MicroShield 6.22 (6.10-0033)
International Isotopes Inc

Page : 1
DOS File : BMNT_12mCi_side.ms6
Run Date: June 5, 2009
Run Time: 12:43:24 PM
Duration : 00:00:01

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

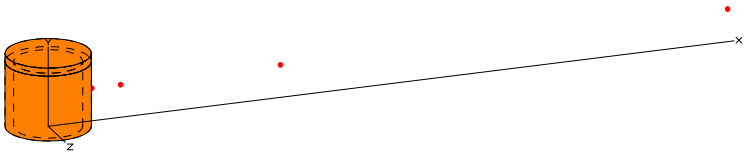
Case Title: 12 mCi Co-57 BMNT
Description: Stycast Source Matrix / HDPE Source Body
Geometry: 7 - Cylinder Volume - Side Shields

Source Dimensions

Height	10.16 cm	4.0 in
Radius	5.08 cm	2.0 in

Dose Points

	X	Y	Z
# 1	6.85 cm	5.08 cm	0 cm
	2.7 in	2.0 in	0.0 in
# 2	11.35 cm	5.08 cm	0 cm
	4.5 in	2.0 in	0.0 in
# 3	36.35 cm	5.08 cm	0 cm
	1 ft 2.3 in	2.0 in	0.0 in
# 4	106.35 cm	5.08 cm	0 cm
	3 ft 5.9 in	2.0 in	0.0 in



Shields

Shield Name	Dimension	Material	Density
Source	823.704 cm³	Stycast 1264 A/B	1.1
Transition		Air	0.00122
Air Gap		Air	0.00122
Wall Clad	1.27 cm	HDPE	0.95
Top Clad	1.27 cm	HDPE	0.95

Source Input
Grouping Method : Actual Photon Energies

Nuclide	curies	becquerels	µCi/cm³	Bq/cm³
Co-57	1.2000e-002	4.4400e+008	1.4568e+001	5.3903e+005

Buildup
The material reference is : Wall Clad

Integration Parameters

Radial	10
Circumferential	10
Y Direction (axial)	20

Results - Dose Point # 1 - (6.85,5.08,0) cm

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
0.0007	3.443e+06	2.544e-02	3.750e-02	1.114e-01	1.641e-01
0.0064	7.383e+07	4.982e+00	7.342e+00	2.388e+00	3.520e+00
0.0064	1.456e+08	9.846e+00	1.451e+01	4.711e+00	6.943e+00
0.0071	2.941e+07	2.192e+00	3.230e+00	9.513e-01	1.402e+00
0.0144	4.237e+07	6.448e+00	9.502e+00	6.271e-01	9.242e-01
0.1221	3.797e+08	3.799e+04	1.343e+05	5.957e+01	2.106e+02
0.1365	4.708e+07	5.402e+03	1.707e+04	8.686e+00	2.745e+01
0.536	1.273e+05	7.629e+01	1.195e+02	1.496e-01	2.344e-01
0.692	7.100e+05	5.768e+02	8.371e+02	1.114e+00	1.617e+00
TOTALS:	7.223e+08	4.407e+04	1.524e+05	7.830e+01	2.529e+02

Results - Dose Point # 2 - (11.35,5.08,0) cm

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
0.0007	3.443e+06	1.158e-02	1.689e-02	5.069e-02	7.395e-02
0.0064	7.383e+07	2.268e+00	3.308e+00	1.087e+00	1.586e+00
0.0064	1.456e+08	4.482e+00	6.538e+00	2.144e+00	3.128e+00
0.0071	2.941e+07	9.978e-01	1.455e+00	4.330e-01	6.317e-01
0.0144	4.237e+07	2.935e+00	4.281e+00	2.855e-01	4.164e-01
0.1221	3.797e+08	1.356e+04	4.671e+04	2.126e+01	7.323e+01
0.1365	4.708e+07	1.927e+03	5.944e+03	3.098e+00	9.558e+00
0.536	1.273e+05	2.698e+01	4.187e+01	5.292e-02	8.212e-02
0.692	7.100e+05	2.038e+02	2.935e+02	3.935e-01	5.667e-01
TOTALS:	7.223e+08	1.573e+04	5.300e+04	2.881e+01	8.928e+01

Results - Dose Point # 3 - (36.35,5.08,0) cm

DOS File : BMNT_12mCi_side.ms6
Run Date : June 5, 2009
Run Time: 12:43:24 PM
Duration : 00:00:01

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
0.0007	3.443e+06	9.848e-04	1.436e-03	4.310e-03	6.284e-03
0.0064	7.383e+07	1.928e-01	2.811e-01	9.244e-02	1.348e-01
0.0064	1.456e+08	3.811e-01	5.556e-01	1.823e-01	2.658e-01
0.0071	2.941e+07	8.484e-02	1.237e-01	3.682e-02	5.368e-02
0.0144	4.237e+07	2.496e-01	3.638e-01	2.427e-02	3.538e-02
0.1221	3.797e+08	1.242e+03	4.491e+03	1.947e+00	7.041e+00
0.1365	4.708e+07	1.766e+02	5.707e+02	2.840e-01	9.177e-01
0.536	1.273e+05	2.508e+00	3.973e+00	4.918e-03	7.792e-03
0.692	7.100e+05	1.898e+01	2.782e+01	3.665e-02	5.373e-02
TOTALS:	7.223e+08	1.441e+03	5.095e+03	2.612e+00	8.516e+00

Results - Dose Point # 4 - (106.35,5.08,0) cm

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
0.0007	3.443e+06	9.478e-05	1.393e-04	4.148e-04	6.098e-04
0.0064	7.383e+07	1.856e-02	2.728e-02	8.897e-03	1.308e-02
0.0064	1.456e+08	3.668e-02	5.392e-02	1.755e-02	2.580e-02
0.0071	2.941e+07	8.166e-03	1.200e-02	3.544e-03	5.209e-03
0.0144	4.237e+07	2.402e-02	3.531e-02	2.336e-03	3.434e-03
0.1221	3.797e+08	1.406e+02	5.270e+02	2.204e-01	8.262e-01
0.1365	4.708e+07	2.002e+01	6.693e+01	3.219e-02	1.076e-01
0.536	1.273e+05	2.872e-01	4.622e-01	5.633e-04	9.064e-04
0.692	7.100e+05	2.178e+00	3.233e+00	4.206e-03	6.244e-03
TOTALS:	7.223e+08	1.632e+02	5.977e+02	2.901e-01	9.891e-01