Analysis Flow Diagram

Import Γ-factors from "The Health Physics and Radiological Health Handbook", 1992

CAPGammas.xls

Starting Assumptions and Givens

18 gauge (0.047") Fe wall
no waste matrix absorption
no container wall absorption
Microshield 6.02

Obtain query of RH TRU from Greg (5/3/07).

For each waste stream, sum the product of each radionuclide's activity concentration by its Γ-factor. The result is the dose rate at 1m from a point source with activity equal to 1m^3 of waste, disregarding the waste matrix and any container wall.

qryBill20070503dpt2.xls

Determine the dominant contributors to the dose rate for each waste stream (accounting for >95% of the external radiation dose).

Determine the dominant contributors to the dose rate across all waste streams.

Use Microshield 6 to calculate the dose reduction due to an 18 gauge Fe drum wall for these dominant contributors.

18GaugeSteel.ms6

What is the dominant gamma radiation hazard in RH TRU wastes?

Does the 18 gauge Fe wall affect the list of dominant contributors?

Yes

No

Import the dominant radionuclide contributing to gamma dose rates across RH waste streams.

How much isotope can we ship in the proposed shielded container?

Perform Microshield 6 calculations of surface dose per Ci to determine the maximum loading per shielded container.

ShieldedContainer2007.xls
Shielded Container 2007 II.xls