

Conditioning radium needles for long term storage: Sri Lankan experience

Radium the first radioisotope invented by Madam Mari Curie was used for cancer therapy for the intracavitary treatment of cervical cancers and as oral implants etc. Radium needles and other geometries were made in standard strengths and Radium therapy enjoyed a heyday during the 1st half of the 20th century.

Radium -226 is a long-lived radioactive material with half-life of 1600 years. The use of radium was abandoned in the world in 1980s with the invention of short lived radioactive materials offering remote after loading systems which minimise radiation protection and waste disposal problems associated with long lived radioactive materials.

This paper reports the conditioning procedure of the spent radium sources for long term storage(>20years) and transport to national / international stores if needed. The dose received by those involved in this exercise is also discussed in terms of radiation protection.

The Ra was contained for long term storage according to international radiation safety regulations with a surface dose of less than 2mSv/h in a conditioned package having 17.5GBq activity and can be transported to national/international stores if needed. The highest dose received during the exercise is well within the recommended dose limits for occupational exposures (20 and 500mSv/y for whole body and extremities respectively).