

August 31, 2026

Chairman Nieh, and Commissioners Wright, Crowell, Marzano, and Weaver
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Comments of the Connecticut Department of Energy and Environmental Protection on NRC
Regulatory Modernization Efforts – Modernizing Reactor Licensing, Safety Oversight, and
Siting Practices

Docket ID: NRC–2025– 0975

Dear Chairman Nieh, and Commissioners Wright, Crowell, Marzano, and Weaver:

The Connecticut Department of Energy and Environmental Protection (DEEP) appreciates the opportunity to provide comments on the U.S. Nuclear Regulatory Commission’s (NRC’s) proposed revisions to 10 CFR Parts 2, 50, 51, 52, 53, 54, 71, and 100¹ as part of the NRC’s regulatory modernization efforts under Executive Order 14300.

Innovation in advanced nuclear technologies offers an important clean energy solution to meeting increasing energy demands. An exploration of increasing nuclear deployment must include a central commitment to ensuring safety, both to meet our shared mission of protecting public health and safety but also to ensure the public has the trust and reassurance needed to support this increased deployment. The State of Connecticut (hereinafter “Connecticut” or “State”) has taken deliberate steps to explore the role of advanced nuclear energy through a community-centered framework established under Connecticut’s Public Act 25-173. This approach enables municipalities to opt in to hosting advanced nuclear facilities and supports robust public engagement, technical evaluation, and informed local decision-making. Through this process, DEEP has found that transparency fosters public confidence, clarity, and trust in regulatory oversight.² DEEP submits these comments consistent with the policy framework established in the Connecticut General Statutes (C.G.S.) regarding the development and regulation of nuclear energy and the use of radioactive materials [link](#)³. DEEP submits these comments consistent with the policy framework established in the Connecticut General Statutes

¹ “Modernizing Reactor Licensing, Safety Oversight, and Siting Practices,” (Docket: NRC-2025- 0975), 91 FR 44560 (July 16, 2026).

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[https://www.dpuc.state.ct.us/DEEPEnergy.nsf/\\$EnergyView?OpenForm&Start=59&Count=30&Expand=76.2&Seq=8](https://www.dpuc.state.ct.us/DEEPEnergy.nsf/$EnergyView?OpenForm&Start=59&Count=30&Expand=76.2&Seq=8)

(C.G.S.) regarding the development and regulation of nuclear energy and the use of radioactive materials

DEEP supports the development and utilization of atomic energy in a manner that protects public health and safety, promotes the common defense and security, and preserves the environment. This framework reflects a deliberate balance in Connecticut's state policy: the State is directed to adapt its laws and regulations to evolving conditions in ways that encourage the safe development of industries producing or utilizing atomic energy, while at the same time protecting the public interest. Connecticut remains committed to working with the NRC and to maintaining a regulatory program compatible with the Atomic Energy Act of 1954.

This statutory policy is implemented through a defined governance structure within the State's government. Pursuant to Section 16a-102 of the C. G. S., the Commissioner of DEEP serves as the State's lead official responsible for coordinating all atomic energy development and regulatory activities and ensuring consistency across state agencies. The Commissioner's statutory role encompasses coordination with the federal government, including the NRC, and reinforces DEEP's responsibility to ensure that regulatory programs are comprehensive, compatible, and effectively implemented.

However, DEEP strongly opposes finalizing this rulemaking at this time. Despite DEEP's⁴ And others'⁵ requests for extension of the comment period, the NRC provided only 45 days to review an extraordinarily broad and technically complex suite of changes, including 279 documents incorporated by reference, spanning dozens of incorporated NUREGs, regulatory guides, draft guides, and multi-disciplinary technical analyses. The breadth and depth of the proposed changes—particularly in areas directly affecting offsite emergency planning, siting, radiation dose consequences, advanced fuel behavior, digital instrumentation and control (DI&C), and risk-informed safety criteria—made it impossible for Agreement States to conduct a genuine, technically defensible review within the allotted timeframe.

