

International Conference on Radioactive Waste Management: Solutions for a Sustainable Future (CN-294)



International Conference on Radioactive Waste Management: Solutions for a Sustainable Future

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Management of Liquid Radioactive Effluents from Hospitals where Public Sewage System is not established.

The prime source of liquid radioactive waste generation in hospitals is high dose radionuclide therapy facilities, as high levels of activity is handled in such facilities. The most common radionuclide therapy world-wide is radioiodine therapy and the same is the case in India too. As per the existing regulations, radionuclide therapy using I-131 with activity more than 1.11 GBq is carried out in isolation wards with attached toilet facilities. Plumbing lines from these toilets are connected to a delay- decay tank in order to allow the radioactive effluents to decay to an acceptable limit, and eventually released to the Public Sewage System.

Though, radioiodine therapy is a proven method for the treatment of Ca- thyroid patients, it was limited, till recent times, to hospitals in major cities mainly because of the difficulties in management of Radioactive liquid effluents arising from the therapy wards. Around 80% of the administered activity is released through patient excreta in first 48 hrs of treatment. Hence, an effective waste management system should be in place in order to reduce the environmental radiological Impact.

In India, there are “110” hospitals providing high dose radioiodine therapy and radioactive waste generated in the form of liquid effluents from these facilities is decayed using a dual delay-decay tank system before discharging to main sewage line. The capacity of the tank is 3000 litres per patient bed. The radioactivity concentration should not exceed 22.2 MBq/m³ when releasing it to the main sewage system as stipulated in Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987.

In few occasions, when the hospital is in the outskirts of cities, they are not connected with the established sewage systems and hence management of such wastes becomes a challenge. In order to facilitate the patient treatment and management of radioactive waste generated in such scenarios, a potential alternative to public sewage system for radioiodine therapy facilities have been established. One of the solution would be that after due decay to an acceptable limit from delay-decay tank, the effluents can be transferred to a septic tank, made of concrete. Further management of these wastes from septic tank is either by manually collecting and transferring these waste to municipal sewage plants or by permanently storing in soak pits within the facility.

Do you wish to participate as a Young Professional?

No

Speaker's title

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

No

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