Accident Tolerant Fuel Updates for Framatome Meeting

August 12, 2020

Recent Licensing Activities

- Issued a license amendment to Louisiana Energy Services to enrich uranium to 5.5 weight percent.
- Two literature reviews were completed. One was for the transportation of Cr-coated cladding and the other for iron-chromium-aluminium (FeCrAl) cladding. These literature reviews provide the current state of the industry information on material properties and fuel performance considerations for FeCrAl and Cr-coated cladding concepts in fresh fuel transportation conditions
- Issued a license amendment to Brunswick to allow fuel methodologies for doped pellets
- Certificate of Compliance revision for GE Hitachi to transport FeCrAl cladding fuel assemblies

High Burnup + Increased Enrichment

- The industry has recently changed their goal enrichment level from 8 percent to 10 percent. Goal higher burnup levels have not changed.
- The NRC held a higher burnup workshop on July 30, 2020, that: (1) provided the general public with information about higher burnup and increased enrichment, (2) provided an open question and answer period on accident tolerant fuel (ATF) subjects for the public, and (3) provided an exchange of information with industry on higher burnup and increased enrichment, focusing on the components of a quality submittal.

ATF Website

- The staff has significantly revised the ATF website on the main NRC webpage.
- The webpage can be found at https://www.nrc.gov/reactors/atf.html
- The revised website discusses many aspects of ATF, including discussions on the technologies, how ATF is reviewed, and NRC's interactions with different stakeholders.

Severe Accident Phenomena Identification and Ranking Table Request

- A Phenomena Identification and Ranking Table (PIRT) exercise is a systematic way of gathering information from experts on a specific concept, and ranking the importance of the information, in order to meet some decision-making objective.
- The NRC staff will be virtually hosting a PIRT exercise starting in mid-September on severe accidents.
- This exercise will explore the performance in severe reactor accidents of the current ATF concepts, higher burnup fuel, and fuel with enrichment above 5 percent. This PIRT exercise will also assess the impact of ATF, higher burnup, and increased enrichment on accident source terms.