

PRELIMINARY PROPOSAL FOR RADIOACTIVE LIQUID WASTE MANAGEMENT IN A BRACHYTHERAPY SOURCES PRODUCTION LABORATORY

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Malignant tumors are responsible for a high death rate in the entire world population (1). Prostate cancer is the third most common among men, after skin and lung. The treatment using permanent Iodine-125 seed are too costly, preventing the use in large scale (1) (2). A multidisciplinary team was formed to develop a source of Iodine-125 and assemble a national facility for local production. For the production correct implementation, a plan for radiological protection that has the management of radioactive waste fully specified are necessary. This work has developed an initial liquid waste management proposal. The most important Iodine-125 liquid waste is generated in the first phase of the process, radioactive material fixation. The initial proposal is that the waste is deposited in a 20 L container (2 years to fill). The final activity of this container is 4.93×10^{11} Bq. According to the discharge limits presented in the brazilian's regulation CNEN - NE - 605 - Management of radioactive wastes in radioactive facilities (3) this waste could safely be release to the environment in 3.97 years. In the other hand, if a minimization waste policy will be implemented, the production could becomes more efficient and cheaper. Waste storage at 25 L containers and changing some production parameters results in 3 years waste to be eliminated in 3.94 years. This new plan will optimize the materials used and diminished the waste generation facilitating the management, contributing to a cheaper product.

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2. *ROSTELATO, M.E.C.M. (2006) Estudo e Desenvolvimento de uma nova Metodologia para Confecção de Sementes de Iodo-125 para Aplicação em Braquiterapia. Instituto de Pesquisas Energéticas e Nucleares. São Paulo : s.n., 2006. p. 93, Tese de Doutorado.*
3. *CNEN – NE – 605 (1985) – Gerência de rejeitos radioativos em instalações radioativas. Comissão nacional de Energia Nuclear, 1985.*