

CALIBRATION OF SURFACE CONTAMINATION MONITORS AT IPEN/SÃO PAULO

IPEN-DOC-
5716

Linda V.E. Caldas and Marcos Xavier (Instituto de Pesquisas Energéticas e Nucleares-
CNEN/SP Caixa Postal 11049 - CEP 05422-970 - São Paulo, SP, BRAZIL)

The need for effective monitoring of surface contamination is quantified in terms of activity per unit area; this quantity is used to specify the derived limits, that are incorporated in the national regulations of radiation protection. These regulations recommend the calibration of all health physics instruments every 12 months. In the case of surface contamination monitors, a special set-up and a method were developed at the Calibration Laboratory of São Paulo, using standard alpha and beta radioactive sources. The international recommendations approve the use of ^{241}Am and $^{90}\text{Sr} + ^{90}\text{Y}$ (or ^{204}Tl) sources in the calibration procedures for this case. At São Paulo, the monitors are being calibrated in the standard radioactive fields of ^{241}Am , ^{14}C , ^{36}Cl and $^{90}\text{Sr} + ^{90}\text{Y}$ sources, and the instrument efficiency is determined for each case in the range 0.5 to 1.5 cm (alpha radiation) and 0.5 to 5.0 cm (beta radiation). Moreover, all instruments are being normally tested also with ^{241}Am sources of different activities (response linearity) and with ^{137}Cs , ^{244}Cm , ^{233}U , ^{238}Pu and ^{239}Pu sources (energy dependence). Instruments of different manufacturers and types were used for this study.

Work partially supported by CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil

abril

*Calibração
OANL-TM-12817
microficha*