

Q. Radiation Protection

An Apparatus for the Decontamination of the Urine of Patients Treated with ^{131}I

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It is well known that very large storage tanks for radioactive liquids are necessary for the disposal of wastes such as urine, serum, and water contaminated with radioactivity into a drainage system according to legal restrictions which require the radioactivity to be kept at certain low levels. Such tanks, however, are very expensive and also require much space.

In order to combat this problem we designed a new apparatus for the disposal of the contaminated urine of patients with hyperthyroidism who have been treated with ^{131}I . The apparatus has a lead shield box in which are placed two cylinders containing synthetic resin.

The two cylinders are of the same shape and

size and contain the same volume of resin. The first cylinder is connected to a siphon-like tube to the second cylinder and the second cylinder is connected by a siphon-like tube to the drainage pipe.

The urine is thrown into the first cylinder through a funnel at the top of the shield box, and it flows into the drainage pipe after passing through the two cylinders.

The radioactive level of the urine thus disposed is lowered by more than 99%. This apparatus is small and portable and handles very easily. We are now in the process of attempting to make it more compact.

Removal of ^{57}Co -Bleomycin from Urine

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^{57}Co -Bleomycin is one of good tumor scanning agents, but its 270 days physical half life might be too long. ^{57}Co -Bleomycin is rapidly eliminated

through kidneys after injection; about 90% of radioactivity is found in urine in the first 24 hours. Therefore, environmental contamination by ^{57}Co -