In addition, DEEP disagrees with the NRC's apparent conclusion that the proposed rule meets federal plain-language requirements. The sheer volume, technical complexity, and extensive use of specialized terminology and acronyms make the proposal difficult for stakeholders—including State, local, and Tribal governments, and members of the public—to properly evaluate. Effective plain writing requires clearly explaining what the proposed changes would do, why they are needed, how they affect existing protections, and what their practical implications would be for licensees, workers, and the public. The proposal does not provide such clarity.

NRC's decision to conduct a proceeding of this magnitude under a severely limited comment period increases the risk of overlooking important safety considerations and undermining confidence in future licensing actions. Given the inadequate time allotted to review such a large

⁴ Comment on FR Doc # 2026-14341, NRC-2025-0975-0001, from Connecticut Department of Energy and Environmental Protection [ID NRC-2025-0975-0036]

⁵ Comment on FR Doc # 2026-14341, NRC-2025-0975-0001, from Offices of the Attorneys General of Illinois and Massachusetts [ID NRC-2025-0975-0076] and Comment on FR Doc # 2026-14341, NRC-2025-0975-0001, from Nuclear Innovation Alliance [ID NRC-2025-0975-003]

and complex body of material on critically important safety topics, DEEP cannot support moving forward with this rulemaking.

Nevertheless, DEEP has attempted to provide targeted feedback on several high priority issues for Connecticut—emergency preparedness, siting, radiation dose and offsite consequence analysis, DI&C and Artificial Intelligence (AI) safety considerations, and areas where insufficient review time poses unacceptable safety risk. The detailed responses and overarching concerns that follow should be understood as incomplete due to the limited review window, but they reflect the issues of greatest importance to Connecticut. DEEP respectfully submits these comments in Attachment A accompanying this letter.

At the same time, the volume and pace of concurrent rulemakings—more than twenty (20) underway, including multiple direct final rules—present significant challenges for Agreement States and other stakeholders. This compressed timeline limits the ability of Connecticut to fully evaluate complex technical changes and the potential impacts, increasing the risk that implementation challenges may not be adequately addressed, and may render it pragmatically unfeasible to implement such technical changes within the timeframe prescribed.

It is essential that NRC rulemakings reflect a commitment to rigor, openness, and meaningful stakeholder engagement. Advancing significant regulatory changes without sufficient opportunity for review risks undermining public confidence—not only in existing programs, but also in the successful deployment of advanced nuclear technologies.

Given these considerations, DEEP respectfully recommends that the NRC:

- Provide public comment periods that are sufficiently long to allow Agreement States and other stakeholders to thoroughly review, analyze, and assess the technical, legal, operational, and implementation impacts of proposed rulemakings, particularly where changes are complex, far-reaching, or issued concurrently with other major regulatory actions;
- Sequence and pace rulemakings to provide meaningful spacing between significant regulatory changes and avoid requiring Agreement States to review and implement multiple complex rulemakings simultaneously; and
- Limit the use of direct final rules to truly non-controversial or minor administrative changes, ensuring that substantive or technically complex revisions are subject to full notice-and-comment rulemaking.

In closing, and before turning to the specific comments in the Attachment A, Connecticut remains supportive of the NRC's efforts to modernize its regulatory framework and to fulfill its mission to protect public health and safety and advance the nation's common defense and security by enabling the safe and secure use and deployment of civilian nuclear energy technologies and radioactive materials through efficient and reliable licensing, oversight, and regulation for the benefit of society and the environment. Achieving these objectives while maintaining public trust and strong oversight will require a deliberate, transparent, and inclusive process that fully incorporates the experience and expertise of Agreement States.

Thank you for the opportunity to comment on this important matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Emma Cimino". The signature is fluid and cursive, with the first name "Emma" and last name "Cimino" clearly distinguishable.

Emma Cimino
Acting Commissioner
Connecticut Department of Energy and Environmental Protection

ATTACHMENT A

Specific Requests for Comments

DEEP appreciates the NRC’s request for specific for comments in Section XXXVII of the Federal Register Notice (FRN) on the proposed “Modernizing Reactor Licensing, Safety Oversight, and Siting Practices.”⁶ However, in light of the extraordinary breadth and depth of the proposal—spanning 279 incorporated technical documents (Section XVVIII), dozens of cross-referenced regulatory frameworks, novel safety methodologies, and technology-inclusive licensing structures—DEEP was unable to provide a complete, technically defensible question-by-question review within the 45-day period provided.

