

The role of the I-NRC in the secure transportation of high-activity radiotherapy sources

Hundreds of patients from across all Iraqi governorates seek treatment at the hospital each year. With rising patient numbers, timely access to radiotherapy is critical for preventing disease progression. Modernisation of radiotherapy infrastructure, including the replacement of outdated cobalt units with advanced linear accelerators, has therefore become a priority. The dismantling and packaging were carried out in cooperation with the Ministry of Science and Technology, while the Iraqi National Regulatory body (previously IRSRA - Now I-NRC) supervised the development and approval of a comprehensive transport safety and security plan. The sources were subsequently transferred to the national radioactive waste management facility at Twaitha – Bunker B. This case highlights the importance of institutional and regulatory coordination in handling high-activity sources and demonstrates Iraq's commitment to applying international standards to strengthen radiation safety, security, and protection of society and the environment.

The transport of high-activity radioactive sources is one of the most sensitive stages in the lifecycle of radioactive materials, requiring strict adherence to radiation safety and security standards. This study presents the experience of the Radiation and Nuclear Medicine (RNM) Hospital in Baghdad in decommissioning and transporting three high-activity Co-60 teletherapy units (ISO-1 and ISO-2, Cirrus). The dismantling and transport process took place in two phases, the first in 2012 and the second in 2021. This is an interesting and important experience for lessons learned regarding highly active radiotherapy sources.

This work aims to present a practical case study on the decommissioning and transport of high-activity radioactive sources (Co-60 teletherapy units) from the Radiation and Nuclear Medicine Hospital in Baghdad to the national waste management facility at Twaitha – Bunker B, under the regulatory requirements of the Iraqi National Regulatory Commission (I-NRC). The objective is to highlight the importance of coordination among technical and regulatory bodies in ensuring safe and secure transport, while documenting lessons learned to support national efforts in upgrading radiotherapy services and complying with international standards.

This experience highlights Iraq's progress in regulatory oversight at all stages of handling radioactive sources, particularly the transportation of highly active radioactive sources.

The field plans and procedures implemented were consistent with IAEA requirements, including safe transportation, radiation protection, dose recording, and field surveys before, during, and after transportation.

The experience constitutes an important database to support future policies regarding the dismantling and transportation of radioactive sources and can be adopted as a training and educational model for new cadres in Iraq and the region.

Country or International Organization

Instructions

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