NNW	72200	Ac-227	1.04E-16	1.86E-23	1.49E-23	3.36E-23
NNW	72200	Th-227	8.51E-19	1.53E-25	1.04E-25	2.57E-25
NNW	72200	Th-230	6.49E-12	1.17E-18	1.36E-18	2.53E-18
NNW	72200	Ra-226	3.06E-18	5.51E-25	5.23E-25	1.07E-24
NNW	72200	Rn-222	3.34E-18	0.00E+00	0.00E+00	0.00E+00
NNW	72200	Po-218	1.69E-19	3.04E-26	2.50E-26	5.54E-26
NW	800	U-238	1.34E+00	2.41E-07	3.82E-08	2.80E-07
NW	800	Th-234	3.86E-04	6.95E-11	1.02E-11	7.97E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NW	800	Pa-234m	3.41E-04	6.14E-11	8.94E-12	7.03E-11
NW	800	Pa-234	6.44E-09	1.16E-15	1.60E-16	1.32E-15
NW	800	U-234	1.07E+00	1.93E-07	3.05E-08	2.24E-07
NW	800	U-235	1.34E+00	2.41E-07	3.82E-08	2.80E-07
NW	800	Th-231	8.73E-03	1.57E-09	2.31E-10	1.80E-09
NW	800	Pa-231	2.66E-12	4.79E-19	6.68E-20	5.46E-19
NW	800	Ac-227	8.38E-19	1.51E-25	2.03E-26	1.71E-25
NW	800	Th-227	1.28E-22	2.31E-29	2.98E-30	2.61E-29
NW	800	Th-230	2.70E-10	4.87E-17	7.16E-18	5.58E-17
NW	800	Ra-226	1.69E-18	3.04E-25	4.24E-26	3.46E-25
NW	800	Rn-222	2.71E-21	0.00E+00	0.00E+00	0.00E+00
NW	800	Po-218	1.99E-21	3.58E-28	4.51E-29	4.03E-28
NW	2400	U-238	2.51E-01	4.52E-08	1.15E-08	5.67E-08
NW	2400	Th-234	2.22E-04	3.99E-11	9.15E-12	4.91E-11
NW	2400	Pa-234m	2.13E-04	3.84E-11	8.76E-12	4.72E-11
NW	2400	Pa-234	1.28E-08	2.30E-15	4.86E-16	2.79E-15
NW	2400	U-234	2.01E-01	3.61E-08	9.23E-09	4.54E-08
NW	2400	U-235	2.51E-01	4.52E-08	1.15E-08	5.67E-08
NW	2400	Th-231	4.98E-03	8.96E-10	2.05E-10	1.10E-09
NW	2400	Pa-231	4.64E-12	8.35E-19	1.77E-19	1.01E-18
NW	2400	Ac-227	4.43E-18	7.97E-25	1.60E-25	9.58E-25
NW	2400	Th-227	1.50E-21	2.71E-28	5.28E-29	3.24E-28
NW	2400	Th-230	1.55E-10	2.80E-17	6.41E-18	3.44E-17
NW	2400	Ra-226	2.95E-18	5.32E-25	1.13E-25	6.45E-25
NW	2400	Rn-222	1.14E-20	0.00E+00	0.00E+00	0.00E+00
NW	2400	Po-218	8.07E-21	1.45E-27	3.04E-28	1.76E-27
NW	4000	U-238	1.09E-01	1.96E-08	6.39E-09	2.60E-08
NW	4000	Th-234	1.60E-04	2.88E-11	8.33E-12	3.72E-11
NW	4000	Pa-234m	1.57E-04	2.82E-11	8.11E-12	3.63E-11
NW	4000	Pa-234	1.56E-08	2.80E-15	7.41E-16	3.55E-15
NW	4000	U-234	8.70E-02	1.57E-08	5.11E-09	2.08E-08
NW	4000	U-235	1.09E-01	1.96E-08	6.39E-09	2.60E-08
NW	4000	Th-231	3.57E-03	6.43E-10	1.86E-10	8.28E-10
NW	4000	Pa-231	5.56E-12	1.00E-18	2.65E-19	1.27E-18
NW	4000	Ac-227	8.86E-18	1.59E-24	3.97E-25	1.99E-24
NW	4000	Th-227	4.68E-21	8.43E-28	2.02E-28	1.04E-27
NW	4000	Th-230	1.12E-10	2.02E-17	5.83E-18	2.60E-17
NW	4000	Ra-226	3.56E-18	6.40E-25	1.70E-25	8.10E-25
NW	4000	Rn-222	2.10E-20	0.00E+00	0.00E+00	0.00E+00
NW	4000	Po-218	1.37E-20	2.46E-27	6.24E-28	3.08E-27
NW	5600	U-238	6.39E-02	1.15E-08	4.31E-09	1.58E-08
NW	5600	Th-234	1.32E-04	2.37E-11	7.80E-12	3.15E-11
NW	5600	Pa-234m	1.29E-04	2.33E-11	7.65E-12	3.10E-11
NW	5600	Pa-234	1.78E-08	3.21E-15	9.63E-16	4.17E-15
NW	5600	U-234	5.11E-02	9.20E-09	3.45E-09	1.26E-08
NW	5600	U-235	6.39E-02	1.15E-08	4.31E-09	1.58E-08
NW	5600	Th-231	2.91E-03	5.25E-10	1.73E-10	6.98E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NW	5600	Pa-231	6.36E-12	1.14E-18	3.44E-19	1.49E-18
NW	5600	Ac-227	1.42E-17	2.56E-24	7.19E-25	3.28E-24
NW	5600	Th-227	1.03E-20	1.86E-27	5.00E-28	2.36E-27
NW	5600	Th-230	9.22E-11	1.66E-17	5.47E-18	2.21E-17
NW	5600	Ra-226	4.09E-18	7.36E-25	2.21E-25	9.57E-25
NW	5600	Rn-222	3.32E-20	0.00E+00	0.00E+00	0.00E+00
NW	5600	Po-218	2.02E-20	3.64E-27	1.04E-27	4.68E-27
NW	7250	U-238	4.09E-02	7.35E-09	3.11E-09	1.05E-08
NW	7250	Th-234	1.08E-04	1.95E-11	7.19E-12	2.67E-11
NW	7250	Pa-234m	1.07E-04	1.93E-11	7.09E-12	2.64E-11
NW	7250	Pa-234	1.88E-08	3.38E-15	1.13E-15	4.51E-15
NW	7250	U-234	3.27E-02	5.88E-09	2.49E-09	8.37E-09
NW	7250	U-235	4.09E-02	7.35E-09	3.11E-09	1.05E-08
NW	7250	Th-231	2.39E-03	4.29E-10	1.59E-10	5.88E-10
NW	7250	Pa-231	6.74E-12	1.21E-18	4.05E-19	1.62E-18
NW	7250	Ac-227	1.95E-17	3.50E-24	1.09E-24	4.60E-24
NW	7250	Th-227	1.81E-20	3.25E-27	9.64E-28	4.21E-27
NW	7250	Th-230	7.61E-11	1.37E-17	5.04E-18	1.87E-17
NW	7250	Ra-226	4.35E-18	7.84E-25	2.61E-25	1.05E-24
NW	7250	Rn-222	8.43E-20	0.00E+00	0.00E+00	0.00E+00
NW	7250	Po-218	4.80E-20	8.64E-27	2.50E-27	1.11E-26
NW	12100	U-238	1.77E-02	3.18E-09	1.63E-09	4.81E-09
NW	12100	Th-234	7.79E-05	1.40E-11	6.17E-12	2.02E-11
NW	12100	Pa-234m	7.73E-05	1.39E-11	6.11E-12	2.00E-11
NW	12100	Pa-234	2.15E-08	3.87E-15	1.53E-15	5.40E-15
NW	12100	U-234	1.41E-02	2.55E-09	1.30E-09	3.85E-09
NW	12100	U-235	1.77E-02	3.18E-09	1.63E-09	4.81E-09
NW	12100	Th-231	1.68E-03	3.02E-10	1.34E-10	4.36E-10
NW	12100	Pa-231	7.94E-12	1.43E-18	5.63E-19	1.99E-18
NW	12100	Ac-227	3.83E-17	6.89E-24	2.51E-24	9.40E-24
NW	12100	Th-227	5.88E-20	1.06E-26	3.64E-27	1.42E-26
NW	12100	Th-230	5.47E-11	9.84E-18	4.33E-18	1.42E-17
NW	12100	Ra-226	5.20E-18	9.36E-25	3.68E-25	1.30E-24
NW	12100	Rn-222	2.71E-19	0.00E+00	0.00E+00	0.00E+00
NW	12100	Po-218	1.30E-19	2.34E-26	8.39E-27	3.18E-26
NW	24150	U-238	4.97E-03	8.95E-10	5.93E-10	1.49E-09
NW	24150	Th-234	4.27E-05	7.69E-12	4.21E-12	1.19E-11
NW	24150	Pa-234m	4.26E-05	7.66E-12	4.19E-12	1.19E-11
NW	24150	Pa-234	2.07E-08	3.73E-15	1.81E-15	5.54E-15
NW	24150	U-234	3.98E-03	7.16E-10	4.75E-10	1.19E-09
NW	24150	U-235	4.97E-03	8.95E-10	5.93E-10	1.49E-09
NW	24150	Th-231	8.80E-04	1.58E-10	8.78E-11	2.46E-10
NW	24150	Pa-231	8.29E-12	1.49E-18	7.11E-19	2.20E-18
NW	24150	Ac-227	7.95E-17	1.43E-23	6.11E-24	2.04E-23
NW	24150	Th-227	2.42E-19	4.36E-26	1.72E-26	6.08E-26
NW	24150	Th-230	3.01E-11	5.41E-18	2.96E-18	8.37E-18
NW	24150	Ra-226	5.62E-18	1.01E-24	4.78E-25	1.49E-24

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NW	24150	Rn-222	6.04E-19	0.00E+00	0.00E+00	0.00E+00
NW	24150	Po-218	1.71E-19	3.08E-26	1.42E-26	4.51E-26
NW	40250	U-238	1.92E-03	3.46E-10	2.78E-10	6.23E-10
NW	40250	Th-234	2.70E-05	4.86E-12	3.14E-12	8.00E-12
NW	40250	Pa-234m	2.69E-05	4.85E-12	3.14E-12	7.98E-12
NW	40250	Pa-234	1.87E-08	3.37E-15	1.92E-15	5.29E-15
NW	40250	U-234	1.54E-03	2.76E-10	2.22E-10	4.98E-10
NW	40250	U-235	1.92E-03	3.46E-10	2.78E-10	6.23E-10
NW	40250	Th-231	5.23E-04	9.42E-11	6.25E-11	1.57E-10
NW	40250	Pa-231	8.27E-12	1.49E-18	8.23E-19	2.31E-18
NW	40250	Ac-227	1.32E-16	2.38E-23	1.15E-23	3.53E-23
NW	40250	Th-227	6.70E-19	1.21E-25	5.30E-26	1.74E-25
NW	40250	Th-230	1.90E-11	3.43E-18	2.22E-18	5.64E-18
NW	40250	Ra-226	5.86E-18	1.05E-24	5.75E-25	1.63E-24
NW	40250	Rn-222	1.29E-18	0.00E+00	0.00E+00	0.00E+00
NW	40250	Po-218	2.39E-19	4.30E-26	2.17E-26	6.47E-26
NW	56350	U-238	8.37E-04	1.51E-10	1.51E-10	3.01E-10
NW	56350	Th-234	1.60E-05	2.87E-12	2.26E-12	5.14E-12
NW	56350	Pa-234m	1.59E-05	2.87E-12	2.26E-12	5.13E-12
NW	56350	Pa-234	1.34E-08	2.41E-15	1.67E-15	4.07E-15
NW	56350	U-234	6.70E-04	1.21E-10	1.21E-10	2.41E-10
NW	56350	U-235	8.37E-04	1.51E-10	1.51E-10	3.01E-10
NW	56350	Th-231	2.93E-04	5.27E-11	4.31E-11	9.58E-11
NW	56350	Pa-231	6.45E-12	1.16E-18	7.66E-19	1.93E-18
NW	56350	Ac-227	1.43E-16	2.58E-23	1.45E-23	4.03E-23
NW	56350	Th-227	1.01E-18	1.82E-25	9.05E-26	2.72E-25
NW	56350	Th-230	1.13E-11	2.03E-18	1.60E-18	3.63E-18
NW	56350	Ra-226	4.76E-18	8.57E-25	5.53E-25	1.41E-24
NW	56350	Rn-222	2.18E-18	0.00E+00	0.00E+00	0.00E+00
NW	56350	Po-218	2.39E-19	4.31E-26	2.50E-26	6.81E-26
NW	72200	U-238	3.32E-04	5.97E-11	8.73E-11	1.47E-10
NW	72200	Th-234	7.33E-06	1.32E-12	1.54E-12	2.86E-12
NW	72200	Pa-234m	7.32E-06	1.32E-12	1.54E-12	2.85E-12
NW	72200	Pa-234	6.68E-09	1.20E-15	1.24E-15	2.44E-15
NW	72200	U-234	2.65E-04	4.78E-11	6.98E-11	1.18E-10
NW	72200	U-235	3.32E-04	5.97E-11	8.73E-11	1.47E-10
NW	72200	Th-231	1.30E-04	2.33E-11	2.85E-11	5.19E-11
NW	72200	Pa-231	3.41E-12	6.14E-19	5.95E-19	1.21E-18
NW	72200	Ac-227	9.17E-17	1.65E-23	1.32E-23	2.97E-23
NW	72200	Th-227	7.90E-19	1.42E-25	9.65E-26	2.39E-25
NW	72200	Th-230	5.19E-12	9.35E-19	1.09E-18	2.02E-18
NW	72200	Ra-226	2.59E-18	4.66E-25	4.39E-25	9.05E-25
NW	72200	Rn-222	3.27E-18	0.00E+00	0.00E+00	0.00E+00
NW	72200	Po-218	1.49E-19	2.69E-26	2.20E-26	4.89E-26
WNW	800	U-238	1.22E+00	2.20E-07	3.47E-08	2.54E-07
WNW	800	Th-234	3.36E-04	6.04E-11	8.87E-12	6.93E-11
WNW	800	Pa-234m	2.95E-04	5.30E-11	7.70E-12	6.07E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WNW	800	Pa-234	5.27E-09	9.48E-16	1.31E-16	1.08E-15
WNW	800	U-234	9.76E-01	1.76E-07	2.78E-08	2.04E-07
WNW	800	U-235	1.22E+00	2.20E-07	3.47E-08	2.54E-07
WNW	800	Th-231	7.58E-03	1.36E-09	2.00E-10	1.57E-09
WNW	800	Pa-231	2.20E-12	3.96E-19	5.53E-20	4.52E-19
WNW	800	Ac-227	6.58E-19	1.18E-25	1.59E-26	1.34E-25
WNW	800	Th-227	9.48E-23	1.71E-29	2.21E-30	1.93E-29
WNW	800	Th-230	2.35E-10	4.23E-17	6.21E-18	4.85E-17
WNW	800	Ra-226	1.40E-18	2.51E-25	3.51E-26	2.86E-25
WNW	800	Rn-222	1.89E-21	0.00E+00	0.00E+00	0.00E+00
WNW	800	Po-218	1.35E-21	2.43E-28	3.07E-29	2.73E-28
WNW	2400	U-238	2.32E-01	4.18E-08	1.07E-08	5.25E-08
WNW	2400	Th-234	1.96E-04	3.53E-11	8.12E-12	4.34E-11
WNW	2400	Pa-234m	1.88E-04	3.39E-11	7.76E-12	4.17E-11
WNW	2400	Pa-234	1.08E-08	1.94E-15	4.11E-16	2.35E-15
WNW	2400	U-234	1.86E-01	3.34E-08	8.56E-09	4.20E-08
WNW	2400	U-235	2.32E-01	4.18E-08	1.07E-08	5.25E-08
WNW	2400	Th-231	4.40E-03	7.93E-10	1.82E-10	9.75E-10
WNW	2400	Pa-231	3.91E-12	7.03E-19	1.50E-19	8.53E-19
WNW	2400	Ac-227	3.54E-18	6.38E-25	1.30E-25	7.68E-25
WNW	2400	Th-227	1.15E-21	2.07E-28	4.09E-29	2.48E-28
WNW	2400	Th-230	1.37E-10	2.47E-17	5.68E-18	3.04E-17
WNW	2400	Ra-226	2.49E-18	4.48E-25	9.56E-26	5.44E-25
WNW	2400	Rn-222	9.14E-21	0.00E+00	0.00E+00	0.00E+00
WNW	2400	Po-218	6.77E-21	1.22E-27	2.56E-28	1.47E-27
WNW	4000	U-238	1.03E-01	1.85E-08	6.01E-09	2.46E-08
WNW	4000	Th-234	1.45E-04	2.62E-11	7.54E-12	3.37E-11
WNW	4000	Pa-234m	1.42E-04	2.56E-11	7.34E-12	3.29E-11
WNW	4000	Pa-234	1.35E-08	2.43E-15	6.44E-16	3.07E-15
WNW	4000	U-234	8.24E-02	1.48E-08	4.81E-09	1.96E-08
WNW	4000	U-235	1.03E-01	1.85E-08	6.01E-09	2.46E-08
WNW	4000	Th-231	3.24E-03	5.84E-10	1.68E-10	7.52E-10
WNW	4000	Pa-231	4.82E-12	8.67E-19	2.30E-19	1.10E-18
WNW	4000	Ac-227	7.30E-18	1.31E-24	3.30E-25	1.64E-24
WNW	4000	Th-227	3.67E-21	6.60E-28	1.60E-28	8.20E-28
WNW	4000	Th-230	1.02E-10	1.83E-17	5.28E-18	2.36E-17
WNW	4000	Ra-226	3.08E-18	5.55E-25	1.47E-25	7.02E-25
WNW	4000	Rn-222	1.64E-20	0.00E+00	0.00E+00	0.00E+00
WNW	4000	Po-218	1.15E-20	2.07E-27	5.29E-28	2.60E-27
WNW	5600	U-238	6.19E-02	1.11E-08	4.11E-09	1.53E-08
WNW	5600	Th-234	1.22E-04	2.20E-11	7.19E-12	2.92E-11
WNW	5600	Pa-234m	1.20E-04	2.17E-11	7.05E-12	2.87E-11
WNW	5600	Pa-234	1.59E-08	2.86E-15	8.55E-16	3.71E-15
WNW	5600	U-234	4.95E-02	8.91E-09	3.29E-09	1.22E-08
WNW	5600	U-235	6.19E-02	1.11E-08	4.11E-09	1.53E-08
WNW	5600	Th-231	2.71E-03	4.89E-10	1.60E-10	6.48E-10
WNW	5600	Pa-231	5.66E-12	1.02E-18	3.05E-19	1.32E-18

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WNW	5600	Ac-227	1.20E-17	2.17E-24	6.11E-25	2.78E-24
WNW	5600	Th-227	8.33E-21	1.50E-27	4.07E-28	1.91E-27
WNW	5600	Th-230	8.58E-11	1.55E-17	5.04E-18	2.05E-17
WNW	5600	Ra-226	3.64E-18	6.55E-25	1.96E-25	8.50E-25
WNW	5600	Rn-222	2.56E-20	0.00E+00	0.00E+00	0.00E+00
WNW	5600	Po-218	1.72E-20	3.10E-27	8.85E-28	3.99E-27
WNW	7250	U-238	4.05E-02	7.29E-09	3.01E-09	1.03E-08
WNW	7250	Th-234	1.04E-04	1.86E-11	6.75E-12	2.54E-11
WNW	7250	Pa-234m	1.02E-04	1.84E-11	6.64E-12	2.50E-11
WNW	7250	Pa-234	1.72E-08	3.10E-15	1.02E-15	4.12E-15
WNW	7250	U-234	3.24E-02	5.83E-09	2.41E-09	8.23E-09
WNW	7250	U-235	4.05E-02	7.29E-09	3.01E-09	1.03E-08
WNW	7250	Th-231	2.28E-03	4.11E-10	1.49E-10	5.60E-10
WNW	7250	Pa-231	6.17E-12	1.11E-18	3.67E-19	1.48E-18
WNW	7250	Ac-227	1.70E-17	3.06E-24	9.50E-25	4.01E-24
WNW	7250	Th-227	1.50E-20	2.70E-27	8.05E-28	3.50E-27
WNW	7250	Th-230	7.26E-11	1.31E-17	4.73E-18	1.78E-17
WNW	7250	Ra-226	3.98E-18	7.17E-25	2.37E-25	9.53E-25
WNW	7250	Rn-222	5.33E-20	0.00E+00	0.00E+00	0.00E+00
WNW	7250	Po-218	3.45E-20	6.22E-27	1.84E-27	8.06E-27
WNW	12100	U-238	1.86E-02	3.34E-09	1.63E-09	4.98E-09
WNW	12100	Th-234	7.95E-05	1.43E-11	6.04E-12	2.03E-11
WNW	12100	Pa-234m	7.89E-05	1.42E-11	5.99E-12	2.02E-11
WNW	12100	Pa-234	2.12E-08	3.82E-15	1.47E-15	5.29E-15
WNW	12100	U-234	1.49E-02	2.68E-09	1.31E-09	3.98E-09
WNW	12100	U-235	1.86E-02	3.34E-09	1.63E-09	4.98E-09
WNW	12100	Th-231	1.72E-03	3.09E-10	1.31E-10	4.40E-10
WNW	12100	Pa-231	7.80E-12	1.40E-18	5.38E-19	1.94E-18
WNW	12100	Ac-227	3.60E-17	6.48E-24	2.32E-24	8.80E-24
WNW	12100	Th-227	5.27E-20	9.48E-27	3.24E-27	1.27E-26
WNW	12100	Th-230	5.58E-11	1.00E-17	4.24E-18	1.43E-17
WNW	12100	Ra-226	5.11E-18	9.19E-25	3.51E-25	1.27E-24
WNW	12100	Rn-222	2.10E-19	0.00E+00	0.00E+00	0.00E+00
WNW	12100	Po-218	1.25E-19	2.24E-26	7.83E-27	3.02E-26
WNW	24150	U-238	5.93E-03	1.07E-09	6.27E-10	1.69E-09
WNW	24150	Th-234	5.05E-05	9.08E-12	4.46E-12	1.35E-11
WNW	24150	Pa-234m	5.03E-05	9.05E-12	4.44E-12	1.35E-11
WNW	24150	Pa-234	2.40E-08	4.33E-15	1.91E-15	6.24E-15
WNW	24150	U-234	4.74E-03	8.54E-10	5.02E-10	1.36E-09
WNW	24150	U-235	5.93E-03	1.07E-09	6.27E-10	1.69E-09
WNW	24150	Th-231	1.04E-03	1.87E-10	9.30E-11	2.80E-10
WNW	24150	Pa-231	9.57E-12	1.72E-18	7.50E-19	2.47E-18
WNW	24150	Ac-227	8.86E-17	1.60E-23	6.38E-24	2.23E-23
WNW	24150	Th-227	2.59E-19	4.67E-26	1.76E-26	6.43E-26
WNW	24150	Th-230	3.55E-11	6.39E-18	3.13E-18	9.52E-18
WNW	24150	Ra-226	6.47E-18	1.17E-24	5.05E-25	1.67E-24
WNW	24150	Rn-222	4.82E-19	0.00E+00	0.00E+00	0.00E+00

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WNW	24150	Po-218	1.97E-19	3.55E-26	1.50E-26	5.05E-26
WNW	40250	U-238	2.62E-03	4.71E-10	3.09E-10	7.80E-10
WNW	40250	Th-234	3.71E-05	6.68E-12	3.59E-12	1.03E-11
WNW	40250	Pa-234m	3.70E-05	6.66E-12	3.58E-12	1.02E-11
WNW	40250	Pa-234	2.56E-08	4.62E-15	2.23E-15	6.85E-15
WNW	40250	U-234	2.09E-03	3.77E-10	2.47E-10	6.24E-10
WNW	40250	U-235	2.62E-03	4.71E-10	3.09E-10	7.80E-10
WNW	40250	Th-231	7.20E-04	1.30E-10	7.11E-11	2.01E-10
WNW	40250	Pa-231	1.13E-11	2.03E-18	9.58E-19	2.99E-18
WNW	40250	Ac-227	1.76E-16	3.17E-23	1.36E-23	4.53E-23
WNW	40250	Th-227	8.64E-19	1.56E-25	6.24E-26	2.18E-25
WNW	40250	Th-230	2.62E-11	4.71E-18	2.53E-18	7.24E-18
WNW	40250	Ra-226	7.98E-18	1.44E-24	6.71E-25	2.11E-24
WNW	40250	Rn-222	1.00E-18	0.00E+00	0.00E+00	0.00E+00
WNW	40250	Po-218	3.22E-19	5.79E-26	2.57E-26	8.36E-26
WNW	56350	U-238	1.26E-03	2.27E-10	1.71E-10	3.97E-10
WNW	56350	Th-234	2.48E-05	4.46E-12	2.67E-12	7.13E-12
WNW	56350	Pa-234m	2.47E-05	4.45E-12	2.67E-12	7.12E-12
WNW	56350	Pa-234	2.10E-08	3.77E-15	2.02E-15	5.79E-15
WNW	56350	U-234	1.01E-03	1.81E-10	1.37E-10	3.18E-10
WNW	56350	U-235	1.26E-03	2.27E-10	1.71E-10	3.97E-10
WNW	56350	Th-231	4.53E-04	8.16E-11	5.05E-11	1.32E-10
WNW	56350	Pa-231	1.01E-11	1.82E-18	9.39E-19	2.76E-18
WNW	56350	Ac-227	2.23E-16	4.01E-23	1.84E-23	5.85E-23
WNW	56350	Th-227	1.53E-18	2.76E-25	1.17E-25	3.93E-25
WNW	56350	Th-230	1.75E-11	3.15E-18	1.89E-18	5.04E-18
WNW	56350	Ra-226	7.44E-18	1.34E-24	6.81E-25	2.02E-24
WNW	56350	Rn-222	1.67E-18	0.00E+00	0.00E+00	0.00E+00
WNW	56350	Po-218	3.70E-19	6.66E-26	3.13E-26	9.79E-26
WNW	72200	U-238	4.82E-04	8.67E-11	9.30E-11	1.80E-10
WNW	72200	Th-234	1.14E-05	2.06E-12	1.68E-12	3.74E-12
WNW	72200	Pa-234m	1.14E-05	2.05E-12	1.68E-12	3.73E-12
WNW	72200	Pa-234	1.08E-08	1.94E-15	1.39E-15	3.32E-15
WNW	72200	U-234	3.85E-04	6.94E-11	7.44E-11	1.44E-10
WNW	72200	U-235	4.82E-04	8.67E-11	9.30E-11	1.80E-10
WNW	72200	Th-231	2.00E-04	3.60E-11	3.09E-11	6.69E-11
WNW	72200	Pa-231	5.56E-12	1.00E-18	6.74E-19	1.67E-18
WNW	72200	Ac-227	1.54E-16	2.77E-23	1.57E-23	4.34E-23
WNW	72200	Th-227	1.34E-18	2.41E-25	1.21E-25	3.62E-25
WNW	72200	Th-230	8.11E-12	1.46E-18	1.19E-18	2.65E-18
WNW	72200	Ra-226	4.25E-18	7.64E-25	5.01E-25	1.26E-24
WNW	72200	Rn-222	2.51E-18	0.00E+00	0.00E+00	0.00E+00
WNW	72200	Po-218	2.50E-19	4.49E-26	2.61E-26	7.11E-26
W	800	U-238	9.86E-01	1.77E-07	2.91E-08	2.07E-07
W	800	Th-234	2.75E-04	4.95E-11	7.41E-12	5.70E-11
W	800	Pa-234m	2.42E-04	4.36E-11	6.44E-12	5.00E-11
W	800	Pa-234	4.46E-09	8.03E-16	1.11E-16	9.14E-16

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
W	800	U-234	7.89E-01	1.42E-07	2.33E-08	1.65E-07
W	800	U-235	9.86E-01	1.77E-07	2.91E-08	2.07E-07
W	800	Th-231	6.22E-03	1.12E-09	1.68E-10	1.29E-09
W	800	Pa-231	1.85E-12	3.34E-19	4.69E-20	3.81E-19
W	800	Ac-227	5.72E-19	1.03E-25	1.39E-26	1.17E-25
W	800	Th-227	8.61E-23	1.55E-29	2.00E-30	1.75E-29
W	800	Th-230	1.93E-10	3.47E-17	5.19E-18	3.99E-17
W	800	Ra-226	1.18E-18	2.12E-25	2.97E-26	2.41E-25
W	800	Rn-222	1.77E-21	0.00E+00	0.00E+00	0.00E+00
W	800	Po-218	1.28E-21	2.31E-28	2.91E-29	2.60E-28
W	2400	U-238	1.82E-01	3.28E-08	8.86E-09	4.17E-08
W	2400	Th-234	1.57E-04	2.82E-11	6.67E-12	3.49E-11
W	2400	Pa-234m	1.51E-04	2.71E-11	6.37E-12	3.35E-11
W	2400	Pa-234	8.84E-09	1.59E-15	3.41E-16	1.93E-15
W	2400	U-234	1.46E-01	2.63E-08	7.09E-09	3.34E-08
W	2400	U-235	1.82E-01	3.28E-08	8.86E-09	4.17E-08
W	2400	Th-231	3.52E-03	6.33E-10	1.50E-10	7.83E-10
W	2400	Pa-231	3.21E-12	5.77E-19	1.25E-19	7.02E-19
W	2400	Ac-227	3.01E-18	5.41E-25	1.10E-25	6.51E-25
W	2400	Th-227	1.00E-21	1.81E-28	3.55E-29	2.16E-28
W	2400	Th-230	1.10E-10	1.98E-17	4.67E-18	2.44E-17
W	2400	Ra-226	2.04E-18	3.68E-25	7.93E-26	4.47E-25
W	2400	Rn-222	7.83E-21	0.00E+00	0.00E+00	0.00E+00
W	2400	Po-218	5.56E-21	1.00E-27	2.12E-28	1.21E-27
W	4000	U-238	7.91E-02	1.42E-08	4.94E-09	1.92E-08
W	4000	Th-234	1.13E-04	2.04E-11	6.10E-12	2.65E-11
W	4000	Pa-234m	1.11E-04	1.99E-11	5.94E-12	2.59E-11
W	4000	Pa-234	1.08E-08	1.94E-15	5.23E-16	2.47E-15
W	4000	U-234	6.33E-02	1.14E-08	3.95E-09	1.53E-08
W	4000	U-235	7.91E-02	1.42E-08	4.94E-09	1.92E-08
W	4000	Th-231	2.53E-03	4.55E-10	1.36E-10	5.91E-10
W	4000	Pa-231	3.85E-12	6.93E-19	1.87E-19	8.80E-19
W	4000	Ac-227	6.02E-18	1.08E-24	2.73E-25	1.36E-24
W	4000	Th-227	3.13E-21	5.63E-28	1.36E-28	6.99E-28
W	4000	Th-230	7.94E-11	1.43E-17	4.28E-18	1.86E-17
W	4000	Ra-226	2.46E-18	4.44E-25	1.20E-25	5.63E-25
W	4000	Rn-222	1.43E-20	0.00E+00	0.00E+00	0.00E+00
W	4000	Po-218	9.37E-21	1.69E-27	4.34E-28	2.12E-27
W	5600	U-238	4.65E-02	8.38E-09	3.34E-09	1.17E-08
W	5600	Th-234	9.33E-05	1.68E-11	5.73E-12	2.25E-11
W	5600	Pa-234m	9.17E-05	1.65E-11	5.62E-12	2.21E-11
W	5600	Pa-234	1.24E-08	2.23E-15	6.82E-16	2.91E-15
W	5600	U-234	3.72E-02	6.70E-09	2.68E-09	9.38E-09
W	5600	U-235	4.65E-02	8.38E-09	3.34E-09	1.17E-08
W	5600	Th-231	2.07E-03	3.72E-10	1.27E-10	4.99E-10
W	5600	Pa-231	4.41E-12	7.95E-19	2.43E-19	1.04E-18
W	5600	Ac-227	9.68E-18	1.74E-24	4.96E-25	2.24E-24

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
W	5600	Th-227	6.91E-21	1.24E-27	3.38E-28	1.58E-27
W	5600	Th-230	6.54E-11	1.18E-17	4.02E-18	1.58E-17
W	5600	Ra-226	2.84E-18	5.11E-25	1.56E-25	6.67E-25
W	5600	Rn-222	2.24E-20	0.00E+00	0.00E+00	0.00E+00
W	5600	Po-218	1.38E-20	2.48E-27	7.17E-28	3.20E-27
W	7250	U-238	2.98E-02	5.37E-09	2.43E-09	7.80E-09
W	7250	Th-234	7.71E-05	1.39E-11	5.31E-12	1.92E-11
W	7250	Pa-234m	7.61E-05	1.37E-11	5.23E-12	1.89E-11
W	7250	Pa-234	1.31E-08	2.35E-15	8.03E-16	3.16E-15
W	7250	U-234	2.39E-02	4.30E-09	1.94E-09	6.24E-09
W	7250	U-235	2.98E-02	5.37E-09	2.43E-09	7.80E-09
W	7250	Th-231	1.70E-03	3.05E-10	1.17E-10	4.23E-10
W	7250	Pa-231	4.69E-12	8.44E-19	2.88E-19	1.13E-18
W	7250	Ac-227	1.33E-17	2.39E-24	7.54E-25	3.15E-24
W	7250	Th-227	1.21E-20	2.18E-27	6.53E-28	2.83E-27
W	7250	Th-230	5.40E-11	9.73E-18	3.72E-18	1.35E-17
W	7250	Ra-226	3.03E-18	5.45E-25	1.86E-25	7.31E-25
W	7250	Rn-222	5.37E-20	0.00E+00	0.00E+00	0.00E+00
W	7250	Po-218	3.08E-20	5.55E-27	1.63E-27	7.18E-27
W	12100	U-238	1.30E-02	2.33E-09	1.29E-09	3.62E-09
W	12100	Th-234	5.56E-05	1.00E-11	4.59E-12	1.46E-11
W	12100	Pa-234m	5.52E-05	9.93E-12	4.55E-12	1.45E-11
W	12100	Pa-234	1.51E-08	2.71E-15	1.10E-15	3.81E-15
W	12100	U-234	1.04E-02	1.87E-09	1.03E-09	2.90E-09
W	12100	U-235	1.30E-02	2.33E-09	1.29E-09	3.62E-09
W	12100	Th-231	1.20E-03	2.16E-10	9.97E-11	3.16E-10
W	12100	Pa-231	5.55E-12	1.00E-18	4.03E-19	1.40E-18
W	12100	Ac-227	2.63E-17	4.73E-24	1.74E-24	6.48E-24
W	12100	Th-227	3.97E-20	7.14E-27	2.47E-27	9.61E-27
W	12100	Th-230	3.90E-11	7.02E-18	3.22E-18	1.02E-17
W	12100	Ra-226	3.64E-18	6.55E-25	2.63E-25	9.18E-25
W	12100	Rn-222	1.84E-19	0.00E+00	0.00E+00	0.00E+00
W	12100	Po-218	8.98E-20	1.62E-26	5.77E-27	2.19E-26
W	24150	U-238	3.70E-03	6.66E-10	4.81E-10	1.15E-09
W	24150	Th-234	3.10E-05	5.57E-12	3.20E-12	8.78E-12
W	24150	Pa-234m	3.08E-05	5.55E-12	3.19E-12	8.74E-12
W	24150	Pa-234	1.48E-08	2.66E-15	1.32E-15	3.98E-15
W	24150	U-234	2.96E-03	5.33E-10	3.85E-10	9.17E-10
W	24150	U-235	3.70E-03	6.66E-10	4.81E-10	1.15E-09
W	24150	Th-231	6.39E-04	1.15E-10	6.71E-11	1.82E-10
W	24150	Pa-231	5.89E-12	1.06E-18	5.17E-19	1.58E-18
W	24150	Ac-227	5.55E-17	9.99E-24	4.30E-24	1.43E-23
W	24150	Th-227	1.66E-19	2.99E-26	1.18E-26	4.17E-26
W	24150	Th-230	2.18E-11	3.92E-18	2.25E-18	6.17E-18
W	24150	Ra-226	3.99E-18	7.18E-25	3.47E-25	1.07E-24
W	24150	Rn-222	4.13E-19	0.00E+00	0.00E+00	0.00E+00
W	24150	Po-218	1.21E-19	2.18E-26	1.02E-26	3.20E-26

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
W	40250	U-238	1.44E-03	2.60E-10	2.30E-10	4.89E-10
W	40250	Th-234	1.98E-05	3.56E-12	2.43E-12	5.99E-12
W	40250	Pa-234m	1.97E-05	3.55E-12	2.42E-12	5.97E-12
W	40250	Pa-234	1.35E-08	2.43E-15	1.43E-15	3.86E-15
W	40250	U-234	1.15E-03	2.08E-10	1.84E-10	3.92E-10
W	40250	U-235	1.44E-03	2.60E-10	2.30E-10	4.89E-10
W	40250	Th-231	3.84E-04	6.91E-11	4.86E-11	1.18E-10
W	40250	Pa-231	5.95E-12	1.07E-18	6.07E-19	1.68E-18
W	40250	Ac-227	9.35E-17	1.68E-23	8.19E-24	2.50E-23
W	40250	Th-227	4.65E-19	8.38E-26	3.67E-26	1.21E-25
W	40250	Th-230	1.39E-11	2.51E-18	1.71E-18	4.22E-18
W	40250	Ra-226	4.21E-18	7.57E-25	4.23E-25	1.18E-24
W	40250	Rn-222	8.76E-19	0.00E+00	0.00E+00	0.00E+00
W	40250	Po-218	1.70E-19	3.06E-26	1.57E-26	4.63E-26
W	56350	U-238	6.39E-04	1.15E-10	1.28E-10	2.43E-10
W	56350	Th-234	1.18E-05	2.13E-12	1.78E-12	3.91E-12
W	56350	Pa-234m	1.18E-05	2.12E-12	1.78E-12	3.90E-12
W	56350	Pa-234	9.78E-09	1.76E-15	1.26E-15	3.02E-15
W	56350	U-234	5.11E-04	9.20E-11	1.02E-10	1.94E-10
W	56350	U-235	6.39E-04	1.15E-10	1.28E-10	2.43E-10
W	56350	Th-231	2.18E-04	3.92E-11	3.43E-11	7.35E-11
W	56350	Pa-231	4.70E-12	8.45E-19	5.72E-19	1.42E-18
W	56350	Ac-227	1.03E-16	1.85E-23	1.03E-23	2.88E-23
W	56350	Th-227	7.11E-19	1.28E-25	6.27E-26	1.91E-25
W	56350	Th-230	8.36E-12	1.51E-18	1.26E-18	2.76E-18
W	56350	Ra-226	3.46E-18	6.22E-25	4.11E-25	1.03E-24
W	56350	Rn-222	1.46E-18	0.00E+00	0.00E+00	0.00E+00
W	56350	Po-218	1.69E-19	3.05E-26	1.78E-26	4.83E-26
W	72200	U-238	2.63E-04	4.74E-11	7.68E-11	1.24E-10
W	72200	Th-234	5.62E-06	1.01E-12	1.25E-12	2.26E-12
W	72200	Pa-234m	5.61E-06	1.01E-12	1.25E-12	2.26E-12
W	72200	Pa-234	5.06E-09	9.11E-16	9.67E-16	1.88E-15
W	72200	U-234	2.11E-04	3.79E-11	6.14E-11	9.93E-11
W	72200	U-235	2.63E-04	4.74E-11	7.68E-11	1.24E-10
W	72200	Th-231	1.00E-04	1.80E-11	2.35E-11	4.15E-11
W	72200	Pa-231	2.57E-12	4.63E-19	4.55E-19	9.18E-19
W	72200	Ac-227	6.82E-17	1.23E-23	9.51E-24	2.18E-23
W	72200	Th-227	5.80E-19	1.04E-25	6.72E-26	1.72E-25
W	72200	Th-230	3.98E-12	7.17E-19	8.85E-19	1.60E-18
W	72200	Ra-226	1.95E-18	3.51E-25	3.33E-25	6.84E-25
W	72200	Rn-222	2.21E-18	0.00E+00	0.00E+00	0.00E+00
W	72200	Po-218	1.11E-19	2.00E-26	1.60E-26	3.61E-26
WSW	800	U-238	9.05E-01	1.63E-07	2.79E-08	1.91E-07
WSW	800	Th-234	2.32E-04	4.17E-11	6.33E-12	4.80E-11
WSW	800	Pa-234m	2.01E-04	3.62E-11	5.40E-12	4.16E-11
WSW	800	Pa-234	3.49E-09	6.28E-16	8.62E-17	7.14E-16
WSW	800	U-234	7.24E-01	1.30E-07	2.23E-08	1.53E-07

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WSW	800	U-235	9.05E-01	1.63E-07	2.79E-08	1.91E-07
WSW	800	Th-231	5.23E-03	9.42E-10	1.43E-10	1.09E-09
WSW	800	Pa-231	1.47E-12	2.64E-19	3.69E-20	3.01E-19
WSW	800	Ac-227	4.32E-19	7.77E-26	1.03E-26	8.80E-26
WSW	800	Th-227	6.14E-23	1.10E-29	1.40E-30	1.24E-29
WSW	800	Th-230	1.62E-10	2.92E-17	4.44E-18	3.36E-17
WSW	800	Ra-226	9.31E-19	1.67E-25	2.34E-26	1.91E-25
WSW	800	Rn-222	1.27E-21	0.00E+00	0.00E+00	0.00E+00
WSW	800	Po-218	9.14E-22	1.65E-28	2.06E-29	1.85E-28
WSW	2400	U-238	1.70E-01	3.05E-08	8.66E-09	3.92E-08
WSW	2400	Th-234	1.35E-04	2.43E-11	5.81E-12	3.01E-11
WSW	2400	Pa-234m	1.29E-04	2.33E-11	5.52E-12	2.88E-11
WSW	2400	Pa-234	7.19E-09	1.29E-15	2.73E-16	1.57E-15
WSW	2400	U-234	1.36E-01	2.44E-08	6.92E-09	3.13E-08
WSW	2400	U-235	1.70E-01	3.05E-08	8.66E-09	3.92E-08
WSW	2400	Th-231	3.03E-03	5.46E-10	1.31E-10	6.77E-10
WSW	2400	Pa-231	2.62E-12	4.71E-19	1.00E-19	5.71E-19
WSW	2400	Ac-227	2.34E-18	4.22E-25	8.32E-26	5.05E-25
WSW	2400	Th-227	7.54E-22	1.36E-28	2.58E-29	1.62E-28
WSW	2400	Th-230	9.46E-11	1.70E-17	4.07E-18	2.11E-17
WSW	2400	Ra-226	1.67E-18	3.00E-25	6.37E-26	3.64E-25
WSW	2400	Rn-222	6.13E-21	0.00E+00	0.00E+00	0.00E+00
WSW	2400	Po-218	4.50E-21	8.10E-28	1.67E-28	9.77E-28
WSW	4000	U-238	7.49E-02	1.35E-08	4.90E-09	1.84E-08
WSW	4000	Th-234	9.97E-05	1.79E-11	5.40E-12	2.33E-11
WSW	4000	Pa-234m	9.72E-05	1.75E-11	5.24E-12	2.27E-11
WSW	4000	Pa-234	8.99E-09	1.62E-15	4.26E-16	2.04E-15
WSW	4000	U-234	5.99E-02	1.08E-08	3.92E-09	1.47E-08
WSW	4000	U-235	7.49E-02	1.35E-08	4.90E-09	1.84E-08
WSW	4000	Th-231	2.23E-03	4.01E-10	1.21E-10	5.21E-10
WSW	4000	Pa-231	3.21E-12	5.78E-19	1.53E-19	7.31E-19
WSW	4000	Ac-227	4.80E-18	8.65E-25	2.11E-25	1.08E-24
WSW	4000	Th-227	2.40E-21	4.32E-28	1.01E-28	5.33E-28
WSW	4000	Th-230	6.99E-11	1.26E-17	3.78E-18	1.64E-17
WSW	4000	Ra-226	2.05E-18	3.70E-25	9.77E-26	4.67E-25
WSW	4000	Rn-222	1.10E-20	0.00E+00	0.00E+00	0.00E+00
WSW	4000	Po-218	7.58E-21	1.36E-27	3.42E-28	1.71E-27
WSW	5600	U-238	4.48E-02	8.06E-09	3.36E-09	1.14E-08
WSW	5600	Th-234	8.36E-05	1.50E-11	5.15E-12	2.02E-11
WSW	5600	Pa-234m	8.21E-05	1.48E-11	5.04E-12	1.98E-11
WSW	5600	Pa-234	1.05E-08	1.89E-15	5.65E-16	2.46E-15
WSW	5600	U-234	3.58E-02	6.45E-09	2.69E-09	9.14E-09
WSW	5600	U-235	4.48E-02	8.06E-09	3.36E-09	1.14E-08
WSW	5600	Th-231	1.85E-03	3.34E-10	1.15E-10	4.48E-10
WSW	5600	Pa-231	3.75E-12	6.76E-19	2.02E-19	8.78E-19
WSW	5600	Ac-227	7.88E-18	1.42E-24	3.88E-25	1.81E-24
WSW	5600	Th-227	5.42E-21	9.76E-28	2.54E-28	1.23E-27

