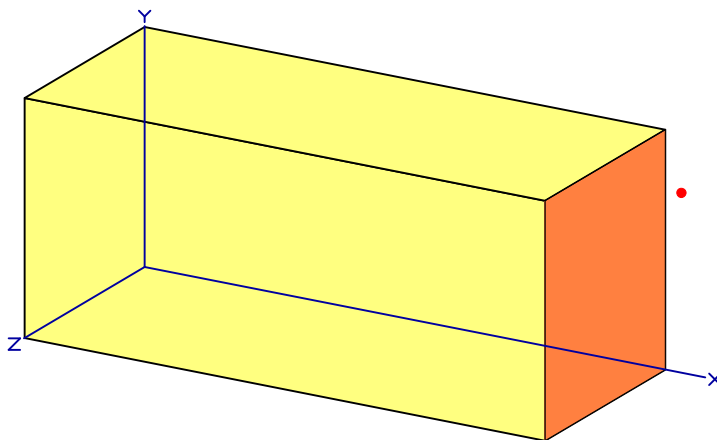


MicroShield v5.05 (5.05-00473)
American Ecology

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Run Date: February 3, 2007
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Duration: 00:00:22

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

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



Source Dimensions

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

Dose Points

	<u>X</u>	<u>Y</u>	<u>Z</u>
# 1	655.4724 cm	213.36 cm	45.72 cm
	21 ft 6.1 in	7 ft 0.0 in	1 ft 6.0 in

Shields

<u>Shield Name</u>	<u>Dimension</u>	<u>Material</u>	<u>Density</u>
Source	1360.0 ft ³	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

<u>Nuclide</u>	<u>curies</u>	<u>becquerels</u>	<u>uCi/cm³</u>	<u>Bq/cm³</u>
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
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

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<u>Nuclide</u>	<u>curies</u>	<u>becquerels</u>	<u>μCi/cm³</u>	<u>Bq/cm³</u>
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

<u>Energy</u>	<u>Activity</u>	<u>Fluence Rate</u>	<u>Fluence Rate</u>	<u>Exposure Rate</u>	<u>Exposure Rate</u>
<u>MeV</u>	<u>photons/sec</u>	<u>MeV/cm²/sec</u>	<u>MeV/cm²/sec</u>	<u>mR/hr</u>	<u>mR/hr</u>
		<u>No Buildup</u>	<u>With Buildup</u>	<u>No Buildup</u>	<u>With Buildup</u>
0.015	2.010e+04	8.922e-48	3.336e-30	7.653e-49	2.862e-31
0.02	1.607e+00	6.276e-29	7.999e-29	2.174e-30	2.771e-30
0.03	1.566e+06	4.740e-10	8.162e-10	4.698e-12	8.089e-12
0.04	3.467e+02	3.536e-10	8.232e-10	1.564e-12	3.641e-12
0.05	3.363e+04	8.803e-07	2.621e-06	2.345e-09	6.982e-09
0.06	6.967e+06	9.215e-04	3.212e-03	1.830e-06	6.380e-06
0.08	1.505e+06	9.457e-04	3.763e-03	1.497e-06	5.956e-06
0.1	1.197e+07	1.587e-02	6.445e-02	2.428e-05	9.861e-05
0.15	1.753e+06	5.678e-03	2.171e-02	9.351e-06	3.575e-05
0.2	6.654e+06	3.497e-02	1.248e-01	6.172e-05	2.202e-04
0.3	2.057e+04	2.008e-04	6.361e-04	3.809e-07	1.207e-06
0.4	1.736e+04	2.597e-04	7.493e-04	5.061e-07	1.460e-06
0.5	2.578e+04	5.369e-04	1.441e-03	1.054e-06	2.828e-06
0.6	1.053e+05	2.877e-03	7.255e-03	5.617e-06	1.416e-05
0.8	5.866e+05	2.466e-02	5.675e-02	4.691e-05	1.079e-04
1.0	1.875e+06	1.105e-01	2.381e-01	2.037e-04	4.388e-04
1.5	3.956e+04	4.330e-03	8.336e-03	7.285e-06	1.403e-05
2.0	5.104e+03	8.643e-04	1.559e-03	1.336e-06	2.411e-06
TOTALS:	3.315e+07	2.027e-01	5.327e-01	3.655e-04	9.498e-04