This Attachment therefore presents:

1. Full, detailed DEEP responses to NRC questions involving:
 - Emergency preparedness
 - Digital Instrumentation and Controls (DI&C) and Artificial Intelligence (AI)
 - Siting, site characterization, dose assessment, and offsite consequences
2. Overarching concerns and general comments in lieu of detailed responses for all other NRC questions, recognizing that DEEP does not support moving forward with the rulemaking under the current inadequate review timeline.

DEEP’s comments are necessarily limited by the short review period. The rulemaking:

- Cross-references dozens of technical NUREGs, regulatory guides, and draft guides
- Imposes technology-inclusive revisions affecting future reactor licensing
- Modifies emergency preparedness, siting policy, accident analysis, DI&C/AI oversight, and Probabilistic Risk Assessment (PRA) methodology
- Requires detailed technical consultation which is not feasible within a 45-day review and comment period.

Therefore, DEEP’s limited comment on any particular section must not be interpreted as concurrence. DEEP strongly opposes adoption of this rule under the present timeline.

DEEP Response to NRC Question #1: Should the NRC consider granting one or more general licenses to begin construction activities as part of an existing or future standard design certification rule? If the NRC were to issue such a general license, should the NRC require that the general license holder reference another plant that has completed construction (resulting in the general license excluding first of a kind applicants)? If not, what conditions should the NRC include in the general license to ensure that the

⁶ “Modernizing Reactor Licensing, Safety Oversight, and Siting Practices,” (Docket: NRC-2025- 0975), 91 FR 44560 (July 16, 2026).

construction activities authorized by the general license can be completed safely? Please provide a basis for your response.

DEEP supports the NRC's consideration of a general license to authorize limited construction activities associated with a standard design certification, provided that eligibility for the general license is limited to deployments of a design for which another plant has completed construction and demonstrated successful implementation of the certified design. DEEP does not support extending such a general construction license to a first-of-a-kind (FOAK) deployment.

The proposed approach appropriately recognizes the potential regulatory efficiencies associated with standardized, repeat deployments while retaining important site-specific oversight. The proposed rule would limit the general license to generic aspects of a design for which the NRC has afforded generic finality and would not authorize installation of the reactor vessel, reactor coolant system, or associated reactivity control and heat removal systems. It would also require that the applicant demonstrate that site characteristics are bounded by the parameters supporting the generic finality and obtain applicable permits and approvals before beginning construction.

DEEP believes these limitations are important because the Atomic Energy Act establishes statutory limits on the use of general licenses for utilization facilities. A general license for limited construction activities should therefore be viewed as a targeted regulatory efficiency for proven, standardized designs, rather than as a substitute for the site-specific licensing and review processes applicable to a new nuclear facility.

Requiring the general license holder to reference a plant that has completed construction provides an important additional level of assurance. A completed reference plant provides actual evidence that the certified design can be constructed as approved and that the generic assumptions underlying the construction activities are achievable in practice. This is particularly important for advanced reactor technologies, where the NRC may be establishing new regulatory frameworks, novel construction methodologies, or relying on design features that have not previously been demonstrated in commercial deployment.

DEEP therefore supports excluding FOAK applicants from the general construction license. A FOAK facility should undergo the appropriate site-specific NRC review before construction activities are authorized under a general license. Once a plant has completed construction and demonstrated successful implementation of the standardized design, subsequent deployments could appropriately benefit from the streamlined process.

DEEP also believes that site-specific review should not be compressed or eliminated merely because a design has received certification. There can be substantial differences among host sites, including geology, hydrology, flooding and coastal hazards, transportation infrastructure, emergency planning assumptions, spent fuel management, proximity to surrounding populations, and environmentally or culturally sensitive resources. These characteristics can materially affect the safety and environmental profile of a particular deployment even when the reactor design itself is standardized. The proposed requirement that site characteristics be bounded by the parameters supporting generic finality is therefore an important protection and should be retained.

DEEP further emphasizes that an expedited NRC licensing pathway should not diminish coordination with State, local, and Tribal governments. In particular, timely Tribal outreach and government-to-government consultation should occur before construction activities that could disturb land or affect cultural or archaeological resources. A general license should not be structured in a manner that limits meaningful consideration of cultural resources, archaeological sites, or properties of religious or cultural significance.

