

INDIRECT MONITORING OF INTERNAL EXPOSURE FOR ACTINIDES

JANETE C. GABURO CARNEIRO, JULIANA F. BARRETO, ALBERTO S. TODO

Instituto de Pesquisas Energéticas e Nucleares, Comissão Nacional de Energia Nuclear,

IPEN-CNEN/SP Av.Prof.Lineu Prestes # 2242, 05508-000-São Paulo-SP - Brazil

E-mail: janetegc@ipen.br

The procedure used to the assessment of internal exposure of workers involved with dismantling lightning rods and radioactive smoke detectors is described. Due to the presence of the sources of ^{241}Am in these devices, a monitoring program to the workers have been implemented. This paper presents an analytical method for the separation and analysis of plutonium (Pu) and americium (Am) in urine samples using solid-phase extraction chromatography and alpha spectrometry. The mean recovery obtained with this technique is about 80% and the detection limit for 24h urine sample range between 0.6 mBqL^{-1} and 1.0 mBqL^{-1} . The assessment of intakes and internal doses are performed following ICRP Publication 78 recommendations and appropriated biokinetic models (ICRP, 1997). Assumptions have been made for routine monitoring of these workers and it is also discussed the establishment of the an internal monitoring program using the results of alpha measurements.

KEYWORDS: Radiation Protection, Dosimetry, Bioassay, Alpha spectrometry.