



Contribution ID: 174

Type: Oral

French “Cycle Impact” approach

Thursday, 27 June 2019 16:50 (20 minutes)

The “Cycle Impact” approach was launched at the end of the 1990s on the French Nuclear Safety Authority’s initiative (ASN): EDF, in collaboration with its industrial French partners Orano and Andra, has to identify and anticipate actions in order to guarantee a consistent nuclear fuel cycle management in the mid-term. The impacts of fuel design, characteristics and management and nuclear reactors fleet evolutions on the whole supply chain should be studied: NPPs, front-end and back-end facilities, interim storage and logistics. The objective of the “Cycle Impact” exercise is to demonstrate that the choices made by industrial stakeholders on these evolutions, bearing in mind their interdependence and nuclear time frames, do not create unacceptable consequences regarding the entire French fuel cycle. It also allows ASN to have an overview of future regulatory requests to be examined.

After two previous exercises performed in 2000 and 2007, the “Cycle Impact” file 2016, made of 47 deliverables, coordinated by EDF in collaboration with Orano (formerly Areva, French company providing front-end, back-end and logistics services) and Andra (National Agency for Radioactive Waste Management), was submitted in June 2016. The fuel cycle consistency on a 15-years period was analyzed and forecasts until 2040 were made to ensure the absence of cliff-edge effect. Based on four scenarios of nuclear-sourced electricity production and associated fuel reprocessing-recycling strategies parameters like spent fuel pools level of occupancy and transportation casks availability had been studied. Hazard sensitivity analyses had been performed.

On request of the ASN, the file had been assessed by the French technical support organization (IRSN). An expert report including opinions and recommendations was produced and commitments were taken by the industrial actors. The report was subjected to a peer review by the Advisory Committee of experts (GP) for laboratories and plants including experts from waste, nuclear reactors and transports committees. Following the recommendations issued during the meeting of the Advisory Committee on 2018 May 25th, ASN has identified actions to be undertaken by each party in a letter on 2018 October 25th. With the goal of improving nuclear transparency, summary of the IRSN report, GP opinion and ASN stance has been published.

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Country or International Organization

France

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Session Classification: Session 7.2

Track Classification: Track 7: Challenges in an integrated approach for the back-end system (including storage, transport, recycling and disposal)