The proposed framework appropriately recognizes this distinction by requiring applicable permits, licenses, approvals, and entitlements to be obtained before construction under the general license and by requiring completion of applicable Federal environmental consultations. DEEP recommends that the NRC make clear in its implementing guidance that these requirements are not intended to displace or preempt applicable State, local, or Tribal authorities.

This is particularly important for advanced nuclear projects in Connecticut. Such projects would remain subject to applicable State and local permitting and siting requirements independent of NRC licensing actions. For example, under the Connecticut Public Utility Environmental Standards Act, C.G.S. §§ 16-50g through 16-50ll, certain energy and utility infrastructure projects are subject to State siting review addressing environmental, public health, land-use, and community considerations. Maintaining clear coordination between NRC activities and applicable State and local review authorities will be important to ensure transparent decision-making and public confidence.

DEEP also supports the proposed conditions that construction activities authorized under the general license remain at the applicant's risk and have no bearing on subsequent NRC licensing decisions, and that the NRC retain inspection authority over activities conducted under the general license. These provisions are important to prevent early construction authorization from creating an expectation or presumption that the underlying facility will ultimately be licensed.

In summary, DEEP supports a general license for limited construction activities associated with a standard design certification, but only for a design that has been successfully constructed at another facility. DEEP recommends that FOAK applicants remain subject to the full applicable NRC review and should not be eligible for the general construction license. The general license should remain limited to generic aspects of a demonstrated design, require that site characteristics remain bounded by the certified design's approved parameters, preserve NRC inspection authority, and require all applicable Federal, State, local, and Tribal approvals and consultations before construction begins. This approach would provide meaningful regulatory efficiency for proven, repeat deployments while maintaining site-specific oversight, environmental review, Tribal and community engagement, and public confidence.

DEEP Response to NRC Question #2: Would it be useful for the NRC to issue regulations to provide for general licenses related to production and utilization facilities for other activities described under section 109 of the AEA, with the exception of import, export, construction, or operation? Please provide a basis for your response.

DEEP supports the NRC's consideration of general licenses for other activities described under Section 109 of the Atomic Energy Act, subject to the same conditions and limitations discussed in DEEP's response to Question #1.

In particular, eligibility should be limited to non-first-of-a-kind (NOAK) deployments of a standardized design for which another facility has successfully completed construction and demonstrated the design's implementation. General licensing should not authorize activities involving nuclear material or otherwise create the equivalent of an authorization to construct or operate a facility without the applicable site-specific review and approvals.

As discussed in Question #1, the NRC should retain appropriate site-specific oversight and ensure that applicable Federal, State, local, and Tribal requirements and consultations are completed before activities are undertaken.

DEEP therefore supports limited use of general licenses for the activities identified in Section 109, provided they are restricted to proven, standardized NOAK deployments and do not involve nuclear material or circumvent the site-specific reviews and approvals necessary to protect public health, safety, and the environment.

DEEP Response to NRC Question #3: Does the proposed regulatory change achieve its intended objective of allowing applicants to make business decisions on the appropriate balance between expedited construction and the regulatory risk that changes will be necessary to address safety issues? Are there other approaches that can both provide the needed flexibility while better allowing applicants to structure the degree of regulatory risk they take on through interactions with the NRC staff (e.g., hold-points during construction for NRC inspection)?

DEEP believes the proposed regulatory changes appropriately balance an applicant's interest in expedited construction with the regulatory risk associated with proceeding before all licensing decisions have been completed. Allowing an applicant to proceed with authorized activities at its own risk provides appropriate flexibility while preserving the NRC's ability to require changes necessary to address safety or regulatory issues.

This approach appropriately allows the applicant, rather than the NRC, to determine whether the potential schedule and business benefits of proceeding justify the risk that modifications may subsequently be required. Such decisions can appropriately be informed by the applicant's own financial position, construction schedule, technology readiness, and assessment of regulatory risk.

