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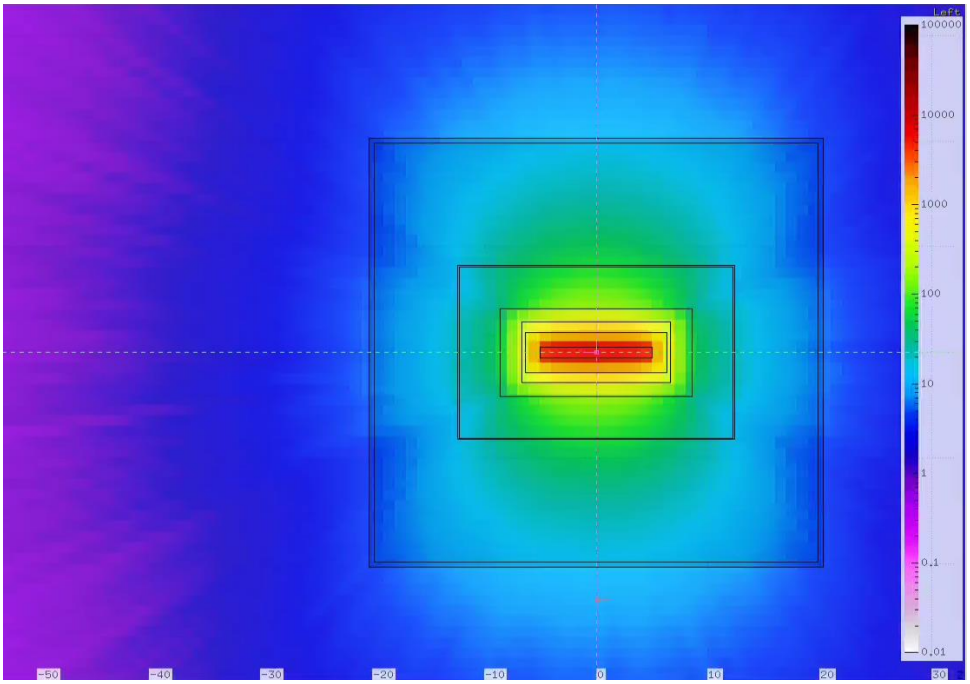
Dose Rates on Packaged Gallium Target 24 Hours After Irradiation
(Estimates expected to be within +/- 20%)

Nuclide	Quantity (mCi)	DR @ Crucible surf	DR @ Pig surf	DR @ Can surf	DR @ Box surf
Cu 64	55	4400	165	75	16
Cu 67	10	250	0.05	-	-
Ga 67	350	17500	70	25	6
Ga 72	4	4000	680	240	50
Zn 69m	4	520	15	6	1.5
Totals	423	**26670**	**930**	**346**	**75**

Results for 24 hour run at 5 kW, 40 MeV, with 24 hours decay

Dose rates in mrem/h

Above values conservatively rounded up from FLUKA results. The model assumes the target is packaged in the crucible and remains in the irradiation geometry (target material is in a cylindrical volume about 10 cm long and 1 cm in diameter). Values may be slightly lower if packaged in a vial. The geometry is shown below (rotated 90 degrees) with result for the Ga-72 contribution.



Dose rate from Ga-72 per mCi activity in the target (mrem/h)

Values for 1 kW run will scale linearly if energy and exposure/decay times are the same. Graphs on following pages show the dose rate for each nuclide per mCi activity. Approximate locations are shown for each of the surface boundaries defining the contact dose rates given in the table. As is clear from the table, due to its gamma energies, Ga-72 will always drive the dose rate when the target is shielded.

