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NUCLEAR SECURITY MEASURES FOR TRANSPORTATION OF INTERMEDIATE LEVEL WASTE –CASE STUDY OF GHANA RESEARCH REACTOR 1

Ghana research reactor-1 (GHARR-1) has been operational since early 1995. It was mainly used for research and educational purposes. It was fueled with approximately 90.2% enriched HEU. There was the need to convert the fuel from HEU to LEU which aligned with global non-proliferation initiatives and involved the removal and transportation of the HEU core to China in 2017. The safe and secure transport of nuclear material is a critical aspect of nuclear safety and national security. This paper describes the security measures employed during the transportation of the HEU from Ghana to China. The transportation of the HEU focuses on adherence to IAEA recommendations for the Secure Transport of Nuclear Material and the requirements for the Convention on the Physical Protection of Nuclear Material (CPPNM). Nationally, the shipper complies with Ghana's Nuclear Regulatory Authority transport security requirements and licensing conditions for the transportation of the HEU. Transporting nuclear material involves significant risks, including theft and sabotage. To mitigate these, a comprehensive set of security measures was implemented. Key security measures which were adhered to include route planning and risk assessment, physical protection, personnel security (armed escort), real-time tracking and Communication, emergency preparedness and response, and personnel vetting. This paper also discusses the challenges faced in resource allocation, inter-agency coordination, and public awareness. The paper concludes by highlighting the importance of continuous training, international cooperation, and technological upgrades to enhance the robustness of nuclear material transport security in Ghana.

Country or International Organization

Instructions

Author: Mr AGBENORKU, Obed (Nuclear Regulatory Authority)

Presenter: Mr AGBENORKU, Obed (Nuclear Regulatory Authority)

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