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WSW	5600	Th-230	5.86E-11	1.05E-17	3.61E-18	1.42E-17
WSW	5600	Ra-226	2.41E-18	4.34E-25	1.30E-25	5.64E-25
WSW	5600	Rn-222	1.72E-20	0.00E+00	0.00E+00	0.00E+00
WSW	5600	Po-218	1.14E-20	2.05E-27	5.72E-28	2.62E-27
WSW	7250	U-238	2.92E-02	5.26E-09	2.47E-09	7.73E-09
WSW	7250	Th-234	7.04E-05	1.27E-11	4.84E-12	1.75E-11
WSW	7250	Pa-234m	6.94E-05	1.25E-11	4.76E-12	1.73E-11
WSW	7250	Pa-234	1.14E-08	2.04E-15	6.77E-16	2.72E-15
WSW	7250	U-234	2.34E-02	4.21E-09	1.98E-09	6.18E-09
WSW	7250	U-235	2.92E-02	5.26E-09	2.47E-09	7.73E-09
WSW	7250	Th-231	1.55E-03	2.79E-10	1.07E-10	3.86E-10
WSW	7250	Pa-231	4.07E-12	7.33E-19	2.42E-19	9.75E-19
WSW	7250	Ac-227	1.11E-17	1.99E-24	6.00E-25	2.59E-24
WSW	7250	Th-227	9.70E-21	1.75E-27	4.99E-28	2.24E-27
WSW	7250	Th-230	4.94E-11	8.88E-18	3.39E-18	1.23E-17
WSW	7250	Ra-226	2.63E-18	4.73E-25	1.56E-25	6.29E-25
WSW	7250	Rn-222	3.56E-20	0.00E+00	0.00E+00	0.00E+00
WSW	7250	Po-218	2.24E-20	4.03E-27	1.17E-27	5.21E-27
WSW	12100	U-238	1.33E-02	2.39E-09	1.35E-09	3.74E-09
WSW	12100	Th-234	5.34E-05	9.61E-12	4.34E-12	1.39E-11
WSW	12100	Pa-234m	5.29E-05	9.53E-12	4.29E-12	1.38E-11
WSW	12100	Pa-234	1.38E-08	2.49E-15	9.67E-16	3.46E-15
WSW	12100	U-234	1.06E-02	1.91E-09	1.08E-09	2.99E-09
WSW	12100	U-235	1.33E-02	2.39E-09	1.35E-09	3.74E-09
WSW	12100	Th-231	1.16E-03	2.08E-10	9.45E-11	3.02E-10
WSW	12100	Pa-231	5.08E-12	9.15E-19	3.53E-19	1.27E-18
WSW	12100	Ac-227	2.31E-17	4.16E-24	1.45E-24	5.61E-24
WSW	12100	Th-227	3.36E-20	6.04E-27	1.98E-27	8.02E-27
WSW	12100	Th-230	3.75E-11	6.74E-18	3.04E-18	9.79E-18
WSW	12100	Ra-226	3.33E-18	5.99E-25	2.31E-25	8.29E-25
WSW	12100	Rn-222	1.41E-19	0.00E+00	0.00E+00	0.00E+00
WSW	12100	Po-218	7.94E-20	1.43E-26	4.74E-27	1.90E-26
WSW	24150	U-238	4.18E-03	7.52E-10	5.38E-10	1.29E-09
WSW	24150	Th-234	3.32E-05	5.97E-12	3.25E-12	9.22E-12
WSW	24150	Pa-234m	3.30E-05	5.94E-12	3.23E-12	9.18E-12
WSW	24150	Pa-234	1.53E-08	2.75E-15	1.26E-15	4.02E-15
WSW	24150	U-234	3.34E-03	6.02E-10	4.31E-10	1.03E-09
WSW	24150	U-235	4.18E-03	7.52E-10	5.38E-10	1.29E-09
WSW	24150	Th-231	6.86E-04	1.24E-10	6.84E-11	1.92E-10
WSW	24150	Pa-231	6.07E-12	1.09E-18	4.91E-19	1.58E-18
WSW	24150	Ac-227	5.51E-17	9.92E-24	3.90E-24	1.38E-23
WSW	24150	Th-227	1.60E-19	2.87E-26	1.04E-26	3.91E-26
WSW	24150	Th-230	2.33E-11	4.20E-18	2.28E-18	6.48E-18
WSW	24150	Ra-226	4.10E-18	7.38E-25	3.29E-25	1.07E-24
WSW	24150	Rn-222	3.25E-19	0.00E+00	0.00E+00	0.00E+00
WSW	24150	Po-218	1.24E-19	2.23E-26	9.47E-27	3.18E-26
WSW	40250	U-238	1.81E-03	3.26E-10	2.71E-10	5.97E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WSW	40250	Th-234	2.39E-05	4.30E-12	2.64E-12	6.94E-12
WSW	40250	Pa-234m	2.38E-05	4.29E-12	2.63E-12	6.92E-12
WSW	40250	Pa-234	1.60E-08	2.87E-15	1.48E-15	4.36E-15
WSW	40250	U-234	1.45E-03	2.61E-10	2.17E-10	4.78E-10
WSW	40250	U-235	1.81E-03	3.26E-10	2.71E-10	5.97E-10
WSW	40250	Th-231	4.66E-04	8.39E-11	5.31E-11	1.37E-10
WSW	40250	Pa-231	6.99E-12	1.26E-18	6.27E-19	1.88E-18
WSW	40250	Ac-227	1.07E-16	1.92E-23	8.20E-24	2.74E-23
WSW	40250	Th-227	5.17E-19	9.30E-26	3.62E-26	1.29E-25
WSW	40250	Th-230	1.68E-11	3.03E-18	1.86E-18	4.89E-18
WSW	40250	Ra-226	4.93E-18	8.87E-25	4.35E-25	1.32E-24
WSW	40250	Rn-222	6.75E-19	0.00E+00	0.00E+00	0.00E+00
WSW	40250	Po-218	1.96E-19	3.53E-26	1.60E-26	5.12E-26
WSW	56350	U-238	8.78E-04	1.58E-10	1.57E-10	3.15E-10
WSW	56350	Th-234	1.58E-05	2.85E-12	2.03E-12	4.88E-12
WSW	56350	Pa-234m	1.58E-05	2.85E-12	2.03E-12	4.87E-12
WSW	56350	Pa-234	1.30E-08	2.33E-15	1.39E-15	3.72E-15
WSW	56350	U-234	7.02E-04	1.26E-10	1.25E-10	2.52E-10
WSW	56350	U-235	8.78E-04	1.58E-10	1.57E-10	3.15E-10
WSW	56350	Th-231	2.93E-04	5.27E-11	3.93E-11	9.20E-11
WSW	56350	Pa-231	6.18E-12	1.11E-18	6.26E-19	1.74E-18
WSW	56350	Ac-227	1.33E-16	2.39E-23	1.11E-23	3.50E-23
WSW	56350	Th-227	8.99E-19	1.62E-25	6.73E-26	2.29E-25
WSW	56350	Th-230	1.12E-11	2.02E-18	1.43E-18	3.45E-18
WSW	56350	Ra-226	4.54E-18	8.17E-25	4.49E-25	1.27E-24
WSW	56350	Rn-222	1.13E-18	0.00E+00	0.00E+00	0.00E+00
WSW	56350	Po-218	2.22E-19	4.00E-26	1.96E-26	5.96E-26
WSW	72200	U-238	3.61E-04	6.49E-11	9.39E-11	1.59E-10
WSW	72200	Th-234	7.53E-06	1.36E-12	1.40E-12	2.75E-12
WSW	72200	Pa-234m	7.52E-06	1.35E-12	1.39E-12	2.74E-12
WSW	72200	Pa-234	6.73E-09	1.21E-15	1.03E-15	2.24E-15
WSW	72200	U-234	2.88E-04	5.19E-11	7.51E-11	1.27E-10
WSW	72200	U-235	3.61E-04	6.49E-11	9.39E-11	1.59E-10
WSW	72200	Th-231	1.34E-04	2.42E-11	2.65E-11	5.07E-11
WSW	72200	Pa-231	3.41E-12	6.14E-19	4.78E-19	1.09E-18
WSW	72200	Ac-227	9.00E-17	1.62E-23	9.69E-24	2.59E-23
WSW	72200	Th-227	7.62E-19	1.37E-25	6.82E-26	2.05E-25
WSW	72200	Th-230	5.33E-12	9.60E-19	9.85E-19	1.95E-18
WSW	72200	Ra-226	2.58E-18	4.65E-25	3.49E-25	8.14E-25
WSW	72200	Rn-222	1.69E-18	0.00E+00	0.00E+00	0.00E+00
WSW	72200	Po-218	1.46E-19	2.63E-26	1.65E-26	4.28E-26
SW	800	U-238	1.07E+00	1.93E-07	3.40E-08	2.27E-07
SW	800	Th-234	2.49E-04	4.49E-11	7.04E-12	5.19E-11
SW	800	Pa-234m	2.13E-04	3.84E-11	5.91E-12	4.43E-11
SW	800	Pa-234	3.35E-09	6.02E-16	8.48E-17	6.87E-16
SW	800	U-234	8.59E-01	1.55E-07	2.72E-08	1.82E-07
SW	800	U-235	1.07E+00	1.93E-07	3.40E-08	2.27E-07

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SW	800	Th-231	5.63E-03	1.01E-09	1.59E-10	1.17E-09
SW	800	Pa-231	1.44E-12	2.59E-19	3.72E-20	2.96E-19
SW	800	Ac-227	3.88E-19	6.99E-26	9.46E-27	7.93E-26
SW	800	Th-227	4.96E-23	8.92E-30	1.14E-30	1.01E-29
SW	800	Th-230	1.75E-10	3.14E-17	4.93E-18	3.64E-17
SW	800	Ra-226	9.12E-19	1.64E-25	2.36E-26	1.88E-25
SW	800	Rn-222	9.67E-22	0.00E+00	0.00E+00	0.00E+00
SW	800	Po-218	6.35E-22	1.14E-28	1.46E-29	1.29E-28
SW	2400	U-238	1.97E-01	3.55E-08	1.06E-08	4.61E-08
SW	2400	Th-234	1.43E-04	2.57E-11	6.47E-12	3.21E-11
SW	2400	Pa-234m	1.36E-04	2.45E-11	6.11E-12	3.06E-11
SW	2400	Pa-234	6.89E-09	1.24E-15	2.73E-16	1.51E-15
SW	2400	U-234	1.58E-01	2.84E-08	8.45E-09	3.68E-08
SW	2400	U-235	1.97E-01	3.55E-08	1.06E-08	4.61E-08
SW	2400	Th-231	3.21E-03	5.77E-10	1.45E-10	7.22E-10
SW	2400	Pa-231	2.52E-12	4.54E-19	1.01E-19	5.55E-19
SW	2400	Ac-227	2.08E-18	3.74E-25	7.62E-26	4.50E-25
SW	2400	Th-227	6.31E-22	1.14E-28	2.21E-29	1.36E-28
SW	2400	Th-230	9.99E-11	1.80E-17	4.53E-18	2.25E-17
SW	2400	Ra-226	1.61E-18	2.89E-25	6.42E-26	3.53E-25
SW	2400	Rn-222	5.88E-21	0.00E+00	0.00E+00	0.00E+00
SW	2400	Po-218	4.28E-21	7.70E-28	1.65E-28	9.35E-28
SW	4000	U-238	8.66E-02	1.56E-08	5.98E-09	2.16E-08
SW	4000	Th-234	1.05E-04	1.88E-11	6.02E-12	2.48E-11
SW	4000	Pa-234m	1.02E-04	1.83E-11	5.82E-12	2.41E-11
SW	4000	Pa-234	8.60E-09	1.55E-15	4.29E-16	1.98E-15
SW	4000	U-234	6.93E-02	1.25E-08	4.79E-09	1.73E-08
SW	4000	U-235	8.66E-02	1.56E-08	5.98E-09	2.16E-08
SW	4000	Th-231	2.34E-03	4.21E-10	1.35E-10	5.56E-10
SW	4000	Pa-231	3.08E-12	5.54E-19	1.54E-19	7.08E-19
SW	4000	Ac-227	4.23E-18	7.62E-25	1.93E-25	9.54E-25
SW	4000	Th-227	1.98E-21	3.56E-28	8.52E-29	4.41E-28
SW	4000	Th-230	7.33E-11	1.32E-17	4.22E-18	1.74E-17
SW	4000	Ra-226	1.97E-18	3.54E-25	9.85E-26	4.52E-25
SW	4000	Rn-222	1.02E-20	0.00E+00	0.00E+00	0.00E+00
SW	4000	Po-218	6.87E-21	1.24E-27	3.25E-28	1.56E-27
SW	5600	U-238	5.14E-02	9.26E-09	4.11E-09	1.34E-08
SW	5600	Th-234	8.70E-05	1.57E-11	5.73E-12	2.14E-11
SW	5600	Pa-234m	8.53E-05	1.54E-11	5.59E-12	2.09E-11
SW	5600	Pa-234	1.00E-08	1.80E-15	5.68E-16	2.37E-15
SW	5600	U-234	4.11E-02	7.41E-09	3.29E-09	1.07E-08
SW	5600	U-235	5.14E-02	9.26E-09	4.11E-09	1.34E-08
SW	5600	Th-231	1.93E-03	3.48E-10	1.28E-10	4.76E-10
SW	5600	Pa-231	3.57E-12	6.42E-19	2.03E-19	8.45E-19
SW	5600	Ac-227	6.88E-18	1.24E-24	3.53E-25	1.59E-24
SW	5600	Th-227	4.40E-21	7.92E-28	2.13E-28	1.00E-27
SW	5600	Th-230	6.10E-11	1.10E-17	4.02E-18	1.50E-17

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SW	5600	Ra-226	2.29E-18	4.12E-25	1.30E-25	5.42E-25
SW	5600	Rn-222	1.57E-20	0.00E+00	0.00E+00	0.00E+00
SW	5600	Po-218	1.01E-20	1.81E-27	5.31E-28	2.34E-27
SW	7250	U-238	3.34E-02	6.02E-09	3.02E-09	9.04E-09
SW	7250	Th-234	7.30E-05	1.31E-11	5.39E-12	1.85E-11
SW	7250	Pa-234m	7.18E-05	1.29E-11	5.29E-12	1.82E-11
SW	7250	Pa-234	1.08E-08	1.94E-15	6.82E-16	2.62E-15
SW	7250	U-234	2.68E-02	4.82E-09	2.42E-09	7.23E-09
SW	7250	U-235	3.34E-02	6.02E-09	3.02E-09	9.04E-09
SW	7250	Th-231	1.61E-03	2.90E-10	1.20E-10	4.10E-10
SW	7250	Pa-231	3.85E-12	6.93E-19	2.44E-19	9.36E-19
SW	7250	Ac-227	9.59E-18	1.73E-24	5.45E-25	2.27E-24
SW	7250	Th-227	7.80E-21	1.40E-27	4.14E-28	1.82E-27
SW	7250	Th-230	5.11E-11	9.21E-18	3.78E-18	1.30E-17
SW	7250	Ra-226	2.48E-18	4.46E-25	1.57E-25	6.03E-25
SW	7250	Rn-222	2.24E-20	0.00E+00	0.00E+00	0.00E+00
SW	7250	Po-218	1.33E-20	2.39E-27	7.71E-28	3.17E-27
SW	12100	U-238	1.49E-02	2.69E-09	1.65E-09	4.34E-09
SW	12100	Th-234	5.42E-05	9.75E-12	4.80E-12	1.46E-11
SW	12100	Pa-234m	5.37E-05	9.66E-12	4.75E-12	1.44E-11
SW	12100	Pa-234	1.28E-08	2.31E-15	9.69E-16	3.28E-15
SW	12100	U-234	1.19E-02	2.15E-09	1.32E-09	3.47E-09
SW	12100	U-235	1.49E-02	2.69E-09	1.65E-09	4.34E-09
SW	12100	Th-231	1.18E-03	2.12E-10	1.05E-10	3.17E-10
SW	12100	Pa-231	4.70E-12	8.45E-19	3.52E-19	1.20E-18
SW	12100	Ac-227	1.95E-17	3.52E-24	1.30E-24	4.81E-24
SW	12100	Th-227	2.62E-20	4.72E-27	1.61E-27	6.32E-27
SW	12100	Th-230	3.80E-11	6.84E-18	3.37E-18	1.02E-17
SW	12100	Ra-226	3.06E-18	5.52E-25	2.29E-25	7.80E-25
SW	12100	Rn-222	1.26E-19	0.00E+00	0.00E+00	0.00E+00
SW	12100	Po-218	6.68E-20	1.20E-26	4.07E-27	1.61E-26
SW	24150	U-238	4.59E-03	8.26E-10	6.58E-10	1.48E-09
SW	24150	Th-234	3.25E-05	5.86E-12	3.61E-12	9.46E-12
SW	24150	Pa-234m	3.24E-05	5.83E-12	3.59E-12	9.41E-12
SW	24150	Pa-234	1.38E-08	2.48E-15	1.27E-15	3.75E-15
SW	24150	U-234	3.67E-03	6.61E-10	5.27E-10	1.19E-09
SW	24150	U-235	4.59E-03	8.26E-10	6.58E-10	1.48E-09
SW	24150	Th-231	6.79E-04	1.22E-10	7.65E-11	1.99E-10
SW	24150	Pa-231	5.39E-12	9.70E-19	4.88E-19	1.46E-18
SW	24150	Ac-227	4.45E-17	8.01E-24	3.44E-24	1.14E-23
SW	24150	Th-227	1.18E-19	2.13E-26	8.21E-27	2.95E-26
SW	24150	Th-230	2.29E-11	4.12E-18	2.53E-18	6.65E-18
SW	24150	Ra-226	3.62E-18	6.52E-25	3.25E-25	9.77E-25
SW	24150	Rn-222	3.10E-19	0.00E+00	0.00E+00	0.00E+00
SW	24150	Po-218	1.08E-19	1.94E-26	9.06E-27	2.84E-26
SW	40250	U-238	1.91E-03	3.43E-10	3.29E-10	6.72E-10
SW	40250	Th-234	2.22E-05	4.00E-12	2.89E-12	6.89E-12

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SW	40250	Pa-234m	2.21E-05	3.98E-12	2.88E-12	6.87E-12
SW	40250	Pa-234	1.37E-08	2.47E-15	1.48E-15	3.95E-15
SW	40250	U-234	1.53E-03	2.75E-10	2.63E-10	5.38E-10
SW	40250	U-235	1.91E-03	3.43E-10	3.29E-10	6.72E-10
SW	40250	Th-231	4.40E-04	7.93E-11	5.90E-11	1.38E-10
SW	40250	Pa-231	5.86E-12	1.05E-18	6.11E-19	1.66E-18
SW	40250	Ac-227	8.06E-17	1.45E-23	6.98E-24	2.15E-23
SW	40250	Th-227	3.56E-19	6.41E-26	2.72E-26	9.13E-26
SW	40250	Th-230	1.56E-11	2.82E-18	2.03E-18	4.85E-18
SW	40250	Ra-226	4.09E-18	7.35E-25	4.19E-25	1.15E-24
SW	40250	Rn-222	6.21E-19	0.00E+00	0.00E+00	0.00E+00
SW	40250	Po-218	1.53E-19	2.76E-26	1.44E-26	4.19E-26
SW	56350	U-238	9.12E-04	1.64E-10	1.91E-10	3.56E-10
SW	56350	Th-234	1.44E-05	2.59E-12	2.25E-12	4.84E-12
SW	56350	Pa-234m	1.44E-05	2.59E-12	2.24E-12	4.83E-12
SW	56350	Pa-234	1.09E-08	1.96E-15	1.42E-15	3.38E-15
SW	56350	U-234	7.30E-04	1.31E-10	1.53E-10	2.84E-10
SW	56350	U-235	9.12E-04	1.64E-10	1.91E-10	3.56E-10
SW	56350	Th-231	2.72E-04	4.90E-11	4.43E-11	9.34E-11
SW	56350	Pa-231	5.03E-12	9.06E-19	6.17E-19	1.52E-18
SW	56350	Ac-227	9.62E-17	1.73E-23	9.48E-24	2.68E-23
SW	56350	Th-227	5.92E-19	1.07E-25	4.98E-26	1.56E-25
SW	56350	Th-230	1.02E-11	1.83E-18	1.58E-18	3.41E-18
SW	56350	Ra-226	3.64E-18	6.55E-25	4.35E-25	1.09E-24
SW	56350	Rn-222	1.01E-18	0.00E+00	0.00E+00	0.00E+00
SW	56350	Po-218	1.63E-19	2.94E-26	1.73E-26	4.67E-26
SW	72200	U-238	4.10E-04	7.37E-11	1.19E-10	1.93E-10
SW	72200	Th-234	7.47E-06	1.34E-12	1.66E-12	3.00E-12
SW	72200	Pa-234m	7.45E-06	1.34E-12	1.66E-12	3.00E-12
SW	72200	Pa-234	6.18E-09	1.11E-15	1.16E-15	2.27E-15
SW	72200	U-234	3.28E-04	5.90E-11	9.56E-11	1.55E-10
SW	72200	U-235	4.10E-04	7.37E-11	1.19E-10	1.93E-10
SW	72200	Th-231	1.37E-04	2.47E-11	3.20E-11	5.67E-11
SW	72200	Pa-231	3.00E-12	5.40E-19	5.21E-19	1.06E-18
SW	72200	Ac-227	6.90E-17	1.24E-23	9.22E-24	2.16E-23
SW	72200	Th-227	5.19E-19	9.35E-26	5.59E-26	1.49E-25
SW	72200	Th-230	5.28E-12	9.51E-19	1.17E-18	2.12E-18
SW	72200	Ra-226	2.22E-18	4.00E-25	3.73E-25	7.74E-25
SW	72200	Rn-222	1.53E-18	0.00E+00	0.00E+00	0.00E+00
SW	72200	Po-218	1.14E-19	2.06E-26	1.61E-26	3.67E-26
SSW	800	U-238	1.42E+00	2.56E-07	4.45E-08	3.01E-07
SSW	800	Th-234	3.06E-04	5.50E-11	8.81E-12	6.38E-11
SSW	800	Pa-234m	2.58E-04	4.64E-11	7.32E-12	5.38E-11
SSW	800	Pa-234	3.68E-09	6.63E-16	9.68E-17	7.60E-16
SSW	800	U-234	1.14E+00	2.05E-07	3.56E-08	2.41E-07
SSW	800	U-235	1.42E+00	2.56E-07	4.45E-08	3.01E-07
SSW	800	Th-231	6.91E-03	1.24E-09	1.99E-10	1.44E-09

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSW	800	Pa-231	1.62E-12	2.91E-19	4.34E-20	3.35E-19
SSW	800	Ac-227	4.03E-19	7.25E-26	1.02E-26	8.27E-26
SSW	800	Th-227	4.58E-23	8.24E-30	1.08E-30	9.32E-30
SSW	800	Th-230	2.14E-10	3.85E-17	6.17E-18	4.47E-17
SSW	800	Ra-226	1.03E-18	1.85E-25	2.75E-26	2.12E-25
SSW	800	Rn-222	7.70E-22	0.00E+00	0.00E+00	0.00E+00
SSW	800	Po-218	4.28E-22	7.71E-29	1.04E-29	8.75E-29
SSW	2400	U-238	2.61E-01	4.70E-08	1.39E-08	6.09E-08
SSW	2400	Th-234	1.74E-04	3.14E-11	8.15E-12	3.95E-11
SSW	2400	Pa-234m	1.65E-04	2.98E-11	7.68E-12	3.74E-11
SSW	2400	Pa-234	7.70E-09	1.39E-15	3.19E-16	1.70E-15
SSW	2400	U-234	2.09E-01	3.76E-08	1.11E-08	4.87E-08
SSW	2400	U-235	2.61E-01	4.70E-08	1.39E-08	6.09E-08
SSW	2400	Th-231	3.92E-03	7.05E-10	1.83E-10	8.88E-10
SSW	2400	Pa-231	2.83E-12	5.10E-19	1.19E-19	6.29E-19
SSW	2400	Ac-227	2.16E-18	3.89E-25	8.28E-26	4.72E-25
SSW	2400	Th-227	6.27E-22	1.13E-28	2.29E-29	1.36E-28
SSW	2400	Th-230	1.22E-10	2.20E-17	5.71E-18	2.77E-17
SSW	2400	Ra-226	1.80E-18	3.25E-25	7.55E-26	4.00E-25
SSW	2400	Rn-222	6.44E-21	0.00E+00	0.00E+00	0.00E+00
SSW	2400	Po-218	4.73E-21	8.51E-28	1.91E-28	1.04E-27
SSW	4000	U-238	1.15E-01	2.07E-08	7.90E-09	2.86E-08
SSW	4000	Th-234	1.28E-04	2.31E-11	7.64E-12	3.07E-11
SSW	4000	Pa-234m	1.24E-04	2.24E-11	7.37E-12	2.98E-11
SSW	4000	Pa-234	9.68E-09	1.74E-15	5.07E-16	2.25E-15
SSW	4000	U-234	9.22E-02	1.66E-08	6.32E-09	2.29E-08
SSW	4000	U-235	1.15E-01	2.07E-08	7.90E-09	2.86E-08
SSW	4000	Th-231	2.87E-03	5.17E-10	1.71E-10	6.88E-10
SSW	4000	Pa-231	3.47E-12	6.25E-19	1.83E-19	8.08E-19
SSW	4000	Ac-227	4.41E-18	7.94E-25	2.11E-25	1.01E-24
SSW	4000	Th-227	1.94E-21	3.49E-28	8.72E-29	4.36E-28
SSW	4000	Th-230	8.99E-11	1.62E-17	5.35E-18	2.15E-17
SSW	4000	Ra-226	2.22E-18	3.99E-25	1.17E-25	5.16E-25
SSW	4000	Rn-222	1.09E-20	0.00E+00	0.00E+00	0.00E+00
SSW	4000	Po-218	7.41E-21	1.33E-27	3.69E-28	1.70E-27
SSW	5600	U-238	6.86E-02	1.24E-08	5.43E-09	1.78E-08
SSW	5600	Th-234	1.07E-04	1.93E-11	7.30E-12	2.66E-11
SSW	5600	Pa-234m	1.05E-04	1.88E-11	7.11E-12	2.60E-11
SSW	5600	Pa-234	1.13E-08	2.04E-15	6.78E-16	2.72E-15
SSW	5600	U-234	5.49E-02	9.89E-09	4.34E-09	1.42E-08
SSW	5600	U-235	6.86E-02	1.24E-08	5.43E-09	1.78E-08
SSW	5600	Th-231	2.38E-03	4.29E-10	1.63E-10	5.91E-10
SSW	5600	Pa-231	4.04E-12	7.27E-19	2.42E-19	9.69E-19
SSW	5600	Ac-227	7.19E-18	1.29E-24	3.90E-25	1.68E-24
SSW	5600	Th-227	4.31E-21	7.75E-28	2.18E-28	9.93E-28
SSW	5600	Th-230	7.50E-11	1.35E-17	5.11E-18	1.86E-17
SSW	5600	Ra-226	2.59E-18	4.66E-25	1.55E-25	6.21E-25

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSW	5600	Rn-222	1.63E-20	0.00E+00	0.00E+00	0.00E+00
SSW	5600	Po-218	1.06E-20	1.90E-27	5.91E-28	2.50E-27
SSW	7250	U-238	4.49E-02	8.08E-09	4.01E-09	1.21E-08
SSW	7250	Th-234	9.02E-05	1.62E-11	6.90E-12	2.31E-11
SSW	7250	Pa-234m	8.87E-05	1.60E-11	6.77E-12	2.27E-11
SSW	7250	Pa-234	1.22E-08	2.20E-15	8.20E-16	3.02E-15
SSW	7250	U-234	3.59E-02	6.46E-09	3.20E-09	9.67E-09
SSW	7250	U-235	4.49E-02	8.08E-09	4.01E-09	1.21E-08
SSW	7250	Th-231	2.00E-03	3.59E-10	1.53E-10	5.13E-10
SSW	7250	Pa-231	4.37E-12	7.87E-19	2.93E-19	1.08E-18
SSW	7250	Ac-227	1.01E-17	1.81E-24	6.05E-25	2.42E-24
SSW	7250	Th-227	7.66E-21	1.38E-27	4.27E-28	1.81E-27
SSW	7250	Th-230	6.32E-11	1.14E-17	4.84E-18	1.62E-17
SSW	7250	Ra-226	2.82E-18	5.07E-25	1.88E-25	6.95E-25
SSW	7250	Rn-222	2.36E-20	0.00E+00	0.00E+00	0.00E+00
SSW	7250	Po-218	1.43E-20	2.57E-27	8.76E-28	3.45E-27
SSW	12100	U-238	2.02E-02	3.64E-09	2.19E-09	5.83E-09
SSW	12100	Th-234	6.74E-05	1.21E-11	6.20E-12	1.83E-11
SSW	12100	Pa-234m	6.68E-05	1.20E-11	6.12E-12	1.81E-11
SSW	12100	Pa-234	1.48E-08	2.66E-15	1.18E-15	3.85E-15
SSW	12100	U-234	1.62E-02	2.91E-09	1.75E-09	4.66E-09
SSW	12100	U-235	2.02E-02	3.64E-09	2.19E-09	5.83E-09
SSW	12100	Th-231	1.47E-03	2.65E-10	1.36E-10	4.01E-10
SSW	12100	Pa-231	5.38E-12	9.69E-19	4.28E-19	1.40E-18
SSW	12100	Ac-227	2.07E-17	3.72E-24	1.46E-24	5.18E-24
SSW	12100	Th-227	2.58E-20	4.64E-27	1.67E-27	6.31E-27
SSW	12100	Th-230	4.73E-11	8.51E-18	4.35E-18	1.29E-17
SSW	12100	Ra-226	3.50E-18	6.30E-25	2.78E-25	9.08E-25
SSW	12100	Rn-222	1.27E-19	0.00E+00	0.00E+00	0.00E+00
SSW	12100	Po-218	6.84E-20	1.23E-26	4.33E-27	1.67E-26
SSW	24150	U-238	6.38E-03	1.15E-09	8.79E-10	2.03E-09
SSW	24150	Th-234	4.15E-05	7.47E-12	4.75E-12	1.22E-11
SSW	24150	Pa-234m	4.13E-05	7.43E-12	4.72E-12	1.22E-11
SSW	24150	Pa-234	1.63E-08	2.94E-15	1.61E-15	4.56E-15
SSW	24150	U-234	5.10E-03	9.18E-10	7.03E-10	1.62E-09
SSW	24150	U-235	6.38E-03	1.15E-09	8.79E-10	2.03E-09
SSW	24150	Th-231	8.72E-04	1.57E-10	1.01E-10	2.58E-10
SSW	24150	Pa-231	6.32E-12	1.14E-18	6.14E-19	1.75E-18
SSW	24150	Ac-227	4.80E-17	8.64E-24	4.02E-24	1.27E-23
SSW	24150	Th-227	1.19E-19	2.13E-26	8.86E-27	3.02E-26
SSW	24150	Th-230	2.92E-11	5.25E-18	3.34E-18	8.58E-18
SSW	24150	Ra-226	4.23E-18	7.61E-25	4.07E-25	1.17E-24
SSW	24150	Rn-222	3.36E-19	0.00E+00	0.00E+00	0.00E+00
SSW	24150	Po-218	1.23E-19	2.22E-26	1.13E-26	3.35E-26
SSW	40250	U-238	2.69E-03	4.85E-10	4.38E-10	9.23E-10
SSW	40250	Th-234	2.87E-05	5.17E-12	3.84E-12	9.01E-12
SSW	40250	Pa-234m	2.86E-05	5.15E-12	3.83E-12	8.98E-12

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSW	40250	Pa-234	1.66E-08	2.99E-15	1.92E-15	4.91E-15
SSW	40250	U-234	2.15E-03	3.88E-10	3.50E-10	7.38E-10
SSW	40250	U-235	2.69E-03	4.85E-10	4.38E-10	9.23E-10
SSW	40250	Th-231	5.76E-04	1.04E-10	7.86E-11	1.82E-10
SSW	40250	Pa-231	6.96E-12	1.25E-18	7.82E-19	2.04E-18
SSW	40250	Ac-227	8.79E-17	1.58E-23	8.36E-24	2.42E-23
SSW	40250	Th-227	3.60E-19	6.48E-26	3.00E-26	9.48E-26
SSW	40250	Th-230	2.02E-11	3.64E-18	2.70E-18	6.34E-18
SSW	40250	Ra-226	4.82E-18	8.68E-25	5.35E-25	1.40E-24
SSW	40250	Rn-222	6.57E-19	0.00E+00	0.00E+00	0.00E+00
SSW	40250	Po-218	1.74E-19	3.13E-26	1.78E-26	4.91E-26
SSW	56350	U-238	1.32E-03	2.37E-10	2.54E-10	4.91E-10
SSW	56350	Th-234	1.91E-05	3.44E-12	3.02E-12	6.46E-12
SSW	56350	Pa-234m	1.91E-05	3.43E-12	3.01E-12	6.44E-12
SSW	56350	Pa-234	1.36E-08	2.45E-15	1.88E-15	4.34E-15
SSW	56350	U-234	1.05E-03	1.90E-10	2.03E-10	3.93E-10
SSW	56350	U-235	1.32E-03	2.37E-10	2.54E-10	4.91E-10
SSW	56350	Th-231	3.67E-04	6.61E-11	5.97E-11	1.26E-10
SSW	56350	Pa-231	6.15E-12	1.11E-18	8.12E-19	1.92E-18
SSW	56350	Ac-227	1.07E-16	1.93E-23	1.18E-23	3.11E-23
SSW	56350	Th-227	6.10E-19	1.10E-25	5.74E-26	1.67E-25
SSW	56350	Th-230	1.35E-11	2.43E-18	2.13E-18	4.55E-18
SSW	56350	Ra-226	4.40E-18	7.92E-25	5.69E-25	1.36E-24
SSW	56350	Rn-222	1.03E-18	0.00E+00	0.00E+00	0.00E+00
SSW	56350	Po-218	1.81E-19	3.26E-26	2.14E-26	5.40E-26
SSW	72200	U-238	6.19E-04	1.11E-10	1.57E-10	2.69E-10
SSW	72200	Th-234	1.05E-05	1.89E-12	2.26E-12	4.16E-12
SSW	72200	Pa-234m	1.05E-05	1.89E-12	2.26E-12	4.15E-12
SSW	72200	Pa-234	8.26E-09	1.49E-15	1.59E-15	3.08E-15
SSW	72200	U-234	4.95E-04	8.92E-11	1.26E-10	2.15E-10
SSW	72200	U-235	6.19E-04	1.11E-10	1.57E-10	2.69E-10
SSW	72200	Th-231	1.97E-04	3.54E-11	4.36E-11	7.90E-11
SSW	72200	Pa-231	3.90E-12	7.02E-19	7.15E-19	1.42E-18
SSW	72200	Ac-227	8.14E-17	1.47E-23	1.23E-23	2.70E-23
SSW	72200	Th-227	5.61E-19	1.01E-25	7.06E-26	1.72E-25
SSW	72200	Th-230	7.43E-12	1.34E-18	1.60E-18	2.93E-18
SSW	72200	Ra-226	2.85E-18	5.13E-25	5.11E-25	1.02E-24
SSW	72200	Rn-222	1.60E-18	0.00E+00	0.00E+00	0.00E+00
SSW	72200	Po-218	1.38E-19	2.49E-26	2.18E-26	4.67E-26
S	800	U-238	1.15E+00	2.07E-07	3.78E-08	2.44E-07
S	800	Th-234	2.46E-04	4.42E-11	7.21E-12	5.14E-11
S	800	Pa-234m	2.08E-04	3.74E-11	5.96E-12	4.33E-11
S	800	Pa-234	3.09E-09	5.56E-16	8.09E-17	6.37E-16
S	800	U-234	9.19E-01	1.65E-07	3.02E-08	1.96E-07
S	800	U-235	1.15E+00	2.07E-07	3.78E-08	2.44E-07
S	800	Th-231	5.55E-03	1.00E-09	1.63E-10	1.16E-09
S	800	Pa-231	1.35E-12	2.42E-19	3.60E-20	2.78E-19

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
S	800	Ac-227	3.49E-19	6.27E-26	8.75E-27	7.15E-26
S	800	Th-227	4.19E-23	7.54E-30	0.00E+00	8.52E-30
S	800	Th-230	1.72E-10	3.10E-17	5.05E-18	3.60E-17
S	800	Ra-226	8.53E-19	1.53E-25	2.28E-26	1.76E-25
S	800	Rn-222	7.49E-22	0.00E+00	0.00E+00	0.00E+00
S	800	Po-218	4.54E-22	8.17E-29	1.07E-29	9.24E-29
S	2400	U-238	2.09E-01	3.77E-08	1.18E-08	4.95E-08
S	2400	Th-234	1.40E-04	2.53E-11	6.66E-12	3.19E-11
S	2400	Pa-234m	1.33E-04	2.40E-11	6.26E-12	3.03E-11
S	2400	Pa-234	6.43E-09	1.16E-15	2.64E-16	1.42E-15
S	2400	U-234	1.68E-01	3.02E-08	9.46E-09	3.96E-08
S	2400	U-235	2.09E-01	3.77E-08	1.18E-08	4.95E-08
S	2400	Th-231	3.16E-03	5.68E-10	1.50E-10	7.18E-10
S	2400	Pa-231	2.36E-12	4.25E-19	9.82E-20	5.24E-19
S	2400	Ac-227	1.87E-18	3.37E-25	7.09E-26	4.08E-25
S	2400	Th-227	5.54E-22	9.97E-29	2.00E-29	1.20E-28
S	2400	Th-230	9.83E-11	1.77E-17	4.67E-18	2.24E-17
S	2400	Ra-226	1.50E-18	2.71E-25	6.25E-26	3.33E-25
S	2400	Rn-222	5.41E-21	0.00E+00	0.00E+00	0.00E+00
S	2400	Po-218	3.95E-21	7.11E-28	1.57E-28	8.67E-28
S	4000	U-238	9.21E-02	1.66E-08	6.74E-09	2.33E-08
S	4000	Th-234	1.03E-04	1.86E-11	6.24E-12	2.48E-11
S	4000	Pa-234m	1.00E-04	1.80E-11	6.01E-12	2.40E-11
S	4000	Pa-234	8.05E-09	1.45E-15	4.19E-16	1.87E-15
S	4000	U-234	7.37E-02	1.33E-08	5.40E-09	1.87E-08
S	4000	U-235	9.21E-02	1.66E-08	6.74E-09	2.33E-08
S	4000	Th-231	2.31E-03	4.15E-10	1.40E-10	5.55E-10
S	4000	Pa-231	2.89E-12	5.19E-19	1.51E-19	6.70E-19
S	4000	Ac-227	3.81E-18	6.87E-25	1.80E-25	8.67E-25
S	4000	Th-227	1.72E-21	3.10E-28	7.67E-29	3.87E-28
S	4000	Th-230	7.22E-11	1.30E-17	4.37E-18	1.74E-17
S	4000	Ra-226	1.84E-18	3.32E-25	9.64E-26	4.28E-25
S	4000	Rn-222	9.27E-21	0.00E+00	0.00E+00	0.00E+00
S	4000	Po-218	6.28E-21	1.13E-27	3.09E-28	1.44E-27
S	5600	U-238	5.48E-02	9.86E-09	4.65E-09	1.45E-08
S	5600	Th-234	8.59E-05	1.55E-11	5.96E-12	2.14E-11
S	5600	Pa-234m	8.41E-05	1.51E-11	5.80E-12	2.09E-11
S	5600	Pa-234	9.40E-09	1.69E-15	5.58E-16	2.25E-15
S	5600	U-234	4.38E-02	7.89E-09	3.72E-09	1.16E-08
S	5600	U-235	5.48E-02	9.86E-09	4.65E-09	1.45E-08
S	5600	Th-231	1.91E-03	3.44E-10	1.33E-10	4.77E-10
S	5600	Pa-231	3.35E-12	6.04E-19	2.00E-19	8.03E-19
S	5600	Ac-227	6.21E-18	1.12E-24	3.32E-25	1.45E-24
S	5600	Th-227	3.84E-21	6.91E-28	1.92E-28	8.83E-28
S	5600	Th-230	6.02E-11	1.08E-17	4.18E-18	1.50E-17
S	5600	Ra-226	2.15E-18	3.87E-25	1.28E-25	5.15E-25
S	5600	Rn-222	1.41E-20	0.00E+00	0.00E+00	0.00E+00

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
S	5600	Po-218	9.13E-21	1.64E-27	5.05E-28	2.15E-27
S	7250	U-238	3.57E-02	6.43E-09	3.44E-09	9.87E-09
S	7250	Th-234	7.22E-05	1.30E-11	5.63E-12	1.86E-11
S	7250	Pa-234m	7.10E-05	1.28E-11	5.52E-12	1.83E-11
S	7250	Pa-234	1.01E-08	1.82E-15	6.73E-16	2.50E-15
S	7250	U-234	2.86E-02	5.15E-09	2.75E-09	7.90E-09
S	7250	U-235	3.57E-02	6.43E-09	3.44E-09	9.87E-09
S	7250	Th-231	1.60E-03	2.88E-10	1.25E-10	4.13E-10
S	7250	Pa-231	3.62E-12	6.52E-19	2.41E-19	8.93E-19
S	7250	Ac-227	8.68E-18	1.56E-24	5.14E-25	2.08E-24
S	7250	Th-227	6.82E-21	1.23E-27	3.75E-28	1.60E-27
S	7250	Th-230	5.06E-11	9.11E-18	3.95E-18	1.31E-17
S	7250	Ra-226	2.33E-18	4.20E-25	1.55E-25	5.75E-25
S	7250	Rn-222	2.03E-20	0.00E+00	0.00E+00	0.00E+00
S	7250	Po-218	1.22E-20	2.19E-27	7.38E-28	2.93E-27
S	12100	U-238	1.60E-02	2.88E-09	1.89E-09	4.78E-09
S	12100	Th-234	5.38E-05	9.69E-12	5.06E-12	1.47E-11
S	12100	Pa-234m	5.33E-05	9.59E-12	5.00E-12	1.46E-11
S	12100	Pa-234	1.22E-08	2.19E-15	9.67E-16	3.16E-15
S	12100	U-234	1.28E-02	2.31E-09	1.51E-09	3.82E-09
S	12100	U-235	1.60E-02	2.88E-09	1.89E-09	4.78E-09
S	12100	Th-231	1.17E-03	2.11E-10	1.11E-10	3.22E-10
S	12100	Pa-231	4.45E-12	8.00E-19	3.50E-19	1.15E-18
S	12100	Ac-227	1.78E-17	3.20E-24	1.23E-24	4.43E-24
S	12100	Th-227	2.29E-20	4.13E-27	1.46E-27	5.59E-27
S	12100	Th-230	3.78E-11	6.80E-18	3.55E-18	1.03E-17
S	12100	Ra-226	2.90E-18	5.21E-25	2.28E-25	7.49E-25
S	12100	Rn-222	1.13E-19	0.00E+00	0.00E+00	0.00E+00
S	12100	Po-218	6.07E-20	1.09E-26	3.83E-27	1.48E-26
S	24150	U-238	4.98E-03	8.96E-10	7.74E-10	1.67E-09
S	24150	Th-234	3.27E-05	5.88E-12	3.89E-12	9.77E-12
S	24150	Pa-234m	3.25E-05	5.85E-12	3.86E-12	9.71E-12
S	24150	Pa-234	1.33E-08	2.39E-15	1.30E-15	3.69E-15
S	24150	U-234	3.98E-03	7.17E-10	6.19E-10	1.34E-09
S	24150	U-235	4.98E-03	8.96E-10	7.74E-10	1.67E-09
S	24150	Th-231	6.85E-04	1.23E-10	8.28E-11	2.06E-10
S	24150	Pa-231	5.16E-12	9.29E-19	4.97E-19	1.43E-18
S	24150	Ac-227	4.09E-17	7.36E-24	3.34E-24	1.07E-23
S	24150	Th-227	1.05E-19	1.89E-26	7.65E-27	2.65E-26
S	24150	Th-230	2.30E-11	4.13E-18	2.73E-18	6.86E-18
S	24150	Ra-226	3.46E-18	6.23E-25	3.30E-25	9.53E-25
S	24150	Rn-222	2.86E-19	0.00E+00	0.00E+00	0.00E+00
S	24150	Po-218	1.01E-19	1.82E-26	8.93E-27	2.72E-26
S	40250	U-238	2.08E-03	3.75E-10	3.93E-10	7.68E-10
S	40250	Th-234	2.24E-05	4.04E-12	3.16E-12	7.20E-12
S	40250	Pa-234m	2.24E-05	4.03E-12	3.15E-12	7.17E-12
S	40250	Pa-234	1.33E-08	2.40E-15	1.54E-15	3.94E-15

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
S	40250	U-234	1.67E-03	3.00E-10	3.14E-10	6.14E-10
S	40250	U-235	2.08E-03	3.75E-10	3.93E-10	7.68E-10
S	40250	Th-231	4.48E-04	8.06E-11	6.48E-11	1.45E-10
S	40250	Pa-231	5.64E-12	1.02E-18	6.30E-19	1.65E-18
S	40250	Ac-227	7.45E-17	1.34E-23	6.88E-24	2.03E-23
S	40250	Th-227	3.17E-19	5.71E-26	2.57E-26	8.27E-26
S	40250	Th-230	1.58E-11	2.84E-18	2.22E-18	5.07E-18
S	40250	Ra-226	3.92E-18	7.06E-25	4.31E-25	1.14E-24
S	40250	Rn-222	5.67E-19	0.00E+00	0.00E+00	0.00E+00
S	40250	Po-218	1.44E-19	2.59E-26	1.44E-26	4.03E-26
S	56350	U-238	1.01E-03	1.82E-10	2.34E-10	4.16E-10
S	56350	Th-234	1.47E-05	2.65E-12	2.51E-12	5.16E-12
S	56350	Pa-234m	1.47E-05	2.65E-12	2.50E-12	5.15E-12
S	56350	Pa-234	1.08E-08	1.94E-15	1.51E-15	3.44E-15
S	56350	U-234	8.11E-04	1.46E-10	1.87E-10	3.33E-10
S	56350	U-235	1.01E-03	1.82E-10	2.34E-10	4.16E-10
S	56350	Th-231	2.82E-04	5.07E-11	4.99E-11	1.01E-10
S	56350	Pa-231	4.91E-12	8.84E-19	6.51E-19	1.53E-18
S	56350	Ac-227	9.00E-17	1.62E-23	9.56E-24	2.58E-23
S	56350	Th-227	5.32E-19	9.58E-26	4.83E-26	1.44E-25
S	56350	Th-230	1.04E-11	1.87E-18	1.77E-18	3.64E-18
S	56350	Ra-226	3.53E-18	6.36E-25	4.57E-25	1.09E-24
S	56350	Rn-222	9.05E-19	0.00E+00	0.00E+00	0.00E+00
S	56350	Po-218	1.52E-19	2.74E-26	1.77E-26	4.51E-26
S	72200	U-238	4.73E-04	8.52E-11	1.50E-10	2.35E-10
S	72200	Th-234	7.87E-06	1.42E-12	1.91E-12	3.33E-12
S	72200	Pa-234m	7.85E-06	1.41E-12	1.90E-12	3.32E-12
S	72200	Pa-234	6.26E-09	1.13E-15	1.27E-15	2.40E-15
S	72200	U-234	3.79E-04	6.82E-11	1.20E-10	1.88E-10
S	72200	U-235	4.73E-04	8.52E-11	1.50E-10	2.35E-10
S	72200	Th-231	1.46E-04	2.63E-11	3.72E-11	6.35E-11
S	72200	Pa-231	3.00E-12	5.39E-19	5.69E-19	1.11E-18
S	72200	Ac-227	6.60E-17	1.19E-23	9.72E-24	2.16E-23
S	72200	Th-227	4.79E-19	8.62E-26	5.73E-26	1.44E-25
S	72200	Th-230	5.56E-12	1.00E-18	1.35E-18	2.35E-18
S	72200	Ra-226	2.21E-18	3.97E-25	4.06E-25	8.04E-25
S	72200	Rn-222	1.39E-18	0.00E+00	0.00E+00	0.00E+00
S	72200	Po-218	1.11E-19	1.99E-26	1.73E-26	3.72E-26
SSE	800	U-238	8.80E-01	1.58E-07	2.90E-08	1.87E-07
SSE	800	Th-234	1.91E-04	3.45E-11	5.68E-12	4.01E-11
SSE	800	Pa-234m	1.62E-04	2.92E-11	4.72E-12	3.39E-11
SSE	800	Pa-234	2.46E-09	4.43E-16	6.52E-17	5.08E-16
SSE	800	U-234	7.04E-01	1.27E-07	2.32E-08	1.50E-07
SSE	800	U-235	8.80E-01	1.58E-07	2.90E-08	1.87E-07
SSE	800	Th-231	4.33E-03	7.79E-10	1.28E-10	9.07E-10
SSE	800	Pa-231	1.07E-12	1.92E-19	2.89E-20	2.21E-19
SSE	800	Ac-227	2.82E-19	5.08E-26	7.14E-27	5.79E-26

