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Information and monitoring system to ensure physical protection of nuclear, other radioactive materials and radiation sources in transport and at facilities

Nuclear and radioactive materials in Ukraine remain most “vulnerable” to unauthorized access during transportation. In this regard, it is proposed to consider strengthening physical protection for the transportation stage, as an integral part of measures to improve physical protection and ensure control over the functioning of the physical protection system at facilities.

In Ukraine, the safety of handling and security of RM is regulated by two main laws “On the Use of Nuclear Energy and Radiation Safety”and “On the Physical Protection of Nuclear Installations, Nuclear Materials, Radioactive Waste, and Other Sources of Ionizing Radiation”, which define the requirements for the transportation of RM.

The safety of RM in transport must be ensured by the quality of packaging, the reliability of transport and lifting equipment, special transportation conditions and the relevant level of physical protection at all stages, both under normal and emergency transportation conditions.
The need to significantly improve safety and physical protection of RM in transport is related to the following factors:
 strengthened requirements of physical protection, adoption at the state level of DBT and implementation of the requirements of the CMU Decree “On the order of functioning of the State Phyzical Protection System”;
 modern challenges (including direct russian aggression, threats of sabotage, theft, illegal trafficking, disturbance of public peace);
 public expectations regarding the improvement of RM in transport safety, emergency preparedness and protection;
 the need to carry out RM transportation in the shortest possible time, both for safety purposes and when transporting RS to medical institutions.

Composition of the complex of engineering and technical means (CETM)
of physical protection systems
CETM is built on the basis of:
• automated information and control complex of technical means consisting of:
- technical means of communication, surveillance and transportation;
- central alarm station (CAS);
- software;
• engineering means, consisting of:
- engineering equipment;
means of access restriction and “violation interruption”.
In view at the stated above, during RM in transport, as an object of physical protection, it is necessary to create conditions that allow:
- maximally reduce the risks of abnormal situations (delay at customs, communication with traffic police, traffic jams, accidents, natural and man-made emergencies, social unrest);
- ensure reliable protection from unauthorized access and theft;
- effectively react in case of abnormal situations or attempts to commit illegal actions against the object;
- ensure reliable and secure communication with law enforcement agencies, local authorities, other departmental agencies;
- ensure online information communication on condition, location and each movement of the RM in transport.
Structure of the information and monitoring system of the PPS of RM in transport
The system consists of:
• automated information and control complex located in the SNRIU to monitor the PPS of RM at enterprises, organizations and transport;
• technical means of transport, communication and software;
• engineering - technical means: access restriction equipment at enterprises and organizations;
• secure communication equipment.

The system is completed with special trucks equipped with complexes of means: physical protection and data transmission to the monitoring center, information on location, radiation and fire safety, and, if necessary, escort vehicles equipped with mobile means of special secure communication.

Country or International Organization

Instructions

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