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Recent Publications on Transport and Storage of Radioactive Materials

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This paper introduces three books recently published on transport and storage of radioactive materials. The transport and storage technologies have been established by accumulation of experiences and researches. Such works should be shared and used by readers and the future generations to advance the technology effectively.

The first book is “Safe and Secure Transport and Storage of Radioactive Materials” published in 2015. It reviewed best practice and emerging techniques in the following areas.

- Operational safety covering functional requirements, training, public relations and emergency response in the nuclear transport industry.
- Package design and performance for transport, highlighting mechanical and thermal considerations, radiation protection, subcriticality, and operational aspects of sea transport.
- Packaging, transport and storage of uranium concentrates and uranium hexafluoride, fresh and spent fuel, large radioactive components and medical and industrial radioactive materials.
- Long-term storage and subsequent transport of spent fuel and high-level radioactive wastes.

The second book is “Basis of Spent Nuclear Fuel Storage” published in 2015. It firstly addressed safety standards and codes for spent fuel storage. Then, demonstrative test results conforming the safety requirements were provided as follows.

- For metal casks storage, heat removal, containment, subcriticality, structural integrity, seismic performance, severe accidents, interaction between transport and storage.
- For concrete cask storage, heat removal, shielding, structural integrity, earthquake resistance, long-term integrity.
- For spent fuel, integrity in normal and accident storage conditions, and inspection method for ageing.

The third book is “Basic of Transport and Storage of Radioactive Materials” published in 2018. After reviewing the preceding books, it provided new and advanced information so that readers could have wide spectrum of the technologies. It systematically provided findings from lots of valuable researches on safety and security of transport and storage of radioactive materials under normal and accident conditions that have an impact on basis of safe regulations, designs, and operations. Characteristically, it described safety and security of transport and storage, which have been rarely addressed in the same book.

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Country or International Organization

Japan

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