



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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March 18, 2024

MEMORANDUM TO

Raymond V. Furstenau, Acting Director
Office of the Executive Director for Operations

THRU

John R. Tappert, Acting Director
Office of Nuclear Regulatory Research

FROM

Kimberly A. Webber, Director
Division of Systems Analysis
Office of Nuclear Regulatory Research

Handwritten signature of Kimberly A. Webber in blue ink.

Signed by Webber, Kimberly
on 03/18/24

SUBJECT

COMPLETION OF EVIDENCE ACT REPORT ON CODE
DEVELOPMENT EFFORTS TO SUPPORT NRC'S
REGULATORY ACTIVITIES FOR NON-LIGHT WATER
REACTORS

The staff developed the enclosed report documenting its completed and ongoing activities to enable the use of computer codes to evaluate the safety of non-light water reactor (non-LWR) designs. The U.S. Nuclear Regulatory Commission (NRC) routinely uses scientific computer codes and analytical tools to perform confirmatory, sensitivity, and uncertainty analyses to independently analyze the safety of nuclear reactor designs. These codes and tools help staff examine safety margins inherent in a design commensurate with the risk and safety significance of the phenomena related to specific reactor designs.

This report provides a progress update on the NRC Office of Nuclear Regulatory Research's approach to computer code development to support regulatory and licensing activities, including safety analyses for non-LWR designs. It is structured around distinct technical elements of code development, encompassing plant systems analysis, fuel performance analysis, severe accident progression, consequence analysis, licensing and siting dose assessment, and nuclear fuel cycle analysis. Furthermore, the report documents interactions with domestic and international organizations working on non-LWR technologies to enhance collaboration and cooperation.

The report provides evidence of the significant progress made and marks the completion of the identified actions outlined in the NRC's Evidence-Building Plan (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23271A222) and Capacity Assessment (ADAMS Accession No. ML23271A210), both required by the Foundations for Evidence-based Policymaking Act of 2018. Both the Evidence-Building and Capacity Assessment Plans have identified non-LWR computer code readiness as a "priority question" and a "finding," respectively. The plans outline specific measures to ensure that the computer codes are sufficiently prepared to facilitate independent safety reviews of non-LWRs. Computer code readiness is an evolving aspect, and ongoing activities will adapt as necessary based on the evolution of non-LWR designs and the availability of new data.

Enclosure:

1. Progress Towards Code Development in Support of
NRC's Regulatory Activities for Non-Light Water Reactors

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