DEEP therefore does not believe additional mandatory NRC hold-points are necessary as a general matter. Leaving the decision to proceed at risk with the applicant allows market forces and corporate risk-management decisions to determine when the potential benefits of expedited construction outweigh the possibility of additional costs or delays. The NRC should retain its normal inspection and oversight authorities but should not unnecessarily constrain an applicant's willingness to accept commercial risk.

This approach is also consistent with the principle that activities undertaken at the applicant's risk should not create an entitlement to subsequent NRC approval or limit the Commission's authority to require changes necessary to satisfy applicable safety requirements.

Risk-Informing 10 CFR 50.59 and Allowing Flexibility for Changes to Methods

In accordance with Commission direction in the staff requirements memorandum (SRM), dated July 21, 1993, on SECY-93-087, “Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs,” dated April 2, 1993, the NRC staff considers common cause failures (CCFs) in digital instrumentation and controls (DI&C) systems to be beyond design-basis events (BDBEs). In addition, SECY-93-087 states that common mode failures could defeat the redundancy achieved by the hardware architectural structure, and could result in the loss of more than one echelon of defense-in-depth provided by the monitoring, control, reactor protection, and engineered safety functions performed by the DI&C systems. Therefore, a CCF could result in “a malfunction of an SSC important to safety with a different result than any previously evaluated in the final safety analysis report” (see 10 CFR 50.59 (c)(2)(vi)), and a licensee would have to obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing the proposed DI&C modification.

DEEP Response to NRC Question #4: In light of these considerations, do the proposed revisions to 10 CFR 50.59 adequately address issues that may arise from facilities that have transitioned to DI&C? If not, please provide specific comments on changes that would be necessary to address these issues.

DEEP appreciates the NRC's recognition of the unique considerations associated with common cause failures (CCFs) in digital instrumentation and control (DI&C) systems and the opportunity to address whether the proposed revisions to 10 CFR § 50.59 provide appropriate flexibility for facilities that have transitioned from analog to digital instrumentation and controls. The NRC's question appropriately recognizes that the existing treatment of DI&C CCFs is based, in significant part, on Commission direction dating to 1993. Under that policy, the NRC staff considers CCFs in DI&C systems to be beyond design-basis events because a common mode failure could defeat the redundancy provided by the hardware architecture and potentially result in the loss of multiple echelons of defense-in-depth. The NRC therefore identifies the potential for such a failure to constitute a condition requiring a license amendment under 10 CFR § 50.59.

DEEP does not believe that the proposed revisions to 10 CFR § 50.59 directly address this issue. The proposed changes would provide additional flexibility through the use of quantitative risk information and would allow certain departures from methods of evaluation when supported by an NRC-approved verification, validation, and uncertainty quantification (VVUQ) program. However, these changes do not specifically address whether the 1993 policy concerning DI&C CCFs remains appropriate for modern digital systems, nor do they establish a clear pathway under 10 CFR § 50.59 for a licensee to demonstrate that a proposed modification does not introduce a credible common mode failure because sufficient diversity and independence have been incorporated into the design.

DEEP believes the NRC should reconsider this issue considering the substantial technological developments that have occurred since the Commission's 1993 direction. Digital instrumentation and control technology, software development practices, software verification and validation, quality assurance programs, cybersecurity practices, and other methods for establishing system independence and diversity have advanced significantly during the intervening decades. The proposed rule itself recognizes the importance of contemporary software quality assurance and proposes requirements addressing software used in digital items important to safety, including requirements for lifecycle controls and verification and validation.

DEEP does not suggest that the potential for CCFs has been eliminated by these advances. Rather, the regulatory framework should recognize that a licensee may be able to demonstrate, through a documented engineering evaluation, that a particular modification does not create the CCF vulnerability contemplated by the 1993 policy. A blanket determination that a CCF associated with a DI&C system necessarily constitutes a beyond design-basis events (BDBE), without consideration of the actual design architecture, diversity, independence, software controls, and verification and validation associated with the proposed modification, may unnecessarily limit the ability of licensees to modernize existing systems.

This consideration should also not be limited exclusively to digital systems. Common mode failures are not unique to digital instrumentation and controls. Analog systems can experience common mode or common cause failures as well. For example, multiple analog relays or other common components used in a protection or control logic system could fail in a common manner because of a shared design characteristic, environmental condition, manufacturing defect, maintenance practice, or other common dependency. Consequently, DEEP believes the regulatory framework should focus on the existence and significance of a credible common cause failure, rather than treating digital technology itself as the distinguishing characteristic.

