

Implementation of the risk informed approach for the development of requirements to the physical protection of radioactive material and associated facilities

Radioactive sources and associated facilities are used in the world widely –in medicine, industry, agriculture, geological exploration etc. Depending on the type of their application, the characteristics of radioactive sources are also different - it could be a high activity radioactive source for radiotherapy treatment or a very low activity source in a chromatograph device. Conditions of the use of radioactive sources are specific either –an associated facility can be located in a populous district or in sparsely one, a number of people who can access to the radioactive sources are not fixed. Territorial location defines possible groups of potential adversaries that could be considered like the threat.

In accordance with the Essential element 9 “Use of risk informed approaches” from IAEA Nuclear Security Series publication No 20, all of these mentioned factors should be taken into account by a regulatory body when requirements to nuclear security systems and nuclear security measures for radioactive sources and associated facilities are established. But how the regulatory body can implement this Essential element in practice? The paper will provide an answer to this question based on the experience of Rostechndazor - the Russian regulatory body for safety and security in the use of atomic energy.

Ensuring of the physical protection of radioactive material, radiation sources in the Russian Federation is an essential condition for their use established in the Federal law of the Russian Federation № 170-FZ dated November 21, 1995. Operation of storage facilities without compliance with requirements for their physical protection is also prohibited. Requirements for the physical protection of radioactive substances, radiation sources and storage facilities are established in Federal rules and regulations in the field of nuclear energy. As a regulatory body, Rostechndazor, has developed of the Federal rules and regulations “Regulations on physical protection of radioactive substances, radiation sources and storage facilities”(NP-034-15) that provides requirements to the physical protection of radioactive sources and associated facilities.

In the paper the elements of the risk informed approach, that applied by Rostechndazor, will be described: the graded approach for physical protection requirements based on “security levels” concept, defence in depth principle for different security layers, categorization of radioactive material and associated facilities for security purposes, use of an adversaries model (threat assessment concept) to define a set of adequate physical protection measures. The paper will also provide information about special approaches that were implemented to establish requirements to the physical protection of sealed radioactive sources categories 4 and 5, radioactive sources located at nuclear sites.

The paper and the presentation at the Conference will be of interest to representatives of regulatory bodies of IAEA Member States with responsibilities on the development of regulatory requirements to the physical protection of radioactive material and associated facilities, taking into account IAEA recommendations.

State

Russian Federation

Gender

Male

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