

**RUSSELL J. BELL**

*Senior Director  
New Plant Licensing*

1201 F Street, NW, Suite 1100  
Washington, DC 20004  
P: 202.739.8130  
jhr@nei.org  
nei.org



December 27, 2012

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

**Subject:** Position Paper on Small Modular Reactor Source Terms

**Project Number: 689**

Dear Mr. Mayfield:

The subject of radiological source terms associated with small modular reactors (SMRs) has been identified by the Nuclear Regulatory Commission (NRC) in SECY 10-0034, Potential Policy, Licensing, and Key Technical Issues for Small Modular Nuclear Reactor Designs, and by the nuclear industry, as a licensing topic for which it may be appropriate to utilize a different treatment from that currently used for large light water reactors (LWRs). As such, the Nuclear Energy Institute (NEI) SMR Licensing Task Force has developed the enclosed position paper to present an evaluation of existing regulations and regulatory guidance that are pertinent to SMR source terms, delineate SMR source term applications, discuss unique SMR features that may affect source terms, identify SMR accident dose analysis source term regulatory issues and propose a resolution path forward for these issues within the existing NRC regulatory framework.

Although generally intended to be applicable to all SMR designs, the focus of this paper is primarily on integral pressurized water reactor (iPWR) SMRs because they have the most mature designs and are currently involved in pre-application interactions with the NRC. This paper is directed at addressing the iPWR radionuclide inventories associated with the reactor core, primary coolant system, secondary coolant system, and spent fuel pool, but does not address dry spent fuel storage.

Mr. Michael E. Mayfield  
December 27, 2012  
Page 2

The concepts of the enclosed paper were discussed with the NRC staff at a public meeting on December 13, 2012. We look forward to continuing to engage with the NRC staff on this topic, and believe that this position paper will facilitate further productive discussion. If you have any questions, please contact me or TJ Kim (tjk@nei.org; 202-739-8128).

Sincerely,



Russell J. Bell

Attachment

c: Ms. Stephanie M. Coffin, NRO/DARR, NRC  
Ms. Amy E. Cubbage, NRO/DARR, NRC  
Ms. Anna H Bradford, NRO/DARR, NRC  
Mr. Stewart L. Magruder, NRO/DARR, NRC  
Mr. Wesley W. Held, NRO/DARR, NRC  
NRC Document Control Desk  
Mr. Steven M. Mirsky, Science Applications International Corporation