

# Application of the Radionuclide Method Using Tritium as an Indicator for On-Site Inspection

Within the framework of the CTBT, both global monitoring and on-site inspections are conducted. The task of the on-site inspection is an evidence reliable assessment of the fact that nuclear tests have done. In this paper, a verification method for identification of nuclear explosions using the tritium content in the environment is proposed to consider. The possibility of event screening using this method was showed based on observations in the places of nuclear tests. It was established that during nuclear tests  $^{3}\text{H}$  enters environmental objects, regardless of the specific features of an explosion. The Semipalatinsk test site' example showed that in the field of ground testing tritium was only fixed in the top layer of soil with content was about  $10\text{E}5$  Bq/kg. However, in the places of underground nuclear tests, tritium can be contained in surface and underground waters, in snow, in plants, in soil and in air, in concentrations of  $10\text{E}1\div10\text{E}5$  Bq/kg. Experimental studies of air contamination suggested that the concentration of tritium in soil air decreases exponentially with distance from the test venues. Investigations of the tritium/Eu-152 ratio in soil found that using such data could give a potential information about the nature of an explosion.

**Primary author:** LYAKHOVA, Oxana (Institute of Radiation Safety and Ecology, National Nuclear Centre of the Republic of Kazakhstan)

**Presenter:** LYAKHOVA, Oxana (Institute of Radiation Safety and Ecology, National Nuclear Centre of the Republic of Kazakhstan)

**Track Classification:** Theme 2. Events and Nuclear Test Sites