

Topic: Establishing and Strengthening National Regulatory Oversight to Achieve the Safety and Security of Radioactive Material during Transport in Pakistan

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SYNOPSIS

In Pakistan, radioactive sources, from low to high activity, are used in medicine, industry, agriculture, research, and education. A number of radioactive sources are imported for such applications that, after their useful life, are returned back to the manufacturer/supplier or are disposed of within the country at designated storage sites. These sources during transport, operation, and storage could fall out of regulatory control due to unauthorized use, theft, loss, etc., which could lead to malicious acts of improvising a Radiological Dispersal Device or Radiation Exposure Device that may lead to severe radiological as well as psychological, political, financial, and health consequences.

The safe and secure transportation of radioactive material is a vital element of a national regulatory framework. Pakistan has undertaken substantial measures to establish and strengthen its regulatory framework governing the safe and secure transportation of radioactive materials. The Pakistan Nuclear Security Regime, issued by the Ministry of Foreign Affairs, specifies the roles of the organizations for safe and secure transport of radioactive material which include the Pakistan Nuclear Regulatory Authority (PNRA), Pakistan Atomic Energy Commission, and Pakistan Customs. PNRA, the national nuclear regulator, is empowered to control, regulate, and supervise all matters related to nuclear safety and radiation protection, including the safe and secure transport of radioactive material in Pakistan.

PNRA has established an effective regulatory framework that includes policies, regulations, and regulatory guides. The framework for the safety and security of radioactive materials throughout their life cycle, including transport, includes regulations and regulatory guides. PNRA “Regulations for the Safe Transport of Radioactive Material”, which is generally based on IAEA SSR-6, specifies requirements for the transport of radioactive material by all modes (land, water, and air), including transport that is incidental to the use of the radioactive material. PNRA “Regulations on the Security of Radioactive Sources” has established the regulatory requirements for the security of radioactive sources during manufacture, use, storage, and transport. It specifies requirements for approval of transport security arrangements, provision of prior transport information to PNRA; escort by trained security personnel, real-time tracking; and establishing credible liaison with the law enforcement agencies. IAEA Code of Conduct on the Safety and Security of Radioactive Sources is also being used for the safety and security of radioactive sources, including transport.

To cover the security aspects and emergency situations during the transportation of radioactive material, PNRA is following various regulatory guides: “Format and Content of Physical Protection Plan for Radiation Facilities having Radioactive Sources ”; “Management of Nuclear Security Events Involving Radioactive Sources”; “Advisory Material for the IAEA Regulations for the Safe Transport of

Radioactive Material”; “Preparedness and Response for a Nuclear or Radiological Emergency Involving the Transport of Radioactive Material”. In case of loss and theft of radioactive sources, the licensee is required to immediately notify the event to National Radiation Emergency Coordination Center (NRECC) of PNRA and inform other response organizations for recovery and mitigation actions.

Pakistan has implemented a comprehensive framework, National Nuclear Detection Architecture (NNDA), to prevent the illicit trafficking of radioactive materials, coordination mechanism and identification of responsibilities of designated organizations for NNDA management. To deter and detect unauthorized movement of radioactive materials, Pakistan has deployed radiation detection equipment at entry/exit points of the country. This deployment is aimed at regulating authorized imports/exports of radioactive material, its transport within the country, and combating illicit trafficking.

This paper will highlight Pakistan’s experience in establishing and strengthening the regulatory framework for safety and security of radioactive material during transport, integrated elements for response to incidents during transport of radioactive materials, role of PNRA in NNDA framework, associated challenges and future recommendations.