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Emergency Preparedness Requirements for Small Modular Reactors

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Emergency Preparedness for Small Modular Reactors and Other New Technologies: Draft Regulatory Basis for Comment

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General Comment

I support a performance-based approach to emergency preparedness planning. Such an approach could allow for a technology-inclusive regulatory environment. The previous exemption based process is an admission that existing emergency preparedness regulation is too focused on light water reactors. NRC regulations should not focus exclusively on a single technology; therefore, the other new technology (ONT) category should not be further defined. The NRC should avoid adopting new rule-making based on each nuclear reactor technology (molten-salt, sodium-cooled, small modular, etc.). Instead, the radius of the ingestion and plume-based emergency zones necessary to safely run a nuclear plant should determine emergency planning regulation.

The draft document lists a few emergency planning zone radii for both ingestion and plume-based emergency zones. There are examples of 5-mile, 10-mile, and 50-mile emergency planning zones, and new technology may satisfy EPA PAGs regulation with a 2-mile or even a 0-mile emergency planning zone radius. Also, the cost justification for adopting the new performance-based regulation is based on the radii of emergency planning zones. Instead of making rules for each type of reactor technology, the NRC could require different tiers of emergency preparedness activities solely based on the size of an emergency planning zone.

The way I envision this system working is the NRC writes EP regulation categorized by radius. For example, there could be a set of requirements for reactors that have an emergency plume zone of 0 miles (site

boundary), up to 2 miles, up to 5 miles, up to 10 miles, and 10+ miles. A different set of requirements can also exist for the ingestion emergency planning zone under a similarly categorized system. Ideally, all EP regulation, regardless of emergency planning zone type and radius, would be agnostic to the kind of nuclear reactor technology. Likely, the smaller-sized EPZs could allow more discretion to license-seekers when implementing emergency preparedness protocols. For larger emergency planning zones, the NRC would impose more requirement on emergency preparedness or even require that the old exemption process is followed.

With the emergency planning protocols determined by the size of the EPZs, a license-seeker would submit an application requesting that a nuclear plant project is categorized under a set plume emergency planning zone and a set ingestion emergency planning zone radius. If the NRC accepts the application, then the license seeker can submit for review an emergency preparedness plan that meets the requirements of the previously approved emergency planning zones. Such a process would provide a consistent, transparent, and predictable regulatory environment, while ensuring safety, regardless of the nuclear technology used as part of a nuclear plant license application.

Nuclear reactors have already operated safely for thousands of operation years using pre-1980s technology. There is no reason that newer and safer technologies should not be put into commercial service when ready. My system of EP regulation detailed above is a suggestion that I believe will be technologically-inclusive, transparent, and predictable. I am a layman when it comes to nuclear regulation, so my advice may be misguided. However, any system of EP regulation adopted by the NRC should be predictable, technologically-inclusive, and transparent.

Thank You.