

Nuclear security requirements for control of nuclear material: graded approach

Control of nuclear material is important part of nuclear security measures. Control of nuclear material can be part of NMAC (nuclear material control and accounting) measures or PP (physical protection) or both. NSS 20 identifies (as part of Essential element 3: legislative and regulatory framework) that the legislative and regulatory framework, and associated administrative measures, to govern the nuclear security regime should (among other things) provide for the establishment of systems and measures to ensure that nuclear material and other radioactive material are appropriately accounted for or registered and are effectively controlled and protected.

NSS 25-G defines that control of nuclear material as part of NMAC have objective to ensure continuity of knowledge, and thereby to enhance the ability to deter and detect unauthorized removal of nuclear material. Control is defined as activities, devices, systems and procedures that ensure that the continuity of knowledge (e.g. location, quantitative measurements) about nuclear material is maintained. At the same time NSS 13 defines that effective access control measures should be taken to ensure the detection and prevention of unauthorized access.

In Russian Federation Federal environmental, industrial and nuclear supervision service (Rostekhnadzor) is authority, responsible regulatory activities regarding safety and security of peaceful use of atomic energy. Focus on regulatory activities in nuclear security area is mainly on NMAC and PP.

In regulatory approach it is recognized that NMAC and PP systems are quite separate systems, but complement each other, including measures for control. Need for interaction and cooperation between them recognized and reflected in regulation. There are separate sets of regulations on PP and NMAC in Russia, but, ideas and requirements for their interactions are incorporated in both sets and implemented in practice at facilities. At the same time it should be understood that control measures for NMAC and PP have different objectives: NMAC control focuses on NM and access to NM, while PP control focuses on protected areas (also can be buildings, rooms etc.) and access to them. Some of control measures are required in both NMAC and PP regulations (such as seals and two person rules)

Paper discuss requirements for control of nuclear material in both NMAC and PP regulations, shows differences in such requirements and at the same how their are complement each other in order to have effective comprehensive nuclear security system at nuclear facility.

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