MicroShield v5.05 (5.05-00473)
American Ecology

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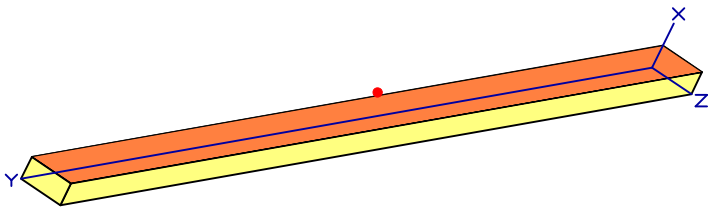
DOS File: MKMCELL.MS5
Run Date: February 2, 2007
Run Time: 2:40:58 PM
Duration: 00:00:16

File Ref: _____
Date: _____
By: _____
Checked: _____

Case Title: Cell Worker
Description: DU, U-238-124 pCi/g, U-234-20 pCi/g, U-235-7.5 pCi/g
Geometry: 13 - Rectangular Volume



Source Dimensions

Length	100.0 cm	3 ft 3.4 in
Width	200.0 cm	6 ft 6.7 in
Height	5.0e+3 cm	164 ft 0.5 in

Dose Points

	X	Y	Z
# 1	201.27 cm	2500 cm	100 cm
	6 ft 7.2 in	82 ft 0.3 in	3 ft 3.4 in

Shields

Shield Name	Dimension	Material	Density
Source	100.0 m³	Concrete	1.5
Shield 1	.013 m	Iron	7.86
Air Gap		Air	0.00122

Source Input
Grouping Method : Standard Indices
Number of Groups : 25
Lower Energy Cutoff : 0.015
Photons < 0.015 : Excluded
Library : Grove

Nuclide	curies	becquerels	µCi/cm³	Bq/cm³
Ac-227	9.8515e-010	3.6450e+001	9.8515e-012	3.6450e-007
Bi-210	4.5363e-013	1.6784e-002	4.5363e-015	1.6784e-010
Bi-211	8.7480e-010	3.2368e+001	8.7480e-012	3.2368e-007
Bi-214	2.3034e-011	8.5225e-001	2.3034e-013	8.5225e-009
Fr-223	1.3594e-011	5.0299e-001	1.3594e-013	5.0299e-009
Pa-231	3.1670e-008	1.1718e+003	3.1670e-010	1.1718e-005
Pa-234	2.9760e-005	1.1011e+006	2.9760e-007	1.1011e-002
Pa-234m	1.8600e-002	6.8820e+008	1.8600e-004	6.8820e+000
Pb-210	4.6727e-013	1.7289e-002	4.6727e-015	1.7289e-010
Pb-211	8.7480e-010	3.2368e+001	8.7480e-012	3.2368e-007
Pb-214	2.3035e-011	8.5229e-001	2.3035e-013	8.5229e-009
Po-210	2.2921e-013	8.4809e-003	2.2921e-015	8.4809e-011
Po-211	2.3882e-012	8.8363e-002	2.3882e-014	8.8363e-010
Po-214	2.3029e-011	8.5207e-001	2.3029e-013	8.5207e-009
Po-215	8.7490e-010	3.2371e+001	8.7490e-012	3.2371e-007
Po-218	2.3041e-011	8.5253e-001	2.3041e-013	8.5253e-009
Ra-223	8.7490e-010	3.2371e+001	8.7490e-012	3.2371e-007
Ra-226	2.3392e-011	8.6550e-001	2.3392e-013	8.6550e-009
Rn-219	8.7490e-010	3.2371e+001	8.7490e-012	3.2371e-007
Rn-222	2.3041e-011	8.5253e-001	2.3041e-013	8.5253e-009
Th-227	9.0289e-010	3.3407e+001	9.0289e-012	3.3407e-007
Th-230	5.4012e-008	1.9984e+003	5.4012e-010	1.9984e-005
Th-231	7.5000e-004	2.7750e+007	7.5000e-006	2.7750e-001
Th-234	1.8600e-002	6.8820e+008	1.8600e-004	6.8820e+000

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Nuclide	curies	becquerels	µCi/cm³	Bq/cm³
Tl-207	8.7240e-010	3.2279e+001	8.7240e-012	3.2279e-007
U-234	3.0001e-003	1.1100e+008	3.0001e-005	1.1100e+000
U-235	7.5000e-004	2.7750e+007	7.5000e-006	2.7750e-001
U-238	1.8600e-002	6.8820e+008	1.8600e-004	6.8820e+000

Buildup
The material reference is : Source

Integration Parameters

X Direction	20
Y Direction	20
Z Direction	20

Results

Energy MeV	Activity photons/sec	Fluence Rate MeV/cm²/sec No Buildup	Fluence Rate MeV/cm²/sec With Buildup	Exposure Rate mR/hr No Buildup	Exposure Rate mR/hr With Buildup
0.015	5.220e+04	1.322e-266	2.329e-30	1.134e-267	1.998e-31
0.02	4.172e+00	2.837e-127	2.929e-34	9.827e-129	1.015e-35
0.03	4.066e+06	1.743e-41	6.313e-28	1.728e-43	6.256e-30
0.04	1.350e+03	4.368e-24	1.741e-23	1.932e-26	7.698e-26
0.05	1.310e+05	2.732e-14	1.825e-13	7.277e-17	4.861e-16
0.06	2.707e+07	2.175e-08	2.021e-07	4.320e-11	4.014e-10
0.08	4.233e+06	3.548e-06	3.976e-05	5.615e-09	6.292e-08
0.1	4.519e+07	5.760e-04	6.335e-03	8.812e-07	9.692e-06
0.15	4.669e+06	6.992e-04	6.189e-03	1.151e-06	1.019e-05
0.2	1.736e+07	6.685e-03	4.994e-02	1.180e-05	8.815e-05
0.3	8.008e+04	8.044e-05	4.758e-04	1.526e-07	9.025e-07
0.4	6.762e+04	1.219e-04	6.119e-04	2.375e-07	1.192e-06
0.5	1.004e+05	2.793e-04	1.235e-03	5.482e-07	2.423e-06
0.6	4.103e+05	1.615e-03	6.436e-03	3.153e-06	1.256e-05
0.8	2.285e+06	1.549e-02	5.284e-02	2.946e-05	1.005e-04
1.0	7.305e+06	7.531e-02	2.295e-01	1.388e-04	4.231e-04
1.5	1.541e+05	3.373e-03	8.536e-03	5.675e-06	1.436e-05
2.0	1.988e+04	7.277e-04	1.654e-03	1.125e-06	2.557e-06
TOTALS:	1.132e+08	1.050e-01	3.638e-01	1.930e-04	6.657e-04