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSE	800	Th-227	3.57E-23	6.43E-30	0.00E+00	7.27E-30
SSE	800	Th-230	1.34E-10	2.41E-17	3.98E-18	2.81E-17
SSE	800	Ra-226	6.75E-19	1.22E-25	1.83E-26	1.40E-25
SSE	800	Rn-222	6.83E-22	0.00E+00	0.00E+00	0.00E+00
SSE	800	Po-218	4.42E-22	7.96E-29	1.04E-29	8.99E-29
SSE	2400	U-238	1.61E-01	2.89E-08	9.07E-09	3.80E-08
SSE	2400	Th-234	1.09E-04	1.97E-11	5.25E-12	2.49E-11
SSE	2400	Pa-234m	1.04E-04	1.87E-11	4.95E-12	2.37E-11
SSE	2400	Pa-234	5.10E-09	9.18E-16	2.12E-16	1.13E-15
SSE	2400	U-234	1.28E-01	2.31E-08	7.26E-09	3.04E-08
SSE	2400	U-235	1.61E-01	2.89E-08	9.07E-09	3.80E-08
SSE	2400	Th-231	2.46E-03	4.42E-10	1.18E-10	5.61E-10
SSE	2400	Pa-231	1.87E-12	3.37E-19	7.87E-20	4.16E-19
SSE	2400	Ac-227	1.52E-18	2.73E-25	5.78E-26	3.31E-25
SSE	2400	Th-227	4.58E-22	8.24E-29	1.66E-29	9.90E-29
SSE	2400	Th-230	7.66E-11	1.38E-17	3.68E-18	1.75E-17
SSE	2400	Ra-226	1.19E-18	2.15E-25	5.01E-26	2.65E-25
SSE	2400	Rn-222	4.31E-21	0.00E+00	0.00E+00	0.00E+00
SSE	2400	Po-218	3.14E-21	5.65E-28	1.27E-28	6.92E-28
SSE	4000	U-238	7.06E-02	1.27E-08	5.17E-09	1.79E-08
SSE	4000	Th-234	8.02E-05	1.44E-11	4.92E-12	1.94E-11
SSE	4000	Pa-234m	7.78E-05	1.40E-11	4.74E-12	1.88E-11
SSE	4000	Pa-234	6.37E-09	1.15E-15	3.36E-16	1.48E-15
SSE	4000	U-234	5.65E-02	1.02E-08	4.13E-09	1.43E-08
SSE	4000	U-235	7.06E-02	1.27E-08	5.17E-09	1.79E-08
SSE	4000	Th-231	1.79E-03	3.23E-10	1.10E-10	4.33E-10
SSE	4000	Pa-231	2.28E-12	4.11E-19	1.21E-19	5.32E-19
SSE	4000	Ac-227	3.09E-18	5.56E-25	1.47E-25	7.02E-25
SSE	4000	Th-227	1.43E-21	2.57E-28	6.37E-29	3.21E-28
SSE	4000	Th-230	5.62E-11	1.01E-17	3.44E-18	1.36E-17
SSE	4000	Ra-226	1.46E-18	2.63E-25	7.72E-26	3.40E-25
SSE	4000	Rn-222	7.51E-21	0.00E+00	0.00E+00	0.00E+00
SSE	4000	Po-218	5.07E-21	9.13E-28	2.51E-28	1.16E-27
SSE	5600	U-238	4.20E-02	7.56E-09	3.56E-09	1.11E-08
SSE	5600	Th-234	6.68E-05	1.20E-11	4.70E-12	1.67E-11
SSE	5600	Pa-234m	6.54E-05	1.18E-11	4.58E-12	1.63E-11
SSE	5600	Pa-234	7.43E-09	1.34E-15	4.47E-16	1.78E-15
SSE	5600	U-234	3.36E-02	6.05E-09	2.85E-09	8.89E-09
SSE	5600	U-235	4.20E-02	7.56E-09	3.56E-09	1.11E-08
SSE	5600	Th-231	1.49E-03	2.67E-10	1.05E-10	3.72E-10
SSE	5600	Pa-231	2.65E-12	4.77E-19	1.60E-19	6.37E-19
SSE	5600	Ac-227	5.02E-18	9.03E-25	2.70E-25	1.17E-24
SSE	5600	Th-227	3.18E-21	5.73E-28	1.59E-28	7.32E-28
SSE	5600	Th-230	4.68E-11	8.43E-18	3.29E-18	1.17E-17
SSE	5600	Ra-226	1.70E-18	3.06E-25	1.02E-25	4.08E-25
SSE	5600	Rn-222	1.15E-20	0.00E+00	0.00E+00	0.00E+00
SSE	5600	Po-218	7.35E-21	1.32E-27	4.09E-28	1.73E-27

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSE	7250	U-238	2.74E-02	4.93E-09	2.63E-09	7.56E-09
SSE	7250	Th-234	5.61E-05	1.01E-11	4.44E-12	1.45E-11
SSE	7250	Pa-234m	5.52E-05	9.93E-12	4.35E-12	1.43E-11
SSE	7250	Pa-234	7.99E-09	1.44E-15	5.39E-16	1.98E-15
SSE	7250	U-234	2.19E-02	3.95E-09	2.10E-09	6.05E-09
SSE	7250	U-235	2.74E-02	4.93E-09	2.63E-09	7.56E-09
SSE	7250	Th-231	1.24E-03	2.23E-10	9.85E-11	3.22E-10
SSE	7250	Pa-231	2.86E-12	5.15E-19	1.93E-19	7.07E-19
SSE	7250	Ac-227	7.00E-18	1.26E-24	4.18E-25	1.68E-24
SSE	7250	Th-227	5.64E-21	1.01E-27	3.11E-28	1.33E-27
SSE	7250	Th-230	3.93E-11	7.08E-18	3.11E-18	1.02E-17
SSE	7250	Ra-226	1.84E-18	3.32E-25	1.24E-25	4.55E-25
SSE	7250	Rn-222	1.64E-20	0.00E+00	0.00E+00	0.00E+00
SSE	7250	Po-218	9.77E-21	1.76E-27	5.96E-28	2.36E-27
SSE	12100	U-238	1.23E-02	2.22E-09	1.45E-09	3.66E-09
SSE	12100	Th-234	4.18E-05	7.53E-12	3.99E-12	1.15E-11
SSE	12100	Pa-234m	4.14E-05	7.45E-12	3.94E-12	1.14E-11
SSE	12100	Pa-234	9.58E-09	1.72E-15	7.74E-16	2.50E-15
SSE	12100	U-234	9.85E-03	1.77E-09	1.16E-09	2.93E-09
SSE	12100	U-235	1.23E-02	2.22E-09	1.45E-09	3.66E-09
SSE	12100	Th-231	9.10E-04	1.64E-10	8.74E-11	2.51E-10
SSE	12100	Pa-231	3.50E-12	6.30E-19	2.81E-19	9.11E-19
SSE	12100	Ac-227	1.43E-17	2.57E-24	1.00E-24	3.57E-24
SSE	12100	Th-227	1.89E-20	3.41E-27	1.21E-27	4.62E-27
SSE	12100	Th-230	2.93E-11	5.28E-18	2.80E-18	8.08E-18
SSE	12100	Ra-226	2.28E-18	4.11E-25	1.82E-25	5.93E-25
SSE	12100	Rn-222	9.11E-20	0.00E+00	0.00E+00	0.00E+00
SSE	12100	Po-218	4.80E-20	8.64E-27	3.04E-27	1.17E-26
SSE	24150	U-238	3.85E-03	6.94E-10	5.89E-10	1.28E-09
SSE	24150	Th-234	2.54E-05	4.57E-12	3.07E-12	7.64E-12
SSE	24150	Pa-234m	2.53E-05	4.55E-12	3.05E-12	7.60E-12
SSE	24150	Pa-234	1.04E-08	1.86E-15	1.04E-15	2.91E-15
SSE	24150	U-234	3.08E-03	5.55E-10	4.71E-10	1.03E-09
SSE	24150	U-235	3.85E-03	6.94E-10	5.89E-10	1.28E-09
SSE	24150	Th-231	5.32E-04	9.58E-11	6.52E-11	1.61E-10
SSE	24150	Pa-231	4.04E-12	7.27E-19	3.99E-19	1.13E-18
SSE	24150	Ac-227	3.26E-17	5.86E-24	2.71E-24	8.58E-24
SSE	24150	Th-227	8.55E-20	1.54E-26	6.31E-27	2.17E-26
SSE	24150	Th-230	1.79E-11	3.21E-18	2.15E-18	5.37E-18
SSE	24150	Ra-226	2.71E-18	4.88E-25	2.65E-25	7.53E-25
SSE	24150	Rn-222	2.28E-19	0.00E+00	0.00E+00	0.00E+00
SSE	24150	Po-218	7.94E-20	1.43E-26	7.26E-27	2.16E-26
SSE	40250	U-238	1.62E-03	2.92E-10	2.97E-10	5.90E-10
SSE	40250	Th-234	1.75E-05	3.15E-12	2.49E-12	5.64E-12
SSE	40250	Pa-234m	1.74E-05	3.14E-12	2.48E-12	5.62E-12
SSE	40250	Pa-234	1.04E-08	1.87E-15	1.24E-15	3.11E-15
SSE	40250	U-234	1.30E-03	2.34E-10	2.38E-10	4.72E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSE	40250	U-235	1.62E-03	2.92E-10	2.97E-10	5.90E-10
SSE	40250	Th-231	3.49E-04	6.29E-11	5.10E-11	1.14E-10
SSE	40250	Pa-231	4.41E-12	7.94E-19	5.07E-19	1.30E-18
SSE	40250	Ac-227	5.91E-17	1.06E-23	5.60E-24	1.62E-23
SSE	40250	Th-227	2.57E-19	4.63E-26	2.11E-26	6.75E-26
SSE	40250	Th-230	1.23E-11	2.22E-18	1.75E-18	3.97E-18
SSE	40250	Ra-226	3.07E-18	5.53E-25	3.47E-25	9.00E-25
SSE	40250	Rn-222	4.59E-19	0.00E+00	0.00E+00	0.00E+00
SSE	40250	Po-218	1.14E-19	2.06E-26	1.17E-26	3.23E-26
SSE	56350	U-238	7.95E-04	1.43E-10	1.76E-10	3.19E-10
SSE	56350	Th-234	1.16E-05	2.08E-12	1.98E-12	4.06E-12
SSE	56350	Pa-234m	1.15E-05	2.07E-12	1.97E-12	4.05E-12
SSE	56350	Pa-234	8.40E-09	1.51E-15	1.21E-15	2.73E-15
SSE	56350	U-234	6.36E-04	1.14E-10	1.41E-10	2.55E-10
SSE	56350	U-235	7.95E-04	1.43E-10	1.76E-10	3.19E-10
SSE	56350	Th-231	2.21E-04	3.97E-11	3.92E-11	7.89E-11
SSE	56350	Pa-231	3.84E-12	6.91E-19	5.25E-19	1.22E-18
SSE	56350	Ac-227	7.11E-17	1.28E-23	7.82E-24	2.06E-23
SSE	56350	Th-227	4.29E-19	7.72E-26	3.99E-26	1.17E-25
SSE	56350	Th-230	8.15E-12	1.47E-18	1.39E-18	2.86E-18
SSE	56350	Ra-226	2.77E-18	4.98E-25	3.69E-25	8.67E-25
SSE	56350	Rn-222	7.39E-19	0.00E+00	0.00E+00	0.00E+00
SSE	56350	Po-218	1.21E-19	2.18E-26	1.44E-26	3.62E-26
SSE	72200	U-238	3.76E-04	6.76E-11	1.12E-10	1.79E-10
SSE	72200	Th-234	6.23E-06	1.12E-12	1.50E-12	2.62E-12
SSE	72200	Pa-234m	6.21E-06	1.12E-12	1.50E-12	2.62E-12
SSE	72200	Pa-234	4.91E-09	8.83E-16	1.03E-15	1.91E-15
SSE	72200	U-234	3.00E-04	5.41E-11	8.93E-11	1.43E-10
SSE	72200	U-235	3.76E-04	6.76E-11	1.12E-10	1.79E-10
SSE	72200	Th-231	1.16E-04	2.09E-11	2.91E-11	5.00E-11
SSE	72200	Pa-231	2.34E-12	4.22E-19	4.62E-19	8.84E-19
SSE	72200	Ac-227	5.13E-17	9.24E-24	8.02E-24	1.73E-23
SSE	72200	Th-227	3.76E-19	6.76E-26	4.76E-26	1.15E-25
SSE	72200	Th-230	4.40E-12	7.92E-19	1.06E-18	1.85E-18
SSE	72200	Ra-226	1.72E-18	3.10E-25	3.31E-25	6.41E-25
SSE	72200	Rn-222	1.12E-18	0.00E+00	0.00E+00	0.00E+00
SSE	72200	Po-218	8.63E-20	1.55E-26	1.41E-26	2.96E-26
SE	800	U-238	9.22E-01	1.66E-07	3.06E-08	1.96E-07
SE	800	Th-234	1.97E-04	3.55E-11	5.85E-12	4.13E-11
SE	800	Pa-234m	1.66E-04	3.00E-11	4.84E-12	3.48E-11
SE	800	Pa-234	2.49E-09	4.48E-16	6.59E-17	5.14E-16
SE	800	U-234	7.38E-01	1.33E-07	2.44E-08	1.57E-07
SE	800	U-235	9.22E-01	1.66E-07	3.06E-08	1.96E-07
SE	800	Th-231	4.46E-03	8.02E-10	1.32E-10	9.34E-10
SE	800	Pa-231	1.08E-12	1.95E-19	2.93E-20	2.24E-19
SE	800	Ac-227	2.84E-19	5.11E-26	7.19E-27	5.83E-26
SE	800	Th-227	3.55E-23	6.38E-30	0.00E+00	7.21E-30

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SE	800	Th-230	1.38E-10	2.48E-17	4.10E-18	2.89E-17
SE	800	Ra-226	6.86E-19	1.24E-25	1.86E-26	1.42E-25
SE	800	Rn-222	6.75E-22	0.00E+00	0.00E+00	0.00E+00
SE	800	Po-218	4.32E-22	7.78E-29	1.02E-29	8.80E-29
SE	2400	U-238	1.67E-01	3.01E-08	9.58E-09	3.97E-08
SE	2400	Th-234	1.12E-04	2.02E-11	5.41E-12	2.56E-11
SE	2400	Pa-234m	1.06E-04	1.92E-11	5.09E-12	2.42E-11
SE	2400	Pa-234	5.16E-09	9.29E-16	2.15E-16	1.14E-15
SE	2400	U-234	1.34E-01	2.41E-08	7.66E-09	3.17E-08
SE	2400	U-235	1.67E-01	3.01E-08	9.58E-09	3.97E-08
SE	2400	Th-231	2.52E-03	4.53E-10	1.22E-10	5.75E-10
SE	2400	Pa-231	1.90E-12	3.41E-19	8.00E-20	4.21E-19
SE	2400	Ac-227	1.52E-18	2.74E-25	5.82E-26	3.32E-25
SE	2400	Th-227	4.57E-22	8.22E-29	1.66E-29	9.88E-29
SE	2400	Th-230	7.85E-11	1.41E-17	3.79E-18	1.79E-17
SE	2400	Ra-226	1.21E-18	2.17E-25	5.09E-26	2.68E-25
SE	2400	Rn-222	4.35E-21	0.00E+00	0.00E+00	0.00E+00
SE	2400	Po-218	3.17E-21	5.71E-28	1.28E-28	6.99E-28
SE	4000	U-238	7.35E-02	1.32E-08	5.46E-09	1.87E-08
SE	4000	Th-234	8.22E-05	1.48E-11	5.08E-12	1.99E-11
SE	4000	Pa-234m	7.98E-05	1.44E-11	4.89E-12	1.92E-11
SE	4000	Pa-234	6.46E-09	1.16E-15	3.41E-16	1.50E-15
SE	4000	U-234	5.88E-02	1.06E-08	4.37E-09	1.50E-08
SE	4000	U-235	7.35E-02	1.32E-08	5.46E-09	1.87E-08
SE	4000	Th-231	1.84E-03	3.31E-10	1.14E-10	4.45E-10
SE	4000	Pa-231	2.31E-12	4.16E-19	1.23E-19	5.39E-19
SE	4000	Ac-227	3.10E-18	5.58E-25	1.48E-25	7.06E-25
SE	4000	Th-227	1.42E-21	2.56E-28	6.38E-29	3.20E-28
SE	4000	Th-230	5.76E-11	1.04E-17	3.56E-18	1.39E-17
SE	4000	Ra-226	1.48E-18	2.66E-25	7.85E-26	3.45E-25
SE	4000	Rn-222	7.54E-21	0.00E+00	0.00E+00	0.00E+00
SE	4000	Po-218	5.11E-21	9.19E-28	2.54E-28	1.17E-27
SE	5600	U-238	4.37E-02	7.87E-09	3.77E-09	1.16E-08
SE	5600	Th-234	6.85E-05	1.23E-11	4.85E-12	1.72E-11
SE	5600	Pa-234m	6.71E-05	1.21E-11	4.72E-12	1.68E-11
SE	5600	Pa-234	7.53E-09	1.36E-15	4.55E-16	1.81E-15
SE	5600	U-234	3.50E-02	6.30E-09	3.01E-09	9.31E-09
SE	5600	U-235	4.37E-02	7.87E-09	3.77E-09	1.16E-08
SE	5600	Th-231	1.52E-03	2.74E-10	1.08E-10	3.83E-10
SE	5600	Pa-231	2.69E-12	4.84E-19	1.63E-19	6.47E-19
SE	5600	Ac-227	5.04E-18	9.08E-25	2.72E-25	1.18E-24
SE	5600	Th-227	3.18E-21	5.72E-28	1.59E-28	7.31E-28
SE	5600	Th-230	4.80E-11	8.64E-18	3.40E-18	1.20E-17
SE	5600	Ra-226	1.72E-18	3.10E-25	1.04E-25	4.15E-25
SE	5600	Rn-222	1.15E-20	0.00E+00	0.00E+00	0.00E+00
SE	5600	Po-218	7.41E-21	1.33E-27	4.14E-28	1.75E-27
SE	7250	U-238	2.86E-02	5.14E-09	2.79E-09	7.93E-09

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SE	7250	Th-234	5.76E-05	1.04E-11	4.59E-12	1.50E-11
SE	7250	Pa-234m	5.67E-05	1.02E-11	4.50E-12	1.47E-11
SE	7250	Pa-234	8.12E-09	1.46E-15	5.49E-16	2.01E-15
SE	7250	U-234	2.28E-02	4.11E-09	2.23E-09	6.34E-09
SE	7250	U-235	2.86E-02	5.14E-09	2.79E-09	7.93E-09
SE	7250	Th-231	1.27E-03	2.29E-10	1.02E-10	3.31E-10
SE	7250	Pa-231	2.90E-12	5.23E-19	1.96E-19	7.19E-19
SE	7250	Ac-227	7.04E-18	1.27E-24	4.21E-25	1.69E-24
SE	7250	Th-227	5.63E-21	1.01E-27	3.12E-28	1.33E-27
SE	7250	Th-230	4.04E-11	7.27E-18	3.22E-18	1.05E-17
SE	7250	Ra-226	1.87E-18	3.37E-25	1.26E-25	4.63E-25
SE	7250	Rn-222	1.65E-20	0.00E+00	0.00E+00	0.00E+00
SE	7250	Po-218	9.84E-21	1.77E-27	6.02E-28	2.37E-27
SE	12100	U-238	1.28E-02	2.30E-09	1.54E-09	3.84E-09
SE	12100	Th-234	4.29E-05	7.73E-12	4.13E-12	1.19E-11
SE	12100	Pa-234m	4.25E-05	7.65E-12	4.08E-12	1.17E-11
SE	12100	Pa-234	9.74E-09	1.75E-15	7.89E-16	2.54E-15
SE	12100	U-234	1.02E-02	1.84E-09	1.23E-09	3.07E-09
SE	12100	U-235	1.28E-02	2.30E-09	1.54E-09	3.84E-09
SE	12100	Th-231	9.35E-04	1.68E-10	9.05E-11	2.59E-10
SE	12100	Pa-231	3.56E-12	6.40E-19	2.86E-19	9.26E-19
SE	12100	Ac-227	1.44E-17	2.59E-24	1.01E-24	3.60E-24
SE	12100	Th-227	1.89E-20	3.41E-27	1.22E-27	4.62E-27
SE	12100	Th-230	3.01E-11	5.42E-18	2.90E-18	8.32E-18
SE	12100	Ra-226	2.32E-18	4.17E-25	1.86E-25	6.03E-25
SE	12100	Rn-222	9.11E-20	0.00E+00	0.00E+00	0.00E+00
SE	12100	Po-218	4.82E-20	8.68E-27	3.10E-27	1.18E-26
SE	24150	U-238	4.00E-03	7.20E-10	6.29E-10	1.35E-09
SE	24150	Th-234	2.61E-05	4.70E-12	3.19E-12	7.89E-12
SE	24150	Pa-234m	2.60E-05	4.67E-12	3.17E-12	7.84E-12
SE	24150	Pa-234	1.06E-08	1.90E-15	1.07E-15	2.97E-15
SE	24150	U-234	3.20E-03	5.76E-10	5.04E-10	1.08E-09
SE	24150	U-235	4.00E-03	7.20E-10	6.29E-10	1.35E-09
SE	24150	Th-231	5.47E-04	9.85E-11	6.79E-11	1.66E-10
SE	24150	Pa-231	4.12E-12	7.41E-19	4.08E-19	1.15E-18
SE	24150	Ac-227	3.29E-17	5.93E-24	2.75E-24	8.67E-24
SE	24150	Th-227	8.57E-20	1.54E-26	6.35E-27	2.18E-26
SE	24150	Th-230	1.83E-11	3.30E-18	2.24E-18	5.54E-18
SE	24150	Ra-226	2.76E-18	4.97E-25	2.71E-25	7.68E-25
SE	24150	Rn-222	2.29E-19	0.00E+00	0.00E+00	0.00E+00
SE	24150	Po-218	8.08E-20	1.45E-26	7.36E-27	2.19E-26
SE	40250	U-238	1.68E-03	3.03E-10	3.20E-10	6.22E-10
SE	40250	Th-234	1.80E-05	3.24E-12	2.60E-12	5.84E-12
SE	40250	Pa-234m	1.79E-05	3.23E-12	2.59E-12	5.82E-12
SE	40250	Pa-234	1.06E-08	1.91E-15	1.27E-15	3.19E-15
SE	40250	U-234	1.35E-03	2.42E-10	2.56E-10	4.98E-10
SE	40250	U-235	1.68E-03	3.03E-10	3.20E-10	6.22E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SE	40250	Th-231	3.59E-04	6.47E-11	5.34E-11	1.18E-10
SE	40250	Pa-231	4.51E-12	8.11E-19	5.19E-19	1.33E-18
SE	40250	Ac-227	5.99E-17	1.08E-23	5.67E-24	1.65E-23
SE	40250	Th-227	2.59E-19	4.66E-26	2.13E-26	6.79E-26
SE	40250	Th-230	1.27E-11	2.28E-18	1.83E-18	4.11E-18
SE	40250	Ra-226	3.13E-18	5.64E-25	3.55E-25	9.19E-25
SE	40250	Rn-222	4.60E-19	0.00E+00	0.00E+00	0.00E+00
SE	40250	Po-218	1.16E-19	2.09E-26	1.19E-26	3.28E-26
SE	56350	U-238	8.24E-04	1.48E-10	1.90E-10	3.38E-10
SE	56350	Th-234	1.19E-05	2.14E-12	2.07E-12	4.21E-12
SE	56350	Pa-234m	1.19E-05	2.13E-12	2.06E-12	4.20E-12
SE	56350	Pa-234	8.61E-09	1.55E-15	1.25E-15	2.80E-15
SE	56350	U-234	6.59E-04	1.19E-10	1.52E-10	2.71E-10
SE	56350	U-235	8.24E-04	1.48E-10	1.90E-10	3.38E-10
SE	56350	Th-231	2.27E-04	4.09E-11	4.12E-11	8.21E-11
SE	56350	Pa-231	3.93E-12	7.07E-19	5.39E-19	1.25E-18
SE	56350	Ac-227	7.22E-17	1.30E-23	7.92E-24	2.09E-23
SE	56350	Th-227	4.33E-19	7.79E-26	4.02E-26	1.18E-25
SE	56350	Th-230	8.39E-12	1.51E-18	1.46E-18	2.97E-18
SE	56350	Ra-226	2.83E-18	5.09E-25	3.79E-25	8.88E-25
SE	56350	Rn-222	7.40E-19	0.00E+00	0.00E+00	0.00E+00
SE	56350	Po-218	1.23E-19	2.22E-26	1.47E-26	3.69E-26
SE	72200	U-238	3.93E-04	7.07E-11	1.22E-10	1.92E-10
SE	72200	Th-234	6.47E-06	1.16E-12	1.59E-12	2.75E-12
SE	72200	Pa-234m	6.46E-06	1.16E-12	1.58E-12	2.74E-12
SE	72200	Pa-234	5.09E-09	9.16E-16	1.07E-15	1.98E-15
SE	72200	U-234	3.14E-04	5.65E-11	9.74E-11	1.54E-10
SE	72200	U-235	3.93E-04	7.07E-11	1.22E-10	1.92E-10
SE	72200	Th-231	1.21E-04	2.17E-11	3.08E-11	5.26E-11
SE	72200	Pa-231	2.43E-12	4.37E-19	4.77E-19	9.14E-19
SE	72200	Ac-227	5.29E-17	9.52E-24	8.16E-24	1.77E-23
SE	72200	Th-227	3.84E-19	6.92E-26	4.81E-26	1.17E-25
SE	72200	Th-230	4.57E-12	8.23E-19	1.12E-18	1.94E-18
SE	72200	Ra-226	1.78E-18	3.21E-25	3.41E-25	6.62E-25
SE	72200	Rn-222	1.12E-18	0.00E+00	0.00E+00	0.00E+00
SE	72200	Po-218	8.86E-20	1.60E-26	1.42E-26	3.01E-26
ESE	800	U-238	9.91E-01	1.78E-07	3.24E-08	2.11E-07
ESE	800	Th-234	2.35E-04	4.23E-11	6.93E-12	4.93E-11
ESE	800	Pa-234m	2.02E-04	3.64E-11	5.85E-12	4.22E-11
ESE	800	Pa-234	3.31E-09	5.96E-16	8.83E-17	6.85E-16
ESE	800	U-234	7.93E-01	1.43E-07	2.59E-08	1.69E-07
ESE	800	U-235	9.91E-01	1.78E-07	3.24E-08	2.11E-07
ESE	800	Th-231	5.31E-03	9.57E-10	1.57E-10	1.11E-09
ESE	800	Pa-231	1.41E-12	2.54E-19	3.83E-20	2.92E-19
ESE	800	Ac-227	3.98E-19	7.17E-26	1.02E-26	8.18E-26
ESE	800	Th-227	5.45E-23	9.81E-30	1.30E-30	1.11E-29
ESE	800	Th-230	1.65E-10	2.96E-17	4.85E-18	3.45E-17

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ESE	800	Ra-226	8.94E-19	1.61E-25	2.43E-26	1.85E-25
ESE	800	Rn-222	1.11E-21	0.00E+00	0.00E+00	0.00E+00
ESE	800	Po-218	7.72E-22	1.39E-28	1.80E-29	1.57E-28
ESE	2400	U-238	1.82E-01	3.28E-08	1.01E-08	4.29E-08
ESE	2400	Th-234	1.35E-04	2.43E-11	6.37E-12	3.07E-11
ESE	2400	Pa-234m	1.29E-04	2.32E-11	6.03E-12	2.92E-11
ESE	2400	Pa-234	6.80E-09	1.22E-15	2.82E-16	1.51E-15
ESE	2400	U-234	1.46E-01	2.63E-08	8.06E-09	3.43E-08
ESE	2400	U-235	1.82E-01	3.28E-08	1.01E-08	4.29E-08
ESE	2400	Th-231	3.03E-03	5.46E-10	1.43E-10	6.89E-10
ESE	2400	Pa-231	2.48E-12	4.47E-19	1.04E-19	5.51E-19
ESE	2400	Ac-227	2.14E-18	3.85E-25	8.23E-26	4.67E-25
ESE	2400	Th-227	6.67E-22	1.20E-28	2.46E-29	1.45E-28
ESE	2400	Th-230	9.46E-11	1.70E-17	4.46E-18	2.15E-17
ESE	2400	Ra-226	1.58E-18	2.85E-25	6.62E-26	3.51E-25
ESE	2400	Rn-222	5.83E-21	0.00E+00	0.00E+00	0.00E+00
ESE	2400	Po-218	4.23E-21	7.61E-28	1.72E-28	9.32E-28
ESE	4000	U-238	8.00E-02	1.44E-08	5.71E-09	2.01E-08
ESE	4000	Th-234	9.88E-05	1.78E-11	5.94E-12	2.37E-11
ESE	4000	Pa-234m	9.61E-05	1.73E-11	5.74E-12	2.30E-11
ESE	4000	Pa-234	8.44E-09	1.52E-15	4.43E-16	1.96E-15
ESE	4000	U-234	6.40E-02	1.15E-08	4.57E-09	1.61E-08
ESE	4000	U-235	8.00E-02	1.44E-08	5.71E-09	2.01E-08
ESE	4000	Th-231	2.21E-03	3.97E-10	1.33E-10	5.30E-10
ESE	4000	Pa-231	3.02E-12	5.43E-19	1.59E-19	7.03E-19
ESE	4000	Ac-227	4.34E-18	7.81E-25	2.08E-25	9.89E-25
ESE	4000	Th-227	2.11E-21	3.79E-28	9.56E-29	4.75E-28
ESE	4000	Th-230	6.92E-11	1.25E-17	4.16E-18	1.66E-17
ESE	4000	Ra-226	1.93E-18	3.48E-25	1.02E-25	4.49E-25
ESE	4000	Rn-222	1.04E-20	0.00E+00	0.00E+00	0.00E+00
ESE	4000	Po-218	6.96E-21	1.25E-27	3.45E-28	1.60E-27
ESE	5600	U-238	4.75E-02	8.55E-09	3.92E-09	1.25E-08
ESE	5600	Th-234	8.22E-05	1.48E-11	5.65E-12	2.05E-11
ESE	5600	Pa-234m	8.06E-05	1.45E-11	5.52E-12	2.00E-11
ESE	5600	Pa-234	9.82E-09	1.77E-15	5.87E-16	2.35E-15
ESE	5600	U-234	3.80E-02	6.84E-09	3.14E-09	9.98E-09
ESE	5600	U-235	4.75E-02	8.55E-09	3.92E-09	1.25E-08
ESE	5600	Th-231	1.83E-03	3.29E-10	1.26E-10	4.55E-10
ESE	5600	Pa-231	3.50E-12	6.30E-19	2.10E-19	8.40E-19
ESE	5600	Ac-227	7.05E-18	1.27E-24	3.83E-25	1.65E-24
ESE	5600	Th-227	4.70E-21	8.47E-28	2.40E-28	1.09E-27
ESE	5600	Th-230	5.76E-11	1.04E-17	3.96E-18	1.43E-17
ESE	5600	Ra-226	2.25E-18	4.05E-25	1.35E-25	5.39E-25
ESE	5600	Rn-222	1.60E-20	0.00E+00	0.00E+00	0.00E+00
ESE	5600	Po-218	1.02E-20	1.84E-27	5.71E-28	2.42E-27
ESE	7250	U-238	3.09E-02	5.56E-09	2.89E-09	8.45E-09
ESE	7250	Th-234	6.89E-05	1.24E-11	5.33E-12	1.77E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ESE	7250	Pa-234m	6.78E-05	1.22E-11	5.23E-12	1.74E-11
ESE	7250	Pa-234	1.05E-08	1.89E-15	7.05E-16	2.60E-15
ESE	7250	U-234	2.47E-02	4.45E-09	2.31E-09	6.76E-09
ESE	7250	U-235	3.09E-02	5.56E-09	2.89E-09	8.45E-09
ESE	7250	Th-231	1.52E-03	2.74E-10	1.18E-10	3.92E-10
ESE	7250	Pa-231	3.77E-12	6.78E-19	2.52E-19	9.31E-19
ESE	7250	Ac-227	9.82E-18	1.77E-24	5.92E-25	2.36E-24
ESE	7250	Th-227	8.33E-21	1.50E-27	4.69E-28	1.97E-27
ESE	7250	Th-230	4.83E-11	8.69E-18	3.73E-18	1.24E-17
ESE	7250	Ra-226	2.43E-18	4.38E-25	1.62E-25	6.00E-25
ESE	7250	Rn-222	2.83E-20	0.00E+00	0.00E+00	0.00E+00
ESE	7250	Po-218	1.70E-20	3.05E-27	9.89E-28	4.04E-27
ESE	12100	U-238	1.38E-02	2.49E-09	1.58E-09	4.07E-09
ESE	12100	Th-234	5.12E-05	9.21E-12	4.76E-12	1.40E-11
ESE	12100	Pa-234m	5.07E-05	9.12E-12	4.70E-12	1.38E-11
ESE	12100	Pa-234	1.25E-08	2.26E-15	1.00E-15	3.26E-15
ESE	12100	U-234	1.10E-02	1.99E-09	1.26E-09	3.25E-09
ESE	12100	U-235	1.38E-02	2.49E-09	1.58E-09	4.07E-09
ESE	12100	Th-231	1.11E-03	2.00E-10	1.04E-10	3.04E-10
ESE	12100	Pa-231	4.60E-12	8.28E-19	3.65E-19	1.19E-18
ESE	12100	Ac-227	2.00E-17	3.60E-24	1.41E-24	5.01E-24
ESE	12100	Th-227	2.80E-20	5.04E-27	1.83E-27	6.87E-27
ESE	12100	Th-230	3.59E-11	6.46E-18	3.34E-18	9.80E-18
ESE	12100	Ra-226	3.01E-18	5.41E-25	2.38E-25	7.79E-25
ESE	12100	Rn-222	1.30E-19	0.00E+00	0.00E+00	0.00E+00
ESE	12100	Po-218	6.81E-20	1.23E-26	4.56E-27	1.68E-26
ESE	24150	U-238	4.24E-03	7.63E-10	6.35E-10	1.40E-09
ESE	24150	Th-234	3.06E-05	5.51E-12	3.60E-12	9.11E-12
ESE	24150	Pa-234m	3.05E-05	5.48E-12	3.58E-12	9.06E-12
ESE	24150	Pa-234	1.33E-08	2.40E-15	1.33E-15	3.72E-15
ESE	24150	U-234	3.39E-03	6.10E-10	5.08E-10	1.12E-09
ESE	24150	U-235	4.24E-03	7.63E-10	6.35E-10	1.40E-09
ESE	24150	Th-231	6.37E-04	1.15E-10	7.61E-11	1.91E-10
ESE	24150	Pa-231	5.24E-12	9.44E-19	5.11E-19	1.46E-18
ESE	24150	Ac-227	4.52E-17	8.14E-24	3.81E-24	1.19E-23
ESE	24150	Th-227	1.26E-19	2.26E-26	9.54E-27	3.22E-26
ESE	24150	Th-230	2.15E-11	3.87E-18	2.53E-18	6.40E-18
ESE	24150	Ra-226	3.53E-18	6.36E-25	3.42E-25	9.77E-25
ESE	24150	Rn-222	3.09E-19	0.00E+00	0.00E+00	0.00E+00
ESE	24150	Po-218	1.05E-19	1.90E-26	9.66E-27	2.86E-26
ESE	40250	U-238	1.77E-03	3.19E-10	3.19E-10	6.37E-10
ESE	40250	Th-234	2.10E-05	3.78E-12	2.90E-12	6.67E-12
ESE	40250	Pa-234m	2.09E-05	3.77E-12	2.89E-12	6.65E-12
ESE	40250	Pa-234	1.32E-08	2.38E-15	1.55E-15	3.93E-15
ESE	40250	U-234	1.42E-03	2.55E-10	2.55E-10	5.10E-10
ESE	40250	U-235	1.77E-03	3.19E-10	3.19E-10	6.37E-10
ESE	40250	Th-231	4.14E-04	7.46E-11	5.88E-11	1.33E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ESE	40250	Pa-231	5.71E-12	1.03E-18	6.44E-19	1.67E-18
ESE	40250	Ac-227	8.22E-17	1.48E-23	7.82E-24	2.26E-23
ESE	40250	Th-227	3.80E-19	6.84E-26	3.21E-26	1.00E-25
ESE	40250	Th-230	1.48E-11	2.66E-18	2.04E-18	4.70E-18
ESE	40250	Ra-226	4.00E-18	7.21E-25	4.44E-25	1.16E-24
ESE	40250	Rn-222	6.35E-19	0.00E+00	0.00E+00	0.00E+00
ESE	40250	Po-218	1.54E-19	2.78E-26	1.57E-26	4.34E-26
ESE	56350	U-238	8.51E-04	1.53E-10	1.87E-10	3.40E-10
ESE	56350	Th-234	1.36E-05	2.46E-12	2.27E-12	4.73E-12
ESE	56350	Pa-234m	1.36E-05	2.45E-12	2.26E-12	4.71E-12
ESE	56350	Pa-234	1.05E-08	1.89E-15	1.48E-15	3.38E-15
ESE	56350	U-234	6.81E-04	1.23E-10	1.49E-10	2.72E-10
ESE	56350	U-235	8.51E-04	1.53E-10	1.87E-10	3.40E-10
ESE	56350	Th-231	2.57E-04	4.62E-11	4.44E-11	9.06E-11
ESE	56350	Pa-231	4.91E-12	8.84E-19	6.58E-19	1.54E-18
ESE	56350	Ac-227	9.82E-17	1.77E-23	1.08E-23	2.85E-23
ESE	56350	Th-227	6.32E-19	1.14E-25	6.03E-26	1.74E-25
ESE	56350	Th-230	9.64E-12	1.73E-18	1.60E-18	3.34E-18
ESE	56350	Ra-226	3.57E-18	6.43E-25	4.67E-25	1.11E-24
ESE	56350	Rn-222	1.05E-18	0.00E+00	0.00E+00	0.00E+00
ESE	56350	Po-218	1.66E-19	3.00E-26	1.94E-26	4.94E-26
ESE	72200	U-238	3.82E-04	6.87E-11	1.17E-10	1.86E-10
ESE	72200	Th-234	6.96E-06	1.25E-12	1.69E-12	2.94E-12
ESE	72200	Pa-234m	6.94E-06	1.25E-12	1.68E-12	2.93E-12
ESE	72200	Pa-234	5.81E-09	1.04E-15	1.22E-15	2.27E-15
ESE	72200	U-234	3.05E-04	5.49E-11	9.36E-11	1.49E-10
ESE	72200	U-235	3.82E-04	6.87E-11	1.17E-10	1.86E-10
ESE	72200	Th-231	1.27E-04	2.29E-11	3.22E-11	5.51E-11
ESE	72200	Pa-231	2.85E-12	5.13E-19	5.62E-19	1.08E-18
ESE	72200	Ac-227	6.83E-17	1.23E-23	1.08E-23	2.31E-23
ESE	72200	Th-227	5.38E-19	9.69E-26	7.13E-26	1.68E-25
ESE	72200	Th-230	4.92E-12	8.86E-19	1.19E-18	2.08E-18
ESE	72200	Ra-226	2.13E-18	3.83E-25	4.07E-25	7.90E-25
ESE	72200	Rn-222	1.57E-18	0.00E+00	0.00E+00	0.00E+00
ESE	72200	Po-218	1.13E-19	2.03E-26	1.85E-26	3.88E-26
E	800	U-238	1.37E+00	2.47E-07	4.24E-08	2.89E-07
E	800	Th-234	3.53E-04	6.36E-11	9.87E-12	7.35E-11
E	800	Pa-234m	3.08E-04	5.54E-11	8.46E-12	6.38E-11
E	800	Pa-234	5.41E-09	9.75E-16	1.39E-16	1.11E-15
E	800	U-234	1.10E+00	1.98E-07	3.39E-08	2.32E-07
E	800	U-235	1.37E+00	2.47E-07	4.24E-08	2.89E-07
E	800	Th-231	7.99E-03	1.44E-09	2.23E-10	1.66E-09
E	800	Pa-231	2.27E-12	4.09E-19	5.92E-20	4.68E-19
E	800	Ac-227	6.79E-19	1.22E-25	1.69E-26	1.39E-25
E	800	Th-227	9.89E-23	1.78E-29	2.33E-30	2.01E-29
E	800	Th-230	2.47E-10	4.45E-17	6.91E-18	5.15E-17
E	800	Ra-226	1.44E-18	2.59E-25	3.75E-26	2.97E-25

