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A Proposed Regulatory Perspective on the Security Requirements for Spent Nuclear Fuel

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Spent nuclear fuel (SNF) possesses potential security risks; consequently, nuclear security issues have to be considered and addressed for effective management of SNF. The vulnerability of SNF to theft, for constructing a radiological dispersal device, and to the terrorist attack during storage or transport is a major concern for States having such type of nuclear materials. Hence, the national policy and strategy for SNF management should include a set of goals and objectives to ensure the secure management of SNF, and should also set out the means for achieving these objectives. Egypt recognizes that a strong and efficient legal and regulatory framework is an important element of the national nuclear security regime; therefore, it has taken several steps to enhance its legislative and institutional frameworks. Currently, the Egyptian nuclear and radiological regulatory authority (ENRRA) is developing its regulatory system regarding nuclear security that includes developing the necessary regulations against which the various nuclear facilities will be assessed, setting out the licensing process and procedures along with definition of the corresponding documentation to be submitted by the applicant, and creating an inspection program. Regulatory requirements of the physical protection (PP) of nuclear material and associated facilities are considered as a cornerstone in ensuring the security of spent fuel. These requirements should be based on the current threat assessment or design basis threat (DBT) and should include provisions which if applied correctly, will ensure adequate security of SNF during storage either at reactor site or at an interim storage facility as well as during transport. The current work provides a proposal for security requirements of SNF taking into consideration the provisions of the Convention on the Physical Protection of Nuclear Material and its amendment, International Atomic Energy Agency (IAEA) guidance, and the best practices adopted by the international community.

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