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Safety Review of Light-Water Reactor Construction Permit Applications

Comment On: NRC-2021-0162-0005

Safety Review of Light-Water Power- Reactor Construction Permit Applications

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Comment on FR Doc # 2022-09702

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General Comment

See attached file(s)

Attachments

Comment on LWR CP ISG Final Signed

May 23, 2022

Brian Smith
Director, Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation, NRC

Subject: Submittal of supplemental comments on draft ISG “Safety Review of Light-Water Power-Reactor Construction Permit Applications,” 87 Federal Register 27195 [Docket ID: NRC-2021-0162]

Dear Mr. Smith,

I write on behalf of the Breakthrough Institute (BTI) to express appreciation for the opportunity to provide supplemental information to comments initially provided by other stakeholders. I also write to express BTI’s concern regarding the NRC staff’s approach to developing regulations and guidance for licensing new light-water and non-light-water reactors.

As a preliminary matter, the Breakthrough Institute is an independent 501(c)(3) global research center that identifies and promotes technological solutions to environmental and human development challenges. We advocate appropriate regulation for licensing and oversight of advanced nuclear reactors to enable the timely deployment of safe, innovative, and economically viable emerging nuclear technologies. We believe new and advanced reactors represent critical pathways to climate mitigation and deep decarbonization. The Breakthrough Institute represents the interests of Society and does not receive funding from industry.

COMMENTS ON THE DRAFT GUIDANCE

The NRC is preparing guidance for applicants of a non-light-water reactor construction permit (CP) separate from the instant CP guidance for light-water reactors. Like the regulations themselves, guidance should be technology inclusive. One guidance document would be most appropriate for addressing commonality where it will largely exist and divergence only where appropriate and necessary.

To ensure better consistency in regulatory outcomes, products and services for the widest variety of applicants, the Agency should carefully consider an organizational restructure that better integrates staff activities for light-water and non-light-water reactors in a truly “technology-inclusive” manner consistent with the Nuclear Energy Innovation and Modernization Act of 2019. Bifurcated efforts to modernize different and largely duplicative regulatory frameworks within two separate NRC

organizations (the Division of New and Renewed Licenses and the Division of Advanced Reactors) is inefficient; it also introduces uncertainty and could result in inconsistent, difficult to navigate pathways to licensing and deployment of *all* new nuclear reactor technologies. This could compel both staff and applicants to needlessly expend time and resources comparing two documents to ensure consistency and regulatory reliability when one document (with unique, design-specific clarifications as needed) would achieve both. All new reactor framework, rule and guidance development should be integrated and inclusive of light-water and non-light-water technologies, directed and managed within the same Division of the Office of Nuclear Reactor Regulation (NRR).

GENERAL OBSERVATIONS REGARDING REGULATORY ENGAGEMENT

The NRC's engagements with external stakeholders appear to have been limited to requests for comments on iterations of NRC work products after they have been developed solely by NRC. Early engagement and involvement of those stakeholders in the initial development of these products would have been more consistent with the Principles of Good Regulation¹. Even the Principle of Independence acknowledges that "independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public." However, the NRC's current practice is to develop regulatory frameworks and draft rule language and guidance in a vacuum, and then share its proposals with external stakeholders after investing significant time pursuing a direction that may ultimately lack utility.

This current practice is in stark contrast to the late 1990s joint effort by NRC, the nuclear power industry and the public to develop an alternative oversight framework: the reactor oversight process (ROP). While the Agency was developing its own "new" framework – an integrated review of the assessment process (IRAP) that offered incremental departure from the status quo – the industry developed its own concept, which was "fundamentally and philosophically different from the IRAP proposal."² At the time, the NRC staff lacked the perspective – as one who cannot see the forest for the trees – to conceive of a complete paradigm shift from a compliance-based oversight structure to a risk-informed, performance-based process. Moreover, the NRC was under pressure from the Congress to either adapt – and adapt quickly – or face deep cuts in appropriations.