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
E	800	Rn-222	1.92E-21	0.00E+00	0.00E+00	0.00E+00
E	800	Po-218	1.51E-21	2.71E-28	3.45E-29	3.05E-28
E	2400	U-238	2.84E-01	5.11E-08	1.40E-08	6.51E-08
E	2400	Th-234	2.31E-04	4.17E-11	9.85E-12	5.15E-11
E	2400	Pa-234m	2.22E-04	3.99E-11	9.38E-12	4.93E-11
E	2400	Pa-234	1.26E-08	2.27E-15	4.86E-16	2.76E-15
E	2400	U-234	2.27E-01	4.09E-08	1.12E-08	5.21E-08
E	2400	U-235	2.84E-01	5.11E-08	1.40E-08	6.51E-08
E	2400	Th-231	5.20E-03	9.35E-10	2.21E-10	1.16E-09
E	2400	Pa-231	4.59E-12	8.26E-19	1.78E-19	1.00E-18
E	2400	Ac-227	4.20E-18	7.56E-25	1.53E-25	9.09E-25
E	2400	Th-227	1.38E-21	2.48E-28	4.86E-29	2.96E-28
E	2400	Th-230	1.62E-10	2.92E-17	6.90E-18	3.61E-17
E	2400	Ra-226	2.92E-18	5.26E-25	1.13E-25	6.39E-25
E	2400	Rn-222	8.83E-21	0.00E+00	0.00E+00	0.00E+00
E	2400	Po-218	7.92E-21	1.42E-27	3.00E-28	1.72E-27
E	4000	U-238	1.37E-01	2.47E-08	8.33E-09	3.30E-08
E	4000	Th-234	1.89E-04	3.40E-11	9.83E-12	4.38E-11
E	4000	Pa-234m	1.84E-04	3.32E-11	9.55E-12	4.27E-11
E	4000	Pa-234	1.76E-08	3.16E-15	8.26E-16	3.99E-15
E	4000	U-234	1.10E-01	1.97E-08	6.66E-09	2.64E-08
E	4000	U-235	1.37E-01	2.47E-08	8.33E-09	3.30E-08
E	4000	Th-231	4.21E-03	7.58E-10	2.20E-10	9.78E-10
E	4000	Pa-231	6.27E-12	1.13E-18	2.96E-19	1.42E-18
E	4000	Ac-227	9.63E-18	1.73E-24	4.27E-25	2.16E-24
E	4000	Th-227	4.91E-21	8.84E-28	2.10E-28	1.09E-27
E	4000	Th-230	1.32E-10	2.38E-17	6.89E-18	3.07E-17
E	4000	Ra-226	4.01E-18	7.22E-25	1.89E-25	9.11E-25
E	4000	Rn-222	1.60E-20	0.00E+00	0.00E+00	0.00E+00
E	4000	Po-218	1.50E-20	2.71E-27	6.79E-28	3.38E-27
E	5600	U-238	8.86E-02	1.59E-08	5.98E-09	2.19E-08
E	5600	Th-234	1.73E-04	3.11E-11	9.97E-12	4.11E-11
E	5600	Pa-234m	1.70E-04	3.06E-11	9.77E-12	4.04E-11
E	5600	Pa-234	2.26E-08	4.06E-15	1.18E-15	5.24E-15
E	5600	U-234	7.09E-02	1.28E-08	4.79E-09	1.75E-08
E	5600	U-235	8.86E-02	1.59E-08	5.98E-09	2.19E-08
E	5600	Th-231	3.83E-03	6.90E-10	2.21E-10	9.11E-10
E	5600	Pa-231	8.05E-12	1.45E-18	4.21E-19	1.87E-18
E	5600	Ac-227	1.74E-17	3.13E-24	8.55E-25	3.99E-24
E	5600	Th-227	1.23E-20	2.21E-27	5.80E-28	2.79E-27
E	5600	Th-230	1.21E-10	2.18E-17	6.99E-18	2.88E-17
E	5600	Ra-226	5.18E-18	9.32E-25	2.70E-25	1.20E-24
E	5600	Rn-222	2.51E-20	0.00E+00	0.00E+00	0.00E+00
E	5600	Po-218	2.50E-20	4.49E-27	1.24E-27	5.74E-27
E	7250	U-238	6.19E-02	1.11E-08	4.57E-09	1.57E-08
E	7250	Th-234	1.58E-04	2.84E-11	9.88E-12	3.82E-11
E	7250	Pa-234m	1.55E-04	2.80E-11	9.73E-12	3.77E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
E	7250	Pa-234	2.64E-08	4.76E-15	1.51E-15	6.27E-15
E	7250	U-234	4.95E-02	8.92E-09	3.65E-09	1.26E-08
E	7250	U-235	6.19E-02	1.11E-08	4.57E-09	1.57E-08
E	7250	Th-231	3.47E-03	6.24E-10	2.18E-10	8.42E-10
E	7250	Pa-231	9.49E-12	1.71E-18	5.39E-19	2.25E-18
E	7250	Ac-227	2.66E-17	4.79E-24	1.42E-24	6.22E-24
E	7250	Th-227	2.40E-20	4.31E-27	1.23E-27	5.55E-27
E	7250	Th-230	1.10E-10	1.99E-17	6.93E-18	2.68E-17
E	7250	Ra-226	6.13E-18	1.10E-24	3.48E-25	1.45E-24
E	7250	Rn-222	5.55E-20	0.00E+00	0.00E+00	0.00E+00
E	7250	Po-218	5.85E-20	1.05E-26	2.99E-27	1.35E-26
E	12100	U-238	3.34E-02	6.01E-09	2.75E-09	8.76E-09
E	12100	Th-234	1.44E-04	2.60E-11	1.01E-11	3.61E-11
E	12100	Pa-234m	1.43E-04	2.58E-11	1.00E-11	3.58E-11
E	12100	Pa-234	3.92E-08	7.06E-15	2.50E-15	9.56E-15
E	12100	U-234	2.67E-02	4.81E-09	2.20E-09	7.01E-09
E	12100	U-235	3.34E-02	6.01E-09	2.75E-09	8.76E-09
E	12100	Th-231	3.11E-03	5.61E-10	2.19E-10	7.79E-10
E	12100	Pa-231	1.45E-11	2.60E-18	9.20E-19	3.52E-18
E	12100	Ac-227	6.83E-17	1.23E-23	4.10E-24	1.64E-23
E	12100	Th-227	1.02E-19	1.84E-26	5.92E-27	2.43E-26
E	12100	Th-230	1.01E-10	1.82E-17	7.08E-18	2.53E-17
E	12100	Ra-226	9.47E-18	1.70E-24	6.01E-25	2.31E-24
E	12100	Rn-222	2.04E-19	0.00E+00	0.00E+00	0.00E+00
E	12100	Po-218	2.35E-19	4.23E-26	1.39E-26	5.62E-26
E	24150	U-238	1.37E-02	2.46E-09	1.23E-09	3.69E-09
E	24150	Th-234	1.20E-04	2.15E-11	9.00E-12	3.05E-11
E	24150	Pa-234m	1.19E-04	2.15E-11	8.96E-12	3.04E-11
E	24150	Pa-234	5.85E-08	1.05E-14	4.03E-15	1.46E-14
E	24150	U-234	1.09E-02	1.97E-09	9.83E-10	2.95E-09
E	24150	U-235	1.37E-02	2.46E-09	1.23E-09	3.69E-09
E	24150	Th-231	2.46E-03	4.43E-10	1.87E-10	6.30E-10
E	24150	Pa-231	2.34E-11	4.21E-18	1.59E-18	5.80E-18
E	24150	Ac-227	2.23E-16	4.02E-23	1.43E-23	5.45E-23
E	24150	Th-227	6.72E-19	1.21E-25	4.16E-26	1.63E-25
E	24150	Th-230	8.42E-11	1.51E-17	6.33E-18	2.15E-17
E	24150	Ra-226	1.59E-17	2.85E-24	1.08E-24	3.93E-24
E	24150	Rn-222	4.69E-19	0.00E+00	0.00E+00	0.00E+00
E	24150	Po-218	4.84E-19	8.71E-26	3.22E-26	1.19E-25
E	40250	U-238	7.35E-03	1.32E-09	6.83E-10	2.01E-09
E	40250	Th-234	1.09E-04	1.95E-11	8.43E-12	2.80E-11
E	40250	Pa-234m	1.08E-04	1.95E-11	8.41E-12	2.79E-11
E	40250	Pa-234	7.70E-08	1.39E-14	5.53E-15	1.94E-14
E	40250	U-234	5.88E-03	1.06E-09	5.47E-10	1.60E-09
E	40250	U-235	7.35E-03	1.32E-09	6.83E-10	2.01E-09
E	40250	Th-231	2.10E-03	3.77E-10	1.65E-10	5.42E-10
E	40250	Pa-231	3.42E-11	6.15E-18	2.42E-18	8.57E-18

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
E	40250	Ac-227	5.53E-16	9.95E-23	3.69E-23	1.36E-22
E	40250	Th-227	2.79E-18	5.02E-25	1.80E-25	6.83E-25
E	40250	Th-230	7.66E-11	1.38E-17	5.94E-18	1.97E-17
E	40250	Ra-226	2.42E-17	4.36E-24	1.70E-24	6.07E-24
E	40250	Rn-222	9.81E-19	0.00E+00	0.00E+00	0.00E+00
E	40250	Po-218	9.96E-19	1.79E-25	6.78E-26	2.47E-25
E	56350	U-238	3.96E-03	7.13E-10	3.98E-10	1.11E-09
E	56350	Th-234	8.17E-05	1.47E-11	6.72E-12	2.14E-11
E	56350	Pa-234m	8.16E-05	1.47E-11	6.71E-12	2.14E-11
E	56350	Pa-234	7.09E-08	1.28E-14	5.39E-15	1.82E-14
E	56350	U-234	3.17E-03	5.70E-10	3.18E-10	8.88E-10
E	56350	U-235	3.96E-03	7.13E-10	3.98E-10	1.11E-09
E	56350	Th-231	1.48E-03	2.67E-10	1.25E-10	3.92E-10
E	56350	Pa-231	3.46E-11	6.23E-18	2.57E-18	8.80E-18
E	56350	Ac-227	7.91E-16	1.42E-22	5.52E-23	1.98E-22
E	56350	Th-227	5.63E-18	1.01E-24	3.78E-25	1.39E-24
E	56350	Th-230	5.78E-11	1.04E-17	4.75E-18	1.52E-17
E	56350	Ra-226	2.56E-17	4.61E-24	1.89E-24	6.50E-24
E	56350	Rn-222	1.65E-18	0.00E+00	0.00E+00	0.00E+00
E	56350	Po-218	1.31E-18	2.36E-25	9.28E-26	3.29E-25
E	72200	U-238	1.45E-03	2.62E-10	1.98E-10	4.59E-10
E	72200	Th-234	3.67E-05	6.61E-12	3.77E-12	1.04E-11
E	72200	Pa-234m	3.67E-05	6.60E-12	3.76E-12	1.04E-11
E	72200	Pa-234	3.57E-08	6.42E-15	3.27E-15	9.69E-15
E	72200	U-234	1.16E-03	2.09E-10	1.58E-10	3.67E-10
E	72200	U-235	1.45E-03	2.62E-10	1.98E-10	4.59E-10
E	72200	Th-231	6.32E-04	1.14E-10	6.78E-11	1.82E-10
E	72200	Pa-231	1.88E-11	3.38E-18	1.65E-18	5.03E-18
E	72200	Ac-227	5.48E-16	9.87E-23	4.31E-23	1.42E-22
E	72200	Th-227	4.98E-18	8.96E-25	3.67E-25	1.26E-24
E	72200	Th-230	2.61E-11	4.69E-18	2.67E-18	7.36E-18
E	72200	Ra-226	1.45E-17	2.60E-24	1.25E-24	3.85E-24
E	72200	Rn-222	2.46E-18	0.00E+00	0.00E+00	0.00E+00
E	72200	Po-218	8.82E-19	1.59E-25	7.03E-26	2.29E-25
ENE	800	U-238	1.86E+00	3.34E-07	5.69E-08	3.91E-07
ENE	800	Th-234	4.66E-04	8.40E-11	1.29E-11	9.69E-11
ENE	800	Pa-234m	4.04E-04	7.28E-11	1.10E-11	8.38E-11
ENE	800	Pa-234	6.94E-09	1.25E-15	1.76E-16	1.42E-15
ENE	800	U-234	1.49E+00	2.68E-07	4.55E-08	3.13E-07
ENE	800	U-235	1.86E+00	3.34E-07	5.69E-08	3.91E-07
ENE	800	Th-231	1.05E-02	1.90E-09	2.92E-10	2.19E-09
ENE	800	Pa-231	2.93E-12	5.27E-19	7.52E-20	6.02E-19
ENE	800	Ac-227	8.57E-19	1.54E-25	2.10E-26	1.75E-25
ENE	800	Th-227	1.22E-22	2.19E-29	2.81E-30	2.47E-29
ENE	800	Th-230	3.27E-10	5.88E-17	9.03E-18	6.78E-17
ENE	800	Ra-226	1.86E-18	3.34E-25	4.77E-26	3.82E-25
ENE	800	Rn-222	2.54E-21	0.00E+00	0.00E+00	0.00E+00

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ENE	800	Po-218	1.82E-21	3.28E-28	4.15E-29	3.69E-28
ENE	2400	U-238	3.45E-01	6.21E-08	1.76E-08	7.98E-08
ENE	2400	Th-234	2.70E-04	4.85E-11	1.18E-11	6.04E-11
ENE	2400	Pa-234m	2.58E-04	4.65E-11	1.12E-11	5.77E-11
ENE	2400	Pa-234	1.42E-08	2.56E-15	5.55E-16	3.11E-15
ENE	2400	U-234	2.76E-01	4.97E-08	1.41E-08	6.38E-08
ENE	2400	U-235	3.45E-01	6.21E-08	1.76E-08	7.98E-08
ENE	2400	Th-231	6.06E-03	1.09E-09	2.66E-10	1.36E-09
ENE	2400	Pa-231	5.18E-12	9.32E-19	2.04E-19	1.14E-18
ENE	2400	Ac-227	4.62E-18	8.31E-25	1.69E-25	1.00E-24
ENE	2400	Th-227	1.49E-21	2.68E-28	5.24E-29	3.20E-28
ENE	2400	Th-230	1.89E-10	3.40E-17	8.28E-18	4.23E-17
ENE	2400	Ra-226	3.30E-18	5.93E-25	1.30E-25	7.23E-25
ENE	2400	Rn-222	1.22E-20	0.00E+00	0.00E+00	0.00E+00
ENE	2400	Po-218	8.88E-21	1.60E-27	3.41E-28	1.94E-27
ENE	4000	U-238	1.52E-01	2.74E-08	9.98E-09	3.74E-08
ENE	4000	Th-234	1.99E-04	3.57E-11	1.10E-11	4.67E-11
ENE	4000	Pa-234m	1.93E-04	3.48E-11	1.07E-11	4.55E-11
ENE	4000	Pa-234	1.77E-08	3.19E-15	8.68E-16	4.06E-15
ENE	4000	U-234	1.22E-01	2.19E-08	7.98E-09	2.99E-08
ENE	4000	U-235	1.52E-01	2.74E-08	9.98E-09	3.74E-08
ENE	4000	Th-231	4.43E-03	7.98E-10	2.46E-10	1.04E-09
ENE	4000	Pa-231	6.33E-12	1.14E-18	3.11E-19	1.45E-18
ENE	4000	Ac-227	9.43E-18	1.70E-24	4.28E-25	2.13E-24
ENE	4000	Th-227	4.71E-21	8.48E-28	2.04E-28	1.05E-27
ENE	4000	Th-230	1.39E-10	2.50E-17	7.70E-18	3.27E-17
ENE	4000	Ra-226	4.05E-18	7.29E-25	1.99E-25	9.28E-25
ENE	4000	Rn-222	2.18E-20	0.00E+00	0.00E+00	0.00E+00
ENE	4000	Po-218	1.49E-20	2.67E-27	6.90E-28	3.36E-27
ENE	5600	U-238	9.08E-02	1.63E-08	6.85E-09	2.32E-08
ENE	5600	Th-234	1.66E-04	2.99E-11	1.05E-11	4.04E-11
ENE	5600	Pa-234m	1.63E-04	2.93E-11	1.02E-11	3.96E-11
ENE	5600	Pa-234	2.07E-08	3.73E-15	1.15E-15	4.88E-15
ENE	5600	U-234	7.27E-02	1.31E-08	5.48E-09	1.86E-08
ENE	5600	U-235	9.08E-02	1.63E-08	6.85E-09	2.32E-08
ENE	5600	Th-231	3.68E-03	6.63E-10	2.33E-10	8.96E-10
ENE	5600	Pa-231	7.38E-12	1.33E-18	4.11E-19	1.74E-18
ENE	5600	Ac-227	1.54E-17	2.78E-24	7.89E-25	3.56E-24
ENE	5600	Th-227	1.06E-20	1.91E-27	5.14E-28	2.42E-27
ENE	5600	Th-230	1.16E-10	2.09E-17	7.34E-18	2.83E-17
ENE	5600	Ra-226	4.74E-18	8.54E-25	2.64E-25	1.12E-24
ENE	5600	Rn-222	3.41E-20	0.00E+00	0.00E+00	0.00E+00
ENE	5600	Po-218	2.23E-20	4.01E-27	1.17E-27	5.18E-27
ENE	7250	U-238	5.92E-02	1.07E-08	5.03E-09	1.57E-08
ENE	7250	Th-234	1.40E-04	2.51E-11	9.84E-12	3.50E-11
ENE	7250	Pa-234m	1.38E-04	2.48E-11	9.67E-12	3.44E-11
ENE	7250	Pa-234	2.23E-08	4.01E-15	1.38E-15	5.39E-15

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ENE	7250	U-234	4.74E-02	8.53E-09	4.02E-09	1.26E-08
ENE	7250	U-235	5.92E-02	1.07E-08	5.03E-09	1.57E-08
ENE	7250	Th-231	3.08E-03	5.54E-10	2.18E-10	7.72E-10
ENE	7250	Pa-231	7.99E-12	1.44E-18	4.93E-19	1.93E-18
ENE	7250	Ac-227	2.16E-17	3.89E-24	1.22E-24	5.10E-24
ENE	7250	Th-227	1.89E-20	3.40E-27	1.01E-27	4.41E-27
ENE	7250	Th-230	9.79E-11	1.76E-17	6.90E-18	2.45E-17
ENE	7250	Ra-226	5.16E-18	9.28E-25	3.18E-25	1.25E-24
ENE	7250	Rn-222	7.17E-20	0.00E+00	0.00E+00	0.00E+00
ENE	7250	Po-218	4.45E-20	8.01E-27	2.39E-27	1.04E-26
ENE	12100	U-238	2.68E-02	4.83E-09	2.75E-09	7.57E-09
ENE	12100	Th-234	1.05E-04	1.90E-11	8.79E-12	2.78E-11
ENE	12100	Pa-234m	1.04E-04	1.88E-11	8.70E-12	2.75E-11
ENE	12100	Pa-234	2.70E-08	4.86E-15	1.96E-15	6.82E-15
ENE	12100	U-234	2.15E-02	3.86E-09	2.20E-09	6.06E-09
ENE	12100	U-235	2.68E-02	4.83E-09	2.75E-09	7.57E-09
ENE	12100	Th-231	2.28E-03	4.11E-10	1.92E-10	6.02E-10
ENE	12100	Pa-231	9.92E-12	1.78E-18	7.18E-19	2.50E-18
ENE	12100	Ac-227	4.48E-17	8.06E-24	2.93E-24	1.10E-23
ENE	12100	Th-227	6.49E-20	1.17E-26	3.98E-27	1.57E-26
ENE	12100	Th-230	7.39E-11	1.33E-17	6.17E-18	1.95E-17
ENE	12100	Ra-226	6.49E-18	1.17E-24	4.68E-25	1.64E-24
ENE	12100	Rn-222	2.77E-19	0.00E+00	0.00E+00	0.00E+00
ENE	12100	Po-218	1.53E-19	2.75E-26	9.65E-27	3.72E-26
ENE	24150	U-238	8.42E-03	1.52E-09	1.09E-09	2.61E-09
ENE	24150	Th-234	6.50E-05	1.17E-11	6.57E-12	1.83E-11
ENE	24150	Pa-234m	6.47E-05	1.17E-11	6.54E-12	1.82E-11
ENE	24150	Pa-234	2.96E-08	5.32E-15	2.56E-15	7.88E-15
ENE	24150	U-234	6.74E-03	1.21E-09	8.72E-10	2.08E-09
ENE	24150	U-235	8.42E-03	1.52E-09	1.09E-09	2.61E-09
ENE	24150	Th-231	1.35E-03	2.43E-10	1.38E-10	3.81E-10
ENE	24150	Pa-231	1.17E-11	2.11E-18	9.96E-19	3.10E-18
ENE	24150	Ac-227	1.05E-16	1.90E-23	7.90E-24	2.69E-23
ENE	24150	Th-227	3.04E-19	5.47E-26	2.09E-26	7.56E-26
ENE	24150	Th-230	4.57E-11	8.23E-18	4.62E-18	1.28E-17
ENE	24150	Ra-226	7.91E-18	1.42E-24	6.67E-25	2.09E-24
ENE	24150	Rn-222	6.44E-19	0.00E+00	0.00E+00	0.00E+00
ENE	24150	Po-218	2.38E-19	4.29E-26	1.92E-26	6.21E-26
ENE	40250	U-238	3.63E-03	6.53E-10	5.46E-10	1.20E-09
ENE	40250	Th-234	4.63E-05	8.34E-12	5.30E-12	1.36E-11
ENE	40250	Pa-234m	4.62E-05	8.32E-12	5.28E-12	1.36E-11
ENE	40250	Pa-234	3.05E-08	5.50E-15	2.99E-15	8.49E-15
ENE	40250	U-234	2.90E-03	5.22E-10	4.37E-10	9.59E-10
ENE	40250	U-235	3.63E-03	6.53E-10	5.46E-10	1.20E-09
ENE	40250	Th-231	9.07E-04	1.63E-10	1.07E-10	2.70E-10
ENE	40250	Pa-231	1.33E-11	2.40E-18	1.26E-18	3.66E-18
ENE	40250	Ac-227	2.01E-16	3.62E-23	1.65E-23	5.26E-23

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ENE	40250	Th-227	9.67E-19	1.74E-25	7.20E-26	2.46E-25
ENE	40250	Th-230	3.27E-11	5.88E-18	3.73E-18	9.61E-18
ENE	40250	Ra-226	9.38E-18	1.69E-24	8.76E-25	2.56E-24
ENE	40250	Rn-222	1.34E-18	0.00E+00	0.00E+00	0.00E+00
ENE	40250	Po-218	3.69E-19	6.64E-26	3.18E-26	9.82E-26
ENE	56350	U-238	1.75E-03	3.16E-10	3.15E-10	6.31E-10
ENE	56350	Th-234	3.06E-05	5.51E-12	4.07E-12	9.58E-12
ENE	56350	Pa-234m	3.05E-05	5.50E-12	4.06E-12	9.56E-12
ENE	56350	Pa-234	2.47E-08	4.44E-15	2.79E-15	7.23E-15
ENE	56350	U-234	1.40E-03	2.53E-10	2.52E-10	5.05E-10
ENE	56350	U-235	1.75E-03	3.16E-10	3.15E-10	6.31E-10
ENE	56350	Th-231	5.69E-04	1.02E-10	7.87E-11	1.81E-10
ENE	56350	Pa-231	1.17E-11	2.11E-18	1.26E-18	3.37E-18
ENE	56350	Ac-227	2.47E-16	4.45E-23	2.24E-23	6.69E-23
ENE	56350	Th-227	1.66E-18	2.99E-25	1.34E-25	4.34E-25
ENE	56350	Th-230	2.16E-11	3.89E-18	2.87E-18	6.76E-18
ENE	56350	Ra-226	8.58E-18	1.54E-24	9.03E-25	2.45E-24
ENE	56350	Rn-222	2.24E-18	0.00E+00	0.00E+00	0.00E+00
ENE	56350	Po-218	4.17E-19	7.50E-26	3.96E-26	1.15E-25
ENE	72200	U-238	7.49E-04	1.35E-10	1.90E-10	3.25E-10
ENE	72200	Th-234	1.50E-05	2.71E-12	2.83E-12	5.54E-12
ENE	72200	Pa-234m	1.50E-05	2.70E-12	2.83E-12	5.53E-12
ENE	72200	Pa-234	1.32E-08	2.38E-15	2.11E-15	4.49E-15
ENE	72200	U-234	5.99E-04	1.08E-10	1.52E-10	2.60E-10
ENE	72200	U-235	7.49E-04	1.35E-10	1.90E-10	3.25E-10
ENE	72200	Th-231	2.70E-04	4.86E-11	5.36E-11	1.02E-10
ENE	72200	Pa-231	6.63E-12	1.19E-18	9.89E-19	2.18E-18
ENE	72200	Ac-227	1.71E-16	3.07E-23	2.04E-23	5.11E-23
ENE	72200	Th-227	1.42E-18	2.56E-25	1.44E-25	3.99E-25
ENE	72200	Th-230	1.07E-11	1.92E-18	2.00E-18	3.92E-18
ENE	72200	Ra-226	5.01E-18	9.01E-25	7.22E-25	1.62E-24
ENE	72200	Rn-222	3.34E-18	0.00E+00	0.00E+00	0.00E+00
ENE	72200	Po-218	2.77E-19	4.98E-26	3.41E-26	8.39E-26
NE	800	U-238	2.33E+00	4.19E-07	7.12E-08	4.90E-07
NE	800	Th-234	5.81E-04	1.05E-10	1.61E-11	1.21E-10
NE	800	Pa-234m	5.03E-04	9.05E-11	1.37E-11	1.04E-10
NE	800	Pa-234	8.55E-09	1.54E-15	2.17E-16	1.76E-15
NE	800	U-234	1.86E+00	3.35E-07	5.70E-08	3.92E-07
NE	800	U-235	2.33E+00	4.19E-07	7.12E-08	4.90E-07
NE	800	Th-231	1.31E-02	2.36E-09	3.64E-10	2.73E-09
NE	800	Pa-231	3.61E-12	6.50E-19	9.31E-20	7.44E-19
NE	800	Ac-227	1.05E-18	1.89E-25	2.58E-26	2.15E-25
NE	800	Th-227	1.49E-22	2.68E-29	3.45E-30	3.03E-29
NE	800	Th-230	4.07E-10	7.32E-17	1.13E-17	8.45E-17
NE	800	Ra-226	2.29E-18	4.12E-25	5.90E-26	4.71E-25
NE	800	Rn-222	3.12E-21	0.00E+00	0.00E+00	0.00E+00
NE	800	Po-218	2.24E-21	4.03E-28	5.10E-29	4.54E-28

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NE	2400	U-238	4.32E-01	7.77E-08	2.21E-08	9.98E-08
NE	2400	Th-234	3.35E-04	6.04E-11	1.48E-11	7.51E-11
NE	2400	Pa-234m	3.21E-04	5.78E-11	1.40E-11	7.18E-11
NE	2400	Pa-234	1.75E-08	3.16E-15	6.88E-16	3.84E-15
NE	2400	U-234	3.45E-01	6.21E-08	1.77E-08	7.98E-08
NE	2400	U-235	4.32E-01	7.77E-08	2.21E-08	9.98E-08
NE	2400	Th-231	7.53E-03	1.36E-09	3.32E-10	1.69E-09
NE	2400	Pa-231	6.39E-12	1.15E-18	2.52E-19	1.40E-18
NE	2400	Ac-227	5.68E-18	1.02E-24	2.08E-25	1.23E-24
NE	2400	Th-227	1.82E-21	3.28E-28	6.44E-29	3.93E-28
NE	2400	Th-230	2.35E-10	4.23E-17	1.03E-17	5.26E-17
NE	2400	Ra-226	4.07E-18	7.33E-25	1.61E-25	8.93E-25
NE	2400	Rn-222	1.50E-20	0.00E+00	0.00E+00	0.00E+00
NE	2400	Po-218	1.10E-20	1.97E-27	4.22E-28	2.39E-27
NE	4000	U-238	1.90E-01	3.43E-08	1.25E-08	4.68E-08
NE	4000	Th-234	2.47E-04	4.45E-11	1.38E-11	5.82E-11
NE	4000	Pa-234m	2.41E-04	4.33E-11	1.33E-11	5.67E-11
NE	4000	Pa-234	2.19E-08	3.94E-15	1.08E-15	5.02E-15
NE	4000	U-234	1.52E-01	2.74E-08	1.00E-08	3.74E-08
NE	4000	U-235	1.90E-01	3.43E-08	1.25E-08	4.68E-08
NE	4000	Th-231	5.52E-03	9.93E-10	3.08E-10	1.30E-09
NE	4000	Pa-231	7.83E-12	1.41E-18	3.87E-19	1.80E-18
NE	4000	Ac-227	1.16E-17	2.09E-24	5.28E-25	2.62E-24
NE	4000	Th-227	5.79E-21	1.04E-27	2.51E-28	1.29E-27
NE	4000	Th-230	1.73E-10	3.12E-17	9.64E-18	4.08E-17
NE	4000	Ra-226	5.01E-18	9.01E-25	2.47E-25	1.15E-24
NE	4000	Rn-222	2.68E-20	0.00E+00	0.00E+00	0.00E+00
NE	4000	Po-218	1.83E-20	3.30E-27	8.56E-28	4.15E-27
NE	5600	U-238	1.14E-01	2.05E-08	8.59E-09	2.91E-08
NE	5600	Th-234	2.07E-04	3.73E-11	1.31E-11	5.04E-11
NE	5600	Pa-234m	2.03E-04	3.66E-11	1.28E-11	4.94E-11
NE	5600	Pa-234	2.56E-08	4.61E-15	1.43E-15	6.04E-15
NE	5600	U-234	9.10E-02	1.64E-08	6.87E-09	2.33E-08
NE	5600	U-235	1.14E-01	2.05E-08	8.59E-09	2.91E-08
NE	5600	Th-231	4.59E-03	8.27E-10	2.92E-10	1.12E-09
NE	5600	Pa-231	9.14E-12	1.65E-18	5.11E-19	2.16E-18
NE	5600	Ac-227	1.90E-17	3.42E-24	9.74E-25	4.39E-24
NE	5600	Th-227	1.30E-20	2.35E-27	6.33E-28	2.98E-27
NE	5600	Th-230	1.45E-10	2.61E-17	9.19E-18	3.53E-17
NE	5600	Ra-226	5.87E-18	1.06E-24	3.28E-25	1.39E-24
NE	5600	Rn-222	4.18E-20	0.00E+00	0.00E+00	0.00E+00
NE	5600	Po-218	2.75E-20	4.95E-27	1.44E-27	6.39E-27
NE	7250	U-238	7.43E-02	1.34E-08	6.31E-09	1.97E-08
NE	7250	Th-234	1.74E-04	3.14E-11	1.23E-11	4.37E-11
NE	7250	Pa-234m	1.72E-04	3.09E-11	1.21E-11	4.31E-11
NE	7250	Pa-234	2.76E-08	4.97E-15	1.72E-15	6.69E-15
NE	7250	U-234	5.94E-02	1.07E-08	5.05E-09	1.57E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NE	7250	U-235	7.43E-02	1.34E-08	6.31E-09	1.97E-08
NE	7250	Th-231	3.84E-03	6.92E-10	2.73E-10	9.65E-10
NE	7250	Pa-231	9.90E-12	1.78E-18	6.14E-19	2.40E-18
NE	7250	Ac-227	2.66E-17	4.80E-24	1.51E-24	6.30E-24
NE	7250	Th-227	2.33E-20	4.19E-27	1.24E-27	5.44E-27
NE	7250	Th-230	1.22E-10	2.20E-17	8.65E-18	3.06E-17
NE	7250	Ra-226	6.39E-18	1.15E-24	3.96E-25	1.55E-24
NE	7250	Rn-222	8.83E-20	0.00E+00	0.00E+00	0.00E+00
NE	7250	Po-218	5.52E-20	9.93E-27	2.96E-27	1.29E-26
NE	12100	U-238	3.37E-02	6.07E-09	3.45E-09	9.52E-09
NE	12100	Th-234	1.32E-04	2.37E-11	1.11E-11	3.48E-11
NE	12100	Pa-234m	1.31E-04	2.35E-11	1.09E-11	3.45E-11
NE	12100	Pa-234	3.36E-08	6.04E-15	2.45E-15	8.50E-15
NE	12100	U-234	2.70E-02	4.85E-09	2.76E-09	7.62E-09
NE	12100	U-235	3.37E-02	6.07E-09	3.45E-09	9.52E-09
NE	12100	Th-231	2.86E-03	5.14E-10	2.41E-10	7.55E-10
NE	12100	Pa-231	1.23E-11	2.22E-18	8.97E-19	3.12E-18
NE	12100	Ac-227	5.55E-17	9.99E-24	3.64E-24	1.36E-23
NE	12100	Th-227	8.03E-20	1.45E-26	4.93E-27	1.94E-26
NE	12100	Th-230	9.26E-11	1.67E-17	7.76E-18	2.44E-17
NE	12100	Ra-226	8.07E-18	1.45E-24	5.84E-25	2.04E-24
NE	12100	Rn-222	3.37E-19	0.00E+00	0.00E+00	0.00E+00
NE	12100	Po-218	1.88E-19	3.39E-26	1.18E-26	4.57E-26
NE	24150	U-238	1.07E-02	1.92E-09	1.37E-09	3.29E-09
NE	24150	Th-234	8.20E-05	1.48E-11	8.32E-12	2.31E-11
NE	24150	Pa-234m	8.17E-05	1.47E-11	8.27E-12	2.30E-11
NE	24150	Pa-234	3.71E-08	6.68E-15	3.23E-15	9.91E-15
NE	24150	U-234	8.53E-03	1.54E-09	1.10E-09	2.63E-09
NE	24150	U-235	1.07E-02	1.92E-09	1.37E-09	3.29E-09
NE	24150	Th-231	1.70E-03	3.06E-10	1.75E-10	4.81E-10
NE	24150	Pa-231	1.47E-11	2.64E-18	1.25E-18	3.90E-18
NE	24150	Ac-227	1.32E-16	2.37E-23	9.88E-24	3.36E-23
NE	24150	Th-227	3.79E-19	6.82E-26	2.61E-26	9.43E-26
NE	24150	Th-230	5.77E-11	1.04E-17	5.84E-18	1.62E-17
NE	24150	Ra-226	9.92E-18	1.79E-24	8.40E-25	2.63E-24
NE	24150	Rn-222	7.90E-19	0.00E+00	0.00E+00	0.00E+00
NE	24150	Po-218	2.98E-19	5.37E-26	2.42E-26	7.79E-26
NE	40250	U-238	4.62E-03	8.31E-10	6.87E-10	1.52E-09
NE	40250	Th-234	5.89E-05	1.06E-11	6.74E-12	1.73E-11
NE	40250	Pa-234m	5.87E-05	1.06E-11	6.71E-12	1.73E-11
NE	40250	Pa-234	3.87E-08	6.96E-15	3.79E-15	1.08E-14
NE	40250	U-234	3.70E-03	6.65E-10	5.50E-10	1.22E-09
NE	40250	U-235	4.62E-03	8.31E-10	6.87E-10	1.52E-09
NE	40250	Th-231	1.15E-03	2.08E-10	1.36E-10	3.43E-10
NE	40250	Pa-231	1.68E-11	3.03E-18	1.60E-18	4.63E-18
NE	40250	Ac-227	2.53E-16	4.56E-23	2.08E-23	6.63E-23
NE	40250	Th-227	1.22E-18	2.19E-25	9.05E-26	3.09E-25

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NE	40250	Th-230	4.15E-11	7.47E-18	4.74E-18	1.22E-17
NE	40250	Ra-226	1.19E-17	2.13E-24	1.11E-24	3.24E-24
NE	40250	Rn-222	1.64E-18	0.00E+00	0.00E+00	0.00E+00
NE	40250	Po-218	4.65E-19	8.38E-26	4.03E-26	1.24E-25
NE	56350	U-238	2.25E-03	4.04E-10	3.96E-10	8.00E-10
NE	56350	Th-234	3.92E-05	7.05E-12	5.18E-12	1.22E-11
NE	56350	Pa-234m	3.91E-05	7.03E-12	5.17E-12	1.22E-11
NE	56350	Pa-234	3.14E-08	5.66E-15	3.56E-15	9.22E-15
NE	56350	U-234	1.80E-03	3.23E-10	3.16E-10	6.40E-10
NE	56350	U-235	2.25E-03	4.04E-10	3.96E-10	8.00E-10
NE	56350	Th-231	7.28E-04	1.31E-10	1.00E-10	2.31E-10
NE	56350	Pa-231	1.49E-11	2.68E-18	1.61E-18	4.29E-18
NE	56350	Ac-227	3.14E-16	5.64E-23	2.84E-23	8.49E-23
NE	56350	Th-227	2.11E-18	3.79E-25	1.70E-25	5.49E-25
NE	56350	Th-230	2.77E-11	4.98E-18	3.65E-18	8.64E-18
NE	56350	Ra-226	1.09E-17	1.97E-24	1.15E-24	3.12E-24
NE	56350	Rn-222	2.74E-18	0.00E+00	0.00E+00	0.00E+00
NE	56350	Po-218	5.29E-19	9.52E-26	5.02E-26	1.45E-25
NE	72200	U-238	9.64E-04	1.73E-10	2.37E-10	4.11E-10
NE	72200	Th-234	1.94E-05	3.50E-12	3.61E-12	7.11E-12
NE	72200	Pa-234m	1.94E-05	3.49E-12	3.60E-12	7.09E-12
NE	72200	Pa-234	1.70E-08	3.06E-15	2.71E-15	5.77E-15
NE	72200	U-234	7.71E-04	1.39E-10	1.90E-10	3.29E-10
NE	72200	U-235	9.64E-04	1.73E-10	2.37E-10	4.11E-10
NE	72200	Th-231	3.49E-04	6.28E-11	6.83E-11	1.31E-10
NE	72200	Pa-231	8.52E-12	1.53E-18	1.27E-18	2.80E-18
NE	72200	Ac-227	2.18E-16	3.92E-23	2.60E-23	6.52E-23
NE	72200	Th-227	1.80E-18	3.25E-25	1.82E-25	5.07E-25
NE	72200	Th-230	1.37E-11	2.47E-18	2.55E-18	5.03E-18
NE	72200	Ra-226	6.42E-18	1.16E-24	9.24E-25	2.08E-24
NE	72200	Rn-222	4.08E-18	0.00E+00	0.00E+00	0.00E+00
NE	72200	Po-218	3.52E-19	6.34E-26	4.36E-26	1.07E-25
NNE	800	U-238	2.43E+00	4.37E-07	7.47E-08	5.12E-07
NNE	800	Th-234	6.06E-04	1.09E-10	1.72E-11	1.26E-10
NNE	800	Pa-234m	5.24E-04	9.44E-11	1.47E-11	1.09E-10
NNE	800	Pa-234	8.59E-09	1.55E-15	2.25E-16	1.77E-15
NNE	800	U-234	1.94E+00	3.50E-07	5.98E-08	4.09E-07
NNE	800	U-235	2.43E+00	4.37E-07	7.47E-08	5.12E-07
NNE	800	Th-231	1.37E-02	2.46E-09	3.88E-10	2.85E-09
NNE	800	Pa-231	3.66E-12	6.59E-19	9.71E-20	7.56E-19
NNE	800	Ac-227	1.02E-18	1.84E-25	2.58E-26	2.10E-25
NNE	800	Th-227	1.36E-22	2.45E-29	3.22E-30	2.78E-29
NNE	800	Th-230	4.24E-10	7.64E-17	1.20E-17	8.84E-17
NNE	800	Ra-226	2.32E-18	4.18E-25	6.16E-26	4.79E-25
NNE	800	Rn-222	2.83E-21	0.00E+00	0.00E+00	0.00E+00
NNE	800	Po-218	1.95E-21	3.51E-28	4.52E-29	3.96E-28
NNE	2400	U-238	4.44E-01	8.00E-08	2.31E-08	1.03E-07

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNE	2400	Th-234	3.43E-04	6.17E-11	1.58E-11	7.75E-11
NNE	2400	Pa-234m	3.28E-04	5.90E-11	1.50E-11	7.40E-11
NNE	2400	Pa-234	1.74E-08	3.13E-15	7.17E-16	3.84E-15
NNE	2400	U-234	3.55E-01	6.40E-08	1.85E-08	8.25E-08
NNE	2400	U-235	4.44E-01	8.00E-08	2.31E-08	1.03E-07
NNE	2400	Th-231	7.71E-03	1.39E-09	3.54E-10	1.74E-09
NNE	2400	Pa-231	6.34E-12	1.14E-18	2.64E-19	1.40E-18
NNE	2400	Ac-227	5.42E-18	9.76E-25	2.09E-25	1.18E-24
NNE	2400	Th-227	1.69E-21	3.04E-28	6.22E-29	3.66E-28
NNE	2400	Th-230	2.40E-10	4.32E-17	1.10E-17	5.43E-17
NNE	2400	Ra-226	4.04E-18	7.27E-25	1.68E-25	8.94E-25
NNE	2400	Rn-222	1.49E-20	0.00E+00	0.00E+00	0.00E+00
NNE	2400	Po-218	1.09E-20	1.95E-27	4.42E-28	2.40E-27
NNE	4000	U-238	1.95E-01	3.51E-08	1.30E-08	4.81E-08
NNE	4000	Th-234	2.51E-04	4.52E-11	1.47E-11	5.99E-11
NNE	4000	Pa-234m	2.45E-04	4.40E-11	1.42E-11	5.83E-11
NNE	4000	Pa-234	2.16E-08	3.89E-15	1.13E-15	5.01E-15
NNE	4000	U-234	1.56E-01	2.81E-08	1.04E-08	3.85E-08
NNE	4000	U-235	1.95E-01	3.51E-08	1.30E-08	4.81E-08
NNE	4000	Th-231	5.61E-03	1.01E-09	3.28E-10	1.34E-09
NNE	4000	Pa-231	7.72E-12	1.39E-18	4.04E-19	1.79E-18
NNE	4000	Ac-227	1.10E-17	1.98E-24	5.29E-25	2.51E-24
NNE	4000	Th-227	5.32E-21	9.57E-28	2.42E-28	1.20E-27
NNE	4000	Th-230	1.76E-10	3.17E-17	1.03E-17	4.20E-17
NNE	4000	Ra-226	4.93E-18	8.88E-25	2.58E-25	1.15E-24
NNE	4000	Rn-222	2.60E-20	0.00E+00	0.00E+00	0.00E+00
NNE	4000	Po-218	1.76E-20	3.16E-27	8.67E-28	4.03E-27
NNE	5600	U-238	1.16E-01	2.09E-08	8.92E-09	2.98E-08
NNE	5600	Th-234	2.09E-04	3.76E-11	1.40E-11	5.16E-11
NNE	5600	Pa-234m	2.05E-04	3.69E-11	1.37E-11	5.06E-11
NNE	5600	Pa-234	2.51E-08	4.52E-15	1.49E-15	6.01E-15
NNE	5600	U-234	9.27E-02	1.67E-08	7.13E-09	2.38E-08
NNE	5600	U-235	1.16E-01	2.09E-08	8.92E-09	2.98E-08
NNE	5600	Th-231	4.64E-03	8.36E-10	3.10E-10	1.15E-09
NNE	5600	Pa-231	8.96E-12	1.61E-18	5.33E-19	2.14E-18
NNE	5600	Ac-227	1.79E-17	3.23E-24	9.74E-25	4.20E-24
NNE	5600	Th-227	1.19E-20	2.14E-27	6.05E-28	2.74E-27
NNE	5600	Th-230	1.47E-10	2.64E-17	9.78E-18	3.62E-17
NNE	5600	Ra-226	5.75E-18	1.04E-24	3.42E-25	1.38E-24
NNE	5600	Rn-222	4.04E-20	0.00E+00	0.00E+00	0.00E+00
NNE	5600	Po-218	2.60E-20	4.69E-27	1.44E-27	6.13E-27
NNE	7250	U-238	7.53E-02	1.36E-08	6.54E-09	2.01E-08
NNE	7250	Th-234	1.75E-04	3.16E-11	1.31E-11	4.47E-11
NNE	7250	Pa-234m	1.73E-04	3.11E-11	1.29E-11	4.40E-11
NNE	7250	Pa-234	2.70E-08	4.86E-15	1.79E-15	6.65E-15
NNE	7250	U-234	6.03E-02	1.09E-08	5.23E-09	1.61E-08
NNE	7250	U-235	7.53E-02	1.36E-08	6.54E-09	2.01E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNE	7250	Th-231	3.87E-03	6.97E-10	2.90E-10	9.87E-10
NNE	7250	Pa-231	9.66E-12	1.74E-18	6.41E-19	2.38E-18
NNE	7250	Ac-227	2.50E-17	4.50E-24	1.51E-24	6.01E-24
NNE	7250	Th-227	2.11E-20	3.79E-27	1.19E-27	4.98E-27
NNE	7250	Th-230	1.23E-10	2.21E-17	9.19E-18	3.13E-17
NNE	7250	Ra-226	6.23E-18	1.12E-24	4.13E-25	1.53E-24
NNE	7250	Rn-222	7.47E-20	0.00E+00	0.00E+00	0.00E+00
NNE	7250	Po-218	4.54E-20	8.17E-27	2.62E-27	1.08E-26
NNE	12100	U-238	3.37E-02	6.07E-09	3.54E-09	9.61E-09
NNE	12100	Th-234	1.31E-04	2.35E-11	1.17E-11	3.52E-11
NNE	12100	Pa-234m	1.30E-04	2.33E-11	1.16E-11	3.49E-11
NNE	12100	Pa-234	3.23E-08	5.82E-15	2.55E-15	8.37E-15
NNE	12100	U-234	2.70E-02	4.85E-09	2.83E-09	7.69E-09
NNE	12100	U-235	3.37E-02	6.07E-09	3.54E-09	9.61E-09
NNE	12100	Th-231	2.83E-03	5.10E-10	2.55E-10	7.65E-10
NNE	12100	Pa-231	1.18E-11	2.13E-18	9.29E-19	3.06E-18
NNE	12100	Ac-227	5.11E-17	9.21E-24	3.61E-24	1.28E-23
NNE	12100	Th-227	7.11E-20	1.28E-26	4.65E-27	1.75E-26
NNE	12100	Th-230	9.17E-11	1.65E-17	8.19E-18	2.47E-17
NNE	12100	Ra-226	7.73E-18	1.39E-24	6.05E-25	2.00E-24
NNE	12100	Rn-222	3.23E-19	0.00E+00	0.00E+00	0.00E+00
NNE	12100	Po-218	1.73E-19	3.12E-26	1.15E-26	4.27E-26
NNE	24150	U-238	1.04E-02	1.87E-09	1.38E-09	3.25E-09
NNE	24150	Th-234	7.91E-05	1.42E-11	8.70E-12	2.29E-11
NNE	24150	Pa-234m	7.87E-05	1.42E-11	8.66E-12	2.28E-11
NNE	24150	Pa-234	3.49E-08	6.27E-15	3.36E-15	9.63E-15
NNE	24150	U-234	8.32E-03	1.50E-09	1.10E-09	2.60E-09
NNE	24150	U-235	1.04E-02	1.87E-09	1.38E-09	3.25E-09
NNE	24150	Th-231	1.64E-03	2.96E-10	1.83E-10	4.79E-10
NNE	24150	Pa-231	1.37E-11	2.47E-18	1.30E-18	3.76E-18
NNE	24150	Ac-227	1.18E-16	2.12E-23	9.76E-24	3.09E-23
NNE	24150	Th-227	3.24E-19	5.84E-26	2.43E-26	8.27E-26
NNE	24150	Th-230	5.56E-11	1.00E-17	6.11E-18	1.61E-17
NNE	24150	Ra-226	9.23E-18	1.66E-24	8.66E-25	2.53E-24
NNE	24150	Rn-222	7.76E-19	0.00E+00	0.00E+00	0.00E+00
NNE	24150	Po-218	2.77E-19	4.99E-26	2.51E-26	7.50E-26
NNE	40250	U-238	4.35E-03	7.83E-10	6.76E-10	1.46E-09
NNE	40250	Th-234	5.46E-05	9.83E-12	6.91E-12	1.67E-11
NNE	40250	Pa-234m	5.44E-05	9.80E-12	6.89E-12	1.67E-11
NNE	40250	Pa-234	3.50E-08	6.30E-15	3.89E-15	1.02E-14
NNE	40250	U-234	3.48E-03	6.27E-10	5.40E-10	1.17E-09
NNE	40250	U-235	4.35E-03	7.83E-10	6.76E-10	1.46E-09
NNE	40250	Th-231	1.08E-03	1.94E-10	1.39E-10	3.33E-10
NNE	40250	Pa-231	1.51E-11	2.72E-18	1.63E-18	4.34E-18
NNE	40250	Ac-227	2.16E-16	3.90E-23	2.01E-23	5.91E-23
NNE	40250	Th-227	9.94E-19	1.79E-25	8.23E-26	2.61E-25
NNE	40250	Th-230	3.85E-11	6.93E-18	4.87E-18	1.18E-17

