emprego de uma célula quente para fontes emissoras de nêutrons e fótons, possibilitam uma adequada proteção radiológica dos pesquisadores. O manipulador deverá trabalhar em um volume cilíndrico de 50cm de diâmetro por 48cm de altura. Serão ilustradas as simulações realizadas em modelo real.

P206 OPTIMIZATION AND DECISION-MAKING RADIATION PROTECTION IN GAMMAGRAPHY FACILITIES ^{192}Ir - WIHT ROOF BUNKER

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To determine optimized dose limits for workers, a study was undertaken of radiation protection optimization in gammagraphy facilities, using the Multi-Attribute Utility Analysis technique. A total of 66 protection options, distributed in 6 irradiation configurations in a closed installation, with roof, type "bunker", were analyzed. In the determination of the optimized dose limit, the following attributes were considered: cost of the protection, cost of the detriment for different alpha values, cost of the isolation area, individual equivalent doses and collective dose. The variables considered in the evaluation included: effective work load, type and activity of the radiation sources, source-operator distance, and type and thickness of the material used in the protection shielding. Other parameters analyzed included the quality of the radiographic image and the technical procedures employed. The optimal analytic solutions obtained that resulted in the optimized dose limit were determined by means of a sensitivity analysis and by direct and logical evaluations. Thus, independent of the values of the monetary coefficient attributed to the detriment, the annual interests applied to the protection cost, and the type of installation studied, it was concluded that the primary limit of annual dose for workers, 50 mSv, can be easily reduced to an optimized annual dose limit of 5 mSv.

P219 OPTIMIZATION ANALYSIS IN RADIOACTIVE DECONTAMINATION

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In activities that involve radioactive material, only those ones which produce benefit even considering all detriment and costs involved can be put on practice, taking into account technical, social, operational and economic factors. However, this is not enough, because it is desirable that the benefit becomes maximum against the detriment and costs. In a practice that involves several alternatives it is necessary to consider the cost of implementation, execution and detriment against the resulting benefits for each alternative. A radiological optimization procedure was performed at IPEN-CNEN/SP for decontamination of glass cups and acrylic holders used during the production of 99mTc generator. These materials are sent for decontamination, and they usually present dose rates of 0.60 mSv/h. The decontamination method commonly utilized consists of the materials immersion in a 5% NaOH solution during one week. An alternative procedure is an immersion in a 10% HCl solution during one day. Other proposed alternatives would be the decontamination by cavitation in ultrasonic set and radioactive decay. Thus, the purpose of this paper was to demonstrate, by use of analytical techniques of optimization analyses, the best alternative for decontamination of the objects used in the 99mTc generator production. The analytical method used was a multi-attribute analysis, because it accepts multiple factors. The results showed that among the four different alternatives the option with the highest utility function is the radioactive decay procedure.