In response to the NEI proposal, Commission comment on the IRAP proposal, and comments made at the July 17, 1998, Commission meeting with public and industry stakeholders and the July 31, 1998, hearing before the Senate, the staff set out to develop a single set of recommendations for making improvements to the regulatory oversight processes.³

¹ [Principles of Good Regulation. \(nrc.gov\)](https://www.nrc.gov/reading-rm/doc-collections/principles-of-good-regulation/)

² [SECY 1999-007 \(nrc.gov\)](https://www.nrc.gov/reading-rm/doc-collections/irap/), p. 4

³ [SECY 1999-007 \(nrc.gov\)](https://www.nrc.gov/reading-rm/doc-collections/irap/), p. 4

Indeed, the NRC staff embarked on collaborative interactions with internal and external stakeholders, actively seeking input on improvements to its licensee performance assessment process. The NRC conducted a four-day workshop and obtained “consensus... on the overall philosophy for regulatory oversight and general agreement... on the defining principles for the oversight process.”⁴ Thereafter, the NRC staff engaged in “frequent interaction with the industry and the public **during the development of recommended improvements** [emphasis added].”⁵ Guided by the Principles of Good Regulation and acceptance of a need for change, the NRC staff “**worked closely with the industry and the public in developing recommendations** [emphasis added]”⁶ for a revised oversight process that largely resembled the framework initially proposed by the industry. Since then, the industry-proposed framework has successfully focused NRC and industry resources on achieving performance objectives that are most important to public health and safety. Why has it been so successful? Because diverse ideas, new conventions and unconstrained, progressive thinking liberated the NRC from its compliance-based past.

The NRC again faces immediate calls for modernization and should take a cue from past successes: the Agency should alter its fundamental approach to developing new rules, frameworks and guidance. Time is short for different, but no less urgent, reasons – energy security and climate change are among them. A rich talent pool outside the NRC’s White Flint complex is waiting to be tapped for a seat at the drafting table. In the interest of openness, efficiency, clarity, reliability – and yes, INDEPENDENCE – BTI urges the NRC to invite external stakeholders to **participate in the development process** rather than simply afford them an opportunity to comment on NRC’s products, and then comment again on narrowly defined aspects of original comments. This is not open and collaborative; nor is it an effective, efficient way to achieve success. The NRC staff cannot be expected to solve complex matters in a vacuum; they need and deserve all the help they can get – especially considering the human capital challenge the Agency now finds itself in. The NRC staff needs that help on the front end, not the back end, of the process.

SUMMARY

In closing, BTI greatly appreciates this opportunity to comment on the instant ISG. We believe one ISG for light-water and non-light-water reactors is more open, clear, and efficient. More importantly, NRC’s fundamental approach to preparing frameworks, rules, and guidance to enable the licensing and deployment of **all** new technologies (light-water and non-light-water) in this iterative fashion is ineffective and unnecessarily time consuming. The NRC staff may argue that it has collaborated by issuing an early white paper on the instant matter and by conducting advanced reactor stakeholder meetings. The NRC staff may further argue that industry hasn’t proposed anything in this area and agreed to respond to NRC’s proposal(s). To be clear, BTI recommends working-level

⁴ [SECY 1999-007 \(nrc.gov\)](#), p. 4

⁵ [SECY 1999-007 \(nrc.gov\)](#), p. 5

⁶ [SECY 1999-007 \(nrc.gov\)](#), p. 1

collaboration that would economize a presently exclusive and iterative development process. We encourage inclusive efforts to **explore and formulate** risk-informed approaches, performance-based solutions to complex challenges, and navigable licensing proposals – together with stakeholders, not separately through unveilings of NRC products during public meetings and iteratively through requests for comment.

The NRC provides a service to Society by licensing safe nuclear technologies, thereby enabling the civilian use of nuclear material for the benefit of Society. NRC’s customers expect reasonably open, clear, efficient, reliable, timely and good-quality service. We hope the NRC will adopt a much more collaborative, working-level engagement protocol with stakeholders as it has done in the past. We also urge the Agency to address an organizational construct that appears to be driving separate efforts in a duplicative, inefficient, and potentially inconsistent manner. These efforts could be optimized and streamlined under one Division within NRR to best integrate products and services for NRC customers that are truly technology inclusive, accessible, and useful to Society.

Sincerely,



Rani Franovich
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The Breakthrough Institute

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