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNE	40250	Ra-226	1.06E-17	1.90E-24	1.12E-24	3.03E-24
NNE	40250	Rn-222	1.57E-18	0.00E+00	0.00E+00	0.00E+00
NNE	40250	Po-218	4.03E-19	7.26E-26	3.95E-26	1.12E-25
NNE	56350	U-238	2.06E-03	3.72E-10	3.81E-10	7.52E-10
NNE	56350	Th-234	3.55E-05	6.39E-12	5.26E-12	1.17E-11
NNE	56350	Pa-234m	3.54E-05	6.37E-12	5.25E-12	1.16E-11
NNE	56350	Pa-234	2.79E-08	5.03E-15	3.65E-15	8.67E-15
NNE	56350	U-234	1.65E-03	2.97E-10	3.04E-10	6.02E-10
NNE	56350	U-235	2.06E-03	3.72E-10	3.81E-10	7.52E-10
NNE	56350	Th-231	6.65E-04	1.20E-10	1.02E-10	2.21E-10
NNE	56350	Pa-231	1.31E-11	2.35E-18	1.63E-18	3.98E-18
NNE	56350	Ac-227	2.61E-16	4.70E-23	2.75E-23	7.46E-23
NNE	56350	Th-227	1.67E-18	3.01E-25	1.54E-25	4.55E-25
NNE	56350	Th-230	2.51E-11	4.51E-18	3.71E-18	8.23E-18
NNE	56350	Ra-226	9.50E-18	1.71E-24	1.16E-24	2.87E-24
NNE	56350	Rn-222	2.61E-18	0.00E+00	0.00E+00	0.00E+00
NNE	56350	Po-218	4.43E-19	7.97E-26	4.87E-26	1.28E-25
NNE	72200	U-238	9.03E-04	1.63E-10	2.27E-10	3.89E-10
NNE	72200	Th-234	1.83E-05	3.30E-12	3.76E-12	7.07E-12
NNE	72200	Pa-234m	1.83E-05	3.30E-12	3.76E-12	7.05E-12
NNE	72200	Pa-234	1.59E-08	2.86E-15	2.91E-15	5.77E-15
NNE	72200	U-234	7.23E-04	1.30E-10	1.82E-10	3.12E-10
NNE	72200	U-235	9.03E-04	1.63E-10	2.27E-10	3.89E-10
NNE	72200	Th-231	3.32E-04	5.97E-11	7.08E-11	1.31E-10
NNE	72200	Pa-231	7.85E-12	1.41E-18	1.36E-18	2.77E-18
NNE	72200	Ac-227	1.90E-16	3.42E-23	2.73E-23	6.15E-23
NNE	72200	Th-227	1.49E-18	2.67E-25	1.81E-25	4.48E-25
NNE	72200	Th-230	1.30E-11	2.34E-18	2.66E-18	5.00E-18
NNE	72200	Ra-226	5.87E-18	1.06E-24	9.89E-25	2.05E-24
NNE	72200	Rn-222	3.90E-18	0.00E+00	0.00E+00	0.00E+00
NNE	72200	Po-218	3.10E-19	5.58E-26	4.62E-26	1.02E-25

Chi/Q

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

C H I / Q T A B L E S

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

GROUND-LEVEL CHI/Q VALUES FOR U-238
SOLUBILITY: M
CHEMFORM: Particulate
SIZE: 1.000
CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

Distance (meters)

Dir	800	2400	4000	5600	7250	12100	24150
N	7.595E-06	1.387E-06	6.106E-07	3.633E-07	2.370E-07	1.063E-07	3.333E-08
NNW	4.973E-06	9.252E-07	4.024E-07	2.371E-07	1.522E-07	6.632E-08	1.908E-08
NW	4.230E-06	7.912E-07	3.430E-07	2.015E-07	1.289E-07	5.574E-08	1.568E-08
WNW	3.849E-06	7.321E-07	3.250E-07	1.951E-07	1.277E-07	5.859E-08	1.870E-08
W	3.109E-06	5.752E-07	2.496E-07	1.468E-07	9.410E-08	4.088E-08	1.166E-08
WSW	2.854E-06	5.348E-07	2.361E-07	1.412E-07	9.211E-08	4.186E-08	1.318E-08
SW	3.385E-06	6.218E-07	2.731E-07	1.622E-07	1.055E-07	4.710E-08	1.448E-08
SSW	4.488E-06	8.230E-07	3.633E-07	2.165E-07	1.415E-07	6.372E-08	2.011E-08
S	3.621E-06	6.606E-07	2.906E-07	1.728E-07	1.127E-07	5.051E-08	1.570E-08
SSE	2.775E-06	5.062E-07	2.226E-07	1.325E-07	8.644E-08	3.883E-08	1.216E-08
SE	2.907E-06	5.270E-07	2.317E-07	1.379E-07	9.005E-08	4.037E-08	1.261E-08
ESE	3.126E-06	5.751E-07	2.522E-07	1.499E-07	9.743E-08	4.354E-08	1.337E-08
E	4.330E-06	8.960E-07	4.320E-07	2.793E-07	1.953E-07	1.053E-07	4.307E-08
ENE	5.860E-06	1.088E-06	4.798E-07	2.864E-07	1.868E-07	8.456E-08	2.657E-08
NE	7.344E-06	1.361E-06	6.006E-07	3.588E-07	2.343E-07	1.063E-07	3.363E-08
NNE	7.657E-06	1.401E-06	6.150E-07	3.654E-07	2.376E-07	1.063E-07	3.279E-08

Distance (meters)

Dir	40250	56350	72200
N	1.404E-08	6.796E-09	3.159E-09
NNW	7.486E-09	3.337E-09	1.377E-09
NW	6.054E-09	2.640E-09	1.046E-09
WNW	8.248E-09	3.970E-09	1.519E-09
W	4.549E-09	2.014E-09	8.300E-10
WSW	5.716E-09	2.768E-09	1.137E-09
SW	6.016E-09	2.876E-09	1.292E-09
SSW	8.493E-09	4.152E-09	1.952E-09
S	6.567E-09	3.196E-09	1.493E-09
SSE	5.121E-09	2.506E-09	1.184E-09
SE	5.303E-09	2.598E-09	1.238E-09
ESE	5.583E-09	2.684E-09	1.203E-09
E	2.318E-08	1.248E-08	4.582E-09
ENE	1.144E-08	5.533E-09	2.363E-09
NE	1.457E-08	7.080E-09	3.039E-09
NNE	1.372E-08	6.509E-09	2.848E-09

GROUND-LEVEL CHI/Q VALUES FOR U-235
SOLUBILITY: M
CHEMFORM: Particulate
SIZE: 1.000
CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

	Distance (meters)						
Dir	800	2400	4000	5600	7250	12100	24150
N	7.595E-06	1.387E-06	6.106E-07	3.633E-07	2.370E-07	1.063E-07	3.333E-08
NNW	4.973E-06	9.252E-07	4.024E-07	2.371E-07	1.522E-07	6.632E-08	1.908E-08
NW	4.230E-06	7.912E-07	3.430E-07	2.015E-07	1.289E-07	5.574E-08	1.568E-08
WNW	3.849E-06	7.321E-07	3.250E-07	1.951E-07	1.277E-07	5.859E-08	1.870E-08
W	3.109E-06	5.752E-07	2.496E-07	1.468E-07	9.410E-08	4.088E-08	1.166E-08
WSW	2.854E-06	5.348E-07	2.361E-07	1.412E-07	9.211E-08	4.186E-08	1.318E-08
SW	3.385E-06	6.218E-07	2.731E-07	1.622E-07	1.055E-07	4.710E-08	1.448E-08
SSW	4.488E-06	8.230E-07	3.633E-07	2.165E-07	1.415E-07	6.372E-08	2.011E-08
S	3.621E-06	6.606E-07	2.906E-07	1.728E-07	1.127E-07	5.051E-08	1.570E-08
SSE	2.775E-06	5.062E-07	2.226E-07	1.325E-07	8.644E-08	3.883E-08	1.216E-08
SE	2.907E-06	5.270E-07	2.317E-07	1.379E-07	9.005E-08	4.037E-08	1.261E-08
ESE	3.126E-06	5.751E-07	2.522E-07	1.499E-07	9.743E-08	4.354E-08	1.337E-08
E	4.330E-06	8.960E-07	4.320E-07	2.793E-07	1.953E-07	1.053E-07	4.307E-08
ENE	5.860E-06	1.088E-06	4.798E-07	2.864E-07	1.868E-07	8.456E-08	2.657E-08
NE	7.344E-06	1.361E-06	6.006E-07	3.588E-07	2.343E-07	1.063E-07	3.363E-08
NNE	7.657E-06	1.401E-06	6.150E-07	3.654E-07	2.376E-07	1.063E-07	3.279E-08

	Distance (meters)		
Dir	40250	56350	72200
N	1.404E-08	6.796E-09	3.159E-09
NNW	7.486E-09	3.337E-09	1.377E-09
NW	6.054E-09	2.640E-09	1.046E-09
WNW	8.248E-09	3.970E-09	1.519E-09
W	4.549E-09	2.014E-09	8.300E-10
WSW	5.716E-09	2.768E-09	1.137E-09
SW	6.016E-09	2.876E-09	1.292E-09
SSW	8.493E-09	4.152E-09	1.952E-09
S	6.567E-09	3.196E-09	1.493E-09
SSE	5.121E-09	2.506E-09	1.184E-09
SE	5.303E-09	2.598E-09	1.238E-09
ESE	5.583E-09	2.684E-09	1.203E-09
E	2.318E-08	1.248E-08	4.582E-09
ENE	1.144E-08	5.533E-09	2.363E-09
NE	1.457E-08	7.080E-09	3.039E-09
NNE	1.372E-08	6.509E-09	2.848E-09

GROUND-LEVEL CHI/Q VALUES FOR U-234
SOLUBILITY: M
CHEMFORM: Particulate
SIZE: 1.000
CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

Distance (meters)

Dir	800	2400	4000	5600	7250	12100	24150
N	7.595E-06	1.387E-06	6.106E-07	3.633E-07	2.370E-07	1.063E-07	3.333E-08
NNW	4.973E-06	9.252E-07	4.024E-07	2.371E-07	1.522E-07	6.632E-08	1.908E-08
NW	4.230E-06	7.912E-07	3.430E-07	2.015E-07	1.289E-07	5.574E-08	1.568E-08
WNW	3.849E-06	7.321E-07	3.250E-07	1.951E-07	1.277E-07	5.859E-08	1.870E-08
W	3.109E-06	5.752E-07	2.496E-07	1.468E-07	9.410E-08	4.088E-08	1.166E-08
WSW	2.854E-06	5.348E-07	2.361E-07	1.412E-07	9.211E-08	4.186E-08	1.318E-08
SW	3.385E-06	6.218E-07	2.731E-07	1.622E-07	1.055E-07	4.710E-08	1.448E-08
SSW	4.488E-06	8.230E-07	3.633E-07	2.165E-07	1.415E-07	6.372E-08	2.011E-08
S	3.621E-06	6.606E-07	2.906E-07	1.728E-07	1.127E-07	5.051E-08	1.570E-08
SSE	2.775E-06	5.062E-07	2.226E-07	1.325E-07	8.644E-08	3.883E-08	1.216E-08
SE	2.907E-06	5.270E-07	2.317E-07	1.379E-07	9.005E-08	4.037E-08	1.261E-08
ESE	3.126E-06	5.751E-07	2.522E-07	1.499E-07	9.743E-08	4.354E-08	1.337E-08
E	4.330E-06	8.960E-07	4.320E-07	2.793E-07	1.953E-07	1.053E-07	4.307E-08
ENE	5.860E-06	1.088E-06	4.798E-07	2.864E-07	1.868E-07	8.456E-08	2.657E-08
NE	7.344E-06	1.361E-06	6.006E-07	3.588E-07	2.343E-07	1.063E-07	3.363E-08
NNE	7.657E-06	1.401E-06	6.150E-07	3.654E-07	2.376E-07	1.063E-07	3.279E-08

Distance (meters)

Dir	40250	56350	72200
N	1.404E-08	6.796E-09	3.159E-09
NNW	7.486E-09	3.337E-09	1.377E-09
NW	6.054E-09	2.640E-09	1.046E-09
WNW	8.248E-09	3.970E-09	1.519E-09
W	4.549E-09	2.014E-09	8.300E-10
WSW	5.716E-09	2.768E-09	1.137E-09
SW	6.016E-09	2.876E-09	1.292E-09
SSW	8.493E-09	4.152E-09	1.952E-09
S	6.567E-09	3.196E-09	1.493E-09
SSE	5.121E-09	2.506E-09	1.184E-09
SE	5.303E-09	2.598E-09	1.238E-09
ESE	5.583E-09	2.684E-09	1.203E-09
E	2.318E-08	1.248E-08	4.582E-09
ENE	1.144E-08	5.533E-09	2.363E-09
NE	1.457E-08	7.080E-09	3.039E-09
NNE	1.372E-08	6.509E-09	2.848E-09

Weather

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

W E A T H E R D A T A

Non-Radon Population Assessment
Sun Oct 27 16:02:49 2019

Facility: CAP88-PC Version 4
Address: 1111 Simulation Dr
City: Portsmouth
State: OH Zip: 45111

Source Category: Single Stack
Source Type: Stack
Emission Year: 2006

Comments: Modtest problem
for Version 4 User Manual

Dataset Name: Modtest41.
Dataset Date: Oct 27, 2019 04:01 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\ports30.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\ports.pop

HARMONIC AVERAGE WIND SPEEDS (WIND TOWARDS)

	Pasquill Stability Class							
Dir	A	B	C	D	E	F	G	Wind Freq
N	1.210	1.408	2.498	1.880	1.489	0.923	0.000	0.107
NNW	1.132	1.283	2.413	1.795	1.170	0.835	0.000	0.055
NW	1.091	1.242	2.422	1.841	1.068	0.811	0.000	0.044
WNW	1.163	1.495	2.697	1.843	1.021	0.855	0.000	0.042
W	1.274	1.410	2.625	1.893	1.008	0.824	0.000	0.036
WSW	1.405	1.756	3.046	2.124	1.185	0.859	0.000	0.040
SW	1.453	1.668	2.996	2.127	1.316	0.919	0.000	0.052
SSW	1.334	1.421	2.897	1.958	1.615	0.979	0.000	0.068
S	1.351	1.561	3.230	2.519	1.381	0.956	0.000	0.065
SSE	1.327	1.477	3.353	2.366	1.579	0.930	0.000	0.047
SE	1.290	1.736	3.476	2.342	1.481	0.933	0.000	0.052
ESE	1.141	1.571	3.357	2.259	1.392	0.886	0.000	0.049
E	1.076	1.600	3.586	2.301	1.248	0.845	0.000	0.059
ENE	1.177	1.493	3.370	2.291	1.249	0.855	0.000	0.082
NE	1.146	1.531	3.312	2.102	1.288	0.854	0.000	0.102
NNE	1.145	1.498	2.897	1.697	1.246	0.876	0.000	0.099

ARITHMETIC AVERAGE WIND SPEEDS (WIND TOWARDS)

	Pasquill Stability Class						
Dir	A	B	C	D	E	F	G
N	1.752	2.144	3.161	2.832	2.293	1.228	0.000
NNW	1.613	1.901	2.925	2.982	1.759	0.980	0.000
NW	1.535	1.878	3.021	3.314	1.561	0.900	0.000
WNW	1.637	2.183	3.021	3.260	1.449	1.023	0.000
W	1.785	2.179	3.240	3.636	1.404	0.938	0.000
WSW	1.931	2.697	3.608	3.856	1.716	1.032	0.000
SW	1.978	2.487	3.553	3.556	1.879	1.186	0.000
SSW	1.874	2.187	3.253	3.019	2.394	1.338	0.000
S	1.875	2.465	3.631	3.703	2.075	1.308	0.000
SSE	1.863	2.305	3.891	3.398	2.284	1.244	0.000
SE	1.812	2.532	4.150	3.506	2.349	1.264	0.000
ESE	1.634	2.498	4.048	3.688	2.253	1.127	0.000
E	1.506	2.462	4.411	3.924	2.095	1.003	0.000
ENE	1.672	2.316	4.305	4.056	2.092	1.045	0.000
NE	1.634	2.389	4.404	3.716	2.196	1.040	0.000
NNE	1.644	2.408	3.706	2.663	1.957	1.092	0.000

FREQUENCIES OF STABILITY CLASSES (WIND TOWARDS)

	Pasquill Stability Class						
Dir	A	B	C	D	E	F	G
N	0.0452	0.0537	0.0640	0.3403	0.2540	0.2429	0.0000
NNW	0.0607	0.0461	0.0506	0.3023	0.1895	0.3509	0.0000
NW	0.0627	0.0536	0.0382	0.2881	0.1706	0.3869	0.0000
WNW	0.0564	0.0533	0.0441	0.3030	0.1766	0.3666	0.0000
W	0.0707	0.0662	0.0554	0.3208	0.1578	0.3292	0.0000
WSW	0.0850	0.0835	0.0744	0.3515	0.1288	0.2769	0.0000
SW	0.0777	0.0731	0.0852	0.3675	0.1527	0.2437	0.0000
SSW	0.0605	0.0586	0.0605	0.3575	0.2187	0.2441	0.0000
S	0.0696	0.0698	0.0849	0.4515	0.1182	0.2060	0.0000
SSE	0.0803	0.0779	0.0577	0.4131	0.1620	0.2090	0.0000
SE	0.0793	0.0613	0.0772	0.4470	0.1432	0.1920	0.0000
ESE	0.0878	0.0746	0.0727	0.3996	0.1286	0.2367	0.0000
E	0.0765	0.0693	0.0815	0.3672	0.1504	0.2551	0.0000
ENE	0.0646	0.0604	0.0771	0.3706	0.1703	0.2571	0.0000
NE	0.0580	0.0568	0.0885	0.3566	0.1869	0.2531	0.0000
NNE	0.0621	0.0599	0.0749	0.3169	0.2221	0.2640	0.0000
TOTAL	0.0661	0.0622	0.0701	0.3592	0.1793	0.2630	0.0000

ADDITIONAL WEATHER INFORMATION

Average Air Temperature: 10.0 degrees C
283.17 K
Precipitation: 100.0 cm/y
Humidity: 8.0 g/cu m
Lid Height: 1000.0 meters
Surface Roughness Length: 0.010 meters
Height Of Wind Measurements: 10.0 meters
Average Wind Speed: 2.413 m/s

Vertical Temperature Gradients:
STABILITY E 0.073 k/m
STABILITY F 0.109 k/m
STABILITY G 0.146 k/m

CAP88-PC Version 4.1

Sample Input Dataset CAP88DEF41.DAT

NOTE: The sample input dataset in this document appears to differ from actual input dataset because of text wrapping. The values are identical.

```
4.1
CAP88Def41.
Oct 27, 2019 04:03 PM
Oct 27, 2019 04:04 PM
Battelle Columbus
1234 Reactor Rd

West Jefferson
44409
A stack
2004
The default dataset that comes
with CAP88-PC V4.0
1
C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\battelle.pop
Adult
100
13
0
0
250       750       1500      2500      3500      4500      7500      15000     25000     35000
45000     55000     70000     0         0         0         0         0         0         0
T         T         T         T
C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
101.00
10.01
1000.00
8.00
0
1
1.000e+01
1.000e+00
1
3.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0
0.0800    0.9200    0.0000
0.0000    1.0000    0.0000
0.0100    0.9900    0.0000
OH
```

```
2.030e-01
4.560e-02
1.700e-02
86400
5
F
1
1          Pu-239    Particulate                              M          1.0000    1.000e+00
84         93        53        84        493       5263
Adrenals   UB_Wall   Bone_Sur  Brain     Breasts   St_Wall   SI_Wall   ULI_Wall  LLI_Wall  Kidneys
Liver      Muscle    Ovaries   Pancreas  R_Marrow  Skin      Spleen    Testes    Thymus    Thyroid
GB_Wall    Ht_Wall   Uterus    ET_Reg    Lung      E_50
esophagus  stomach   colon     liver     lung      bone      skin      breast    ovary     bladder
kidney     thyroid   leukemia  residual  Total
5
Pu-239     Particulate                              M         1.0000    7.609e+11 1.800e-03 1.000e-07
5.480e-05 5.000e-04 5.000e-04 1.000e-04 1.000e-06 1.000e-03 1.000e-01
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
1.451e-08 1.451e-08 8.236e-06 1.451e-08 1.451e-08 1.571e-08 1.750e-08 3.264e-08 6.769e-08 3.378e-08
1.727e-06 1.451e-08 1.079e-07 1.451e-08 3.915e-07 1.451e-08 1.451e-08 1.099e-07 1.451e-08 1.451e-08
1.451e-08 1.451e-08 1.451e-08 1.451e-08 1.451e-08 2.508e-07
2.682e-06 2.682e-06 1.524e-03 2.682e-06 2.682e-06 2.682e-06 2.682e-06 2.686e-06 2.693e-06 6.269e-06
3.198e-04 2.682e-06 1.998e-05 2.682e-06 7.259e-05 2.682e-06 2.682e-06 2.034e-05 2.682e-06 2.682e-06
2.682e-06 2.682e-06 2.682e-06 7.603e-06 2.611e-05 4.849e-05
2.160e-18 2.370e-18 1.060e-17 2.790e-18 8.150e-18 2.490e-18 2.000e-18 2.140e-18 2.020e-18 2.710e-18
2.510e-18 4.560e-18 1.870e-18 1.940e-18 2.870e-18 2.030e-17 2.470e-18 5.230e-18 2.900e-18 4.190e-18
2.080e-18 2.410e-18 1.930e-18 1.980e-18 2.890e-18 3.770e-18
6.560e-20 8.610e-20 6.340e-19 5.770e-20 8.310e-19 8.160e-20 5.640e-20 6.050e-20 6.000e-20 1.120e-19
7.780e-20 5.210e-19 8.480e-20 5.150e-20 1.290e-19 4.040e-18 6.980e-20 6.540e-19 1.040e-19 1.910e-19
5.950e-20 7.400e-20 5.570e-20 4.770e-20 8.660e-20 3.060e-19
1.300e-11 4.370e-11 7.000e-10 1.890e-09 9.980e-11 4.870e-10 9.970e-13 2.100e-11 9.960e-11 3.110e-11
1.730e-11 2.980e-12 9.460e-11 1.330e-10 3.630e-09
2.010e-09 5.000e-09 1.090e-08 2.980e-07 3.360e-07 8.170e-08 1.390e-10 2.850e-09 1.720e-08 4.690e-09
2.630e-09 4.000e-10 1.500e-08 1.740e-08 7.940e-07
2.280e-21 1.010e-20 2.160e-20 3.800e-21 2.830e-20 1.010e-21 2.030e-21 3.940e-20 2.660e-21 5.730e-21
1.410e-21 1.330e-21 1.610e-20 4.300e-20 1.790e-19
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5.490e-23 3.290e-22 6.220e-22 1.180e-22 8.470e-22 6.020e-23 4.030e-22 4.010e-21 1.210e-22 2.080e-22
5.830e-23 6.080e-23 7.240e-22 3.170e-21 1.080e-20
U-235m    Particulate                               M         1.0000    1.560e+03 1.800e-03 1.000e-07
5.480e-05 2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
9.994e-01 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
2.998e-19 2.030e-17 3.494e-18 2.998e-19 2.998e-19 3.395e-14 1.144e-14 3.106e-15 2.315e-16 4.125e-18
3.192e-19 2.998e-19 2.998e-19 2.998e-19 5.804e-19 2.998e-19 2.998e-19 2.998e-19 2.998e-19 2.998e-19
2.998e-19 2.998e-19 2.998e-19 2.998e-19 2.998e-19 4.310e-15
4.653e-18 3.161e-16 5.386e-17 4.653e-18 4.653e-18 3.560e-15 1.202e-15 3.312e-16 2.898e-17 6.405e-17
4.896e-18 4.653e-18 4.651e-18 4.653e-18 8.981e-18 4.653e-18 4.653e-18 4.653e-18 4.653e-18 4.653e-18
4.653e-18 4.653e-18 4.653e-18 4.953e-18 9.193e-16 5.824e-16
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
4.550e-22 2.010e-16 3.480e-17 6.550e-22 4.610e-21 6.000e-22 4.620e-23 2.230e-21 5.290e-22 5.510e-20
2.570e-21 1.550e-22 4.680e-21 7.130e-21 2.360e-16
7.440e-21 2.540e-17 4.520e-18 1.030e-20 1.120e-17 9.370e-21 7.010e-22 3.510e-20 9.030e-21 9.100e-19
4.110e-20 2.350e-21 7.360e-20 1.070e-19 4.230e-17
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
U-235     Particulate                               M         1.0000    2.222e+16 1.800e-03 1.000e-07
5.480e-05 2.000e-02 2.000e-02 8.000e-04 4.000e-04 2.000e-03 1.000e-01
6.000e-04 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
2.567e-08 2.576e-08 7.405e-07 2.562e-08 2.558e-08 2.674e-08 2.850e-08 4.290e-08 7.816e-08 2.655e-07
9.959e-08 2.563e-08 2.584e-08 2.565e-08 7.585e-08 2.559e-08 2.563e-08 2.560e-08 2.560e-08 2.561e-08
2.568e-08 2.561e-08 2.571e-08 2.561e-08 2.562e-08 4.670e-08
1.240e-07 1.238e-07 3.580e-06 1.235e-07 1.237e-07 1.238e-07 1.240e-07 1.269e-07 1.340e-07 1.286e-06
4.824e-07 1.236e-07 1.235e-07 1.238e-07 3.668e-07 1.234e-07 1.237e-07 1.233e-07 1.239e-07 1.236e-07
1.236e-07 1.242e-07 1.235e-07 4.419e-06 1.843e-05 2.404e-06
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5.650e-15 5.880e-15 1.940e-14 7.300e-15 8.600e-15 6.210e-15 5.380e-15 5.670e-15 5.430e-15 6.320e-15
6.350e-15 7.000e-15 5.230e-15 5.350e-15 6.530e-15 9.150e-15 6.350e-15 7.480e-15 6.780e-15 7.480e-15
5.500e-15 6.140e-15 5.270e-15 5.450e-15 7.160e-15 6.870e-15
1.300e-16 1.380e-16 3.320e-16 1.340e-16 1.600e-16 1.390e-16 1.300e-16 1.350e-16 1.350e-16 1.380e-16
1.390e-16 1.590e-16 1.310e-16 1.260e-16 1.440e-16 2.060e-16 1.400e-16 1.620e-16 1.330e-16 1.470e-16
1.280e-16 1.340e-16 1.310e-16 1.190e-16 1.470e-16 1.490e-16
2.000e-11 5.750e-11 7.080e-10 1.390e-10 1.410e-10 8.740e-11 1.440e-12 2.790e-11 2.330e-11 4.910e-11
1.590e-10 4.060e-12 2.790e-11 1.820e-10 1.630e-09
8.850e-11 2.070e-10 5.560e-10 5.960e-10 2.530e-07 3.830e-10 5.900e-12 1.180e-10 1.060e-10 2.080e-10
6.850e-10 1.660e-11 1.220e-10 7.180e-10 2.570e-07
6.270e-18 2.510e-17 5.750e-17 9.620e-18 7.000e-17 1.840e-18 9.130e-19 4.150e-17 7.440e-18 1.420e-17
3.290e-18 2.380e-18 3.670e-17 8.930e-17 3.660e-16
1.370e-19 5.610e-19 1.390e-18 2.110e-19 1.440e-18 3.150e-20 2.060e-20 7.730e-19 1.860e-19 3.340e-19
7.180e-20 4.680e-20 8.080e-19 2.060e-18 8.070e-18
Th-231    Particulate                              S         1.0000    9.187e+04 1.800e-03 1.000e-07
5.480e-05 5.000e-04 5.000e-04 1.000e-04 5.000e-06 1.000e-03 1.000e-01
0.000e+00 0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
4.912e-13 2.863e-12 5.785e-12 1.780e-14 6.054e-14 1.936e-10 4.374e-10 1.918e-09 3.378e-09 1.376e-12
9.872e-13 1.343e-12 1.778e-11 1.524e-12 1.833e-12 2.888e-13 9.686e-13 5.707e-13 4.358e-14 1.983e-14
4.473e-12 2.013e-13 4.864e-12 1.983e-14 1.253e-13 3.337e-10
7.058e-13 5.860e-13 5.641e-11 2.098e-13 6.716e-13 3.112e-11 6.958e-11 3.048e-10 5.366e-10 1.167e-12
2.261e-12 9.335e-13 3.302e-12 6.972e-13 2.753e-12 2.796e-13 6.751e-13 5.705e-13 7.987e-13 3.425e-13
9.508e-13 1.358e-12 9.000e-13 8.519e-10 1.570e-09 2.426e-10
3.200e-16 3.530e-16 1.650e-15 4.220e-16 6.760e-16 3.730e-16 2.990e-16 3.220e-16 3.010e-16 3.950e-16
3.800e-16 4.770e-16 2.780e-16 2.880e-16 3.750e-16 2.490e-15 3.780e-16 5.400e-16 4.260e-16 5.040e-16
3.110e-16 3.580e-16 2.880e-16 2.880e-16 4.410e-16 4.630e-16
8.690e-18 1.050e-17 4.700e-17 8.740e-18 2.590e-17 1.030e-17 8.550e-18 9.130e-18 8.870e-18 1.140e-17
1.030e-17 1.960e-17 8.920e-18 8.030e-18 1.070e-17 7.980e-17 1.020e-17 2.300e-17 1.120e-17 1.390e-17
8.760e-18 9.660e-18 8.460e-18 7.310e-18 1.120e-17 1.520e-17
8.060e-17 1.150e-12 4.700e-11 2.470e-15 2.640e-15 6.020e-16 4.500e-17 6.960e-16 3.470e-14 9.910e-15
9.650e-16 1.410e-17 1.300e-14 2.810e-14 4.830e-11
1.180e-15 2.230e-13 9.070e-12 2.750e-15 2.260e-11 2.810e-15 2.750e-17 3.990e-15 7.620e-15 2.120e-15
5.230e-16 1.130e-16 5.250e-15 1.650e-14 3.190e-11
3.310e-19 1.510e-18 3.230e-18 5.760e-19 4.310e-18 1.570e-19 2.480e-19 3.270e-18 3.950e-19 8.540e-19
2.050e-19 1.600e-19 2.100e-18 5.380e-18 2.270e-17
8.410e-21 4.160e-20 9.310e-20 1.560e-20 1.100e-19 4.460e-21 7.960e-21 1.250e-19 1.270e-20 2.540e-20
5.930e-21 4.430e-21 6.010e-20 1.800e-19 6.940e-19
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Pa-231    Particulate                              M         1.0000    1.034e+12 1.800e-03 1.000e-07
5.480e-05 5.000e-04 5.000e-04 5.000e-06 5.000e-06 1.000e-02 1.000e-01
0.000e+00 0.000e+00 0.000e+00 1.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00 0.000e+00
5.606e-08 5.611e-08 2.511e-05 5.602e-08 5.597e-08 5.722e-08 5.911e-08 8.342e-08 1.354e-07 3.406e-07
6.554e-07 5.601e-08 2.153e-07 5.602e-08 9.261e-07 5.598e-08 5.622e-08 2.184e-07 5.599e-08 5.600e-08
5.604e-08 5.600e-08 5.603e-08 5.600e-08 5.601e-08 4.793e-07
1.039e-05 1.040e-05 4.665e-03 1.039e-05 1.038e-05 1.038e-05 1.039e-05 1.206e-05 1.513e-05 6.341e-05
1.222e-04 1.039e-05 3.999e-05 1.039e-05 1.728e-04 1.038e-05 1.042e-05 4.058e-05 1.038e-05 1.038e-05
1.039e-05 1.038e-05 1.039e-05 1.555e-05 3.321e-05 9.117e-05
1.210e-15 1.240e-15 3.440e-15 1.550e-15 1.840e-15 1.310e-15 1.140e-15 1.200e-15 1.160e-15 1.330e-15
1.330e-15 1.490e-15 1.090e-15 1.140e-15 1.400e-15 2.410e-15 1.340e-15 1.580e-15 1.410e-15 1.570e-15
1.170e-15 1.290e-15 1.120e-15 1.170e-15 1.490e-15 1.450e-15
2.760e-17 3.010e-17 6.830e-17 2.870e-17 4.330e-17 2.980e-17 2.770e-17 2.870e-17 2.870e-17 3.060e-17
2.980e-17 3.950e-17 2.950e-17 2.640e-17 3.180e-17 8.810e-17 2.990e-17 4.200e-17 3.020e-17 3.420e-17
2.710e-17 2.880e-17 2.780e-17 2.530e-17 3.180e-17 3.470e-17
3.970e-11 8.910e-11 8.100e-10 6.830e-10 2.580e-10 1.420e-09 2.510e-12 4.490e-11 1.980e-10 1.010e-10
1.370e-10 6.880e-12 2.200e-10 2.790e-10 4.290e-09
6.170e-09 1.140e-08 2.510e-08 1.050e-07 3.510e-07 2.350e-07 3.620e-10 6.420e-09 3.310e-08 1.520e-08
2.110e-08 9.820e-10 3.480e-08 3.770e-08 8.840e-07
1.350e-18 5.290e-18 1.220e-17 2.020e-18 1.460e-17 3.270e-19 2.400e-19 8.890e-18 1.550e-18 3.000e-18
6.920e-19 5.000e-19 7.860e-18 1.910e-17 7.750e-17
2.910e-20 1.200e-19 2.960e-19 4.520e-20 3.110e-19 6.490e-21 8.790e-21 2.090e-19 4.200e-20 7.280e-20
1.590e-20 1.090e-20 1.780e-19 4.640e-19 1.810e-18
```

Sample Dataset CAP88DEF41.DAT

CAP88Def41 Output Reports

1. Synopsis
2. Summary
3. General
4. Dose and Risk Factors
5. Concentrations
6. Chi/Q
7. Weather

Synopsis

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

S Y N O P S I S R E P O R T

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004
DOSE Age Group: Adult

Comments: The default dataset that comes
with CAP88-PC V4.0

Effective Dose Equivalent
(mrem)

1.53E+02

At This Location: 750 Meters North

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\1482
p File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\batte

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 750 Meters North
Lifetime Fatal Cancer Risk: 2.50E-05

ORGAN DOSE EQUIVALENT SUMMARY
(RN-222 Working Level Calculations Excluded)

Organ	Selected Individual (mrem)	Collective Population (person-rem)
Adrenals	8.44E+00	3.37E+01
UB_Wall	8.44E+00	3.37E+01
Bone_Sur	4.80E+03	1.91E+04
Brain	8.44E+00	3.37E+01
Breasts	8.46E+00	3.38E+01
St_Wall	8.45E+00	3.38E+01
SI_Wall	8.45E+00	3.40E+01
ULI_Wall	8.48E+00	3.54E+01
LLI_Wall	8.56E+00	3.88E+01
Kidneys	1.97E+01	7.88E+01
Liver	1.01E+03	4.02E+03
Muscle	8.46E+00	3.38E+01
Ovaries	6.29E+01	2.51E+02
Pancreas	8.44E+00	3.37E+01
R_Marrow	2.28E+02	9.12E+02
Skin	8.55E+00	3.44E+01
Spleen	8.44E+00	3.37E+01
Testes	6.40E+01	2.56E+02
Thymus	8.44E+00	3.37E+01
Thyroid	8.45E+00	3.37E+01
GB_Wall	8.44E+00	3.37E+01
Ht_Wall	8.44E+00	3.37E+01
Uterus	8.44E+00	3.37E+01
ET_Reg	2.39E+01	9.30E+01
Lung	8.20E+01	3.16E+02
Effectiv	1.53E+02	6.08E+02

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

Risk Range	# of People	# of People in This Risk Range or Higher	Deaths in This Risk Range	Deaths in This Risk Range or Higher
1.0E+00 TO 1.0E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-01 TO 1.0E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-02 TO 1.0E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-03 TO 1.0E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.0E-04 TO 1.0E-05	1.00E+00	1.00E+00	1.94E-04	1.94E-04
1.0E-05 TO 1.0E-06	4.65E+03	4.65E+03	8.48E-02	8.50E-02
LESS THAN 1.0E-06	1.92E+06	1.93E+06	4.04E+00	4.12E+00

RADIONUCLIDE EMISSIONS DURING THE YEAR 2004

Nuclide	Type	Size	Source #1 Ci/y	TOTAL Ci/y
Pu-239	M	1.000	1.0E+00	1.0E+00

SITE INFORMATION

Temperature:	10.010	degrees C
Precipitation:	101.000	cm/y
Humidity:	8.000	g/cu m
Mixing Height:	1000.0	m

SOURCE INFORMATION

Source Number: 1

Stack Height (m): 10.00
Diameter (m): 1.00

Plume Rise
Momentum (m/s): 3.00
(Exit Velocity)

ADJUSTED AGRICULTURAL DATA

	Vegetable	Milk	Meat
Fraction Home Produced:	0.0800	0.0000	0.0070
Fraction From Assessment Area:	0.9200	1.0000	0.6941
Fraction Imported:	0.0000	0.0000	0.2989

Beef Cattle Density: 2.03E-01
Milk Cattle Density: 4.56E-02
Land Fraction Cultivated
for Vegetable Crops: 1.70E-02

POPULATION DATA

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	0	1	0	0	0	0	0
NNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	717
WSW	0	0	0	0	0	0	797
SW	0	0	0	0	2602	0	573
SSW	0	0	0	0	2046	0	320
S	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	55
SE	0	0	0	0	0	0	4477
ESE	0	0	0	0	0	0	4312
E	0	0	0	0	0	0	3282
ENE	0	0	0	0	0	0	677
NE	0	0	0	0	0	0	854
NNE	0	0	0	0	0	0	2458

	Distance (m)					
Direction	15000	25000	35000	45000	55000	70000
N	2705	2641	3331	3552	5411	55579
NNW	0	2333	11675	2212	3061	7065
NW	3071	1287	2055	1782	5763	24201
WNW	1033	3288	1529	13828	2949	9707
W	1020	4615	1333	90022	26249	79387
WSW	5611	3905	0	861	12543	176422
SW	1137	328	710	3812	6853	16705
SSW	1656	1642	976	8788	10199	11921
S	0	2807	2199	2176	2809	14890
SSE	6325	3726	837	11171	1608	44798
SE	5592	8271	6486	11446	3399	10303
ESE	55327	36474	18070	12787	22041	42086
E	84555	204255	100483	18087	7393	69779
ENE	50903	177302	47221	4039	9908	20086
NE	20317	34864	9203	6955	2119	18770
NNE	4158	2559	12434	13663	5086	17946

Summaries

D O S E A N D R I S K S U M M A R I E S

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004
DOSE Age Group: Adult

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Pop File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\battelle.pop

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)	Collective Population (person-rem)
Adrenals	8.44E+00	3.37E+01
UB_Wall	8.44E+00	3.37E+01
Bone_Sur	4.80E+03	1.91E+04
Brain	8.44E+00	3.37E+01
Breasts	8.46E+00	3.38E+01
St_Wall	8.45E+00	3.38E+01
SI_Wall	8.45E+00	3.40E+01
ULI_Wall	8.48E+00	3.54E+01
LLI_Wall	8.56E+00	3.88E+01
Kidneys	1.97E+01	7.88E+01
Liver	1.01E+03	4.02E+03
Muscle	8.46E+00	3.38E+01
Ovaries	6.29E+01	2.51E+02
Pancreas	8.44E+00	3.37E+01
R_Marrow	2.28E+02	9.12E+02
Skin	8.55E+00	3.44E+01
Spleen	8.44E+00	3.37E+01
Testes	6.40E+01	2.56E+02
Thymus	8.44E+00	3.37E+01
Thyroid	8.45E+00	3.37E+01
GB_Wall	8.44E+00	3.37E+01
Ht_Wall	8.44E+00	3.37E+01
Uterus	8.44E+00	3.37E+01
ET_Reg	2.39E+01	9.30E+01
Lung	8.20E+01	3.16E+02
Effectiv	1.53E+02	6.08E+02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)	Collective Population (person-rem)
INGESTION	3.97E-01	2.34E+01
INHALATION	1.52E+02	5.85E+02
AIR IMMERSION	7.08E-08	2.72E-07
GROUND SURFACE	8.46E-03	5.00E-02
INTERNAL	1.53E+02	6.08E+02
EXTERNAL	8.46E-03	5.00E-02
TOTAL	1.53E+02	6.08E+02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem)	Collective Population (person-rem)
Pu-239	1.53E+02	6.08E+02
U-235m	3.71E-10	6.57E-09
U-235	1.39E-07	8.24E-07
Th-231	1.42E-08	8.40E-08
Pa-231	1.87E-11	1.10E-10
TOTAL	1.53E+02	6.08E+02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
Esophagu	6.33E-08	3.30E-06
Stomach	1.58E-07	8.34E-06
Colon	3.53E-07	2.55E-05
Liver	9.38E-06	4.88E-04
LUNG	1.05E-05	5.26E-04
Bone	2.57E-06	1.33E-04
Skin	4.49E-09	2.38E-07
Breast	9.09E-08	4.79E-06
Ovary	5.41E-07	2.81E-05
Bladder	1.48E-07	7.71E-06
Kidneys	8.28E-08	4.32E-06
Thyroid	1.26E-08	6.62E-07
Leukemia	4.73E-07	2.46E-05
Residual	5.49E-07	2.89E-05
Total	2.50E-05	1.28E-03

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
INGESTION	5.74E-08	4.39E-05
INHALATION	2.49E-05	1.24E-03
AIR IMMERSION	3.36E-14	1.67E-12
GROUND SURFACE	2.99E-09	2.29E-07
INTERNAL	2.50E-05	1.28E-03
EXTERNAL	2.99E-09	2.29E-07
TOTAL	2.50E-05	1.28E-03

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk Per Year
Pu-239	2.50E-05	1.28E-03
U-235m	2.70E-16	6.18E-14
U-235	7.54E-14	5.78E-12
Th-231	6.49E-15	4.97E-13
Pa-231	9.73E-18	7.46E-16
TOTAL	2.50E-05	1.28E-03

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	0.0E+00	1.5E+02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E+00
WSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E+00
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E+01	0.0E+00	3.2E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.1E+00	0.0E+00	2.8E+00
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E+00
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E+00

	Distance (m)					
Direction	15000	25000	35000	45000	55000	70000
N	1.9E+00	7.2E-01	4.3E-01	2.9E-01	1.9E-01	9.5E-02
NNW	0.0E+00	5.4E-01	3.3E-01	2.1E-01	1.4E-01	6.4E-02
NW	1.3E+00	4.8E-01	2.9E-01	1.9E-01	1.3E-01	5.9E-02
WNW	7.8E-01	2.9E-01	1.8E-01	1.2E-01	8.0E-02	4.1E-02
W	9.4E-01	3.4E-01	2.1E-01	1.4E-01	9.2E-02	4.4E-02
WSW	1.1E+00	4.2E-01	0.0E+00	1.7E-01	1.1E-01	5.2E-02
SW	1.1E+00	4.2E-01	2.5E-01	1.7E-01	1.1E-01	5.2E-02
SSW	9.8E-01	3.7E-01	2.3E-01	1.5E-01	1.0E-01	5.0E-02
S	0.0E+00	5.5E-01	3.3E-01	2.2E-01	1.4E-01	7.0E-02
SSE	8.1E-01	3.2E-01	2.0E-01	1.3E-01	9.0E-02	4.8E-02
SE	7.1E-01	2.9E-01	1.8E-01	1.2E-01	8.2E-02	4.6E-02
ESE	7.5E-01	3.0E-01	1.9E-01	1.3E-01	8.7E-02	5.0E-02
E	9.5E-01	3.9E-01	2.4E-01	1.6E-01	1.1E-01	6.4E-02
ENE	7.7E-01	3.1E-01	1.9E-01	1.3E-01	9.1E-02	5.3E-02
NE	9.1E-01	3.7E-01	2.3E-01	1.5E-01	1.1E-01	6.0E-02
NNE	1.0E+00	4.2E-01	2.6E-01	1.7E-01	1.2E-01	6.5E-02

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	0.0E+00	1.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E+00
WSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E+00
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E+01	0.0E+00	1.9E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E+01	0.0E+00	8.9E-01
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-01
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.1E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.8E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E+00

	Distance (m)					
Direction	15000	25000	35000	45000	55000	70000
N	5.0E+00	1.9E+00	1.4E+00	1.0E+00	1.0E+00	5.3E+00
NNW	0.0E+00	1.3E+00	3.8E+00	4.7E-01	4.3E-01	4.5E-01
NW	4.1E+00	6.2E-01	6.0E-01	3.4E-01	7.3E-01	1.4E+00
WNW	8.0E-01	9.6E-01	2.7E-01	1.6E+00	2.3E-01	3.9E-01
W	9.5E-01	1.6E+00	2.8E-01	1.2E+01	2.4E+00	3.5E+00
WSW	6.4E+00	1.6E+00	0.0E+00	1.5E-01	1.4E+00	9.2E+00
SW	1.3E+00	1.4E-01	1.8E-01	6.4E-01	7.5E-01	8.7E-01
SSW	1.6E+00	6.1E-01	2.2E-01	1.3E+00	1.0E+00	6.0E-01
S	0.0E+00	1.5E+00	7.3E-01	4.8E-01	4.1E-01	1.0E+00
SSE	5.1E+00	1.2E+00	1.6E-01	1.5E+00	1.4E-01	2.2E+00
SE	4.0E+00	2.4E+00	1.1E+00	1.4E+00	2.8E-01	4.8E-01
ESE	4.1E+01	1.1E+01	3.4E+00	1.6E+00	1.9E+00	2.1E+00
E	8.0E+01	8.0E+01	2.4E+01	2.9E+00	8.3E-01	4.5E+00
ENE	3.9E+01	5.6E+01	9.1E+00	5.3E-01	9.0E-01	1.1E+00
NE	1.8E+01	1.3E+01	2.1E+00	1.1E+00	2.3E-01	1.1E+00
NNE	4.3E+00	1.1E+00	3.2E+00	2.4E+00	6.0E-01	1.2E+00

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	0.0E+00	2.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-07
WSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-07
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06	0.0E+00	5.3E-07
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-06	0.0E+00	4.5E-07
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-07
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-07
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-07
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-07
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-07
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-07
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-07