A technology-neutral approach would be more consistent with the objectives of this rulemaking. The question for purposes of 10 CFR § 50.59 should be whether the proposed change creates a new or previously unanalyzed vulnerability that can defeat the credited defense-in-depth or safety functions—not simply whether the change involves digital technology. Such an approach would also allow the NRC to account for advances in digital technology while maintaining appropriate regulatory scrutiny of genuine CCF vulnerabilities.

DEEP therefore recommends that the NRC revise 10 CFR § 50.59, or the associated implementation guidance, to establish a specific pathway for evaluating common cause failure considerations associated with modifications to instrumentation and control systems. At a minimum, the NRC should clarify that a licensee may implement a modification without prior NRC approval when the licensee can demonstrate, using an appropriate documented engineering evaluation, that the modification does not introduce a credible common mode failure capable of defeating the credited safety function or materially reducing defense-in-depth.

Such an evaluation could consider, as appropriate:

1. *Functional diversity*—whether redundant or diverse systems perform the same or different functions using sufficiently different means of accomplishing the safety objective;
2. *Hardware diversity and independence*—whether redundant channels or systems have sufficiently independent hardware, components, power supplies, communications, and other dependencies;
3. *Software diversity and verification and validation*—where digital systems are involved, whether software development, verification and validation, testing, configuration management, and quality assurance provide reasonable assurance that a common software-related defect will not defeat redundant functions;
4. *Common dependencies*—whether the systems share components, environmental conditions, data inputs, communications pathways, power sources, maintenance activities, or other characteristics that could create a common failure mechanism;
5. *Failure consequences*—whether a postulated common cause failure would result in the loss of a credited safety function or otherwise result in a condition not previously evaluated in the FSAR; and
6. *Defense-in-depth and risk*—whether the proposed modification maintains adequate defense-in-depth and does not result in an unacceptable increase in risk.

Where the licensee can demonstrate that adequate diversity, independence, and other design features eliminate or sufficiently mitigate the credible common mode failure under consideration, DEEP believes the modification should be eligible for evaluation under the licensee's 10 CFR § 50.59 process rather than automatically requiring a license amendment solely because the modification involves DI&C.

The proposed rule's treatment of VVUQ provides a useful precedent for this approach. The NRC is proposing to allow licensees to depart from certain FSAR-described methods of evaluation when a documented VVUQ process demonstrates that the revised method meets established credibility criteria. Similarly, the proposed rule would permit quantitative risk information to be used in determining whether certain changes constitute more than a minimal increase in risk, provided the change maintains defense-in-depth and safety margins. DEEP believes comparable flexibility should be provided for technically justified determinations concerning common cause failure vulnerabilities in instrumentation and control modifications.

DEEP recognizes that the NRC's 1993 position was intended to address a legitimate concern: digital systems can contain systematic failures that may not be revealed by traditional hardware redundancy because identical software or other common design features may exist in multiple redundant channels. The Commission's direction specifically recognized the possibility that a common mode failure could defeat hardware redundancy and result in the loss of multiple echelons of defense-in-depth. DEEP believes that concern remains valid. However, the regulatory framework should distinguish between the potential for a CCF and the demonstrated existence of a credible CCF for a particular design.

DEEP also notes that the proposed rule does not appear to directly address the use of artificial intelligence (AI) technologies in reactor operations, autonomous control systems, operational decision-making, or security functions. Given the increasing interest in AI-enabled systems,

DEEP believes the NRC should clearly establish regulatory requirements governing the use of AI in nuclear facilities.

Particular caution is warranted where AI systems could influence reactor power levels, safety functions, radioactive material releases, emergency response actions, cybersecurity protections, or physical security functions. Unlike traditional deterministic control systems, some AI models operate through complex processes that may not be fully transparent or readily explainable to operators, regulators, or the public. The current state of knowledge regarding the long-term reliability, predictability, reproducibility, and verification of such systems also continues to evolve.

