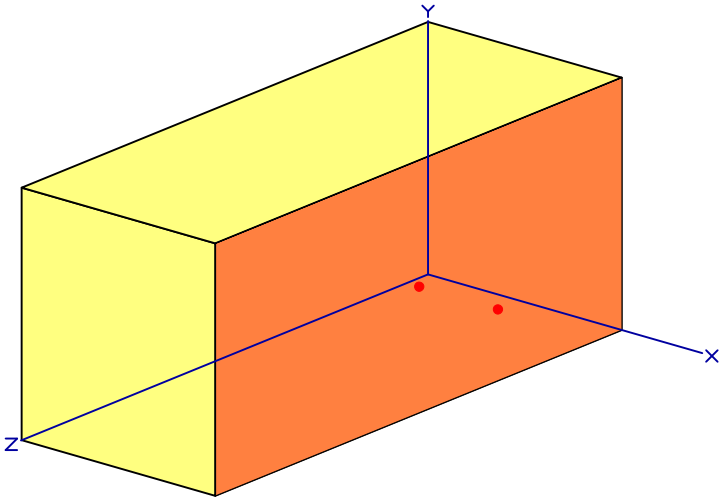
MicroShield v5.05 (5.05-00473)
American Ecology

Page : 1
DOS File: Case1
Run Date: February 3, 2007
Run Time: 1:33:07 PM
Duration: 00:00:30

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

Case Title: MKM-20 ft Sealand
Description: U-238-124 pCi/g, U-234-20 pCi/g, U-235-5 pCi/g
Geometry: 13 - Rectangular Volume



Source Dimensions

Length	243.84 cm	8 ft
Width	609.6 cm	20 ft 0.0 in
Height	259.08 cm	8 ft 6.0 in

Dose Points

	X	Y	Z
# 1	2.45e+02 cm	129.54 cm	304.8 cm
	8 ft 0.5 in	4 ft 3.0 in	10 ft 0.0 in
# 2	343.9668 cm	129.54 cm	304.8 cm
	11 ft 3.4 in	4 ft 3.0 in	10 ft 0.0 in

Shields

Shield Name	Dimension	Material	Density
Source	1360.0 ft³	Concrete	1.5
Shield 1	.005 ft	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	3.7939e-010	1.4037e+001	9.8515e-012	3.6450e-007
Bi-210	1.1646e-013	4.3092e-003	3.0242e-015	1.1189e-010
Bi-211	3.3689e-010	1.2465e+001	8.7480e-012	3.2368e-007
Bi-214	5.9136e-012	2.1880e-001	1.5356e-013	5.6816e-009
Fr-223	5.2353e-012	1.9370e-001	1.3594e-013	5.0299e-009
Pa-231	1.2196e-008	4.5127e+002	3.1670e-010	1.1718e-005
Pa-234	7.6406e-006	2.8270e+005	1.9840e-007	7.3408e-003
Pa-234m	4.7754e-003	1.7669e+008	1.2400e-004	4.5880e+000
Pb-210	1.1997e-013	4.4388e-003	3.1151e-015	1.1526e-010
Pb-211	3.3689e-010	1.2465e+001	8.7480e-012	3.2368e-007
Pb-214	5.9140e-012	2.1882e-001	1.5357e-013	5.6819e-009
Po-210	5.8848e-014	2.1774e-003	1.5281e-015	5.6539e-011
Po-211	9.1972e-013	3.4030e-002	2.3882e-014	8.8363e-010
Po-214	5.9124e-012	2.1876e-001	1.5353e-013	5.6804e-009
Po-215	3.3693e-010	1.2466e+001	8.7490e-012	3.2371e-007
Po-218	5.9156e-012	2.1888e-001	1.5361e-013	5.6835e-009
Ra-223	3.3693e-010	1.2466e+001	8.7490e-012	3.2371e-007
Ra-226	6.0056e-012	2.2221e-001	1.5595e-013	5.7700e-009
Rn-219	3.3693e-010	1.2466e+001	8.7490e-012	3.2371e-007
Rn-222	5.9156e-012	2.1888e-001	1.5361e-013	5.6836e-009
Th-227	3.4771e-010	1.2865e+001	9.0289e-012	3.3407e-007
Th-230	1.3867e-008	5.1308e+002	3.6008e-010	1.3323e-005

DOS File: Case1
Run Date: February 3, 2007
Run Time: 1:33:07 PM
Duration: 00:00:30