	Distance (m)					
Direction	15000	25000	35000	45000	55000	70000
N	3.0E-07	1.2E-07	7.1E-08	4.7E-08	3.1E-08	1.5E-08
NNW	0.0E+00	8.8E-08	5.3E-08	3.5E-08	2.3E-08	1.0E-08
NW	2.2E-07	7.9E-08	4.8E-08	3.1E-08	2.0E-08	9.5E-09
WNW	1.3E-07	4.7E-08	2.9E-08	1.9E-08	1.3E-08	6.4E-09
W	1.5E-07	5.6E-08	3.4E-08	2.3E-08	1.5E-08	7.1E-09
WSW	1.9E-07	6.9E-08	0.0E+00	2.7E-08	1.8E-08	8.3E-09
SW	1.9E-07	6.9E-08	4.1E-08	2.7E-08	1.8E-08	8.4E-09
SSW	1.6E-07	6.0E-08	3.7E-08	2.4E-08	1.6E-08	8.0E-09
S	0.0E+00	9.0E-08	5.4E-08	3.6E-08	2.3E-08	1.1E-08
SSE	1.3E-07	5.2E-08	3.2E-08	2.1E-08	1.4E-08	7.7E-09
SE	1.2E-07	4.7E-08	2.9E-08	1.9E-08	1.3E-08	7.4E-09
ESE	1.2E-07	4.9E-08	3.0E-08	2.0E-08	1.4E-08	8.0E-09
E	1.6E-07	6.4E-08	3.9E-08	2.6E-08	1.8E-08	1.0E-08
ENE	1.3E-07	5.1E-08	3.1E-08	2.1E-08	1.5E-08	8.4E-09
NE	1.5E-07	6.0E-08	3.7E-08	2.5E-08	1.7E-08	9.6E-09
NNE	1.7E-07	6.8E-08	4.2E-08	2.8E-08	1.9E-08	1.0E-08

COLLECTIVE FATAL CANCER RISK Per Year
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	0.0E+00	3.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-06
WSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-06
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-05	0.0E+00	3.9E-06
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-05	0.0E+00	1.9E-06
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-07
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-06
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-06
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05

	Distance (m)					
Direction	15000	25000	35000	45000	55000	70000
N	1.1E-05	4.0E-06	3.1E-06	2.1E-06	2.2E-06	1.1E-05
NNW	0.0E+00	2.7E-06	8.0E-06	1.0E-06	8.9E-07	9.4E-07
NW	8.6E-06	1.3E-06	1.3E-06	7.3E-07	1.5E-06	3.0E-06
WNW	1.7E-06	2.0E-06	5.7E-07	3.4E-06	4.9E-07	8.1E-07
W	2.0E-06	3.4E-06	5.9E-07	2.6E-05	5.0E-06	7.2E-06
WSW	1.4E-05	3.5E-06	0.0E+00	3.1E-07	2.9E-06	1.9E-05
SW	2.7E-06	2.9E-07	3.8E-07	1.3E-06	1.6E-06	1.8E-06
SSW	3.4E-06	1.3E-06	4.6E-07	2.8E-06	2.1E-06	1.2E-06
S	0.0E+00	3.3E-06	1.5E-06	1.0E-06	8.5E-07	2.2E-06
SSE	1.1E-05	2.5E-06	3.5E-07	3.1E-06	3.0E-07	4.5E-06
SE	8.4E-06	5.0E-06	2.4E-06	2.8E-06	5.8E-07	9.9E-07
ESE	8.8E-05	2.3E-05	7.1E-06	3.4E-06	4.0E-06	4.4E-06
E	1.7E-04	1.7E-04	5.1E-05	6.1E-06	1.7E-06	9.3E-06
ENE	8.3E-05	1.2E-04	1.9E-05	1.1E-06	1.9E-06	2.2E-06
NE	3.9E-05	2.7E-05	4.4E-06	2.2E-06	4.7E-07	2.3E-06
NNE	9.1E-06	2.3E-06	6.7E-06	5.0E-06	1.3E-06	2.4E-06

General

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

G E N E R A L D A T A

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\battelle.pop

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

Nuclide	Clearance Type	Particle Size (microns)	Scavenging Coefficient (per second)	Dry Deposition Velocity (m/s)
Pu-239	M	1.000	1.01E-05	1.80E-03

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

	DECAY CONSTANT (PER DAY)			TRANSFER COEFFICIENT	
Nuclide	Radio-active	Surface	Water	Milk (1)	Meat (2)
Pu-239	7.87E-08	5.48E-05	0.00E+00	1.00E-06	1.00E-04

FOOTNOTES:

(1) Fraction of animal's daily intake of nuclide which appears in each L of milk (days/L)

(2) Fraction of animal's daily intake of nuclide which appears in each kg of meat (days/kg)

RADIONUCLIDE-DEPENDENT PARAMETERS FOR RELEASED ISOTOPES

	CONCENTRATION UPTAKE FACTOR		GI UPTAKE FRACTION	
Nuclide	Forage (1)	Edible (2)	Inhalation	Ingestion
Pu-239	1.00E-01	1.00E-03	5.00E-04	5.00E-04

FOOTNOTES: (1) Concentration factor for uptake of nuclide from soil for pasture and forage (in pCi/kg dry weight per pCi/kg dry soil)

(2) Concentration factor for uptake of nuclide from soil by edible parts of crops (in pCi/kg wet weight per pCi/kg dry soil)

NUMBER OF BEEF CATTLE

	Distance (meters)						
Direction	250	750	1500	2500	3500	4500	7500
N	0	3	12	20	28	36	299
NNW	0	3	12	20	28	36	299
NW	0	3	12	20	28	36	299
WNW	0	3	12	20	28	36	299
W	0	3	12	20	28	36	299
WSW	0	3	12	20	28	36	299
SW	0	3	12	20	28	36	299
SSW	0	3	12	20	28	36	299
S	0	3	12	20	28	36	299
SSE	0	3	12	20	28	36	299
SE	0	3	12	20	28	36	299
ESE	0	3	12	20	28	36	299
E	0	3	12	20	28	36	299
ENE	0	3	12	20	28	36	299
NE	0	3	12	20	28	36	299
NNE	0	3	12	20	28	36	299

	Distance (meters)					
Direction	15000	25000	35000	45000	55000	70000
N	1196	1993	2790	3587	4384	11161
NNW	1196	1993	2790	3587	4384	11161
NW	1196	1993	2790	3587	4384	11161
WNW	1196	1993	2790	3587	4384	11161
W	1196	1993	2790	3587	4384	11161
WSW	1196	1993	2790	3587	4384	11161
SW	1196	1993	2790	3587	4384	11161
SSW	1196	1993	2790	3587	4384	11161
S	1196	1993	2790	3587	4384	11161
SSE	1196	1993	2790	3587	4384	11161
SE	1196	1993	2790	3587	4384	11161
ESE	1196	1993	2790	3587	4384	11161
E	1196	1993	2790	3587	4384	11161
ENE	1196	1993	2790	3587	4384	11161
NE	1196	1993	2790	3587	4384	11161
NNE	1196	1993	2790	3587	4384	11161

NUMBER OF MILK CATTLE

	Distance (meters)						
Direction	250	750	1500	2500	3500	4500	7500
N	0	1	3	4	6	8	67
NNW	0	1	3	4	6	8	67
NW	0	1	3	4	6	8	67
WNW	0	1	3	4	6	8	67
W	0	1	3	4	6	8	67
WSW	0	1	3	4	6	8	67
SW	0	1	3	4	6	8	67
SSW	0	1	3	4	6	8	67
S	0	1	3	4	6	8	67
SSE	0	1	3	4	6	8	67
SE	0	1	3	4	6	8	67
ESE	0	1	3	4	6	8	67
E	0	1	3	4	6	8	67
ENE	0	1	3	4	6	8	67
NE	0	1	3	4	6	8	67
NNE	0	1	3	4	6	8	67

	Distance (meters)					
Direction	15000	25000	35000	45000	55000	70000
N	269	448	627	806	985	2507
NNW	269	448	627	806	985	2507
NW	269	448	627	806	985	2507
WNW	269	448	627	806	985	2507
W	269	448	627	806	985	2507
WSW	269	448	627	806	985	2507
SW	269	448	627	806	985	2507
SSW	269	448	627	806	985	2507
S	269	448	627	806	985	2507
SSE	269	448	627	806	985	2507
SE	269	448	627	806	985	2507
ESE	269	448	627	806	985	2507
E	269	448	627	806	985	2507
ENE	269	448	627	806	985	2507
NE	269	448	627	806	985	2507
NNE	269	448	627	806	985	2507

AREA OF VEGETABLE CROP PRODUCTION (M**2)

	Distance (meters)						
Direction	250	750	1500	2500	3500	4500	7500
N	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
NNW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
NW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
WNW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
W	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
WSW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
SW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
SSW	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
S	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
SSE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
SE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
ESE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
E	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
ENE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
NE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05
NNE	0.0E+00	2.5E+03	1.0E+04	1.7E+04	2.3E+04	3.0E+04	2.5E+05

	Distance (meters)					
Direction	15000	25000	35000	45000	55000	70000
N	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
NNW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
NW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
WNW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
W	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
WSW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
SW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
SSW	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
S	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
SSE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
SE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
ESE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
E	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
ENE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
NE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06
NNE	1.0E+06	1.7E+06	2.3E+06	3.0E+06	3.7E+06	9.3E+06

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

HUMAN INHALATION RATE	
Cubic meters/yr	5.26E+03
SOIL PARAMETERS	
Effective surface density (kg/sq m, dry weight) (Assumes 15 cm plow layer)	2.15E+02
BUILDUP TIMES	
For activity in soil (years)	1.00E+02
For radionuclides deposited on ground/water (days)	3.65E+04
DELAY TIMES	
Ingestion of pasture grass by animals (hr)	0.00E+00
Ingestion of stored feed by animals (hr)	2.16E+03
Ingestion of leafy vegetables by man (hr)	3.36E+02
Ingestion of produce by man (hr)	3.36E+02
Transport time from animal feed-milk-man (day)	2.00E+00
Time from slaughter to consumption (day)	2.00E+01
WEATHERING	
Removal rate constant for physical loss (per hr)	2.90E-03
CROP EXPOSURE DURATION	
Pasture grass (hr)	7.20E+02
Crops/leafy vegetables (hr)	1.44E+03
AGRICULTURAL PRODUCTIVITY	
Grass-cow-milk-man pathway (kg/sq m)	2.80E-01
Produce/leafy veg for human consumption (kg/sq m)	7.16E-01
FALLOUT INTERCEPTION FRACTIONS	
Vegetables	2.00E-01
Pasture	5.70E-01
GRAZING PARAMETERS	
Fraction of year animals graze on pasture	4.00E-01
Fraction of daily feed that is pasture grass when animal grazes on pasture	4.30E-01

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

ANIMAL FEED CONSUMPTION FACTORS	
Contaminated feed/forage (kg/day, dry weight)	1.56E+01
DAIRY PRODUCTIVITY	
Milk production of cow (L/day)	1.10E+01
MEAT ANIMAL SLAUGHTER PARAMETERS	
Muscle mass of animal at slaughter (kg)	2.00E+02
Fraction of herd slaughtered (per day)	3.81E-03
DECONTAMINATION	
Fraction of radioactivity retained after washing for leafy vegetables and produce	5.00E-01
FRACTIONS GROWN IN GARDEN OF INTEREST	
Produce ingested	1.00E+00
Leafy vegetables ingested	1.00E+00
ENTERED INGESTION RATIOS:	
IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA	
Vegetables	8.00E-02
Meat	1.00E-02
Milk	0.00E+00
MINIMUM INGESTION FRACTIONS FROM OUTSIDE AREA (Actual fractions of food types from outside area can be greater than the minimum fractions listed below.)	
Vegetables	0.00E+00
Meat	0.00E+00
Milk	0.00E+00
HUMAN FOOD UTILIZATION FACTORS	
Produce ingestion (kg/y)	7.62E+01
Milk ingestion (L/y)	5.30E+01
Meat ingestion (kg/y)	8.40E+01
Leafy vegetable ingestion (kg/y)	7.79E+00
SWIMMING PARAMETERS	
Fraction of time spent swimming	0.00E+00
Dilution factor for water (cm)	1.00E+00

Factors

D O S E A N D R I S K C O N V E R S I O N F A C T O R S

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004
DOSE Age Group: Adult

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Pop File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\battelle.pop

DOSE AND RISK FACTOR UNITS

The units for each type of dose rate conversion factor are shown below, by pathway:

Pathway	Units
Ingestion	millirem/picocurie
Inhalation	millirem/picocurie
Immersion	millirem-cubic cm/microcurie-year
Surface	millirem-square cm/microcurie-year

Risks for internal exposures (inhalation and ingestion) are the lifetime risk of premature death in a birth cohort of 100,000 people for a 1 picocurie intake.

This is simplified to lifetime risk per 100,000 picocuries.

The units for each type of risk conversion factor are shown below, by pathway:

Pathway	Units
Ingestion	lifetime risk/100,000 picocuries
Inhalation	lifetime risk/100,000 picocuries
Immersion	lifetime risk-cubic cm/100,000 picocurie-yr
Surface	lifetime risk-square cm/100,000 picocurie-yr

****
* NUCLIDE Pu-239 :Particulate *
****

DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	5.369E-05	9.923E-03	2.516E+05	7.642E+01
UB_Wall	5.369E-05	9.923E-03	2.761E+05	1.003E+02
Bone_Sur	3.047E-02	5.639E+00	1.235E+06	7.386E+02
Brain	5.369E-05	9.923E-03	3.250E+05	6.722E+01
Breasts	5.369E-05	9.923E-03	9.495E+05	9.681E+02
St_Wall	5.813E-05	9.923E-03	2.901E+05	9.506E+01
SI_Wall	6.475E-05	9.923E-03	2.330E+05	6.571E+01
ULI_Wall	1.208E-04	9.938E-03	2.493E+05	7.048E+01
LLI_Wall	2.505E-04	9.964E-03	2.353E+05	6.990E+01
Kidneys	1.250E-04	2.320E-02	3.157E+05	1.305E+02
Liver	6.390E-03	1.183E+00	2.924E+05	9.064E+01
Muscle	5.369E-05	9.923E-03	5.312E+05	6.070E+02
Ovaries	3.992E-04	7.393E-02	2.179E+05	9.879E+01
Pancreas	5.369E-05	9.923E-03	2.260E+05	6.000E+01
R_Marrow	1.449E-03	2.686E-01	3.344E+05	1.503E+02
Skin	5.369E-05	9.923E-03	2.365E+06	4.707E+03
Spleen	5.369E-05	9.923E-03	2.878E+05	8.132E+01
Testes	4.066E-04	7.526E-02	6.093E+05	7.619E+02
Thymus	5.369E-05	9.923E-03	3.378E+05	1.212E+02
Thyroid	5.369E-05	9.923E-03	4.881E+05	2.225E+02
GB_Wall	5.369E-05	9.923E-03	2.423E+05	6.932E+01
Ht_Wall	5.369E-05	9.923E-03	2.808E+05	8.621E+01
Uterus	5.369E-05	9.923E-03	2.248E+05	6.489E+01
ET_Reg	5.369E-05	2.813E-02	2.307E+05	5.557E+01
Lung	5.369E-05	9.661E-02	3.367E+05	1.009E+02
Effectiv	9.280E-04	1.794E-01	4.392E+05	3.565E+02

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	4.810E-08	7.437E-06	2.656E-04	6.396E-08
Stomach	1.617E-07	1.850E-05	1.177E-03	3.833E-07
Colon	2.590E-06	4.033E-05	2.516E-03	7.246E-07
Liver	6.993E-06	1.103E-03	4.427E-04	1.375E-07
LUNG	3.693E-07	1.243E-03	3.297E-03	9.868E-07
Bone	1.802E-06	3.023E-04	1.177E-04	7.013E-08
Skin	3.689E-09	5.143E-07	2.365E-04	4.695E-07
Breast	7.770E-08	1.054E-05	4.590E-03	4.672E-06
Ovary	3.685E-07	6.364E-05	3.099E-04	1.410E-07
Bladder	1.151E-07	1.735E-05	6.675E-04	2.423E-07
Kidneys	6.401E-08	9.731E-06	1.643E-04	6.792E-08
Thyroid	1.103E-08	1.480E-06	1.549E-04	7.083E-08
Leukemia	3.500E-07	5.550E-05	1.876E-03	8.435E-07
Residual	4.921E-07	6.438E-05	5.009E-03	3.693E-06

Total	1.343E-05	2.938E-03	2.085E-02	1.258E-05

****
* NUCLIDE U-235m :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.109E-15	1.722E-14	0.000E+00	0.000E+00
UB_Wall	7.511E-14	1.170E-12	0.000E+00	0.000E+00
Bone_Sur	1.293E-14	1.993E-13	0.000E+00	0.000E+00
Brain	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Breasts	1.109E-15	1.722E-14	0.000E+00	0.000E+00
St_Wall	1.256E-10	1.317E-11	0.000E+00	0.000E+00
SI_Wall	4.233E-11	4.447E-12	0.000E+00	0.000E+00
ULI_Wall	1.149E-11	1.225E-12	0.000E+00	0.000E+00
LLI_Wall	8.566E-13	1.072E-13	0.000E+00	0.000E+00
Kidneys	1.526E-14	2.370E-13	0.000E+00	0.000E+00
Liver	1.181E-15	1.812E-14	0.000E+00	0.000E+00
Muscle	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Ovaries	1.109E-15	1.721E-14	0.000E+00	0.000E+00
Pancreas	1.109E-15	1.722E-14	0.000E+00	0.000E+00
R_Marrow	2.147E-15	3.323E-14	0.000E+00	0.000E+00
Skin	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Spleen	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Testes	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Thymus	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Thyroid	1.109E-15	1.722E-14	0.000E+00	0.000E+00
GB_Wall	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Ht_Wall	1.109E-15	1.722E-14	0.000E+00	0.000E+00
Uterus	1.109E-15	1.722E-14	0.000E+00	0.000E+00
ET_Reg	1.109E-15	1.833E-14	0.000E+00	0.000E+00
Lung	1.109E-15	3.401E-12	0.000E+00	0.000E+00
Effectiv	1.595E-11	2.155E-12	0.000E+00	0.000E+00

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	1.683E-18	2.753E-17	0.000E+00	0.000E+00
Stomach	7.437E-13	9.398E-14	0.000E+00	0.000E+00
Colon	1.288E-13	1.672E-14	0.000E+00	0.000E+00
Liver	2.424E-18	3.811E-17	0.000E+00	0.000E+00
LUNG	1.706E-17	4.144E-14	0.000E+00	0.000E+00
Bone	2.220E-18	3.467E-17	0.000E+00	0.000E+00
Skin	1.709E-19	2.594E-18	0.000E+00	0.000E+00
Breast	8.251E-18	1.299E-16	0.000E+00	0.000E+00
Ovary	1.957E-18	3.341E-17	0.000E+00	0.000E+00
Bladder	2.039E-16	3.367E-15	0.000E+00	0.000E+00
Kidneys	9.509E-18	1.521E-16	0.000E+00	0.000E+00
Thyroid	5.735E-19	8.695E-18	0.000E+00	0.000E+00
Leukemia	1.732E-17	2.723E-16	0.000E+00	0.000E+00
Residual	2.638E-17	3.959E-16	0.000E+00	0.000E+00

Total	8.732E-13	1.565E-13	0.000E+00	0.000E+00

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* NUCLIDE U-235 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	9.498E-05	4.588E-04	6.582E+08	1.514E+05
UB_Wall	9.531E-05	4.581E-04	6.850E+08	1.608E+05
Bone_Sur	2.740E-03	1.325E-02	2.260E+09	3.868E+05
Brain	9.479E-05	4.570E-04	8.504E+08	1.561E+05
Breasts	9.465E-05	4.577E-04	1.002E+09	1.864E+05
St_Wall	9.894E-05	4.581E-04	7.235E+08	1.619E+05
SI_Wall	1.055E-04	4.588E-04	6.268E+08	1.514E+05
ULI_Wall	1.587E-04	4.695E-04	6.606E+08	1.573E+05
LLI_Wall	2.892E-04	4.958E-04	6.326E+08	1.573E+05
Kidneys	9.823E-04	4.758E-03	7.363E+08	1.608E+05
Liver	3.685E-04	1.785E-03	7.398E+08	1.619E+05
Muscle	9.483E-05	4.573E-04	8.155E+08	1.852E+05
Ovaries	9.561E-05	4.570E-04	6.093E+08	1.526E+05
Pancreas	9.491E-05	4.581E-04	6.233E+08	1.468E+05
R_Marrow	2.806E-04	1.357E-03	7.607E+08	1.678E+05
Skin	9.468E-05	4.566E-04	1.066E+09	2.400E+05
Spleen	9.483E-05	4.577E-04	7.398E+08	1.631E+05
Testes	9.472E-05	4.562E-04	8.714E+08	1.887E+05
Thymus	9.472E-05	4.584E-04	7.899E+08	1.549E+05
Thyroid	9.476E-05	4.573E-04	8.714E+08	1.713E+05
GB_Wall	9.502E-05	4.573E-04	6.408E+08	1.491E+05
Ht_Wall	9.476E-05	4.595E-04	7.153E+08	1.561E+05
Uterus	9.513E-05	4.570E-04	6.140E+08	1.526E+05
ET_Reg	9.476E-05	1.635E-02	6.349E+08	1.386E+05
Lung	9.479E-05	6.819E-02	8.341E+08	1.713E+05
Effectiv	1.728E-04	8.895E-03	8.004E+08	1.736E+05

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	7.400E-08	3.275E-07	7.305E-01	1.596E-04
Stomach	2.128E-07	7.659E-07	2.924E+00	6.536E-04
Colon	2.620E-06	2.057E-06	6.699E+00	1.619E-03
Liver	5.143E-07	2.205E-06	1.121E+00	2.458E-04
LUNG	5.217E-07	9.361E-04	8.155E+00	1.678E-03
Bone	3.234E-07	1.417E-06	2.144E-01	3.670E-05
Skin	5.328E-09	2.183E-08	1.064E-01	2.400E-05
Breast	1.032E-07	4.366E-07	4.835E+00	9.005E-04
Ovary	8.621E-08	3.922E-07	8.668E-01	2.167E-04
Bladder	1.817E-07	7.696E-07	1.654E+00	3.891E-04
Kidneys	5.883E-07	2.535E-06	3.833E-01	8.365E-05
Thyroid	1.502E-08	6.142E-08	2.773E-01	5.452E-05
Leukemia	1.032E-07	4.514E-07	4.276E+00	9.413E-04
Residual	6.734E-07	2.657E-06	1.040E+01	2.400E-03

Total	6.031E-06	9.509E-04	4.264E+01	9.402E-03

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* NUCLIDE Th-231 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	1.817E-09	2.611E-09	3.728E+07	1.012E+04
UB_Wall	1.059E-08	2.168E-09	4.112E+07	1.223E+04
Bone_Sur	2.140E-08	2.087E-07	1.922E+08	5.476E+04
Brain	6.586E-11	7.763E-10	4.916E+07	1.018E+04
Breasts	2.240E-10	2.485E-09	7.875E+07	3.017E+04
St_Wall	7.163E-07	1.151E-07	4.345E+07	1.200E+04
SI_Wall	1.618E-06	2.574E-07	3.483E+07	9.961E+03
ULI_Wall	7.097E-06	1.128E-06	3.751E+07	1.064E+04
LLI_Wall	1.250E-05	1.985E-06	3.507E+07	1.033E+04
Kidneys	5.091E-09	4.318E-09	4.602E+07	1.328E+04
Liver	3.653E-09	8.366E-09	4.427E+07	1.200E+04
Muscle	4.969E-09	3.454E-09	5.557E+07	2.283E+04
Ovaries	6.579E-08	1.222E-08	3.239E+07	1.039E+04
Pancreas	5.639E-09	2.580E-09	3.355E+07	9.355E+03
R_Marrow	6.782E-09	1.019E-08	4.369E+07	1.247E+04
Skin	1.069E-09	1.035E-09	2.901E+08	9.297E+04
Spleen	3.584E-09	2.498E-09	4.404E+07	1.188E+04
Testes	2.112E-09	2.111E-09	6.291E+07	2.680E+04
Thymus	1.612E-10	2.955E-09	4.963E+07	1.305E+04
Thyroid	7.337E-11	1.267E-09	5.872E+07	1.619E+04
GB_Wall	1.655E-08	3.518E-09	3.623E+07	1.021E+04
Ht_Wall	7.448E-10	5.025E-09	4.171E+07	1.125E+04
Uterus	1.800E-08	3.330E-09	3.355E+07	9.856E+03
ET_Reg	7.337E-11	3.152E-06	3.355E+07	8.516E+03
Lung	4.636E-10	5.809E-06	5.138E+07	1.305E+04
Effectiv	1.235E-06	8.976E-07	5.394E+07	1.771E+04

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	2.982E-13	4.366E-12	3.856E-02	9.798E-06
Stomach	4.255E-09	8.251E-10	1.759E-01	4.846E-05
Colon	1.739E-07	3.356E-08	3.763E-01	1.085E-04
Liver	9.139E-12	1.017E-11	6.710E-02	1.817E-05
LUNG	9.768E-12	8.362E-08	5.021E-01	1.282E-04
Bone	2.227E-12	1.040E-11	1.829E-02	5.196E-06
Skin	1.665E-13	1.018E-13	2.889E-02	9.273E-06
Breast	2.575E-12	1.476E-11	3.810E-01	1.456E-04
Ovary	1.284E-10	2.819E-11	4.602E-02	1.480E-05
Bladder	3.667E-11	7.844E-12	9.949E-02	2.959E-05
Kidneys	3.570E-12	1.935E-12	2.388E-02	6.908E-06
Thyroid	5.217E-14	4.181E-13	1.864E-02	5.161E-06
Leukemia	4.810E-11	1.942E-11	2.447E-01	7.002E-05
Residual	1.040E-10	6.105E-11	6.268E-01	2.097E-04

Total	1.787E-07	1.180E-07	2.645E+00	8.085E-04

Sun Oct 27 16:04:03 2019 FACTOR

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* NUCLIDE Pa-231 :Particulate *
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DOSE RATE CONVERSION FACTORS FOR: Adult

Organ	Ingestion	Inhalation	Air Immersion	Ground Surface
Adrenals	2.074E-04	3.844E-02	1.410E+08	3.215E+04
UB_Wall	2.076E-04	3.848E-02	1.445E+08	3.507E+04
Bone_Sur	9.291E-02	1.726E+01	4.008E+08	7.957E+04
Brain	2.073E-04	3.844E-02	1.806E+08	3.344E+04
Breasts	2.071E-04	3.841E-02	2.144E+08	5.044E+04
St_Wall	2.117E-04	3.841E-02	1.526E+08	3.472E+04
SI_Wall	2.187E-04	3.844E-02	1.328E+08	3.227E+04
ULI_Wall	3.087E-04	4.462E-02	1.398E+08	3.344E+04
LLI_Wall	5.010E-04	5.598E-02	1.351E+08	3.344E+04
Kidneys	1.260E-03	2.346E-01	1.549E+08	3.565E+04
Liver	2.425E-03	4.521E-01	1.549E+08	3.472E+04
Muscle	2.072E-04	3.844E-02	1.736E+08	4.602E+04
Ovaries	7.966E-04	1.480E-01	1.270E+08	3.437E+04
Pancreas	2.073E-04	3.844E-02	1.328E+08	3.076E+04
R_Marrow	3.427E-03	6.394E-01	1.631E+08	3.705E+04
Skin	2.071E-04	3.841E-02	2.808E+08	1.026E+05
Spleen	2.080E-04	3.855E-02	1.561E+08	3.483E+04
Testes	8.081E-04	1.501E-01	1.841E+08	4.893E+04
Thymus	2.072E-04	3.841E-02	1.643E+08	3.518E+04
Thyroid	2.072E-04	3.841E-02	1.829E+08	3.984E+04
GB_Wall	2.073E-04	3.844E-02	1.363E+08	3.157E+04
Ht_Wall	2.072E-04	3.841E-02	1.503E+08	3.355E+04
Uterus	2.073E-04	3.844E-02	1.305E+08	3.239E+04
ET_Reg	2.072E-04	5.754E-02	1.363E+08	2.947E+04
Lung	2.072E-04	1.229E-01	1.736E+08	3.705E+04
Effectiv	1.773E-03	3.373E-01	1.689E+08	4.043E+04

RISK CONVERSION FACTORS FOR: Lifetime

Cancer	Ingestion	Inhalation	Air Immersion	Ground Surface
Esophagu	1.469E-07	2.283E-05	1.573E-01	3.390E-05
Stomach	3.297E-07	4.218E-05	6.163E-01	1.398E-04
Colon	2.997E-06	9.287E-05	1.421E+00	3.448E-04
Liver	2.527E-06	3.885E-04	2.353E-01	5.266E-05
LUNG	9.546E-07	1.299E-03	1.701E+00	3.623E-04
Bone	5.254E-06	8.695E-04	3.810E-02	7.561E-06
Skin	9.287E-09	1.339E-06	2.796E-02	1.024E-05
Breast	1.661E-07	2.375E-05	1.036E+00	2.435E-04
Ovary	7.326E-07	1.225E-04	1.806E-01	4.893E-05
Bladder	3.737E-07	5.624E-05	3.495E-01	8.481E-05
Kidneys	5.069E-07	7.807E-05	8.062E-02	1.852E-05
Thyroid	2.546E-08	3.633E-06	5.825E-02	1.270E-05
Leukemia	8.140E-07	1.288E-04	9.157E-01	2.074E-04
Residual	1.032E-06	1.395E-04	2.225E+00	5.406E-04

Total	1.587E-05	3.271E-03	9.029E+00	2.109E-03

Concentrations

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

C O N C E N T R A T I O N T A B L E S

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Population File: C:\Users\rwood\OneDrive\Documents\CAP88\Population Files\battelle.pop

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
N	250	Pu-239	3.53E-01	6.35E-08	1.78E-08	8.13E-08
N	250	U-235m	1.47E-02	2.65E-09	1.24E-09	3.89E-09
N	250	U-235	2.43E-17	4.37E-24	3.91E-24	8.28E-24
N	250	Th-231	6.96E-21	1.25E-27	2.17E-27	3.42E-27
N	250	Pa-231	3.85E-32	0.00E+00	0.00E+00	8.76E-38
N	750	Pu-239	1.61E-01	2.90E-08	5.83E-09	3.48E-08
N	750	U-235m	3.27E-02	5.89E-09	1.12E-09	7.01E-09
N	750	U-235	3.29E-16	5.92E-23	1.07E-23	6.99E-23
N	750	Th-231	5.71E-19	1.03E-25	1.80E-26	1.21E-25
N	750	Pa-231	6.83E-29	1.23E-35	0.00E+00	1.44E-35
N	1500	Pu-239	6.69E-02	1.20E-08	2.83E-09	1.49E-08
N	1500	U-235m	2.58E-02	4.65E-09	9.60E-10	5.61E-09
N	1500	U-235	5.68E-16	1.02E-22	1.87E-23	1.21E-22
N	1500	Th-231	2.06E-18	3.71E-25	6.35E-26	4.35E-25
N	1500	Pa-231	5.05E-28	9.09E-35	0.00E+00	1.06E-34
N	2500	Pu-239	3.07E-02	5.52E-09	1.64E-09	7.16E-09
N	2500	U-235m	1.70E-02	3.06E-09	7.97E-10	3.86E-09
N	2500	U-235	6.61E-16	1.19E-22	2.65E-23	1.45E-22
N	2500	Th-231	4.11E-18	7.40E-25	1.52E-25	8.93E-25
N	2500	Pa-231	1.71E-27	3.08E-34	0.00E+00	3.69E-34
N	3500	Pu-239	1.82E-02	3.27E-09	1.14E-09	4.41E-09
N	3500	U-235m	1.22E-02	2.19E-09	6.72E-10	2.86E-09
N	3500	U-235	6.93E-16	1.25E-22	3.20E-23	1.57E-22
N	3500	Th-231	6.17E-18	1.11E-24	2.60E-25	1.37E-24
N	3500	Pa-231	3.65E-27	6.58E-34	0.00E+00	8.05E-34
N	4500	Pu-239	1.24E-02	2.23E-09	8.59E-10	3.09E-09
N	4500	U-235m	9.31E-03	1.68E-09	5.76E-10	2.25E-09
N	4500	U-235	7.07E-16	1.27E-22	3.58E-23	1.63E-22
N	4500	Th-231	8.26E-18	1.49E-24	3.78E-25	1.86E-24
N	4500	Pa-231	6.37E-27	1.15E-33	0.00E+00	1.43E-33
N	7500	Pu-239	5.53E-03	9.95E-10	4.79E-10	1.47E-09
N	7500	U-235m	4.85E-03	8.73E-10	3.89E-10	1.26E-09
N	7500	U-235	6.65E-16	1.20E-22	4.16E-23	1.61E-22
N	7500	Th-231	1.35E-17	2.43E-24	7.43E-25	3.17E-24
N	7500	Pa-231	1.80E-26	3.24E-33	0.00E+00	4.17E-33
N	15000	Pu-239	1.94E-03	3.50E-10	2.13E-10	5.63E-10
N	15000	U-235m	1.88E-03	3.39E-10	2.01E-10	5.40E-10
N	15000	U-235	5.73E-16	1.03E-22	4.50E-23	1.48E-22
N	15000	Th-231	2.45E-17	4.41E-24	1.62E-24	6.03E-24
N	15000	Pa-231	6.90E-26	1.24E-32	0.00E+00	1.66E-32
N	25000	Pu-239	7.44E-04	1.34E-10	1.04E-10	2.38E-10
N	25000	U-235m	7.37E-04	1.33E-10	1.03E-10	2.36E-10
N	25000	U-235	3.77E-16	6.78E-23	3.70E-23	1.05E-22
N	25000	Th-231	2.67E-17	4.80E-24	2.06E-24	6.87E-24
N	25000	Pa-231	1.29E-25	2.32E-32	0.00E+00	3.19E-32
N	35000	Pu-239	4.46E-04	8.03E-11	6.89E-11	1.49E-10
N	35000	U-235m	4.45E-04	8.02E-11	6.86E-11	1.49E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
N	35000	U-235	3.27E-16	5.89E-23	3.52E-23	9.41E-23
N	35000	Th-231	3.23E-17	5.81E-24	2.69E-24	8.50E-24
N	35000	Pa-231	2.23E-25	4.02E-32	0.00E+00	5.60E-32
N	45000	Pu-239	2.91E-04	5.23E-11	4.91E-11	1.01E-10
N	45000	U-235m	2.91E-04	5.23E-11	4.91E-11	1.01E-10
N	45000	U-235	2.76E-16	4.98E-23	3.24E-23	8.21E-23
N	45000	Th-231	3.44E-17	6.20E-24	3.08E-24	9.28E-24
N	45000	Pa-231	3.10E-25	5.57E-32	0.00E+00	7.89E-32
N	55000	Pu-239	1.89E-04	3.41E-11	3.61E-11	7.01E-11
N	55000	U-235m	1.89E-04	3.40E-11	3.60E-11	7.01E-11
N	55000	U-235	2.15E-16	3.87E-23	2.84E-23	6.71E-23
N	55000	Th-231	3.17E-17	5.71E-24	3.13E-24	8.84E-24
N	55000	Pa-231	3.50E-25	6.29E-32	0.00E+00	9.09E-32
N	70000	Pu-239	8.82E-05	1.59E-11	2.32E-11	3.90E-11
N	70000	U-235m	8.81E-05	1.59E-11	2.31E-11	3.90E-11
N	70000	U-235	1.10E-16	1.97E-23	2.10E-23	4.07E-23
N	70000	Th-231	1.82E-17	3.27E-24	2.51E-24	5.78E-24
N	70000	Pa-231	2.44E-25	4.39E-32	0.00E+00	6.86E-32
NNW	250	Pu-239	2.01E-01	3.61E-08	1.35E-08	4.96E-08
NNW	250	U-235m	9.95E-03	1.79E-09	1.18E-09	2.97E-09
NNW	250	U-235	1.95E-17	3.52E-24	4.45E-24	7.97E-24
NNW	250	Th-231	6.61E-21	1.19E-27	2.88E-27	4.07E-27
NNW	250	Pa-231	3.15E-32	0.00E+00	0.00E+00	1.29E-37
NNW	750	Pu-239	1.18E-01	2.12E-08	4.41E-09	2.56E-08
NNW	750	U-235m	2.88E-02	5.19E-09	1.04E-09	6.23E-09
NNW	750	U-235	3.46E-16	6.23E-23	1.21E-23	7.44E-23
NNW	750	Th-231	6.95E-19	1.25E-25	2.37E-26	1.49E-25
NNW	750	Pa-231	9.48E-29	1.71E-35	0.00E+00	2.03E-35
NNW	1500	Pu-239	5.32E-02	9.57E-09	2.12E-09	1.17E-08
NNW	1500	U-235m	2.40E-02	4.31E-09	8.66E-10	5.18E-09
NNW	1500	U-235	6.29E-16	1.13E-22	2.07E-23	1.34E-22
NNW	1500	Th-231	2.63E-18	4.74E-25	8.27E-26	5.57E-25
NNW	1500	Pa-231	7.36E-28	1.32E-34	0.00E+00	1.55E-34
NNW	2500	Pu-239	2.48E-02	4.47E-09	1.22E-09	5.69E-09
NNW	2500	U-235m	1.56E-02	2.81E-09	6.95E-10	3.51E-09
NNW	2500	U-235	7.29E-16	1.31E-22	2.88E-23	1.60E-22
NNW	2500	Th-231	5.25E-18	9.46E-25	1.95E-25	1.14E-24
NNW	2500	Pa-231	2.50E-27	4.50E-34	0.00E+00	5.40E-34
NNW	3500	Pu-239	1.48E-02	2.66E-09	8.40E-10	3.50E-09
NNW	3500	U-235m	1.10E-02	1.98E-09	5.69E-10	2.54E-09
NNW	3500	U-235	7.55E-16	1.36E-22	3.40E-23	1.70E-22
NNW	3500	Th-231	7.81E-18	1.41E-24	3.28E-25	1.73E-24
NNW	3500	Pa-231	5.30E-27	9.53E-34	0.00E+00	1.17E-33
NNW	4500	Pu-239	1.01E-02	1.81E-09	6.30E-10	2.44E-09
NNW	4500	U-235m	8.23E-03	1.48E-09	4.74E-10	1.96E-09
NNW	4500	U-235	7.61E-16	1.37E-22	3.74E-23	1.74E-22
NNW	4500	Th-231	1.03E-17	1.86E-24	4.70E-25	2.33E-24

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNW	4500	Pa-231	9.15E-27	1.65E-33	0.00E+00	2.05E-33
NNW	7500	Pu-239	4.43E-03	7.98E-10	3.43E-10	1.14E-09
NNW	7500	U-235m	4.10E-03	7.37E-10	3.01E-10	1.04E-09
NNW	7500	U-235	6.92E-16	1.25E-22	4.15E-23	1.66E-22
NNW	7500	Th-231	1.64E-17	2.95E-24	8.90E-25	3.84E-24
NNW	7500	Pa-231	2.51E-26	4.53E-33	0.00E+00	5.82E-33
NNW	15000	Pu-239	1.54E-03	2.77E-10	1.48E-10	4.26E-10
NNW	15000	U-235m	1.52E-03	2.73E-10	1.44E-10	4.17E-10
NNW	15000	U-235	5.72E-16	1.03E-22	4.21E-23	1.45E-22
NNW	15000	Th-231	2.86E-17	5.14E-24	1.84E-24	6.98E-24
NNW	15000	Pa-231	9.26E-26	1.67E-32	0.00E+00	2.22E-32
NNW	25000	Pu-239	5.56E-04	1.00E-10	6.82E-11	1.68E-10
NNW	25000	U-235m	5.54E-04	9.97E-11	6.78E-11	1.67E-10
NNW	25000	U-235	3.52E-16	6.33E-23	3.17E-23	9.50E-23
NNW	25000	Th-231	2.91E-17	5.25E-24	2.17E-24	7.42E-24
NNW	25000	Pa-231	1.63E-25	2.93E-32	0.00E+00	4.01E-32
NNW	35000	Pu-239	3.33E-04	5.99E-11	4.43E-11	1.04E-10
NNW	35000	U-235m	3.32E-04	5.98E-11	4.42E-11	1.04E-10
NNW	35000	U-235	3.02E-16	5.44E-23	2.95E-23	8.39E-23
NNW	35000	Th-231	3.48E-17	6.26E-24	2.76E-24	9.03E-24
NNW	35000	Pa-231	2.78E-25	5.00E-32	0.00E+00	6.95E-32
NNW	45000	Pu-239	2.14E-04	3.86E-11	3.10E-11	6.96E-11
NNW	45000	U-235m	2.14E-04	3.85E-11	3.10E-11	6.95E-11
NNW	45000	U-235	2.52E-16	4.53E-23	2.65E-23	7.18E-23
NNW	45000	Th-231	3.65E-17	6.57E-24	3.09E-24	9.66E-24
NNW	45000	Pa-231	3.80E-25	6.84E-32	0.00E+00	9.63E-32
NNW	55000	Pu-239	1.35E-04	2.43E-11	2.21E-11	4.64E-11
NNW	55000	U-235m	1.35E-04	2.43E-11	2.21E-11	4.64E-11
NNW	55000	U-235	1.90E-16	3.42E-23	2.24E-23	5.66E-23
NNW	55000	Th-231	3.27E-17	5.88E-24	3.02E-24	8.91E-24
NNW	55000	Pa-231	4.18E-25	7.52E-32	0.00E+00	1.08E-31
NNW	70000	Pu-239	5.61E-05	1.01E-11	1.33E-11	2.34E-11
NNW	70000	U-235m	5.60E-05	1.01E-11	1.33E-11	2.33E-11
NNW	70000	U-235	8.63E-17	1.55E-23	1.51E-23	3.06E-23
NNW	70000	Th-231	1.68E-17	3.03E-24	2.19E-24	5.22E-24
NNW	70000	Pa-231	2.64E-25	4.76E-32	0.00E+00	7.38E-32
NW	250	Pu-239	2.03E-01	3.66E-08	1.27E-08	4.93E-08
NW	250	U-235m	1.07E-02	1.93E-09	1.11E-09	3.03E-09
NW	250	U-235	2.19E-17	3.94E-24	4.20E-24	8.13E-24
NW	250	Th-231	7.49E-21	1.35E-27	2.74E-27	4.09E-27
NW	250	Pa-231	2.57E-32	0.00E+00	0.00E+00	1.23E-37
NW	750	Pu-239	1.07E-01	1.92E-08	4.15E-09	2.34E-08
NW	750	U-235m	2.62E-02	4.72E-09	9.83E-10	5.70E-09
NW	750	U-235	3.16E-16	5.70E-23	1.14E-23	6.84E-23
NW	750	Th-231	6.43E-19	1.16E-25	2.26E-26	1.38E-25
NW	750	Pa-231	8.92E-29	1.61E-35	0.00E+00	1.91E-35
NW	1500	Pu-239	4.79E-02	8.61E-09	2.00E-09	1.06E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NW	1500	U-235m	2.17E-02	3.91E-09	8.17E-10	4.73E-09
NW	1500	U-235	5.77E-16	1.04E-22	1.95E-23	1.23E-22
NW	1500	Th-231	2.46E-18	4.43E-25	7.86E-26	5.21E-25
NW	1500	Pa-231	7.01E-28	1.26E-34	0.00E+00	1.48E-34
NW	2500	Pu-239	2.23E-02	4.02E-09	1.15E-09	5.17E-09
NW	2500	U-235m	1.41E-02	2.55E-09	6.57E-10	3.20E-09
NW	2500	U-235	6.70E-16	1.21E-22	2.72E-23	1.48E-22
NW	2500	Th-231	4.91E-18	8.84E-25	1.85E-25	1.07E-24
NW	2500	Pa-231	2.38E-27	4.29E-34	0.00E+00	5.15E-34
NW	3500	Pu-239	1.33E-02	2.39E-09	7.93E-10	3.18E-09
NW	3500	U-235m	9.92E-03	1.79E-09	5.39E-10	2.32E-09
NW	3500	U-235	6.93E-16	1.25E-22	3.21E-23	1.57E-22
NW	3500	Th-231	7.30E-18	1.31E-24	3.12E-25	1.62E-24
NW	3500	Pa-231	5.05E-27	9.08E-34	0.00E+00	1.11E-33
NW	4500	Pu-239	9.04E-03	1.63E-09	5.95E-10	2.22E-09
NW	4500	U-235m	7.43E-03	1.34E-09	4.50E-10	1.79E-09
NW	4500	U-235	6.97E-16	1.25E-22	3.53E-23	1.61E-22
NW	4500	Th-231	9.64E-18	1.73E-24	4.46E-25	2.18E-24
NW	4500	Pa-231	8.71E-27	1.57E-33	0.00E+00	1.95E-33
NW	7500	Pu-239	3.98E-03	7.16E-10	3.26E-10	1.04E-09
NW	7500	U-235m	3.69E-03	6.64E-10	2.87E-10	9.51E-10
NW	7500	U-235	6.32E-16	1.14E-22	3.94E-23	1.53E-22
NW	7500	Th-231	1.53E-17	2.75E-24	8.46E-25	3.59E-24
NW	7500	Pa-231	2.39E-26	4.29E-33	0.00E+00	5.54E-33
NW	15000	Pu-239	1.38E-03	2.49E-10	1.41E-10	3.90E-10
NW	15000	U-235m	1.36E-03	2.45E-10	1.38E-10	3.83E-10
NW	15000	U-235	5.22E-16	9.39E-23	4.03E-23	1.34E-22
NW	15000	Th-231	2.65E-17	4.77E-24	1.76E-24	6.52E-24
NW	15000	Pa-231	8.77E-26	1.58E-32	0.00E+00	2.11E-32
NW	25000	Pu-239	4.99E-04	8.98E-11	6.58E-11	1.56E-10
NW	25000	U-235m	4.97E-04	8.95E-11	6.55E-11	1.55E-10
NW	25000	U-235	3.20E-16	5.77E-23	3.09E-23	8.86E-23
NW	25000	Th-231	2.69E-17	4.85E-24	2.10E-24	6.94E-24
NW	25000	Pa-231	1.53E-25	2.76E-32	0.00E+00	3.80E-32
NW	35000	Pu-239	2.99E-04	5.37E-11	4.28E-11	9.65E-11
NW	35000	U-235m	2.98E-04	5.37E-11	4.27E-11	9.64E-11
NW	35000	U-235	2.76E-16	4.97E-23	2.88E-23	7.86E-23
NW	35000	Th-231	3.22E-17	5.80E-24	2.69E-24	8.49E-24
NW	35000	Pa-231	2.62E-25	4.72E-32	0.00E+00	6.60E-32
NW	45000	Pu-239	1.93E-04	3.47E-11	3.00E-11	6.47E-11
NW	45000	U-235m	1.92E-04	3.46E-11	3.00E-11	6.46E-11
NW	45000	U-235	2.30E-16	4.15E-23	2.60E-23	6.75E-23
NW	45000	Th-231	3.39E-17	6.10E-24	3.02E-24	9.12E-24
NW	45000	Pa-231	3.59E-25	6.46E-32	0.00E+00	9.18E-32
NW	55000	Pu-239	1.22E-04	2.19E-11	2.15E-11	4.34E-11
NW	55000	U-235m	1.22E-04	2.19E-11	2.14E-11	4.33E-11
NW	55000	U-235	1.74E-16	3.14E-23	2.21E-23	5.35E-23