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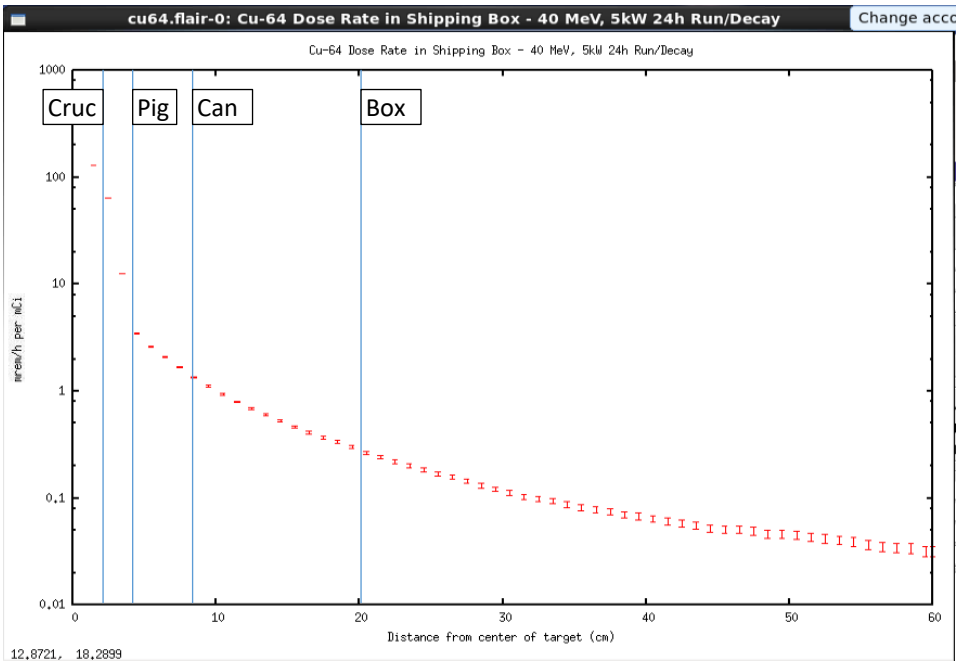

