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June 7, 2016

Mr. Michael E. Mayfield
Director
Division of Engineering, Infrastructure, and Advanced Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Comments on Draft Advanced Non-Light Water Reactor Design Criteria

Project Number: 689

Dear Mr. Mayfield:

The Nuclear Energy Institute (NEI)¹ is pleased to submit the attached comments on the NRC's draft advanced non-light water reactor design criteria (ARDC), including the draft sodium fast reactor design criteria (SFR-DC) and draft modular high temperature gas reactor design criteria (mHTGR-DC). We appreciate the NRC taking the initiative with the U.S. Department of Energy (DOE) to draft design criteria for non-light water reactors and affording the opportunity to provide input at this stage. The effort to develop ARDC is an important step toward establishing an appropriately focused and efficient framework for review and approval of the numerous advanced non-light water reactor designs under development.

Our responses to NRC questions and detailed comments are provided in the attached table. In some cases, we reiterate the DOE proposal provided in Phase 1 of the NRC and DOE joint initiative, as we find that the DOE recommendations appropriately reflect the information available on various reactor designs in development and the goal to establish ARDC that accommodate innovation consistent with the Commission's 2008 Advanced Reactor Policy Statement. The attachment contains both general and specific comments, including the following comments of particular importance with respect to achieving the flexibility and clarity intended for the ARDC:

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

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- The ARDC and technology specific design criteria need to be performance-based, not prescriptive. For example, ARDC 17 is so similar to GDC 17 that it does not provide the intended broad applicability to a range of advanced reactor designs. In this case, the DOE-proposed ARDC 17 better focuses on the underlying purpose of GDC-17 by requiring the electric power necessary to ensure safety-related functions are performed when required.
- The ambiguity of the term "important to safety" in existing NRC regulation and guidance was identified during ARDC development. We recommend all uses of the phrase structures, systems and components "important to safety" be removed throughout the ARDC and modified to state "safety-related" SSCs. To avoid the ambiguity and confusion associated with use of the term "important to safety," we should make the most of this opportunity to ensure the clarity of ARDC as we move forward with development, review and approval of advanced reactors. We recognize that due to design differences and desire to move toward use of more risk-informed methods in establishment of the licensing basis, the definition of "safety-related" for advanced non-light water reactors will eventually need some modification.

Though not within the scope of the current NRC and DOE joint initiative, we support risk-informing the ARDCs as information facilitating this objective becomes available. In the meantime, the first priority should be on completing the regulatory guide on the current ARDC effort. We recommend that the NRC engage stakeholders within the next three months to discuss the scope and timeline for risk-informing the ARDCs.

We look forward to working with the staff as NRC engages stakeholders in finalizing the ARDC, SFR-DC and mHGTR-DC, and to discussing the scope and timeline for risk-informing the ARDCs. If you have any questions concerning the industry's comments, please contact me or Kati Austgen (202.739.8068; kra@nei.org).

Sincerely,



Russell J. Bell

Attachment

c: Ms. Diane T. Jackson, NRO/DEIA/ARPB, NRC
Ms. Jan M. Mazza, NRO/DEIA/ARPB, NRC
NRC Document Control Desk