

-Method for Identification of Underground Nuclear Explosion-Induced Radionuclide Seepage Area During On-Site Inspection

This paper addresses issues of related to atmospheric transport with account of deposition of dispersed and gaseous radionuclides originated by underground nuclear explosion (UNE). UNE-originated radionuclides may be released in the atmosphere either completely just after immediate accidental penetration of soil, or partially within several hours after UNE. And even if UNE is contained and its cavity is almost pressurized radioactive noble gases (RNG) and volatile agents slowly migrate to ground surface and release into the atmosphere for a long time. This paper presents interpolation technique of express-analysis of radionuclides distribution in the environment and at the ground surface. During on-site inspection (OSI) this technique will facilitate prompt search of UNE-originated radionuclide release area. Radionuclide distribution parameters (Gaussian plume) were specified using the computations made with dedicated CFD code, developed by RFNC-VNIITF for assessment of emergency situations at industrial nuclear sites. Based on simulated atmospheric transport of radionuclides this paper demonstrates the operation of express-method for identification of their release area.

Primary author: USTSELEMOV, Andrey (RFNC-VNIITF, Rosatom Corp.)

Presenter: USTSELEMOV, Andrey (RFNC-VNIITF, Rosatom Corp.)

Track Classification: 2. Events and Nuclear Test Sites