PARTICIPATION IN AN EMERGENCY RADIONUCLIDE BIOASSAY EXERCISE

Szabolcs Osváth, Júlia Kövendiné Kónyi, Péter Rell, Gyula Szabó

National Public Health Center
National Directorate for Radiobiology and Radiohygiene
Division of Environmental and Residental Radiohygiene

Our laboratory has participated in an "Emergency Radionuclide Bioassay" exercise, organized by WHO and IAEA.
Firstly the 250 mL human urine sample was analyzed by gamma-ray spectrometry using an n-type HPGe detector (137Cs and 106Ru/106Rh were found), then it was divided into aliquots.
241Am and isotopes of Cm were determined from aliquot 'A' using a modified TrisKem (Bruz, France) method, based on pre-concentration by co-precipitation with Ca3(PO4)3 and then separation on TRU column. Isotopes of Pu were determined from aliquot 'B', after digesting by evaporation with HNO3 and H2O2. Pu was separated on anion exchange column. Thin alpha-sources were made by co-precipitation with LnF3 and their alpha-spectrum was acquired using a PIPS detector.
89,90Sr were determined from aliquot 'C' using a simplified version of a Triskem method. After pre-concentration by co-precipitation with Ca3(PO4)3, Sr was separated on Sr.Spec column. Sr(COO)2·H2O was precipitated, dried and measured by a proportional gas-flow counter. After distillation of aliquot 'D', tritium was determined by LSC.
Since results had to be reported within 72 hours, the fastest methods were chosen among the possibilities. Methods and result are discussed.