



Contribution ID: 155

Type: oral

Developments in the Deployment of Ultrasonic Bolt Seals at the Storage Ponds of a Large Reprocessing Plant

Tuesday, 21 October 2014 09:30 (20 minutes)

At the ponds of La Hague (F) different types of material are stored awaiting reprocessing:

- Irradiated LEU fuel assemblies,
- Fresh MOX scrap of different origins,
- Irradiated MOX assemblies from research reactors,
- Irradiated L/HEU assemblies from research reactors.

According to the safeguard approach developed by Euratom, irradiated LEU fuel is verified by Cerenkov viewing devices. Other fuel types are verified with a dedicated under water neutron/gamma detector. The measurements are resource intensive for both inspector and operator. In addition one of the measurement points will be decommissioned by 2015. Thus ultra sonic bolt seals (USBS) were identified as a suitable means to keep continuity of knowledge and reduce inspection effort.

The paper describes currently required measurements and related high effort and compares with the effort to place and read USBS. The discussion will focus on the activities required for un-irradiated MOX scrap, which are of particularly high safeguards interest, and will describe the measures implemented to minimise re-measurement needs. The significant savings will be demonstrated.

Under the new approach USBS are placed on all newly arriving baskets, following verification by NDA. Baskets already in the pond will be sealed with USBS step by step. The current status will be discussed.

In order to make this project possible, JRC Ispra supplied a new generation of USBS reading heads, electronics and software. The paper will describe the significant improvements of the technology versus earlier generations.

Country or International Organization

European Commission, DG Energy -Nuclear Safeguards and Joint Research Centre

Primary authors: LITTMANN, Francois (EC Joint Research Centre); LAHOGUE, Yves (European Commission, DG Energy, Nuclear Safeguards)

Co-authors: LUPO, Jacques (European Commission, DG Energy, Nuclear Safeguards); SIRONI, Marco (EC Joint Research Centre); SYNETOS, Sotiris (European Commission, DG Energy, Nuclear Safeguards); PIRON, Vincent (European Commission, DG Energy, Nuclear Safeguards)

Presenter: LAHOGUE, Yves (European Commission, DG Energy, Nuclear Safeguards)

Session Classification: Safeguards for Reprocessing and Pyroprocessing Facilities