

September 19, 2017

Dr. Dennis C. Bley, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: RESPONSE TO JULY 27, 2017, LETTER FROM THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS REGARDING WESTINGHOUSE ELECTRIC COMPANY TOPICAL REPORT WCAP-17642-P, REVISION 1, "WESTINGHOUSE PERFORMANCE ANALYSIS AND DESIGN MODEL (PAD5)"

Dear Dr. Bley:

By letter dated July 27, 2017 (Agencywide Documents Access and Management System Accession No. ML17207A593), the Advisory Committee on Reactor Safeguards (ACRS) reported on its review of the U.S. Nuclear Regulatory Commission (NRC) staff's safety evaluation (SE) on Westinghouse Electric Company (Westinghouse) Topical Report (TR) WCAP-17642-P, Revision 1, "Westinghouse Performance Analysis and Design Model (PAD5)."

The ACRS recommendations and conclusions on the NRC staff's Performance Analysis and Design (PAD5) SE are listed below:

1. The updates to the PAD5 code, including fuel and cladding thermal-mechanical properties, have been validated against an extensive set of experimental data. The staff SE should be published.
2. The limitations imposed in the staff SE are justified. They ensure that PAD5 is applied only within its validated ranges.
3. The requirement for continued validation of PAD5 models and their uncertainty is justified.

The staff appreciates the insights provided by the ACRS in the letter and the substantial amount of time the ACRS has devoted to the staff's SE on Westinghouse TR WCAP-17642-P, Revision 1, "Westinghouse Performance Analysis and Design Model (PAD5)." The staff intends to issue the approved version of the PAD5 TR.

As indicated in your letter, the state of the art on irradiated-fuel properties continues to advance as more data and operating experience are collected and analyzed. As such, the NRC staff required, and the ACRS endorsed, continued validation of PAD5 models and uncertainties. Ideally, codes would promptly evolve in response to new data both to address nonconservatism and to recover available margin. The NRC staff recognizes that a formal change process for models and methods approved by the NRC would facilitate consistent treatment of the evolution of models and methods. It also would eliminate the need to include

conditions like those which were placed on the PAD5 topical report, which were questioned by several ACRS members.

Therefore, the NRC staff will focus on developing the framework for a change process for models and methods. This process will include the necessary criteria to determine whether changes proposed by vendors require NRC staff approval. The framework will build on the staff's experience gained through the approval of previous vendor-specific change processes and will be subject to the appropriate regulatory oversight. It will also leverage, where possible, existing processes such as the vendor inspection program. The availability of such a process will also support an efficient, effective review of new technologies (e.g., accident tolerant fuel). Additionally, this change process for models and methods can inform the staff's exploration of a generic change process for all TRs.

The NRC staff appreciates ACRS's efforts on this matter. We thank the ACRS for its valuable input and look forward to working with the Committee in the future.

Sincerely,

/RA Michael R. Johnson Acting for/

Victor M. McCree
Executive Director
for Operations

cc: Chairman Svinicki
Commissioner Baran
Commissioner Burns
SECY

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