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NW	55000	Th-231	3.03E-17	5.46E-24	2.98E-24	8.45E-24
NW	55000	Pa-231	3.95E-25	7.10E-32	0.00E+00	1.03E-31
NW	70000	Pu-239	5.08E-05	9.14E-12	1.30E-11	2.22E-11
NW	70000	U-235m	5.07E-05	9.13E-12	1.30E-11	2.21E-11
NW	70000	U-235	7.95E-17	1.43E-23	1.53E-23	2.96E-23
NW	70000	Th-231	1.56E-17	2.81E-24	2.24E-24	5.05E-24
NW	70000	Pa-231	2.49E-25	4.47E-32	0.00E+00	7.11E-32
WNW	250	Pu-239	1.42E-01	2.56E-08	7.98E-09	3.35E-08
WNW	250	U-235m	7.33E-03	1.32E-09	6.63E-10	1.98E-09
WNW	250	U-235	1.46E-17	2.64E-24	2.41E-24	5.05E-24
WNW	250	Th-231	4.89E-21	8.80E-28	1.53E-27	2.41E-27
WNW	250	Pa-231	1.49E-32	0.00E+00	0.00E+00	6.68E-38
WNW	750	Pu-239	6.51E-02	1.17E-08	2.62E-09	1.43E-08
WNW	750	U-235m	1.54E-02	2.77E-09	5.92E-10	3.36E-09
WNW	750	U-235	1.80E-16	3.24E-23	6.57E-24	3.90E-23
WNW	750	Th-231	3.59E-19	6.46E-26	1.26E-26	7.72E-26
WNW	750	Pa-231	4.90E-29	8.82E-36	0.00E+00	1.05E-35
WNW	1500	Pu-239	2.84E-02	5.11E-09	1.26E-09	6.38E-09
WNW	1500	U-235m	1.26E-02	2.26E-09	4.96E-10	2.76E-09
WNW	1500	U-235	3.25E-16	5.85E-23	1.13E-23	6.98E-23
WNW	1500	Th-231	1.36E-18	2.45E-25	4.41E-26	2.89E-25
WNW	1500	Pa-231	3.82E-28	6.88E-35	0.00E+00	8.07E-35
WNW	2500	Pu-239	1.32E-02	2.37E-09	7.32E-10	3.10E-09
WNW	2500	U-235m	8.17E-03	1.47E-09	4.02E-10	1.87E-09
WNW	2500	U-235	3.76E-16	6.78E-23	1.58E-23	8.36E-23
WNW	2500	Th-231	2.71E-18	4.88E-25	1.04E-25	5.93E-25
WNW	2500	Pa-231	1.30E-27	2.34E-34	0.00E+00	2.81E-34
WNW	3500	Pu-239	7.80E-03	1.40E-09	5.05E-10	1.91E-09
WNW	3500	U-235m	5.74E-03	1.03E-09	3.33E-10	1.37E-09
WNW	3500	U-235	3.90E-16	7.02E-23	1.88E-23	8.89E-23
WNW	3500	Th-231	4.03E-18	7.26E-25	1.76E-25	9.02E-25
WNW	3500	Pa-231	2.75E-27	4.95E-34	0.00E+00	6.09E-34
WNW	4500	Pu-239	5.31E-03	9.56E-10	3.80E-10	1.34E-09
WNW	4500	U-235m	4.30E-03	7.74E-10	2.80E-10	1.05E-09
WNW	4500	U-235	3.92E-16	7.06E-23	2.08E-23	9.14E-23
WNW	4500	Th-231	5.33E-18	9.60E-25	2.52E-25	1.21E-24
WNW	4500	Pa-231	4.75E-27	8.55E-34	0.00E+00	1.07E-33
WNW	7500	Pu-239	2.34E-03	4.20E-10	2.10E-10	6.30E-10
WNW	7500	U-235m	2.15E-03	3.86E-10	1.82E-10	5.69E-10
WNW	7500	U-235	3.57E-16	6.43E-23	2.35E-23	8.77E-23
WNW	7500	Th-231	8.46E-18	1.52E-24	4.83E-25	2.01E-24
WNW	7500	Pa-231	1.30E-26	2.35E-33	0.00E+00	3.04E-33
WNW	15000	Pu-239	8.10E-04	1.46E-10	9.21E-11	2.38E-10
WNW	15000	U-235m	7.97E-04	1.43E-10	8.94E-11	2.33E-10
WNW	15000	U-235	2.96E-16	5.32E-23	2.45E-23	7.77E-23
WNW	15000	Th-231	1.47E-17	2.65E-24	1.01E-24	3.66E-24
WNW	15000	Pa-231	4.80E-26	8.64E-33	0.00E+00	1.16E-32

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WNW	25000	Pu-239	2.95E-04	5.31E-11	4.40E-11	9.71E-11
WNW	25000	U-235m	2.94E-04	5.29E-11	4.37E-11	9.66E-11
WNW	25000	U-235	1.83E-16	3.29E-23	1.94E-23	5.23E-23
WNW	25000	Th-231	1.50E-17	2.71E-24	1.24E-24	3.95E-24
WNW	25000	Pa-231	8.42E-26	1.52E-32	0.00E+00	2.11E-32
WNW	35000	Pu-239	1.76E-04	3.17E-11	2.87E-11	6.04E-11
WNW	35000	U-235m	1.76E-04	3.17E-11	2.87E-11	6.04E-11
WNW	35000	U-235	1.57E-16	2.83E-23	1.82E-23	4.65E-23
WNW	35000	Th-231	1.80E-17	3.24E-24	1.61E-24	4.84E-24
WNW	35000	Pa-231	1.44E-25	2.59E-32	0.00E+00	3.67E-32
WNW	45000	Pu-239	1.14E-04	2.05E-11	2.02E-11	4.07E-11
WNW	45000	U-235m	1.14E-04	2.05E-11	2.02E-11	4.07E-11
WNW	45000	U-235	1.31E-16	2.36E-23	1.65E-23	4.02E-23
WNW	45000	Th-231	1.89E-17	3.41E-24	1.82E-24	5.23E-24
WNW	45000	Pa-231	1.97E-25	3.55E-32	0.00E+00	5.10E-32
WNW	55000	Pu-239	7.23E-05	1.30E-11	1.47E-11	2.77E-11
WNW	55000	U-235m	7.22E-05	1.30E-11	1.46E-11	2.76E-11
WNW	55000	U-235	9.98E-17	1.80E-23	1.43E-23	3.23E-23
WNW	55000	Th-231	1.70E-17	3.06E-24	1.82E-24	4.88E-24
WNW	55000	Pa-231	2.17E-25	3.90E-32	0.00E+00	5.75E-32
WNW	70000	Pu-239	3.12E-05	5.61E-12	9.17E-12	1.48E-11
WNW	70000	U-235m	3.11E-05	5.61E-12	9.17E-12	1.48E-11
WNW	70000	U-235	4.67E-17	8.41E-24	1.03E-23	1.88E-23
WNW	70000	Th-231	8.91E-18	1.60E-24	1.44E-24	3.05E-24
WNW	70000	Pa-231	1.38E-25	2.49E-32	0.00E+00	4.09E-32
W	250	Pu-239	1.34E-01	2.41E-08	8.76E-09	3.28E-08
W	250	U-235m	6.34E-03	1.14E-09	7.48E-10	1.89E-09
W	250	U-235	1.17E-17	2.11E-24	2.81E-24	4.92E-24
W	250	Th-231	3.71E-21	6.68E-28	1.81E-27	2.48E-27
W	250	Pa-231	1.94E-32	0.00E+00	0.00E+00	8.19E-38
W	750	Pu-239	7.49E-02	1.35E-08	2.87E-09	1.64E-08
W	750	U-235m	1.82E-02	3.28E-09	6.65E-10	3.94E-09
W	750	U-235	2.18E-16	3.93E-23	7.63E-24	4.69E-23
W	750	Th-231	4.38E-19	7.89E-26	1.50E-26	9.39E-26
W	750	Pa-231	5.98E-29	1.08E-35	0.00E+00	1.28E-35
W	1500	Pu-239	3.38E-02	6.08E-09	1.38E-09	7.46E-09
W	1500	U-235m	1.52E-02	2.73E-09	5.53E-10	3.29E-09
W	1500	U-235	3.98E-16	7.17E-23	1.31E-23	8.48E-23
W	1500	Th-231	1.67E-18	3.01E-25	5.21E-26	3.53E-25
W	1500	Pa-231	4.67E-28	8.40E-35	0.00E+00	9.82E-35
W	2500	Pu-239	1.58E-02	2.84E-09	7.97E-10	3.64E-09
W	2500	U-235m	9.91E-03	1.78E-09	4.45E-10	2.23E-09
W	2500	U-235	4.62E-16	8.32E-23	1.82E-23	1.01E-22
W	2500	Th-231	3.33E-18	6.00E-25	1.23E-25	7.23E-25
W	2500	Pa-231	1.59E-27	2.85E-34	0.00E+00	3.42E-34
W	3500	Pu-239	9.37E-03	1.69E-09	5.48E-10	2.23E-09
W	3500	U-235m	6.96E-03	1.25E-09	3.65E-10	1.62E-09

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
W	3500	U-235	4.79E-16	8.63E-23	2.15E-23	1.08E-22
W	3500	Th-231	4.96E-18	8.93E-25	2.07E-25	1.10E-24
W	3500	Pa-231	3.36E-27	6.05E-34	0.00E+00	7.41E-34
W	4500	Pu-239	6.39E-03	1.15E-09	4.11E-10	1.56E-09
W	4500	U-235m	5.22E-03	9.40E-10	3.05E-10	1.24E-09
W	4500	U-235	4.83E-16	8.69E-23	2.36E-23	1.10E-22
W	4500	Th-231	6.56E-18	1.18E-24	2.96E-25	1.48E-24
W	4500	Pa-231	5.81E-27	1.05E-33	0.00E+00	1.30E-33
W	7500	Pu-239	2.81E-03	5.06E-10	2.25E-10	7.31E-10
W	7500	U-235m	2.60E-03	4.68E-10	1.95E-10	6.62E-10
W	7500	U-235	4.39E-16	7.91E-23	2.62E-23	1.05E-22
W	7500	Th-231	1.04E-17	1.88E-24	5.60E-25	2.44E-24
W	7500	Pa-231	1.60E-26	2.88E-33	0.00E+00	3.69E-33
W	15000	Pu-239	9.76E-04	1.76E-10	9.76E-11	2.73E-10
W	15000	U-235m	9.60E-04	1.73E-10	9.43E-11	2.67E-10
W	15000	U-235	3.63E-16	6.53E-23	2.67E-23	9.20E-23
W	15000	Th-231	1.81E-17	3.26E-24	1.15E-24	4.42E-24
W	15000	Pa-231	5.89E-26	1.06E-32	0.00E+00	1.41E-32
W	25000	Pu-239	3.51E-04	6.32E-11	4.53E-11	1.09E-10
W	25000	U-235m	3.50E-04	6.29E-11	4.50E-11	1.08E-10
W	25000	U-235	2.23E-16	4.01E-23	2.02E-23	6.03E-23
W	25000	Th-231	1.85E-17	3.33E-24	1.36E-24	4.69E-24
W	25000	Pa-231	1.03E-25	1.86E-32	0.00E+00	2.54E-32
W	35000	Pu-239	2.10E-04	3.77E-11	2.95E-11	6.73E-11
W	35000	U-235m	2.09E-04	3.77E-11	2.95E-11	6.72E-11
W	35000	U-235	1.91E-16	3.44E-23	1.88E-23	5.33E-23
W	35000	Th-231	2.21E-17	3.97E-24	1.73E-24	5.70E-24
W	35000	Pa-231	1.76E-25	3.17E-32	0.00E+00	4.39E-32
W	45000	Pu-239	1.35E-04	2.43E-11	2.08E-11	4.50E-11
W	45000	U-235m	1.35E-04	2.43E-11	2.07E-11	4.50E-11
W	45000	U-235	1.59E-16	2.86E-23	1.70E-23	4.56E-23
W	45000	Th-231	2.31E-17	4.16E-24	1.94E-24	6.10E-24
W	45000	Pa-231	2.41E-25	4.34E-32	0.00E+00	6.07E-32
W	55000	Pu-239	8.50E-05	1.53E-11	1.49E-11	3.02E-11
W	55000	U-235m	8.49E-05	1.53E-11	1.49E-11	3.02E-11
W	55000	U-235	1.20E-16	2.16E-23	1.44E-23	3.60E-23
W	55000	Th-231	2.07E-17	3.72E-24	1.89E-24	5.61E-24
W	55000	Pa-231	2.65E-25	4.77E-32	0.00E+00	6.79E-32
W	70000	Pu-239	3.52E-05	6.33E-12	9.10E-12	1.54E-11
W	70000	U-235m	3.51E-05	6.32E-12	9.09E-12	1.54E-11
W	70000	U-235	5.41E-17	9.74E-24	9.79E-24	1.95E-23
W	70000	Th-231	1.06E-17	1.90E-24	1.37E-24	3.27E-24
W	70000	Pa-231	1.67E-25	3.00E-32	0.00E+00	4.60E-32
WSW	250	Pu-239	1.49E-01	2.69E-08	1.03E-08	3.72E-08
WSW	250	U-235m	7.00E-03	1.26E-09	8.80E-10	2.14E-09
WSW	250	U-235	1.29E-17	2.33E-24	3.29E-24	5.61E-24
WSW	250	Th-231	4.16E-21	7.50E-28	2.10E-27	2.85E-27

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WSW	250	Pa-231	4.50E-32	0.00E+00	0.00E+00	9.38E-38
WSW	750	Pu-239	9.21E-02	1.66E-08	3.37E-09	1.99E-08
WSW	750	U-235m	2.23E-02	4.02E-09	7.83E-10	4.80E-09
WSW	750	U-235	2.64E-16	4.75E-23	8.94E-24	5.64E-23
WSW	750	Th-231	5.21E-19	9.38E-26	1.73E-26	1.11E-25
WSW	750	Pa-231	6.97E-29	1.26E-35	0.00E+00	1.48E-35
WSW	1500	Pu-239	4.15E-02	7.47E-09	1.62E-09	9.09E-09
WSW	1500	U-235m	1.85E-02	3.33E-09	6.50E-10	3.98E-09
WSW	1500	U-235	4.77E-16	8.58E-23	1.53E-23	1.01E-22
WSW	1500	Th-231	1.96E-18	3.52E-25	6.04E-26	4.13E-25
WSW	1500	Pa-231	5.36E-28	9.64E-35	0.00E+00	1.13E-34
WSW	2500	Pu-239	1.94E-02	3.48E-09	9.33E-10	4.42E-09
WSW	2500	U-235m	1.21E-02	2.18E-09	5.23E-10	2.70E-09
WSW	2500	U-235	5.53E-16	9.95E-23	2.13E-23	1.21E-22
WSW	2500	Th-231	3.90E-18	7.02E-25	1.43E-25	8.45E-25
WSW	2500	Pa-231	1.82E-27	3.27E-34	0.00E+00	3.92E-34
WSW	3500	Pu-239	1.15E-02	2.07E-09	6.41E-10	2.71E-09
WSW	3500	U-235m	8.52E-03	1.53E-09	4.28E-10	1.96E-09
WSW	3500	U-235	5.74E-16	1.03E-22	2.52E-23	1.28E-22
WSW	3500	Th-231	5.81E-18	1.05E-24	2.40E-25	1.29E-24
WSW	3500	Pa-231	3.85E-27	6.94E-34	0.00E+00	8.49E-34
WSW	4500	Pu-239	7.85E-03	1.41E-09	4.80E-10	1.89E-09
WSW	4500	U-235m	6.40E-03	1.15E-09	3.57E-10	1.51E-09
WSW	4500	U-235	5.79E-16	1.04E-22	2.77E-23	1.32E-22
WSW	4500	Th-231	7.70E-18	1.39E-24	3.44E-25	1.73E-24
WSW	4500	Pa-231	6.67E-27	1.20E-33	0.00E+00	1.49E-33
WSW	7500	Pu-239	3.46E-03	6.23E-10	2.62E-10	8.84E-10
WSW	7500	U-235m	3.19E-03	5.75E-10	2.27E-10	8.02E-10
WSW	7500	U-235	5.29E-16	9.53E-23	3.07E-23	1.26E-22
WSW	7500	Th-231	1.23E-17	2.21E-24	6.52E-25	2.86E-24
WSW	7500	Pa-231	1.84E-26	3.31E-33	0.00E+00	4.25E-33
WSW	15000	Pu-239	1.20E-03	2.16E-10	1.13E-10	3.29E-10
WSW	15000	U-235m	1.18E-03	2.13E-10	1.09E-10	3.22E-10
WSW	15000	U-235	4.39E-16	7.90E-23	3.12E-23	1.10E-22
WSW	15000	Th-231	2.15E-17	3.87E-24	1.35E-24	5.21E-24
WSW	15000	Pa-231	6.82E-26	1.23E-32	0.00E+00	1.63E-32
WSW	25000	Pu-239	4.34E-04	7.80E-11	5.18E-11	1.30E-10
WSW	25000	U-235m	4.32E-04	7.77E-11	5.14E-11	1.29E-10
WSW	25000	U-235	2.71E-16	4.87E-23	2.33E-23	7.21E-23
WSW	25000	Th-231	2.21E-17	3.97E-24	1.58E-24	5.55E-24
WSW	25000	Pa-231	1.21E-25	2.17E-32	0.00E+00	2.96E-32
WSW	35000	Pu-239	2.59E-04	4.66E-11	3.37E-11	8.03E-11
WSW	35000	U-235m	2.58E-04	4.65E-11	3.36E-11	8.01E-11
WSW	35000	U-235	2.32E-16	4.18E-23	2.17E-23	6.35E-23
WSW	35000	Th-231	2.63E-17	4.74E-24	2.01E-24	6.75E-24
WSW	35000	Pa-231	2.06E-25	3.71E-32	0.00E+00	5.11E-32
WSW	45000	Pu-239	1.66E-04	2.99E-11	2.36E-11	5.35E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
WSW	45000	U-235m	1.66E-04	2.99E-11	2.36E-11	5.35E-11
WSW	45000	U-235	1.93E-16	3.48E-23	1.94E-23	5.42E-23
WSW	45000	Th-231	2.76E-17	4.97E-24	2.24E-24	7.21E-24
WSW	45000	Pa-231	2.82E-25	5.07E-32	0.00E+00	7.08E-32
WSW	55000	Pu-239	1.05E-04	1.89E-11	1.68E-11	3.57E-11
WSW	55000	U-235m	1.05E-04	1.89E-11	1.68E-11	3.57E-11
WSW	55000	U-235	1.46E-16	2.63E-23	1.64E-23	4.26E-23
WSW	55000	Th-231	2.48E-17	4.46E-24	2.18E-24	6.63E-24
WSW	55000	Pa-231	3.10E-25	5.59E-32	0.00E+00	7.93E-32
WSW	70000	Pu-239	4.32E-05	7.78E-12	1.01E-11	1.79E-11
WSW	70000	U-235m	4.32E-05	7.78E-12	1.01E-11	1.79E-11
WSW	70000	U-235	6.60E-17	1.19E-23	1.09E-23	2.28E-23
WSW	70000	Th-231	1.28E-17	2.30E-24	1.54E-24	3.84E-24
WSW	70000	Pa-231	1.98E-25	3.57E-32	0.00E+00	5.41E-32
SW	250	Pu-239	1.52E-01	2.74E-08	1.01E-08	3.75E-08
SW	250	U-235m	6.88E-03	1.24E-09	8.33E-10	2.07E-09
SW	250	U-235	1.21E-17	2.18E-24	2.99E-24	5.17E-24
SW	250	Th-231	3.64E-21	6.56E-28	1.84E-27	2.50E-27
SW	250	Pa-231	2.66E-32	0.00E+00	0.00E+00	8.12E-38
SW	750	Pu-239	9.20E-02	1.66E-08	3.31E-09	1.99E-08
SW	750	U-235m	2.17E-02	3.90E-09	7.43E-10	4.64E-09
SW	750	U-235	2.47E-16	4.45E-23	8.15E-24	5.27E-23
SW	750	Th-231	4.72E-19	8.50E-26	1.52E-26	1.00E-25
SW	750	Pa-231	6.12E-29	1.10E-35	0.00E+00	1.30E-35
SW	1500	Pu-239	4.09E-02	7.36E-09	1.59E-09	8.96E-09
SW	1500	U-235m	1.78E-02	3.21E-09	6.21E-10	3.83E-09
SW	1500	U-235	4.42E-16	7.96E-23	1.40E-23	9.36E-23
SW	1500	Th-231	1.76E-18	3.16E-25	5.33E-26	3.69E-25
SW	1500	Pa-231	4.65E-28	8.37E-35	0.00E+00	9.75E-35
SW	2500	Pu-239	1.90E-02	3.43E-09	9.19E-10	4.35E-09
SW	2500	U-235m	1.17E-02	2.10E-09	5.02E-10	2.60E-09
SW	2500	U-235	5.13E-16	9.24E-23	1.96E-23	1.12E-22
SW	2500	Th-231	3.50E-18	6.30E-25	1.26E-25	7.56E-25
SW	2500	Pa-231	1.58E-27	2.84E-34	0.00E+00	3.39E-34
SW	3500	Pu-239	1.13E-02	2.04E-09	6.32E-10	2.67E-09
SW	3500	U-235m	8.24E-03	1.48E-09	4.14E-10	1.90E-09
SW	3500	U-235	5.34E-16	9.62E-23	2.32E-23	1.19E-22
SW	3500	Th-231	5.23E-18	9.41E-25	2.13E-25	1.15E-24
SW	3500	Pa-231	3.35E-27	6.03E-34	0.00E+00	7.36E-34
SW	4500	Pu-239	7.72E-03	1.39E-09	4.74E-10	1.86E-09
SW	4500	U-235m	6.22E-03	1.12E-09	3.47E-10	1.47E-09
SW	4500	U-235	5.41E-16	9.74E-23	2.56E-23	1.23E-22
SW	4500	Th-231	6.94E-18	1.25E-24	3.06E-25	1.56E-24
SW	4500	Pa-231	5.81E-27	1.05E-33	0.00E+00	1.29E-33
SW	7500	Pu-239	3.41E-03	6.14E-10	2.59E-10	8.73E-10
SW	7500	U-235m	3.13E-03	5.63E-10	2.23E-10	7.86E-10
SW	7500	U-235	4.98E-16	8.96E-23	2.87E-23	1.18E-22

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SW	7500	Th-231	1.12E-17	2.01E-24	5.85E-25	2.59E-24
SW	7500	Pa-231	1.61E-26	2.91E-33	0.00E+00	3.72E-33
SW	15000	Pu-239	1.19E-03	2.14E-10	1.12E-10	3.26E-10
SW	15000	U-235m	1.17E-03	2.10E-10	1.08E-10	3.18E-10
SW	15000	U-235	4.16E-16	7.49E-23	2.94E-23	1.04E-22
SW	15000	Th-231	1.97E-17	3.54E-24	1.22E-24	4.76E-24
SW	15000	Pa-231	6.03E-26	1.09E-32	0.00E+00	1.44E-32
SW	25000	Pu-239	4.31E-04	7.77E-11	5.19E-11	1.30E-10
SW	25000	U-235m	4.30E-04	7.73E-11	5.15E-11	1.29E-10
SW	25000	U-235	2.60E-16	4.68E-23	2.23E-23	6.91E-23
SW	25000	Th-231	2.05E-17	3.69E-24	1.45E-24	5.14E-24
SW	25000	Pa-231	1.08E-25	1.95E-32	0.00E+00	2.64E-32
SW	35000	Pu-239	2.57E-04	4.63E-11	3.38E-11	8.01E-11
SW	35000	U-235m	2.57E-04	4.62E-11	3.37E-11	7.99E-11
SW	35000	U-235	2.23E-16	4.02E-23	2.08E-23	6.10E-23
SW	35000	Th-231	2.45E-17	4.41E-24	1.84E-24	6.26E-24
SW	35000	Pa-231	1.85E-25	3.34E-32	0.00E+00	4.58E-32
SW	45000	Pu-239	1.65E-04	2.98E-11	2.37E-11	5.35E-11
SW	45000	U-235m	1.65E-04	2.97E-11	2.37E-11	5.34E-11
SW	45000	U-235	1.86E-16	3.35E-23	1.87E-23	5.21E-23
SW	45000	Th-231	2.58E-17	4.64E-24	2.06E-24	6.70E-24
SW	45000	Pa-231	2.54E-25	4.58E-32	0.00E+00	6.35E-32
SW	55000	Pu-239	1.04E-04	1.88E-11	1.70E-11	3.58E-11
SW	55000	U-235m	1.04E-04	1.88E-11	1.70E-11	3.58E-11
SW	55000	U-235	1.41E-16	2.54E-23	1.58E-23	4.12E-23
SW	55000	Th-231	2.32E-17	4.18E-24	2.02E-24	6.20E-24
SW	55000	Pa-231	2.82E-25	5.07E-32	0.00E+00	7.14E-32
SW	70000	Pu-239	4.35E-05	7.84E-12	1.03E-11	1.81E-11
SW	70000	U-235m	4.35E-05	7.83E-12	1.03E-11	1.81E-11
SW	70000	U-235	6.48E-17	1.17E-23	1.06E-23	2.23E-23
SW	70000	Th-231	1.22E-17	2.20E-24	1.44E-24	3.64E-24
SW	70000	Pa-231	1.83E-25	3.30E-32	0.00E+00	4.93E-32
SSW	250	Pu-239	1.55E-01	2.78E-08	8.89E-09	3.67E-08
SSW	250	U-235m	6.86E-03	1.23E-09	6.84E-10	1.92E-09
SSW	250	U-235	1.19E-17	2.14E-24	2.32E-24	4.46E-24
SSW	250	Th-231	3.56E-21	6.41E-28	1.37E-27	2.01E-27
SSW	250	Pa-231	2.21E-32	0.00E+00	0.00E+00	5.78E-38
SSW	750	Pu-239	8.17E-02	1.47E-08	2.91E-09	1.76E-08
SSW	750	U-235m	1.80E-02	3.24E-09	6.13E-10	3.86E-09
SSW	750	U-235	1.94E-16	3.49E-23	6.33E-24	4.13E-23
SSW	750	Th-231	3.55E-19	6.39E-26	1.13E-26	7.52E-26
SSW	750	Pa-231	4.44E-29	7.99E-36	0.00E+00	9.37E-36
SSW	1500	Pu-239	3.51E-02	6.32E-09	1.41E-09	7.72E-09
SSW	1500	U-235m	1.45E-02	2.61E-09	5.17E-10	3.13E-09
SSW	1500	U-235	3.41E-16	6.13E-23	1.10E-23	7.23E-23
SSW	1500	Th-231	1.30E-18	2.34E-25	3.96E-26	2.73E-25
SSW	1500	Pa-231	3.32E-28	5.98E-35	0.00E+00	6.96E-35

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSW	2500	Pu-239	1.62E-02	2.92E-09	8.14E-10	3.73E-09
SSW	2500	U-235m	9.51E-03	1.71E-09	4.23E-10	2.13E-09
SSW	2500	U-235	3.95E-16	7.12E-23	1.54E-23	8.66E-23
SSW	2500	Th-231	2.59E-18	4.66E-25	9.45E-26	5.60E-25
SSW	2500	Pa-231	1.12E-27	2.02E-34	0.00E+00	2.42E-34
SSW	3500	Pu-239	9.63E-03	1.73E-09	5.61E-10	2.29E-09
SSW	3500	U-235m	6.76E-03	1.22E-09	3.53E-10	1.57E-09
SSW	3500	U-235	4.13E-16	7.43E-23	1.84E-23	9.27E-23
SSW	3500	Th-231	3.87E-18	6.97E-25	1.60E-25	8.57E-25
SSW	3500	Pa-231	2.40E-27	4.31E-34	0.00E+00	5.27E-34
SSW	4500	Pu-239	6.57E-03	1.18E-09	4.23E-10	1.61E-09
SSW	4500	U-235m	5.13E-03	9.24E-10	2.98E-10	1.22E-09
SSW	4500	U-235	4.19E-16	7.55E-23	2.05E-23	9.60E-23
SSW	4500	Th-231	5.16E-18	9.28E-25	2.32E-25	1.16E-24
SSW	4500	Pa-231	4.16E-27	7.50E-34	0.00E+00	9.29E-34
SSW	7500	Pu-239	2.91E-03	5.25E-10	2.33E-10	7.57E-10
SSW	7500	U-235m	2.62E-03	4.72E-10	1.96E-10	6.68E-10
SSW	7500	U-235	3.90E-16	7.02E-23	2.33E-23	9.35E-23
SSW	7500	Th-231	8.35E-18	1.50E-24	4.48E-25	1.95E-24
SSW	7500	Pa-231	1.16E-26	2.10E-33	0.00E+00	2.69E-33
SSW	15000	Pu-239	1.02E-03	1.83E-10	1.02E-10	2.85E-10
SSW	15000	U-235m	9.95E-04	1.79E-10	9.77E-11	2.77E-10
SSW	15000	U-235	3.30E-16	5.95E-23	2.44E-23	8.39E-23
SSW	15000	Th-231	1.49E-17	2.69E-24	9.53E-25	3.64E-24
SSW	15000	Pa-231	4.40E-26	7.92E-33	0.00E+00	1.05E-32
SSW	25000	Pu-239	3.79E-04	6.83E-11	4.85E-11	1.17E-10
SSW	25000	U-235m	3.77E-04	6.79E-11	4.80E-11	1.16E-10
SSW	25000	U-235	2.11E-16	3.80E-23	1.92E-23	5.72E-23
SSW	25000	Th-231	1.59E-17	2.85E-24	1.17E-24	4.02E-24
SSW	25000	Pa-231	8.05E-26	1.45E-32	0.00E+00	1.98E-32
SSW	35000	Pu-239	2.27E-04	4.08E-11	3.17E-11	7.25E-11
SSW	35000	U-235m	2.26E-04	4.07E-11	3.16E-11	7.24E-11
SSW	35000	U-235	1.82E-16	3.28E-23	1.81E-23	5.09E-23
SSW	35000	Th-231	1.91E-17	3.43E-24	1.50E-24	4.93E-24
SSW	35000	Pa-231	1.38E-25	2.49E-32	0.00E+00	3.44E-32
SSW	45000	Pu-239	1.47E-04	2.64E-11	2.24E-11	4.88E-11
SSW	45000	U-235m	1.46E-04	2.64E-11	2.24E-11	4.88E-11
SSW	45000	U-235	1.53E-16	2.75E-23	1.64E-23	4.39E-23
SSW	45000	Th-231	2.02E-17	3.63E-24	1.70E-24	5.33E-24
SSW	45000	Pa-231	1.91E-25	3.43E-32	0.00E+00	4.81E-32
SSW	55000	Pu-239	9.39E-05	1.69E-11	1.62E-11	3.31E-11
SSW	55000	U-235m	9.39E-05	1.69E-11	1.62E-11	3.31E-11
SSW	55000	U-235	1.17E-16	2.11E-23	1.41E-23	3.52E-23
SSW	55000	Th-231	1.83E-17	3.30E-24	1.69E-24	4.99E-24
SSW	55000	Pa-231	2.13E-25	3.83E-32	0.00E+00	5.47E-32
SSW	70000	Pu-239	4.14E-05	7.45E-12	1.01E-11	1.75E-11
SSW	70000	U-235m	4.14E-05	7.45E-12	1.01E-11	1.75E-11

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSW	70000	U-235	5.65E-17	1.02E-23	9.94E-24	2.01E-23
SSW	70000	Th-231	1.00E-17	1.81E-24	1.28E-24	3.09E-24
SSW	70000	Pa-231	1.43E-25	2.58E-32	0.00E+00	3.94E-32
S	250	Pu-239	2.39E-01	4.31E-08	1.33E-08	5.64E-08
S	250	U-235m	1.00E-02	1.81E-09	9.83E-10	2.79E-09
S	250	U-235	1.63E-17	2.94E-24	3.23E-24	6.16E-24
S	250	Th-231	4.55E-21	8.19E-28	1.85E-27	2.67E-27
S	250	Pa-231	3.20E-32	0.00E+00	0.00E+00	7.71E-38
S	750	Pu-239	1.23E-01	2.22E-08	4.36E-09	2.66E-08
S	750	U-235m	2.64E-02	4.76E-09	8.84E-10	5.64E-09
S	750	U-235	2.76E-16	4.97E-23	8.82E-24	5.85E-23
S	750	Th-231	4.90E-19	8.83E-26	1.53E-26	1.04E-25
S	750	Pa-231	5.95E-29	1.07E-35	0.00E+00	1.25E-35
S	1500	Pu-239	5.27E-02	9.48E-09	2.11E-09	1.16E-08
S	1500	U-235m	2.12E-02	3.82E-09	7.49E-10	4.57E-09
S	1500	U-235	4.83E-16	8.70E-23	1.53E-23	1.02E-22
S	1500	Th-231	1.79E-18	3.22E-25	5.38E-26	3.75E-25
S	1500	Pa-231	4.43E-28	7.98E-35	0.00E+00	9.29E-35
S	2500	Pu-239	2.43E-02	4.38E-09	1.22E-09	5.60E-09
S	2500	U-235m	1.40E-02	2.52E-09	6.17E-10	3.13E-09
S	2500	U-235	5.62E-16	1.01E-22	2.16E-23	1.23E-22
S	2500	Th-231	3.57E-18	6.42E-25	1.29E-25	7.71E-25
S	2500	Pa-231	1.50E-27	2.71E-34	0.00E+00	3.23E-34
S	3500	Pu-239	1.44E-02	2.60E-09	8.42E-10	3.44E-09
S	3500	U-235m	9.98E-03	1.80E-09	5.16E-10	2.31E-09
S	3500	U-235	5.89E-16	1.06E-22	2.59E-23	1.32E-22
S	3500	Th-231	5.35E-18	9.64E-25	2.19E-25	1.18E-24
S	3500	Pa-231	3.21E-27	5.78E-34	0.00E+00	7.05E-34
S	4500	Pu-239	9.86E-03	1.77E-09	6.35E-10	2.41E-09
S	4500	U-235m	7.60E-03	1.37E-09	4.38E-10	1.81E-09
S	4500	U-235	6.00E-16	1.08E-22	2.89E-23	1.37E-22
S	4500	Th-231	7.15E-18	1.29E-24	3.17E-25	1.60E-24
S	4500	Pa-231	5.60E-27	1.01E-33	0.00E+00	1.25E-33
S	7500	Pu-239	4.38E-03	7.88E-10	3.51E-10	1.14E-09
S	7500	U-235m	3.92E-03	7.05E-10	2.91E-10	9.95E-10
S	7500	U-235	5.62E-16	1.01E-22	3.31E-23	1.34E-22
S	7500	Th-231	1.17E-17	2.10E-24	6.16E-25	2.72E-24
S	7500	Pa-231	1.58E-26	2.84E-33	0.00E+00	3.63E-33
S	15000	Pu-239	1.53E-03	2.75E-10	1.54E-10	4.29E-10
S	15000	U-235m	1.49E-03	2.68E-10	1.47E-10	4.15E-10
S	15000	U-235	4.80E-16	8.63E-23	3.50E-23	1.21E-22
S	15000	Th-231	2.10E-17	3.79E-24	1.32E-24	5.10E-24
S	15000	Pa-231	6.02E-26	1.08E-32	0.00E+00	1.43E-32
S	25000	Pu-239	5.70E-04	1.03E-10	7.38E-11	1.76E-10
S	25000	U-235m	5.67E-04	1.02E-10	7.30E-11	1.75E-10
S	25000	U-235	3.09E-16	5.57E-23	2.77E-23	8.34E-23
S	25000	Th-231	2.26E-17	4.08E-24	1.63E-24	5.70E-24

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
S	25000	Pa-231	1.12E-25	2.01E-32	0.00E+00	2.72E-32
S	35000	Pu-239	3.40E-04	6.12E-11	4.85E-11	1.10E-10
S	35000	U-235m	3.39E-04	6.11E-11	4.83E-11	1.09E-10
S	35000	U-235	2.67E-16	4.81E-23	2.62E-23	7.42E-23
S	35000	Th-231	2.73E-17	4.91E-24	2.10E-24	7.01E-24
S	35000	Pa-231	1.92E-25	3.46E-32	0.00E+00	4.76E-32
S	45000	Pu-239	2.19E-04	3.95E-11	3.44E-11	7.39E-11
S	45000	U-235m	2.19E-04	3.95E-11	3.43E-11	7.38E-11
S	45000	U-235	2.24E-16	4.03E-23	2.38E-23	6.41E-23
S	45000	Th-231	2.89E-17	5.21E-24	2.38E-24	7.59E-24
S	45000	Pa-231	2.66E-25	4.79E-32	0.00E+00	6.66E-32
S	55000	Pu-239	1.41E-04	2.53E-11	2.50E-11	5.03E-11
S	55000	U-235m	1.41E-04	2.53E-11	2.50E-11	5.03E-11
S	55000	U-235	1.72E-16	3.10E-23	2.06E-23	5.16E-23
S	55000	Th-231	2.64E-17	4.76E-24	2.37E-24	7.13E-24
S	55000	Pa-231	2.99E-25	5.38E-32	0.00E+00	7.60E-32
S	70000	Pu-239	6.18E-05	1.11E-11	1.57E-11	2.68E-11
S	70000	U-235m	6.17E-05	1.11E-11	1.57E-11	2.68E-11
S	70000	U-235	8.35E-17	1.50E-23	1.46E-23	2.96E-23
S	70000	Th-231	1.46E-17	2.63E-24	1.79E-24	4.42E-24
S	70000	Pa-231	2.04E-25	3.67E-32	0.00E+00	5.51E-32
SSE	250	Pu-239	1.72E-01	3.10E-08	7.89E-09	3.89E-08
SSE	250	U-235m	6.59E-03	1.19E-09	5.15E-10	1.70E-09
SSE	250	U-235	9.89E-18	1.78E-24	1.55E-24	3.33E-24
SSE	250	Th-231	2.58E-21	4.64E-28	8.43E-28	1.31E-27
SSE	250	Pa-231	1.60E-32	0.00E+00	0.00E+00	3.39E-38
SSE	750	Pu-239	7.19E-02	1.29E-08	2.59E-09	1.55E-08
SSE	750	U-235m	1.38E-02	2.48E-09	4.67E-10	2.95E-09
SSE	750	U-235	1.33E-16	2.40E-23	4.26E-24	2.83E-23
SSE	750	Th-231	2.26E-19	4.07E-26	6.99E-27	4.77E-26
SSE	750	Pa-231	2.65E-29	4.77E-36	0.00E+00	5.57E-36
SSE	1500	Pu-239	2.93E-02	5.27E-09	1.26E-09	6.53E-09
SSE	1500	U-235m	1.08E-02	1.95E-09	4.01E-10	2.35E-09
SSE	1500	U-235	2.30E-16	4.13E-23	7.45E-24	4.88E-23
SSE	1500	Th-231	8.14E-19	1.47E-25	2.47E-26	1.71E-25
SSE	1500	Pa-231	1.95E-28	3.52E-35	0.00E+00	4.09E-35
SSE	2500	Pu-239	1.34E-02	2.41E-09	7.33E-10	3.14E-09
SSE	2500	U-235m	7.14E-03	1.29E-09	3.36E-10	1.62E-09
SSE	2500	U-235	2.67E-16	4.81E-23	1.06E-23	5.87E-23
SSE	2500	Th-231	1.62E-18	2.92E-25	5.94E-26	3.52E-25
SSE	2500	Pa-231	6.62E-28	1.19E-34	0.00E+00	1.43E-34
SSE	3500	Pu-239	7.93E-03	1.43E-09	5.09E-10	1.94E-09
SSE	3500	U-235m	5.14E-03	9.25E-10	2.86E-10	1.21E-09
SSE	3500	U-235	2.81E-16	5.06E-23	1.28E-23	6.34E-23
SSE	3500	Th-231	2.44E-18	4.40E-25	1.02E-25	5.41E-25
SSE	3500	Pa-231	1.42E-27	2.55E-34	0.00E+00	3.11E-34
SSE	4500	Pu-239	5.41E-03	9.74E-10	3.85E-10	1.36E-09

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SSE	4500	U-235m	3.94E-03	7.10E-10	2.46E-10	9.56E-10
SSE	4500	U-235	2.87E-16	5.17E-23	1.44E-23	6.61E-23
SSE	4500	Th-231	3.27E-18	5.89E-25	1.48E-25	7.37E-25
SSE	4500	Pa-231	2.48E-27	4.46E-34	0.00E+00	5.52E-34
SSE	7500	Pu-239	2.41E-03	4.35E-10	2.16E-10	6.50E-10
SSE	7500	U-235m	2.08E-03	3.74E-10	1.69E-10	5.43E-10
SSE	7500	U-235	2.72E-16	4.90E-23	1.68E-23	6.58E-23
SSE	7500	Th-231	5.38E-18	9.68E-25	2.91E-25	1.26E-24
SSE	7500	Pa-231	7.02E-27	1.26E-33	0.00E+00	1.62E-33
SSE	15000	Pu-239	8.46E-04	1.52E-10	9.68E-11	2.49E-10
SSE	15000	U-235m	8.13E-04	1.46E-10	9.01E-11	2.37E-10
SSE	15000	U-235	2.36E-16	4.25E-23	1.84E-23	6.09E-23
SSE	15000	Th-231	9.83E-18	1.77E-24	6.37E-25	2.41E-24
SSE	15000	Pa-231	2.71E-26	4.87E-33	0.00E+00	6.48E-33
SSE	25000	Pu-239	3.26E-04	5.87E-11	4.83E-11	1.07E-10
SSE	25000	U-235m	3.23E-04	5.81E-11	4.74E-11	1.05E-10
SSE	25000	U-235	1.56E-16	2.82E-23	1.54E-23	4.36E-23
SSE	25000	Th-231	1.08E-17	1.94E-24	8.16E-25	2.76E-24
SSE	25000	Pa-231	5.11E-26	9.19E-33	0.00E+00	1.25E-32
SSE	35000	Pu-239	1.95E-04	3.51E-11	3.20E-11	6.71E-11
SSE	35000	U-235m	1.94E-04	3.50E-11	3.19E-11	6.69E-11
SSE	35000	U-235	1.36E-16	2.45E-23	1.48E-23	3.93E-23
SSE	35000	Th-231	1.31E-17	2.36E-24	1.07E-24	3.43E-24
SSE	35000	Pa-231	8.86E-26	1.59E-32	0.00E+00	2.21E-32
SSE	45000	Pu-239	1.27E-04	2.28E-11	2.30E-11	4.59E-11
SSE	45000	U-235m	1.27E-04	2.28E-11	2.30E-11	4.58E-11
SSE	45000	U-235	1.15E-16	2.07E-23	1.37E-23	3.44E-23
SSE	45000	Th-231	1.40E-17	2.52E-24	1.23E-24	3.75E-24
SSE	45000	Pa-231	1.23E-25	2.22E-32	0.00E+00	3.12E-32
SSE	55000	Pu-239	8.29E-05	1.49E-11	1.71E-11	3.20E-11
SSE	55000	U-235m	8.29E-05	1.49E-11	1.71E-11	3.20E-11
SSE	55000	U-235	8.98E-17	1.62E-23	1.22E-23	2.83E-23
SSE	55000	Th-231	1.29E-17	2.33E-24	1.25E-24	3.58E-24
SSE	55000	Pa-231	1.40E-25	2.51E-32	0.00E+00	3.60E-32
SSE	70000	Pu-239	3.94E-05	7.09E-12	1.12E-11	1.83E-11
SSE	70000	U-235m	3.94E-05	7.09E-12	1.12E-11	1.83E-11
SSE	70000	U-235	4.62E-17	8.32E-24	9.17E-24	1.75E-23
SSE	70000	Th-231	7.46E-18	1.34E-24	1.01E-24	2.36E-24
SSE	70000	Pa-231	9.83E-26	1.77E-32	0.00E+00	2.72E-32
SE	250	Pu-239	1.81E-01	3.26E-08	7.32E-09	3.99E-08
SE	250	U-235m	6.49E-03	1.17E-09	4.31E-10	1.60E-09
SE	250	U-235	9.16E-18	1.65E-24	1.20E-24	2.85E-24
SE	250	Th-231	2.25E-21	4.05E-28	6.20E-28	1.02E-27
SE	250	Pa-231	1.23E-32	0.00E+00	0.00E+00	2.40E-38
SE	750	Pu-239	6.55E-02	1.18E-08	2.41E-09	1.42E-08
SE	750	U-235m	1.14E-02	2.06E-09	3.93E-10	2.45E-09
SE	750	U-235	1.03E-16	1.85E-23	3.31E-24	2.18E-23

