

## JAEA Sea Transport of MOX Powder -ABSTRACT

The Japan Atomic Energy Agency (JAEA) is planning to transport uranium and plutonium mixed oxide (MOX) powder for the prototype fast breeder reactor "MONJU" and experimental fast reactor "JOYO." The maximum quantity of MOX to be transported per year is estimated at 2 tons. The MOX powder will be recovered at the commercial Rokkasho Reprocessing Plant (RRP) operated by Japan Nuclear Fuels Limited (JNFL) in Rokkasho-mura on the northeast tip of Honshu (main island of Japan). Sea transport will likely be used for shipping the MOX from the RRP to the JAEA Plutonium Fuel Fabrication Facility (PFPF) in Tokai-mura on the eastern side of Honshu.

Development of new MOX packaging: The mixed oxide storage canister used in RRP will contain approximately 36 kg of uranium and plutonium metal. The design and analyses for the new packaging started in 2002. The design meets all the requirements for Type BU-F package in TS-R-1, 2005 Edition. The packaging configuration is approximately 1.4 m in diameter and 2.2 m in height; package weight is approximately 4 tons. A prototype package is under construction (March 2007). Demonstration performance tests will be conducted in 2007.

Design of a transport container: A detailed design for a ship loading transport container began in 2006, based on an ISO 20-foot container. Three MOX packages will be accommodated into one container. This falls under Category I of physical protection. The transport container under design will be equipped with measures for strengthened protection that can respond to the design basis threat (DBT).

Use of a dedicated ship: A dedicated new ship was constructed and can carry various nuclear materials packages, as well as spent fuel casks. It was completed in August 2006. The ship meets the INF Code Class INF-3, and is also designed to transport the Category I materials.