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March 23, 2016

Mr. Michael E. Mayfield
Director, Engineering, Infrastructure, and Advanced Reactors
Office of New Reactors
U.S. Nuclear Regulatory Commission
Mail Stop 6 E4
Washington, DC 20555-0001

Subject: Proposed Approach to Offsite Power Requirements for Small Modular Reactors and Other New Technologies

Project Number: 689

Dear Mr. Mayfield:

The Nuclear Energy Institute (NEI)¹ is pleased to provide the attached NEI paper entitled "Offsite Power Requirements for Small Modular Reactors and Other New Technologies" for NRC consideration. This paper proposes an approach for designs that do not rely on an offsite supply of power to provide adequate protection of the public health and safety. We request the NRC establish guidance on this approach that includes clear acceptance criteria for these designs. Timely resolution of this issue is needed to inform the development of applications anticipated to be submitted in the near future.

The NRC established general design criteria (GDC) in the 1970s based on the large light water reactor designs for which the Commission had previously issued construction permits. Criterion 17, in Appendix A to 10 CFR Part 50, establishes the requirements for electric power systems, including offsite supply of power. The introduction to the GDC acknowledges that the GDC may not be applicable to future designs, stating that "different criteria will be needed to take into account unusual sites and environmental conditions, and for water-cooled nuclear power units of advanced design." In fact, the NRC has permitted large light water reactor designs with enhanced passive safety systems to deviate from the criterion

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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specifying the need for two independent offsite power sources. This deviation was justified for those designs based upon differences with the designs that formed the basis for the original GDC. Likewise, small modular reactors (SMRs) and other new technologies incorporate additional innovative features that were not contemplated when the GDC were developed or when the NRC permitted previous deviations from them. Some of these designs will be capable of assuring adequate protection of the public health and safety without reliance on any supply of offsite power.

In order to enhance clarity and provide a more predictable regulatory framework for SMRs and other new technologies, guidance is needed on the expectations for achieving NRC approval without any required offsite power source. The attached NEI paper proposes a performance-based framework that can serve as the basis for such guidance. We request a public meeting to discuss the attached paper and identify next steps toward establishing guidance for designs that do not require any offsite supply of power. We will contact your staff shortly to identify a date for this meeting.

In the meantime, if you have any questions about the white paper, please contact Marc Nichol (202-739-8131, mrn@nei.org), or me.

Sincerely,

A handwritten signature in black ink, appearing to read "RJB", is positioned above the printed name Russell J. Bell.

Russell J. Bell

Attachment

c: Ms. Anna Bradford, NRO/DEIA/ARPB, NRC
Mr. Joseph Colaccino, NRO/DEIA/NRGB, NRC
Mr. Frank M. Akstulewicz Jr., NRO/DNRL, NRC
Mr. Mark E. Tonacci, NRO/DNRL/LB1, NRC
NRC Document Control Desk