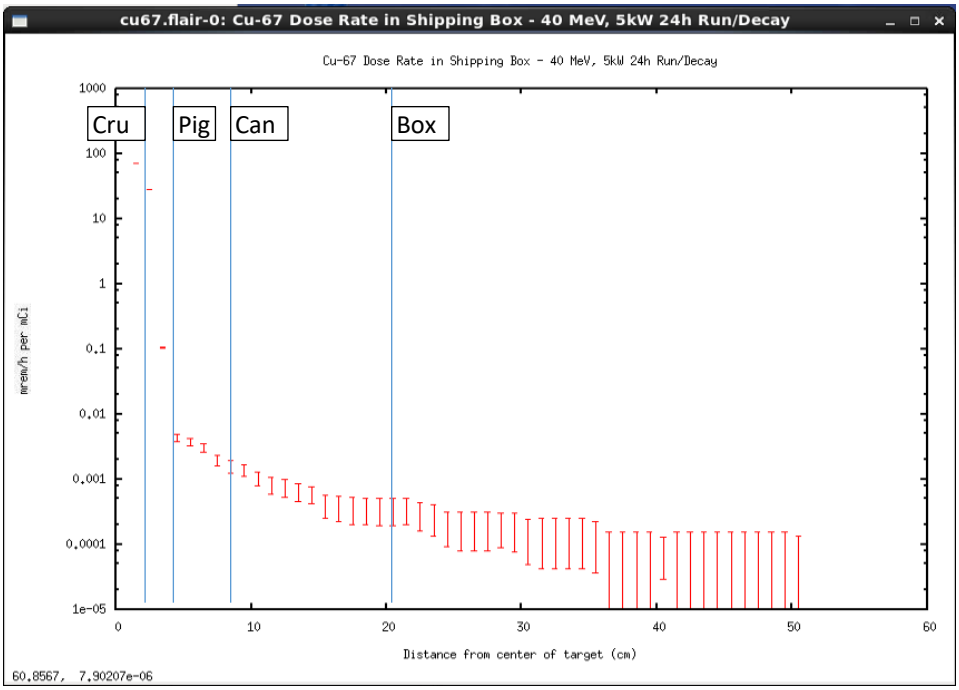

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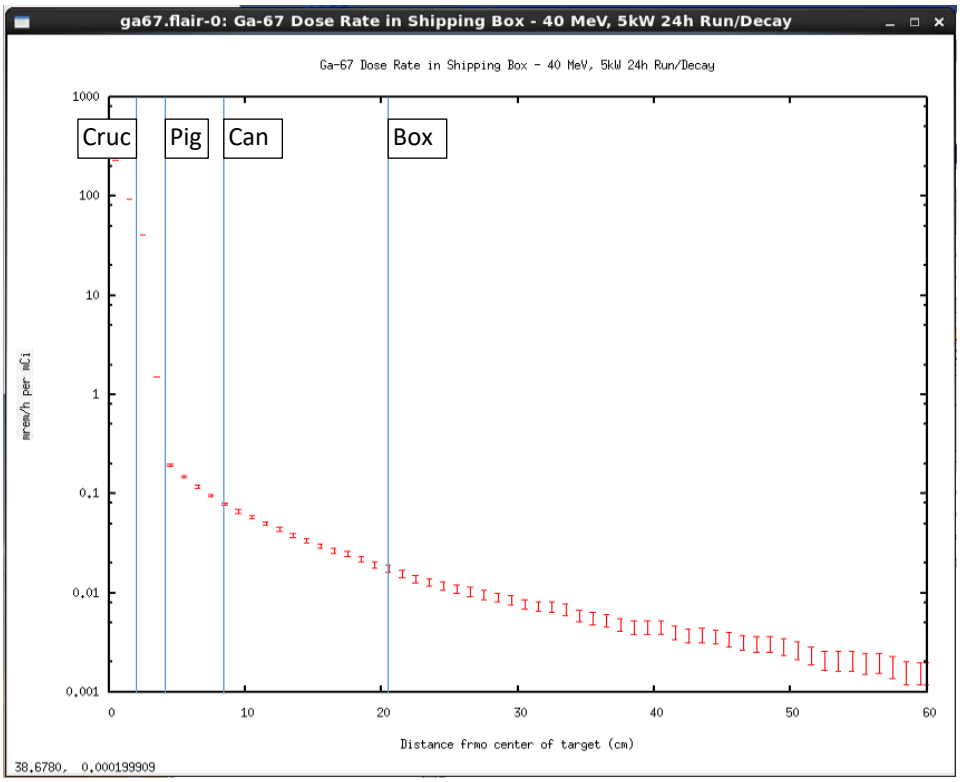

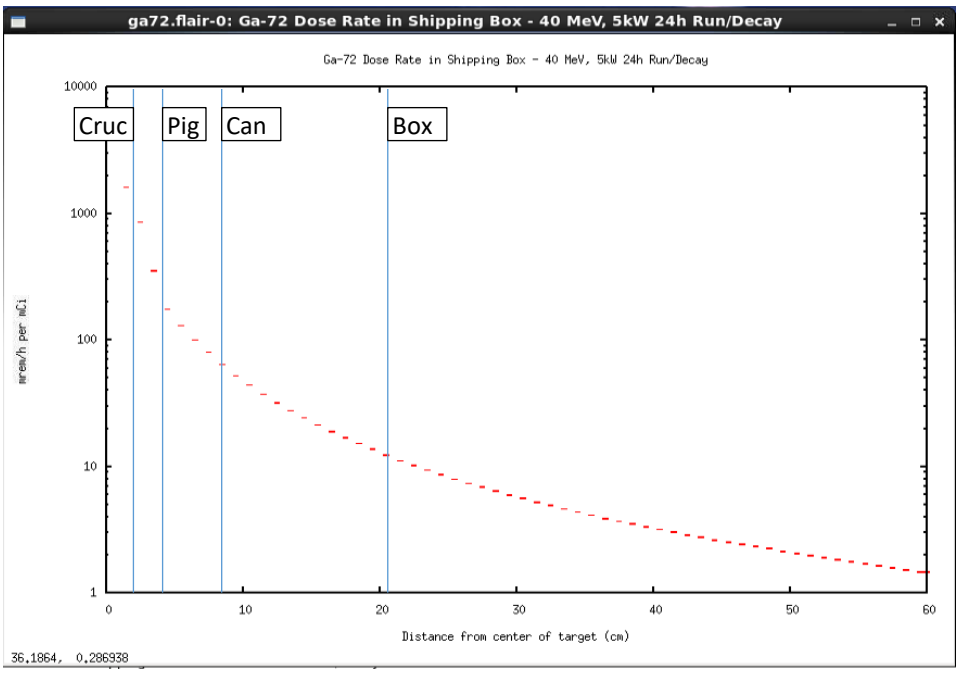

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