

end of cooler. The measured counting rates were recorded as a function of time by means of recording instruments.

Even though the highest concentrations of residual radioactivity at the end of determinations in different parts of the plant were found to be below the permissible values, it is important to take special attention in regards to transportation and handling of radioactive tracers such as Lanthanum 140. It has a half life of 40 hours, and emit gamma radiation with maximum energy of 1.60 MeV with 100% of intensity.]

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✓ DETERMINACION DE RECAMBIO DE AGUAS SUBTERRANEAS EN ABADIA DE GOIAS, ESTADO DE GOIANA, POR APLICACION DEL METODO DE TRITIO MARCADO ARTIFICIALMENTE.

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[The movement of the moisture in the unsaturated zone can be monitored using both environmental and artificial tritium. Artificial tritiated water was used as a tracer for determining the groundwater recharge in the radioactive waste disposal site at Abadia de Goiás-Goiania. Groundwater recharge is the input rain into the saturated zone and is essential for urban water supply, agriculture and resource evaluation.

The region studied is located in the central part of Brazil. The area is covered by lateritic soil. The climate is semi-arid tropical with mean temperature of 23.2°C, mean annual humidity of 66% and mean annual precipitation of 1520 mm. Almost all of the total rain precipitation, 75%, is concentrated between november to march. The driest time is from june to august with precipitations corresponding to 2% of the total amount.

Injections of tritiated water were made in july 1991 at depth of 50 cm below the surface out of the root zone of vegetation. Five points injections were made at 10 cm radial distance in the form of a cross. In each point was injected 2.5 ml of tritiated water with concentration of 5.55×10^4 Bq/ml. Soil samples were taken with hand auger after four, nine and twelve months from injection. For extraction of moisture, the soil samples were distilled in a vacuum system and the estimation of tritium was carried out by liquid scintillation counting. The recharge was calculated from tritium and moisture profiles.

The results have shown a good correspondence between the soil the groundwater recharge. The highest recharge obtained was 30.07 cm and the lowest one was 11.63 cm. The mean value for the recharge was 21.32 cm, corresponding to 14.36% of the precipitation in the period of july 1991 to july 1992. It was obtained a value of 30% for the tracer recover that is considered good for this kind of work.]