

**RUSSELL J. BELL**  
*Senior Director, New Plant Licensing*

1201 F Street, NW, Suite 1100  
Washington, DC 20004  
P: 202.739.8087  
rjb@nei.org  
nei.org



November 19, 2015

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

**Subject:** Proposed Consequence-Based Physical Security Framework for Small Modular Reactors and Other New Technologies

**Project Number: 689**

Dear Mr. Mayfield:

The Nuclear Energy Institute (NEI)<sup>1</sup> is pleased to provide the attached NEI white paper entitled "Proposed Consequence-Based Physical Security Framework for Small Modular Reactors and Other New Technologies" for NRC consideration and feedback. This paper proposes an approach to security that appropriately considers the enhanced safety and security incorporated into these designs and provides a more effective and efficient means to protect the public health and safety. We request the NRC establish regulatory positions on this approach and the associated policy and technical issues. Timely consideration and feedback on the acceptability of this approach is needed to inform design and business decisions affecting certification, licensing and deployment of SMRs over the next several years.

The NRC has previously concluded in SECY 11-0184, *Security Regulatory Framework for Certifying, Approving, and Licensing Small Modular Nuclear Reactors*, that the current licensing framework is adequate to certify, approve and license integral PWRs. While we acknowledge that these and other new designs can meet existing requirements, it is also true that existing security requirements were developed for large light water reactors (LWRs) and do not recognize the safety and security enhancements being incorporated into

---

<sup>1</sup> 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.

Mr. Michael E. Mayfield

November 19, 2015

Page 2

SMRs and other new technologies. An alternative approach that is based upon the potential consequences to the public health and safety would incentivize plant designers to provide security through engineered features with a reduced reliance on human actions consistent with the Commission's expectations in the *Policy Statement on the Regulation of Advanced Reactors (73 Federal Register 60612, October 14, 2008)*.

Also consistent with the 2008 Policy Statement, we are providing this paper to facilitate early interactions and feedback that will provide clarity for prospective SMR applicants concerning physical security requirements. The situation is analogous to ongoing efforts to develop emergency preparedness (EP) requirements appropriate to SMRs and other new technologies. The NRC staff recommended action on EP in SECY-15-0077 in order to provide for regulatory stability, predictability, and clarity in the licensing process, and to minimize or eliminate the uncertainty for applicants and inefficient use of agency resources caused by reliance on serial exemption requests. The Commission recently approved the staff's recommendation to initiate a rulemaking to revise EP regulations and guidance for SMRs and other new technologies.

SMRs and other new technologies are capable of significantly reducing the risk of radiological sabotage, while also reducing or eliminating reliance on human actions. The attached white paper proposes a technology-neutral consequence-based security framework for nuclear facilities that provide "security by design." The paper defines security by design as protecting against acts of radiological sabotage through engineered features, without reliance on a security response force to interdict or neutralize the design basis threat. Facilities that meet this performance standard would be required to detect, assess, and communicate any unauthorized penetration (or such attempts) to off-site responders (i.e., local law enforcement). The proposed framework can be established generically without site or design specific information regarding source term, target sets, physical barriers or projected off-site doses.

As with EP, timely feedback concerning NRC consideration of alternative security requirements for SMRs and other new technologies is important for near-term applicants. Such feedback would encourage plant designers to continue to implement and maximize "security by design," and would inform physical security plans to be included in combined license applications, the first of which is anticipated to be submitted in late 2017 or early 2018. It is anticipated that rulemaking may be needed to revise and/or develop new regulations and guidance for this approach. Although the regulations allow for exemptions and the use of alternative measures, these processes are not efficient or preferred to address generic policy or technical issues that may apply more broadly. We understand that the first license applications may need to include exemptions from existing security requirements pending consideration of specific rule changes for SMRs and other new technologies.

We propose a public meeting in early 2016 to get the staff's feedback on the attached white paper and discuss next steps toward providing clarity concerning security requirements for SMRs and other new technologies, including the acceptability of a consequence-based approach, development of technical basis and guidance, and the need for rulemaking and Commission engagement, as appropriate.

Mr. Michael E. Mayfield

November 19, 2015

Page 3

In the meantime, if you have any questions about the white paper, please contact Dick Speer (202-739-8121; [rjs@nei.org](mailto:rjs@nei.org)), Marc Nichol (202-739-8131, [mrn@nei.org](mailto:mrn@nei.org)), or me.

Sincerely,

A handwritten signature in black ink, appearing to read "RJB", with a stylized flourish at the end.

Russell J. Bell

Attachment

c: Mr. Brian E. Holian, NSIR, NRC  
Ms. Melanie A. Galloway, NSIR/DSP, NRC  
Mr. Michael C. Layton, NSIR/DSO, NRC  
Mr. Timothy S. Mossman, NSIR/DSP/SPSB, NRC  
Ms. Anna Bradford, NRO/DARR/ARPB, NRC  
NRC Document Control Desk