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SE	750	Th-231	1.67E-19	3.00E-26	5.15E-27	3.52E-26
SE	750	Pa-231	1.89E-29	3.40E-36	0.00E+00	3.95E-36
SE	1500	Pu-239	2.57E-02	4.63E-09	1.17E-09	5.80E-09
SE	1500	U-235m	8.79E-03	1.58E-09	3.42E-10	1.92E-09
SE	1500	U-235	1.75E-16	3.15E-23	5.83E-24	3.73E-23
SE	1500	Th-231	5.95E-19	1.07E-25	1.83E-26	1.25E-25
SE	1500	Pa-231	1.38E-28	2.49E-35	0.00E+00	2.90E-35
SE	2500	Pu-239	1.17E-02	2.10E-09	6.85E-10	2.78E-09
SE	2500	U-235m	5.82E-03	1.05E-09	2.90E-10	1.34E-09
SE	2500	U-235	2.04E-16	3.67E-23	8.36E-24	4.50E-23
SE	2500	Th-231	1.19E-18	2.14E-25	4.42E-26	2.58E-25
SE	2500	Pa-231	4.69E-28	8.44E-35	0.00E+00	1.01E-34
SE	3500	Pu-239	6.90E-03	1.24E-09	4.78E-10	1.72E-09
SE	3500	U-235m	4.21E-03	7.58E-10	2.50E-10	1.01E-09
SE	3500	U-235	2.15E-16	3.87E-23	1.02E-23	4.89E-23
SE	3500	Th-231	1.79E-18	3.23E-25	7.59E-26	3.99E-25
SE	3500	Pa-231	1.01E-27	1.81E-34	0.00E+00	2.22E-34
SE	4500	Pu-239	4.71E-03	8.47E-10	3.63E-10	1.21E-09
SE	4500	U-235m	3.26E-03	5.86E-10	2.18E-10	8.04E-10
SE	4500	U-235	2.21E-16	3.97E-23	1.15E-23	5.12E-23
SE	4500	Th-231	2.41E-18	4.34E-25	1.11E-25	5.44E-25
SE	4500	Pa-231	1.76E-27	3.17E-34	0.00E+00	3.94E-34
SE	7500	Pu-239	2.11E-03	3.79E-10	2.05E-10	5.84E-10
SE	7500	U-235m	1.75E-03	3.15E-10	1.54E-10	4.69E-10
SE	7500	U-235	2.11E-16	3.80E-23	1.37E-23	5.17E-23
SE	7500	Th-231	3.99E-18	7.18E-25	2.21E-25	9.40E-25
SE	7500	Pa-231	5.03E-27	9.05E-34	0.00E+00	1.16E-33
SE	15000	Pu-239	7.38E-04	1.33E-10	9.34E-11	2.26E-10
SE	15000	U-235m	7.00E-04	1.26E-10	8.54E-11	2.11E-10
SE	15000	U-235	1.86E-16	3.34E-23	1.55E-23	4.89E-23
SE	15000	Th-231	7.37E-18	1.33E-24	4.95E-25	1.82E-24
SE	15000	Pa-231	1.96E-26	3.53E-33	0.00E+00	4.71E-33
SE	25000	Pu-239	2.90E-04	5.22E-11	4.79E-11	1.00E-10
SE	25000	U-235m	2.86E-04	5.15E-11	4.67E-11	9.82E-11
SE	25000	U-235	1.26E-16	2.27E-23	1.35E-23	3.62E-23
SE	25000	Th-231	8.25E-18	1.48E-24	6.56E-25	2.14E-24
SE	25000	Pa-231	3.76E-26	6.77E-33	0.00E+00	9.30E-33
SE	35000	Pu-239	1.74E-04	3.12E-11	3.20E-11	6.32E-11
SE	35000	U-235m	1.73E-04	3.11E-11	3.18E-11	6.29E-11
SE	35000	U-235	1.10E-16	1.98E-23	1.32E-23	3.30E-23
SE	35000	Th-231	1.01E-17	1.81E-24	8.70E-25	2.68E-24
SE	35000	Pa-231	6.55E-26	1.18E-32	0.00E+00	1.65E-32
SE	45000	Pu-239	1.13E-04	2.04E-11	2.32E-11	4.36E-11
SE	45000	U-235m	1.13E-04	2.04E-11	2.31E-11	4.35E-11
SE	45000	U-235	9.36E-17	1.68E-23	1.24E-23	2.92E-23
SE	45000	Th-231	1.08E-17	1.95E-24	1.01E-24	2.96E-24
SE	45000	Pa-231	9.16E-26	1.65E-32	0.00E+00	2.34E-32

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
SE	55000	Pu-239	7.50E-05	1.35E-11	1.74E-11	3.09E-11
SE	55000	U-235m	7.50E-05	1.35E-11	1.74E-11	3.09E-11
SE	55000	U-235	7.39E-17	1.33E-23	1.12E-23	2.45E-23
SE	55000	Th-231	1.01E-17	1.82E-24	1.05E-24	2.87E-24
SE	55000	Pa-231	1.05E-25	1.88E-32	0.00E+00	2.73E-32
SE	70000	Pu-239	3.74E-05	6.73E-12	1.17E-11	1.85E-11
SE	70000	U-235m	3.73E-05	6.72E-12	1.17E-11	1.85E-11
SE	70000	U-235	3.97E-17	7.15E-24	8.80E-24	1.60E-23
SE	70000	Th-231	6.02E-18	1.08E-24	8.98E-25	1.98E-24
SE	70000	Pa-231	7.56E-26	1.36E-32	0.00E+00	2.14E-32
ESE	250	Pu-239	2.00E-01	3.61E-08	7.77E-09	4.38E-08
ESE	250	U-235m	6.52E-03	1.17E-09	4.38E-10	1.61E-09
ESE	250	U-235	8.65E-18	1.56E-24	1.24E-24	2.79E-24
ESE	250	Th-231	2.11E-21	3.80E-28	6.55E-28	1.03E-27
ESE	250	Pa-231	1.26E-32	0.00E+00	0.00E+00	2.59E-38
ESE	750	Pu-239	6.95E-02	1.25E-08	2.56E-09	1.51E-08
ESE	750	U-235m	1.16E-02	2.08E-09	4.00E-10	2.48E-09
ESE	750	U-235	1.05E-16	1.89E-23	3.40E-24	2.23E-23
ESE	750	Th-231	1.75E-19	3.14E-26	5.44E-27	3.69E-26
ESE	750	Pa-231	2.03E-29	3.65E-36	0.00E+00	4.25E-36
ESE	1500	Pu-239	2.71E-02	4.87E-09	1.25E-09	6.12E-09
ESE	1500	U-235m	8.93E-03	1.61E-09	3.48E-10	1.95E-09
ESE	1500	U-235	1.80E-16	3.23E-23	5.97E-24	3.83E-23
ESE	1500	Th-231	6.26E-19	1.13E-25	1.92E-26	1.32E-25
ESE	1500	Pa-231	1.49E-28	2.68E-35	0.00E+00	3.12E-35
ESE	2500	Pu-239	1.22E-02	2.20E-09	7.30E-10	2.93E-09
ESE	2500	U-235m	5.91E-03	1.06E-09	2.95E-10	1.36E-09
ESE	2500	U-235	2.09E-16	3.77E-23	8.54E-24	4.62E-23
ESE	2500	Th-231	1.25E-18	2.25E-25	4.64E-26	2.71E-25
ESE	2500	Pa-231	5.05E-28	9.08E-35	0.00E+00	1.09E-34
ESE	3500	Pu-239	7.24E-03	1.30E-09	5.09E-10	1.81E-09
ESE	3500	U-235m	4.28E-03	7.70E-10	2.54E-10	1.02E-09
ESE	3500	U-235	2.20E-16	3.96E-23	1.04E-23	5.00E-23
ESE	3500	Th-231	1.88E-18	3.39E-25	7.95E-26	4.18E-25
ESE	3500	Pa-231	1.08E-27	1.94E-34	0.00E+00	2.38E-34
ESE	4500	Pu-239	4.94E-03	8.90E-10	3.88E-10	1.28E-09
ESE	4500	U-235m	3.31E-03	5.95E-10	2.22E-10	8.18E-10
ESE	4500	U-235	2.26E-16	4.06E-23	1.17E-23	5.23E-23
ESE	4500	Th-231	2.52E-18	4.54E-25	1.16E-25	5.70E-25
ESE	4500	Pa-231	1.89E-27	3.40E-34	0.00E+00	4.22E-34
ESE	7500	Pu-239	2.21E-03	3.99E-10	2.20E-10	6.18E-10
ESE	7500	U-235m	1.78E-03	3.21E-10	1.58E-10	4.79E-10
ESE	7500	U-235	2.15E-16	3.86E-23	1.39E-23	5.25E-23
ESE	7500	Th-231	4.16E-18	7.48E-25	2.30E-25	9.78E-25
ESE	7500	Pa-231	5.36E-27	9.66E-34	0.00E+00	1.24E-33
ESE	15000	Pu-239	7.77E-04	1.40E-10	1.01E-10	2.40E-10
ESE	15000	U-235m	7.23E-04	1.30E-10	8.95E-11	2.20E-10

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ESE	15000	U-235	1.88E-16	3.39E-23	1.55E-23	4.94E-23
ESE	15000	Th-231	7.63E-18	1.37E-24	5.07E-25	1.88E-24
ESE	15000	Pa-231	2.08E-26	3.74E-33	0.00E+00	5.00E-33
ESE	25000	Pu-239	3.08E-04	5.54E-11	5.21E-11	1.07E-10
ESE	25000	U-235m	3.01E-04	5.41E-11	5.02E-11	1.04E-10
ESE	25000	U-235	1.27E-16	2.29E-23	1.35E-23	3.64E-23
ESE	25000	Th-231	8.44E-18	1.52E-24	6.62E-25	2.18E-24
ESE	25000	Pa-231	3.94E-26	7.09E-33	0.00E+00	9.74E-33
ESE	35000	Pu-239	1.84E-04	3.32E-11	3.50E-11	6.82E-11
ESE	35000	U-235m	1.83E-04	3.29E-11	3.46E-11	6.75E-11
ESE	35000	U-235	1.11E-16	2.00E-23	1.32E-23	3.32E-23
ESE	35000	Th-231	1.03E-17	1.85E-24	8.74E-25	2.72E-24
ESE	35000	Pa-231	6.85E-26	1.23E-32	0.00E+00	1.72E-32
ESE	45000	Pu-239	1.21E-04	2.18E-11	2.55E-11	4.73E-11
ESE	45000	U-235m	1.21E-04	2.17E-11	2.54E-11	4.71E-11
ESE	45000	U-235	9.46E-17	1.70E-23	1.25E-23	2.95E-23
ESE	45000	Th-231	1.10E-17	1.98E-24	1.01E-24	3.00E-24
ESE	45000	Pa-231	9.54E-26	1.72E-32	0.00E+00	2.43E-32
ESE	55000	Pu-239	8.06E-05	1.45E-11	1.93E-11	3.38E-11
ESE	55000	U-235m	8.05E-05	1.45E-11	1.92E-11	3.37E-11
ESE	55000	U-235	7.48E-17	1.35E-23	1.13E-23	2.47E-23
ESE	55000	Th-231	1.02E-17	1.84E-24	1.05E-24	2.89E-24
ESE	55000	Pa-231	1.08E-25	1.95E-32	0.00E+00	2.82E-32
ESE	70000	Pu-239	4.12E-05	7.42E-12	1.32E-11	2.06E-11
ESE	70000	U-235m	4.12E-05	7.42E-12	1.32E-11	2.06E-11
ESE	70000	U-235	4.03E-17	7.25E-24	8.94E-24	1.62E-23
ESE	70000	Th-231	6.01E-18	1.08E-24	8.81E-25	1.96E-24
ESE	70000	Pa-231	7.70E-26	1.39E-32	0.00E+00	2.17E-32
E	250	Pu-239	2.83E-01	5.09E-08	1.05E-08	6.14E-08
E	250	U-235m	9.02E-03	1.62E-09	5.45E-10	2.17E-09
E	250	U-235	1.16E-17	2.08E-24	1.41E-24	3.49E-24
E	250	Th-231	2.65E-21	4.76E-28	6.96E-28	1.17E-27
E	250	Pa-231	1.43E-32	0.00E+00	0.00E+00	2.62E-38
E	750	Pu-239	9.10E-02	1.64E-08	3.44E-09	1.98E-08
E	750	U-235m	1.42E-02	2.56E-09	5.01E-10	3.06E-09
E	750	U-235	1.20E-16	2.16E-23	3.89E-24	2.55E-23
E	750	Th-231	1.88E-19	3.39E-26	5.78E-27	3.96E-26
E	750	Pa-231	2.07E-29	3.73E-36	0.00E+00	4.35E-36
E	1500	Pu-239	3.47E-02	6.24E-09	1.68E-09	7.93E-09
E	1500	U-235m	1.08E-02	1.95E-09	4.40E-10	2.39E-09
E	1500	U-235	2.03E-16	3.66E-23	6.88E-24	4.34E-23
E	1500	Th-231	6.68E-19	1.20E-25	2.06E-26	1.41E-25
E	1500	Pa-231	1.51E-28	2.72E-35	0.00E+00	3.16E-35
E	2500	Pu-239	1.56E-02	2.81E-09	9.88E-10	3.80E-09
E	2500	U-235m	7.19E-03	1.29E-09	3.78E-10	1.67E-09
E	2500	U-235	2.37E-16	4.27E-23	9.94E-24	5.26E-23
E	2500	Th-231	1.34E-18	2.41E-25	5.00E-26	2.91E-25

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
E	2500	Pa-231	5.13E-28	9.23E-35	0.00E+00	1.11E-34
E	3500	Pu-239	9.22E-03	1.66E-09	6.91E-10	2.35E-09
E	3500	U-235m	5.24E-03	9.43E-10	3.30E-10	1.27E-09
E	3500	U-235	2.51E-16	4.51E-23	1.22E-23	5.73E-23
E	3500	Th-231	2.02E-18	3.64E-25	8.62E-26	4.50E-25
E	3500	Pa-231	1.10E-27	1.98E-34	0.00E+00	2.43E-34
E	4500	Pu-239	6.29E-03	1.13E-09	5.27E-10	1.66E-09
E	4500	U-235m	4.07E-03	7.33E-10	2.91E-10	1.02E-09
E	4500	U-235	2.58E-16	4.64E-23	1.39E-23	6.03E-23
E	4500	Th-231	2.72E-18	4.90E-25	1.26E-25	6.16E-25
E	4500	Pa-231	1.93E-27	3.48E-34	0.00E+00	4.32E-34
E	7500	Pu-239	2.82E-03	5.08E-10	3.01E-10	8.08E-10
E	7500	U-235m	2.22E-03	4.00E-10	2.12E-10	6.12E-10
E	7500	U-235	2.49E-16	4.48E-23	1.68E-23	6.15E-23
E	7500	Th-231	4.54E-18	8.16E-25	2.55E-25	1.07E-24
E	7500	Pa-231	5.55E-27	1.00E-33	0.00E+00	1.29E-33
E	15000	Pu-239	9.93E-04	1.79E-10	1.39E-10	3.17E-10
E	15000	U-235m	9.17E-04	1.65E-10	1.23E-10	2.88E-10
E	15000	U-235	2.22E-16	3.99E-23	1.94E-23	5.93E-23
E	15000	Th-231	8.47E-18	1.53E-24	5.77E-25	2.10E-24
E	15000	Pa-231	2.19E-26	3.94E-33	0.00E+00	5.26E-33
E	25000	Pu-239	3.99E-04	7.19E-11	7.30E-11	1.45E-10
E	25000	U-235m	3.89E-04	7.00E-11	7.02E-11	1.40E-10
E	25000	U-235	1.54E-16	2.76E-23	1.75E-23	4.52E-23
E	25000	Th-231	9.62E-18	1.73E-24	7.83E-25	2.52E-24
E	25000	Pa-231	4.25E-26	7.66E-33	0.00E+00	1.05E-32
E	35000	Pu-239	2.40E-04	4.32E-11	4.92E-11	9.24E-11
E	35000	U-235m	2.38E-04	4.28E-11	4.86E-11	9.15E-11
E	35000	U-235	1.35E-16	2.44E-23	1.74E-23	4.17E-23
E	35000	Th-231	1.18E-17	2.12E-24	1.05E-24	3.17E-24
E	35000	Pa-231	7.45E-26	1.34E-32	0.00E+00	1.88E-32
E	45000	Pu-239	1.58E-04	2.85E-11	3.60E-11	6.45E-11
E	45000	U-235m	1.58E-04	2.84E-11	3.59E-11	6.43E-11
E	45000	U-235	1.16E-16	2.09E-23	1.65E-23	3.74E-23
E	45000	Th-231	1.28E-17	2.30E-24	1.23E-24	3.53E-24
E	45000	Pa-231	1.05E-25	1.88E-32	0.00E+00	2.68E-32
E	55000	Pu-239	1.06E-04	1.91E-11	2.74E-11	4.65E-11
E	55000	U-235m	1.06E-04	1.91E-11	2.74E-11	4.65E-11
E	55000	U-235	9.28E-17	1.67E-23	1.52E-23	3.19E-23
E	55000	Th-231	1.20E-17	2.16E-24	1.30E-24	3.46E-24
E	55000	Pa-231	1.20E-25	2.17E-32	0.00E+00	3.15E-32
E	70000	Pu-239	5.58E-05	1.00E-11	1.90E-11	2.90E-11
E	70000	U-235m	5.57E-05	1.00E-11	1.90E-11	2.90E-11
E	70000	U-235	5.19E-17	9.34E-24	1.24E-23	2.17E-23
E	70000	Th-231	7.35E-18	1.32E-24	1.14E-24	2.47E-24
E	70000	Pa-231	8.87E-26	1.60E-32	0.00E+00	2.52E-32
ENE	250	Pu-239	2.29E-01	4.12E-08	8.77E-09	4.99E-08

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ENE	250	U-235m	8.01E-03	1.44E-09	4.85E-10	1.93E-09
ENE	250	U-235	1.11E-17	2.00E-24	1.30E-24	3.30E-24
ENE	250	Th-231	2.69E-21	4.85E-28	6.58E-28	1.14E-27
ENE	250	Pa-231	1.24E-32	0.00E+00	0.00E+00	2.50E-38
ENE	750	Pu-239	7.37E-02	1.33E-08	2.88E-09	1.62E-08
ENE	750	U-235m	1.22E-02	2.20E-09	4.45E-10	2.64E-09
ENE	750	U-235	1.07E-16	1.93E-23	3.58E-24	2.29E-23
ENE	750	Th-231	1.73E-19	3.12E-26	5.47E-27	3.66E-26
ENE	750	Pa-231	1.97E-29	3.55E-36	0.00E+00	4.15E-36
ENE	1500	Pu-239	2.82E-02	5.08E-09	1.41E-09	6.49E-09
ENE	1500	U-235m	9.26E-03	1.67E-09	3.90E-10	2.06E-09
ENE	1500	U-235	1.81E-16	3.26E-23	6.32E-24	3.89E-23
ENE	1500	Th-231	6.17E-19	1.11E-25	1.94E-26	1.30E-25
ENE	1500	Pa-231	1.44E-28	2.60E-35	0.00E+00	3.03E-35
ENE	2500	Pu-239	1.27E-02	2.29E-09	8.27E-10	3.11E-09
ENE	2500	U-235m	6.12E-03	1.10E-09	3.34E-10	1.44E-09
ENE	2500	U-235	2.11E-16	3.79E-23	9.12E-24	4.70E-23
ENE	2500	Th-231	1.23E-18	2.21E-25	4.70E-26	2.68E-25
ENE	2500	Pa-231	4.89E-28	8.81E-35	0.00E+00	1.06E-34
ENE	3500	Pu-239	7.49E-03	1.35E-09	5.78E-10	1.93E-09
ENE	3500	U-235m	4.43E-03	7.98E-10	2.90E-10	1.09E-09
ENE	3500	U-235	2.22E-16	3.99E-23	1.12E-23	5.11E-23
ENE	3500	Th-231	1.85E-18	3.34E-25	8.09E-26	4.15E-25
ENE	3500	Pa-231	1.05E-27	1.89E-34	0.00E+00	2.31E-34
ENE	4500	Pu-239	5.10E-03	9.19E-10	4.40E-10	1.36E-09
ENE	4500	U-235m	3.43E-03	6.17E-10	2.55E-10	8.72E-10
ENE	4500	U-235	2.28E-16	4.10E-23	1.27E-23	5.36E-23
ENE	4500	Th-231	2.49E-18	4.48E-25	1.18E-25	5.66E-25
ENE	4500	Pa-231	1.83E-27	3.30E-34	0.00E+00	4.11E-34
ENE	7500	Pu-239	2.28E-03	4.11E-10	2.51E-10	6.61E-10
ENE	7500	U-235m	1.85E-03	3.33E-10	1.84E-10	5.17E-10
ENE	7500	U-235	2.17E-16	3.91E-23	1.53E-23	5.44E-23
ENE	7500	Th-231	4.11E-18	7.40E-25	2.38E-25	9.78E-25
ENE	7500	Pa-231	5.22E-27	9.40E-34	0.00E+00	1.22E-33
ENE	15000	Pu-239	8.01E-04	1.44E-10	1.15E-10	2.59E-10
ENE	15000	U-235m	7.52E-04	1.35E-10	1.04E-10	2.40E-10
ENE	15000	U-235	1.92E-16	3.46E-23	1.76E-23	5.22E-23
ENE	15000	Th-231	7.59E-18	1.37E-24	5.37E-25	1.90E-24
ENE	15000	Pa-231	2.03E-26	3.66E-33	0.00E+00	4.92E-33
ENE	25000	Pu-239	3.20E-04	5.75E-11	6.03E-11	1.18E-10
ENE	25000	U-235m	3.14E-04	5.65E-11	5.86E-11	1.15E-10
ENE	25000	U-235	1.31E-16	2.36E-23	1.59E-23	3.95E-23
ENE	25000	Th-231	8.49E-18	1.53E-24	7.29E-25	2.26E-24
ENE	25000	Pa-231	3.88E-26	6.99E-33	0.00E+00	9.72E-33
ENE	35000	Pu-239	1.92E-04	3.46E-11	4.05E-11	7.51E-11
ENE	35000	U-235m	1.91E-04	3.44E-11	4.02E-11	7.46E-11
ENE	35000	U-235	1.15E-16	2.07E-23	1.56E-23	3.64E-23

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
ENE	35000	Th-231	1.04E-17	1.87E-24	9.76E-25	2.84E-24
ENE	35000	Pa-231	6.76E-26	1.22E-32	0.00E+00	1.72E-32
ENE	45000	Pu-239	1.26E-04	2.28E-11	2.95E-11	5.23E-11
ENE	45000	U-235m	1.26E-04	2.27E-11	2.94E-11	5.21E-11
ENE	45000	U-235	9.85E-17	1.77E-23	1.48E-23	3.25E-23
ENE	45000	Th-231	1.12E-17	2.01E-24	1.15E-24	3.16E-24
ENE	45000	Pa-231	9.45E-26	1.70E-32	0.00E+00	2.45E-32
ENE	55000	Pu-239	8.46E-05	1.52E-11	2.23E-11	3.76E-11
ENE	55000	U-235m	8.45E-05	1.52E-11	2.23E-11	3.75E-11
ENE	55000	U-235	7.84E-17	1.41E-23	1.35E-23	2.76E-23
ENE	55000	Th-231	1.04E-17	1.88E-24	1.21E-24	3.09E-24
ENE	55000	Pa-231	1.08E-25	1.94E-32	0.00E+00	2.87E-32
ENE	70000	Pu-239	4.39E-05	7.91E-12	1.54E-11	2.33E-11
ENE	70000	U-235m	4.39E-05	7.90E-12	1.53E-11	2.33E-11
ENE	70000	U-235	4.35E-17	7.83E-24	1.11E-23	1.89E-23
ENE	70000	Th-231	6.32E-18	1.14E-24	1.08E-24	2.22E-24
ENE	70000	Pa-231	7.81E-26	1.41E-32	0.00E+00	2.30E-32
NE	250	Pu-239	2.47E-01	4.45E-08	9.78E-09	5.42E-08
NE	250	U-235m	8.58E-03	1.54E-09	5.47E-10	2.09E-09
NE	250	U-235	1.20E-17	2.16E-24	1.47E-24	3.63E-24
NE	250	Th-231	2.99E-21	5.38E-28	7.34E-28	1.27E-27
NE	250	Pa-231	1.45E-32	0.00E+00	0.00E+00	2.73E-38
NE	750	Pu-239	8.47E-02	1.52E-08	3.22E-09	1.85E-08
NE	750	U-235m	1.41E-02	2.54E-09	5.01E-10	3.04E-09
NE	750	U-235	1.23E-16	2.22E-23	4.05E-24	2.62E-23
NE	750	Th-231	1.95E-19	3.51E-26	6.10E-27	4.12E-26
NE	750	Pa-231	2.17E-29	3.90E-36	0.00E+00	4.56E-36
NE	1500	Pu-239	3.28E-02	5.90E-09	1.57E-09	7.48E-09
NE	1500	U-235m	1.08E-02	1.94E-09	4.38E-10	2.38E-09
NE	1500	U-235	2.08E-16	3.75E-23	7.15E-24	4.46E-23
NE	1500	Th-231	6.93E-19	1.25E-25	2.17E-26	1.46E-25
NE	1500	Pa-231	1.58E-28	2.84E-35	0.00E+00	3.31E-35
NE	2500	Pu-239	1.48E-02	2.67E-09	9.20E-10	3.59E-09
NE	2500	U-235m	7.15E-03	1.29E-09	3.75E-10	1.66E-09
NE	2500	U-235	2.43E-16	4.37E-23	1.03E-23	5.40E-23
NE	2500	Th-231	1.38E-18	2.49E-25	5.27E-26	3.02E-25
NE	2500	Pa-231	5.36E-28	9.64E-35	0.00E+00	1.16E-34
NE	3500	Pu-239	8.75E-03	1.58E-09	6.42E-10	2.22E-09
NE	3500	U-235m	5.19E-03	9.35E-10	3.25E-10	1.26E-09
NE	3500	U-235	2.56E-16	4.61E-23	1.26E-23	5.88E-23
NE	3500	Th-231	2.09E-18	3.76E-25	9.09E-26	4.67E-25
NE	3500	Pa-231	1.15E-27	2.07E-34	0.00E+00	2.54E-34
NE	4500	Pu-239	5.97E-03	1.07E-09	4.89E-10	1.56E-09
NE	4500	U-235m	4.03E-03	7.25E-10	2.85E-10	1.01E-09
NE	4500	U-235	2.64E-16	4.74E-23	1.43E-23	6.18E-23
NE	4500	Th-231	2.81E-18	5.06E-25	1.33E-25	6.40E-25
NE	4500	Pa-231	2.02E-27	3.63E-34	0.00E+00	4.53E-34

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NE	7500	Pu-239	2.67E-03	4.81E-10	2.78E-10	7.59E-10
NE	7500	U-235m	2.18E-03	3.92E-10	2.04E-10	5.96E-10
NE	7500	U-235	2.53E-16	4.56E-23	1.73E-23	6.29E-23
NE	7500	Th-231	4.68E-18	8.42E-25	2.69E-25	1.11E-24
NE	7500	Pa-231	5.78E-27	1.04E-33	0.00E+00	1.35E-33
NE	15000	Pu-239	9.45E-04	1.70E-10	1.27E-10	2.97E-10
NE	15000	U-235m	8.88E-04	1.60E-10	1.15E-10	2.75E-10
NE	15000	U-235	2.25E-16	4.05E-23	1.98E-23	6.03E-23
NE	15000	Th-231	8.72E-18	1.57E-24	6.08E-25	2.18E-24
NE	15000	Pa-231	2.27E-26	4.09E-33	0.00E+00	5.50E-33
NE	25000	Pu-239	3.78E-04	6.80E-11	6.62E-11	1.34E-10
NE	25000	U-235m	3.71E-04	6.68E-11	6.43E-11	1.31E-10
NE	25000	U-235	1.55E-16	2.79E-23	1.77E-23	4.56E-23
NE	25000	Th-231	9.88E-18	1.78E-24	8.26E-25	2.60E-24
NE	25000	Pa-231	4.40E-26	7.93E-33	0.00E+00	1.10E-32
NE	35000	Pu-239	2.28E-04	4.10E-11	4.44E-11	8.54E-11
NE	35000	U-235m	2.27E-04	4.08E-11	4.40E-11	8.48E-11
NE	35000	U-235	1.37E-16	2.46E-23	1.73E-23	4.19E-23
NE	35000	Th-231	1.21E-17	2.18E-24	1.10E-24	3.28E-24
NE	35000	Pa-231	7.70E-26	1.39E-32	0.00E+00	1.96E-32
NE	45000	Pu-239	1.50E-04	2.70E-11	3.23E-11	5.93E-11
NE	45000	U-235m	1.50E-04	2.70E-11	3.22E-11	5.92E-11
NE	45000	U-235	1.17E-16	2.10E-23	1.64E-23	3.74E-23
NE	45000	Th-231	1.31E-17	2.35E-24	1.29E-24	3.65E-24
NE	45000	Pa-231	1.08E-25	1.95E-32	0.00E+00	2.80E-32
NE	55000	Pu-239	1.00E-04	1.81E-11	2.44E-11	4.25E-11
NE	55000	U-235m	1.00E-04	1.81E-11	2.43E-11	4.24E-11
NE	55000	U-235	9.32E-17	1.68E-23	1.49E-23	3.17E-23
NE	55000	Th-231	1.23E-17	2.21E-24	1.36E-24	3.57E-24
NE	55000	Pa-231	1.24E-25	2.24E-32	0.00E+00	3.29E-32
NE	70000	Pu-239	5.17E-05	9.30E-12	1.66E-11	2.59E-11
NE	70000	U-235m	5.16E-05	9.30E-12	1.66E-11	2.59E-11
NE	70000	U-235	5.17E-17	9.30E-24	1.20E-23	2.13E-23
NE	70000	Th-231	7.52E-18	1.35E-24	1.19E-24	2.55E-24
NE	70000	Pa-231	9.15E-26	1.65E-32	0.00E+00	2.66E-32
NNE	250	Pu-239	2.48E-01	4.46E-08	1.06E-08	5.52E-08
NNE	250	U-235m	9.06E-03	1.63E-09	6.29E-10	2.26E-09
NNE	250	U-235	1.31E-17	2.36E-24	1.75E-24	4.11E-24
NNE	250	Th-231	3.33E-21	6.00E-28	8.85E-28	1.48E-27
NNE	250	Pa-231	1.80E-32	0.00E+00	0.00E+00	3.35E-38
NNE	750	Pu-239	9.43E-02	1.70E-08	3.47E-09	2.04E-08
NNE	750	U-235m	1.67E-02	3.00E-09	5.74E-10	3.57E-09
NNE	750	U-235	1.49E-16	2.69E-23	4.81E-24	3.17E-23
NNE	750	Th-231	2.39E-19	4.30E-26	7.36E-27	5.03E-26
NNE	750	Pa-231	2.65E-29	4.78E-36	0.00E+00	5.58E-36
NNE	1500	Pu-239	3.73E-02	6.71E-09	1.69E-09	8.41E-09
NNE	1500	U-235m	1.28E-02	2.31E-09	5.00E-10	2.81E-09

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNE	1500	U-235	2.53E-16	4.56E-23	8.48E-24	5.41E-23
NNE	1500	Th-231	8.48E-19	1.53E-25	2.62E-26	1.79E-25
NNE	1500	Pa-231	1.93E-28	3.48E-35	0.00E+00	4.05E-35
NNE	2500	Pu-239	1.69E-02	3.05E-09	9.89E-10	4.04E-09
NNE	2500	U-235m	8.52E-03	1.53E-09	4.24E-10	1.96E-09
NNE	2500	U-235	2.96E-16	5.32E-23	1.22E-23	6.54E-23
NNE	2500	Th-231	1.69E-18	3.05E-25	6.34E-26	3.68E-25
NNE	2500	Pa-231	6.56E-28	1.18E-34	0.00E+00	1.42E-34
NNE	3500	Pu-239	1.00E-02	1.80E-09	6.89E-10	2.49E-09
NNE	3500	U-235m	6.17E-03	1.11E-09	3.65E-10	1.48E-09
NNE	3500	U-235	3.12E-16	5.62E-23	1.49E-23	7.11E-23
NNE	3500	Th-231	2.56E-18	4.61E-25	1.09E-25	5.70E-25
NNE	3500	Pa-231	1.41E-27	2.54E-34	0.00E+00	3.11E-34
NNE	4500	Pu-239	6.85E-03	1.23E-09	5.24E-10	1.76E-09
NNE	4500	U-235m	4.77E-03	8.59E-10	3.18E-10	1.18E-09
NNE	4500	U-235	3.21E-16	5.78E-23	1.69E-23	7.46E-23
NNE	4500	Th-231	3.44E-18	6.20E-25	1.60E-25	7.80E-25
NNE	4500	Pa-231	2.47E-27	4.45E-34	0.00E+00	5.53E-34
NNE	7500	Pu-239	3.07E-03	5.52E-10	2.96E-10	8.48E-10
NNE	7500	U-235m	2.56E-03	4.61E-10	2.25E-10	6.86E-10
NNE	7500	U-235	3.08E-16	5.55E-23	2.02E-23	7.56E-23
NNE	7500	Th-231	5.73E-18	1.03E-24	3.21E-25	1.35E-24
NNE	7500	Pa-231	7.08E-27	1.27E-33	0.00E+00	1.64E-33
NNE	15000	Pu-239	1.08E-03	1.95E-10	1.34E-10	3.30E-10
NNE	15000	U-235m	1.03E-03	1.86E-10	1.23E-10	3.09E-10
NNE	15000	U-235	2.73E-16	4.92E-23	2.28E-23	7.19E-23
NNE	15000	Th-231	1.07E-17	1.92E-24	7.22E-25	2.64E-24
NNE	15000	Pa-231	2.78E-26	5.01E-33	0.00E+00	6.71E-33
NNE	25000	Pu-239	4.30E-04	7.74E-11	6.86E-11	1.46E-10
NNE	25000	U-235m	4.24E-04	7.63E-11	6.70E-11	1.43E-10
NNE	25000	U-235	1.87E-16	3.37E-23	1.98E-23	5.35E-23
NNE	25000	Th-231	1.21E-17	2.17E-24	9.66E-25	3.14E-24
NNE	25000	Pa-231	5.39E-26	9.71E-33	0.00E+00	1.34E-32
NNE	35000	Pu-239	2.59E-04	4.67E-11	4.58E-11	9.24E-11
NNE	35000	U-235m	2.58E-04	4.65E-11	4.55E-11	9.20E-11
NNE	35000	U-235	1.64E-16	2.96E-23	1.93E-23	4.89E-23
NNE	35000	Th-231	1.48E-17	2.66E-24	1.28E-24	3.95E-24
NNE	35000	Pa-231	9.44E-26	1.70E-32	0.00E+00	2.38E-32
NNE	45000	Pu-239	1.70E-04	3.07E-11	3.31E-11	6.38E-11
NNE	45000	U-235m	1.70E-04	3.06E-11	3.30E-11	6.37E-11
NNE	45000	U-235	1.40E-16	2.53E-23	1.81E-23	4.34E-23
NNE	45000	Th-231	1.60E-17	2.87E-24	1.50E-24	4.37E-24
NNE	45000	Pa-231	1.32E-25	2.38E-32	0.00E+00	3.39E-32
NNE	55000	Pu-239	1.13E-04	2.04E-11	2.48E-11	4.51E-11
NNE	55000	U-235m	1.13E-04	2.04E-11	2.47E-11	4.51E-11
NNE	55000	U-235	1.11E-16	2.01E-23	1.63E-23	3.63E-23
NNE	55000	Th-231	1.50E-17	2.70E-24	1.56E-24	4.26E-24

ESTIMATED RADIONUCLIDE CONCENTRATIONS
AT VARIOUS LOCATIONS IN THE ENVIRONMENT

Wind Toward	Distance (meters)	Nuclide	Air Conc (pCi/m3)	Dry Depo Rate (pCi/cm2-s)	Wet Depo Rate (pCi/cm2-s)	Ground Depo Rate (pCi/cm2-s)
NNE	55000	Pa-231	1.52E-25	2.74E-32	0.00E+00	3.98E-32
NNE	70000	Pu-239	5.65E-05	1.02E-11	1.66E-11	2.67E-11
NNE	70000	U-235m	5.64E-05	1.02E-11	1.66E-11	2.67E-11
NNE	70000	U-235	6.07E-17	1.09E-23	1.27E-23	2.37E-23
NNE	70000	Th-231	9.11E-18	1.64E-24	1.33E-24	2.97E-24
NNE	70000	Pa-231	1.12E-25	2.01E-32	0.00E+00	3.18E-32

Chi/Q

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

C H I / Q T A B L E S

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Population File:
C:\Users\rwood\OneDrive\Documents\CAP88\PopulationFiles\battelle.pop

GROUND-LEVEL CHI/Q VALUES FOR Pu-239
SOLUBILITY: M
CHEMFORM: Particulate
SIZE: 1.000
CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

	Distance (meters)						
Dir	250	750	1500	2500	3500	4500	7500
N	1.113E-05	5.083E-06	2.109E-06	9.673E-07	5.735E-07	3.916E-07	1.743E-07
NNW	6.325E-06	3.716E-06	1.676E-06	7.830E-07	4.655E-07	3.173E-07	1.399E-07
NW	6.415E-06	3.368E-06	1.509E-06	7.042E-07	4.183E-07	2.849E-07	1.255E-07
WNW	4.479E-06	2.052E-06	8.959E-07	4.153E-07	2.461E-07	1.674E-07	7.367E-08
W	4.219E-06	2.363E-06	1.065E-06	4.973E-07	2.955E-07	2.014E-07	8.868E-08
WSW	4.713E-06	2.905E-06	1.308E-06	6.104E-07	3.629E-07	2.475E-07	1.091E-07
SW	4.795E-06	2.901E-06	1.290E-06	6.005E-07	3.570E-07	2.435E-07	1.076E-07
SSW	4.879E-06	2.577E-06	1.107E-06	5.113E-07	3.036E-07	2.072E-07	9.191E-08
S	7.550E-06	3.889E-06	1.661E-06	7.666E-07	4.553E-07	3.109E-07	1.381E-07
SSE	5.425E-06	2.269E-06	9.234E-07	4.218E-07	2.500E-07	1.707E-07	7.614E-08
SE	5.705E-06	2.064E-06	8.110E-07	3.676E-07	2.175E-07	1.484E-07	6.643E-08
ESE	6.317E-06	2.190E-06	8.531E-07	3.861E-07	2.283E-07	1.559E-07	6.983E-08
E	8.920E-06	2.869E-06	1.094E-06	4.923E-07	2.907E-07	1.983E-07	8.892E-08
ENE	7.210E-06	2.324E-06	8.904E-07	4.007E-07	2.363E-07	1.610E-07	7.193E-08
NE	7.789E-06	2.671E-06	1.034E-06	4.672E-07	2.760E-07	1.883E-07	8.433E-08
NNE	7.819E-06	2.974E-06	1.176E-06	5.340E-07	3.161E-07	2.159E-07	9.669E-08

	Distance (meters)					
Dir	15000	25000	35000	45000	55000	70000
N	6.126E-08	2.345E-08	1.408E-08	9.172E-09	5.967E-09	2.781E-09
NNW	4.861E-08	1.754E-08	1.049E-08	6.755E-09	4.261E-09	1.768E-09
NW	4.357E-08	1.573E-08	9.417E-09	6.073E-09	3.836E-09	1.601E-09
WNW	2.555E-08	9.303E-09	5.560E-09	3.588E-09	2.280E-09	9.827E-10
W	3.077E-08	1.107E-08	6.610E-09	4.252E-09	2.679E-09	1.109E-09
WSW	3.790E-08	1.367E-08	8.159E-09	5.246E-09	3.305E-09	1.364E-09
SW	3.742E-08	1.361E-08	8.111E-09	5.215E-09	3.295E-09	1.373E-09
SSW	3.211E-08	1.197E-08	7.150E-09	4.623E-09	2.962E-09	1.306E-09
S	4.817E-08	1.799E-08	1.072E-08	6.922E-09	4.434E-09	1.948E-09
SSE	2.668E-08	1.028E-08	6.146E-09	4.002E-09	2.615E-09	1.242E-09
SE	2.328E-08	9.153E-09	5.472E-09	3.577E-09	2.366E-09	1.178E-09
ESE	2.450E-08	9.709E-09	5.814E-09	3.814E-09	2.541E-09	1.301E-09
E	3.130E-08	1.260E-08	7.569E-09	4.991E-09	3.354E-09	1.758E-09
ENE	2.527E-08	1.008E-08	6.057E-09	3.987E-09	2.669E-09	1.386E-09
NE	2.979E-08	1.192E-08	7.184E-09	4.737E-09	3.169E-09	1.630E-09
NNE	3.420E-08	1.356E-08	8.174E-09	5.376E-09	3.569E-09	1.781E-09

Weather

C A P 8 8 - P C

Version 4.1

Clean Air Act Assessment Package - 1988

W E A T H E R D A T A

Non-Radon Population Assessment
Sun Oct 27 16:04:03 2019

Facility: Battelle Columbus
Address: 1234 Reactor Rd
City: West Jefferson
State: OH Zip: 44409

Source Category: A stack
Source Type: Stack
Emission Year: 2004

Comments: The default dataset that comes
with CAP88-PC V4.0

Dataset Name: CAP88Def41.
Dataset Date: Oct 27, 2019 04:03 PM
Wind File: C:\Users\rwood\OneDrive\Documents\CAP88\Wind Files\14821.wnd
Population File:
C:\Users\rwood\OneDrive\Documents\CAP88\PopulationFiles\battelle.pop

HARMONIC AVERAGE WIND SPEEDS (WIND TOWARDS)

	Pasquill Stability Class							
Dir	A	B	C	D	E	F	G	Wind Freq
N	1.500	1.700	2.320	2.990	2.770	1.040	0.000	0.105
NNW	1.430	1.490	1.920	2.520	2.620	0.920	0.000	0.062
NW	1.500	1.480	1.960	2.240	2.600	0.900	0.000	0.057
WNW	1.510	1.550	2.060	2.300	2.690	0.910	0.000	0.038
W	1.330	1.750	2.590	2.420	2.740	0.920	0.000	0.042
WSW	1.030	1.800	2.490	2.440	2.760	0.940	0.000	0.049
SW	1.540	1.870	2.370	2.560	2.800	0.970	0.000	0.049
SSW	1.500	1.670	2.520	2.620	2.840	1.000	0.000	0.047
S	1.670	1.890	2.540	2.760	2.900	1.030	0.000	0.074
SSE	1.640	1.870	2.890	3.060	3.030	1.060	0.000	0.051
SE	1.510	2.030	2.740	3.330	3.090	1.090	0.000	0.053
ESE	1.430	1.850	2.950	3.810	3.290	1.070	0.000	0.063
E	1.640	2.040	3.020	3.920	3.290	1.120	0.000	0.090
ENE	1.690	2.010	3.080	3.500	3.120	1.080	0.000	0.068
NE	1.470	1.880	3.100	3.600	3.120	1.110	0.000	0.076
NNE	1.440	1.950	2.840	3.390	2.920	1.110	0.000	0.076

ARITHMETIC AVERAGE WIND SPEEDS (WIND TOWARDS)

	Pasquill Stability Class						
Dir	A	B	C	D	E	F	G
N	2.020	2.490	3.090	3.880	2.880	1.440	0.000
NNW	1.950	2.220	2.690	3.370	2.650	1.190	0.000
NW	2.020	2.190	2.750	3.020	2.620	1.140	0.000
WNW	2.030	2.320	2.790	3.110	2.760	1.160	0.000
W	1.850	2.600	3.370	3.310	2.840	1.180	0.000
WSW	1.420	2.680	3.300	3.170	2.870	1.240	0.000
SW	2.050	2.750	3.160	3.400	2.930	1.300	0.000
SSW	2.020	2.520	3.360	3.450	2.990	1.370	0.000
S	2.160	2.740	3.390	3.560	3.060	1.410	0.000
SSE	2.140	2.800	3.620	3.870	3.240	1.480	0.000
SE	2.030	2.830	3.440	4.260	3.310	1.530	0.000
ESE	1.960	2.640	3.850	4.810	3.520	1.500	0.000
E	2.140	2.840	3.880	4.990	3.530	1.570	0.000
ENE	2.170	2.880	3.800	4.530	3.340	1.510	0.000
NE	2.000	2.680	3.810	4.530	3.340	1.550	0.000
NNE	1.960	2.700	3.620	4.300	3.090	1.560	0.000

FREQUENCIES OF STABILITY CLASSES (WIND TOWARDS)

	Pasquill Stability Class						
Dir	A	B	C	D	E	F	G
N	0.0068	0.0622	0.1123	0.4346	0.1299	0.2542	0.0000
NNW	0.0113	0.0781	0.0911	0.3298	0.1282	0.3614	0.0000
NW	0.0127	0.0905	0.1121	0.3281	0.1198	0.3368	0.0000
WNW	0.0234	0.1091	0.1322	0.3464	0.0998	0.2890	0.0000
W	0.0173	0.0996	0.1190	0.3223	0.1010	0.3408	0.0000
WSW	0.0080	0.0791	0.1069	0.3190	0.1177	0.3693	0.0000
SW	0.0091	0.0815	0.0906	0.3501	0.1057	0.3630	0.0000
SSW	0.0083	0.0634	0.0937	0.3958	0.1266	0.3122	0.0000
S	0.0053	0.0575	0.0971	0.4446	0.0902	0.3052	0.0000
SSE	0.0064	0.0578	0.1001	0.5192	0.0962	0.2204	0.0000
SE	0.0099	0.0533	0.0934	0.5936	0.0790	0.1708	0.0000
ESE	0.0065	0.0463	0.0807	0.6394	0.0842	0.1430	0.0000
E	0.0037	0.0610	0.1183	0.6153	0.0753	0.1264	0.0000
ENE	0.0164	0.0738	0.1483	0.5459	0.0823	0.1333	0.0000
NE	0.0066	0.0679	0.1440	0.5334	0.0990	0.1490	0.0000
NNE	0.0078	0.0638	0.1303	0.5009	0.1138	0.1834	0.0000
TOTAL	0.0092	0.0691	0.1118	0.4652	0.1029	0.2416	0.0000

ADDITIONAL WEATHER INFORMATION

Average Air Temperature: 10.0 degrees C
283.17 K
Precipitation: 101.0 cm/y
Humidity: 8.0 g/cu m
Lid Height: 1000.0 meters
Surface Roughness Length: 0.010 meters
Height Of Wind Measurements: 10.0 meters
Average Wind Speed: 3.124 m/s

Vertical Temperature Gradients:
STABILITY E 0.073 k/m
STABILITY F 0.109 k/m
STABILITY G 0.146 k/m