Contribution ID: **170** Type: **POSTER**

Monte Carlo forecast for DSRS management optimization

The present research provided an optimal option for Disused Sealed Radioactive Sources (DSRS) management based on Monte Carlo simulation. The objective is to design the appropriate means for radioactive waste conditioning so as to avoid material and economic losses based on trials during the sources' dismantling. The Particle and Heavy Ion Transport code System (PHITS) was used to design waste containers with appropriate DSRS to get the ALARA principle of dose limitation in the boundary of the waste cast. The investigated radioactive waste was made of several disused Am-241/Be neutron sources previously used in well-logging and petroleum exploration in the Gulf of Guinea (CAMEROON). From the obtained result, the effective thicknesses of the provided P60 capsule, the paraffin material, and the barite concrete were sufficient to set the effective dose in the adjacent areas less than 2.5 μSv/h. The 08 DSRS used for the simulation totaled an effective activity of 450 mCi on June 1st, 2021, which is less than the recommended value of 2 TBq as recommended by the P-60 capsule manufacturer. In addition, the simulation using the source activity limit as recommended by Eckler & Zekler company demonstrate an agreement with the targeted result of less than 1 mSv in the adjacent public area to the interim storage facility. Further investigations are under development regarding gamma sources in Cameroon. The obtained results are stored for the upcoming IAEA expert mission with the purpose of dismantling and store the DSRS in Cameroon.

Do you wish to participate as a Young Professional?

Yes

Speaker's title

Mr

Affiliation

National Radiation Protection Agency of Cameroon

Do you wish to be considered for a Young Professional grant?

Yes

Primary author: Dr GUEMBOU SHOUOP, Cebastien Joel (National Radiation Protection Agency (NRPA) of Cameroon)

Presenter: Dr GUEMBOU SHOUOP, Cebastien Joel (National Radiation Protection Agency (NRPA) of Cameroon)

Session Classification: Solutions for Specific Wastes

Track Classification: 3. Solutions for Specific Wastes