

September 25, 2020

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Rulemakings and Adjudications Staff

Comments from the American Nuclear Society (ANS) on emergency preparedness for small modular reactors (SMRs) and other new technologies (ONTs) proposed rule and draft guidance DG-1350.

Project Number: 689
[Docket ID NRC-2015-0225]

Dear Rulemaking and Adjudications Staff:

The American Nuclear Society (ANS) strongly supports the NRC's emergency preparedness rulemaking efforts for creating a risk-informed framework for small modular reactors (SMRs) and other new technologies (ONTs). The risk-informed, performance-based rule allows for an approach for determining the size of the plume exposure pathway emergency planning zone (EPZ), including requirements for ingestion response planning, drills and exercises for emergency and accident conditions. This effort will allow an alternative scalable EP framework that is commensurate with the technological and safety advancements intrinsic in SMR and ONT designs.

The proposed new rule will help the nuclear community get a step closer to actualize the near-term opportunities presented by SMRs - to provide safe, reliable, clean and affordable electricity to meet the demands of society. It also meets the Nuclear Energy Innovation and Modernization Act (NEIMA) requirements, which directs the NRC to establish a risk-informed, technology-inclusive regulatory framework to license and oversee advanced nuclear technologies.

Though we agree with the proposed rule, we provide the following overarching comments:

1. Define "credible" Accidents - The rule states only "credible" accidents should be considered as the basis for the scalable emergency preparedness framework. We support this approach. However, the rule does not provide a definition or cutoff threshold for what is considered as "credible". Lack of this definition may lead to inconsistent basis for EPZ determination for SMRs and ONTs and uncertainty in NRC review structure.

2. Define Terms – Clear and well-defined terms will help future applicants/licensees to accurately interpret and implement the final rule in accordance with the language and the underlying intent of law. Similar to comment #1, several terms in the rule are not defined and may lead to misinterpretation and review uncertainties. For example, terms such as “facility”, “nearby”, “less severe”, “more severe”, “more probable”, “less probable”, etc.
3. Aligning with NUREG-0396 Basis – The proposed rule would allow SMR and ONT applicants and licensees to establish a plume exposure pathway EPZ at the site boundary if they can demonstrate that an offsite radiological release would not exceed the Environmental Protection Agency (EPA) Protective Action Guides (PAGs) of 1 rem Total Effective Dose Equivalent (TEDE) beyond the site boundary. The use of PAGs for EPZ determination is consistent with NUREG-0396. However, NUREG-0396 also applies a “substantial reduction in early severe health effects” for severe Beyond Design Basis Accidents (BDBAs), which was defined as a less than 1E-3 probability of exceeding an acute dose of 200 rem (2 Sv). It seems the proposed rule no longer includes this criterion for BDBAs.

ANS supports the Staff’s efforts to establish a performance-based, risk-informed regulatory framework for advancing deployment of FOAK SMRs. This is a step in the right direction, and we encourage the Staff to continue to apply risk-informed regulatory approaches to other topics such as security, accident analysis, etc.

Respectfully,



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Sources:

- Rulemaking Information - <https://www.federalregister.gov/documents/2020/05/12/2020-09666/emergency-preparedness-for-small-modular-reactors-and-other-new-technologies>
- Rulemaking PDF Version - <https://www.govinfo.gov/content/pkg/FR-2020-05-12/pdf/2020-09666.pdf>