Nuclide	curies	becquerels	µCi/cm³	Bq/cm³
Th-231	2.8883e-004	1.0687e+007	7.5000e-006	2.7750e-001
Th-234	4.7754e-003	1.7669e+008	1.2400e-004	4.5880e+000
Tl-207	3.3597e-010	1.2431e+001	8.7240e-012	3.2279e-007
U-234	7.7024e-004	2.8499e+007	2.0001e-005	7.4002e-001
U-235	2.8883e-004	1.0687e+007	7.5000e-006	2.7750e-001
U-238	4.7754e-003	1.7669e+008	1.2400e-004	4.5880e+000

Buildup
The material reference is : Source

Integration Parameters

X Direction	20
Y Direction	20
Z Direction	20

Results - Dose Point # 1 - (8.0378,4.25,10) ft

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	2.010e+04	3.468e-72	8.990e-30	2.975e-73	7.711e-31
0.02	1.607e+00	5.010e-39	1.131e-33	1.735e-40	3.916e-35
0.03	1.566e+06	7.299e-13	1.346e-12	7.234e-15	1.334e-14
0.04	3.467e+02	2.655e-11	7.023e-11	1.174e-13	3.106e-13
0.05	3.363e+04	2.813e-07	1.006e-06	7.492e-10	2.680e-09
0.06	6.967e+06	5.713e-04	2.467e-03	1.135e-06	4.900e-06
0.08	1.505e+06	9.874e-04	4.792e-03	1.563e-06	7.584e-06
0.1	1.197e+07	1.997e-02	9.715e-02	3.055e-05	1.486e-04
0.15	1.753e+06	8.332e-03	3.690e-02	1.372e-05	6.077e-05
0.2	6.654e+06	5.398e-02	2.201e-01	9.527e-05	3.885e-04
0.3	2.057e+04	3.237e-04	1.157e-03	6.140e-07	2.195e-06
0.4	1.736e+04	4.288e-04	1.386e-03	8.355e-07	2.700e-06
0.5	2.578e+04	9.016e-04	2.695e-03	1.770e-06	5.290e-06
0.6	1.053e+05	4.898e-03	1.369e-02	9.561e-06	2.671e-05
0.8	5.866e+05	4.291e-02	1.086e-01	8.161e-05	2.066e-04
1.0	1.875e+06	1.957e-01	4.612e-01	3.607e-04	8.501e-04
1.5	3.956e+04	7.920e-03	1.655e-02	1.333e-05	2.784e-05
2.0	5.104e+03	1.618e-03	3.154e-03	2.502e-06	4.878e-06
TOTALS:	3.315e+07	3.385e-01	9.698e-01	6.131e-04	1.737e-03

Results - Dose Point # 2 - (11.285,4.25,10) ft

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	2.010e+04	1.536e-41	3.479e-30	1.317e-42	2.984e-31
0.02	1.607e+00	2.125e-26	2.680e-26	7.359e-28	9.283e-28
0.03	1.566e+06	1.893e-09	3.176e-09	1.876e-11	3.148e-11
0.04	3.467e+02	5.260e-10	1.179e-09	2.326e-12	5.213e-12
0.05	3.363e+04	1.045e-06	3.004e-06	2.783e-09	8.003e-09
0.06	6.967e+06	1.043e-03	3.543e-03	2.072e-06	7.038e-06
0.08	1.505e+06	1.049e-03	4.064e-03	1.660e-06	6.431e-06

DOS File: Case1
Run Date: February 3, 2007
Run Time: 1:33:07 PM
Duration: 00:00:30

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
0.1	1.197e+07	1.742e-02	6.876e-02	2.666e-05	1.052e-04
0.15	1.753e+06	6.142e-03	2.312e-02	1.011e-05	3.807e-05
0.2	6.654e+06	3.760e-02	1.332e-01	6.636e-05	2.351e-04
0.3	2.057e+04	2.149e-04	6.821e-04	4.077e-07	1.294e-06
0.4	1.736e+04	2.778e-04	8.071e-04	5.412e-07	1.573e-06
0.5	2.578e+04	5.743e-04	1.557e-03	1.127e-06	3.056e-06
0.6	1.053e+05	3.080e-03	7.862e-03	6.012e-06	1.535e-05
0.8	5.866e+05	2.645e-02	6.177e-02	5.031e-05	1.175e-04
1.0	1.875e+06	1.188e-01	2.601e-01	2.190e-04	4.795e-04
1.5	3.956e+04	4.681e-03	9.175e-03	7.875e-06	1.544e-05
2.0	5.104e+03	9.392e-04	1.726e-03	1.452e-06	2.669e-06
TOTALS:	3.315e+07	2.183e-01	5.764e-01	3.936e-04	1.028e-03