At this time, DEEP does not believe that a licensee should be permitted to credit an AI-enabled system for a safety function through the 10 CFR § 50.59 process without prior NRC approval. Given the potential for AI systems to introduce failure modes or behaviors that may not be readily predictable, explainable, or adequately bounded by existing verification and validation approaches, DEEP believes that the initial implementation of AI for a credited safety function should require prior NRC review and approval through the licensing process. This would provide an opportunity for the NRC to evaluate the proposed application, including its reliability, verification and validation, failure modes, human oversight, cybersecurity considerations, defense-in-depth, and potential common cause or systematic failures.

DEEP recognizes that AI technologies may develop to the point where their use in safety-significant applications can be demonstrated to provide an acceptable level of safety and reliability. However, until the NRC establishes appropriate regulatory requirements and gains sufficient technical and regulatory experience with such systems, DEEP believes that AI should not be treated as an ordinary modification eligible for licensee implementation under 10 CFR § 50.59 when the AI system is being utilized to perform a safety function. Prior NRC approval should be required for such applications.

DEEP recommends that the NRC address the use of AI in safety-significant functions through rulemaking, rather than relying solely on guidance. The resulting framework should establish clear criteria for when AI may be credited, the verification and validation necessary to support such credit, requirements for human oversight and operator authority, cybersecurity and configuration management requirements, treatment of AI-related common cause and systematic failures, and requirements for maintaining safe operation if the AI system fails or produces an unexpected or unverifiable result. Establishing these requirements through rulemaking would provide greater regulatory certainty and allow for meaningful public participation regarding the appropriate role of AI in nuclear facility operations.

Given the potential significance of AI-enabled decision-making for reactor safety and security, DEEP believes these issues warrant the same level of public review and regulatory scrutiny afforded to other fundamental aspects of reactor design and operation.

In summary, DEEP recommends that the NRC revise the proposed 10 CFR § 50.59 framework and/or associated guidance to establish a technology-neutral, risk-informed process for evaluating common cause failure vulnerabilities. The process should allow a licensee to

demonstrate, through documented engineering analysis and appropriate verification and validation, that a proposed analog or digital instrumentation and control modification does not introduce a credible common mode failure that defeats a credited safety function or materially reduces defense-in-depth. Where that demonstration can be made, the modification should be within the licensee's authority to evaluate and implement under 10 CFR § 50.59 without requiring a license amendment solely because the modification involves DI&C.

DEEP further recommends that the NRC use this rulemaking, or a companion rulemaking, to establish clear regulatory requirements for the use of AI in safety-significant reactor functions. These changes would better align the regulatory framework with modern instrumentation and control technology while preserving the NRC's fundamental responsibility to provide reasonable assurance of adequate protection of public health and safety.

Updates to Construction Permit Requirements and Related Licenses

DEEP Response to NRC Question #5: Are there any additional requirements in 10 CFR 50.34 that the NRC should consider changing to be more technology-inclusive or provide additional clarity? Should conforming changes to 10 CFR 50.67 be made to be consistent with 10 CFR 50.34 wording updates? Please provide a basis for your response.

DEEP believes the proposed technology-inclusive revisions to 10 CFR § 50.34 provide reasonable clarity and appropriately recognize the range of reactor technologies that may be considered under the proposed framework. DEEP particularly supports the proposed requirement in 10 CFR § 50.34(v) that applicants provide offsite response organizations expected to respond to an emergency with an opportunity to provide input on the emergency plan before it is submitted to the NRC. Requiring the application to include input received from those organizations provides an important mechanism for ensuring that emergency plans are developed with consideration of the capabilities, authorities, and practical needs of the organizations responsible for implementing the offsite response.

DEEP recommends, however, that the NRC clarify that emergency plans for advanced and technology-inclusive designs must provide for the capability to independently measure radiation and radioactive contamination in the environment. Offsite response organizations should not be expected to rely solely on dose projections or radiological information provided by the facility when making protective action decisions. The ability to independently characterize radiological conditions provides an important check on licensee assessments and supports informed protective action decisions. This capability is particularly important given lessons learned from the Three Mile Island accident regarding the need for independent radiological monitoring and assessment capabilities.

As advanced reactor designs mature and the NRC gains experience with their deployment, DEEP recommends that important requirements that are currently established for light-water reactors through regulation and associated guidance be incorporated into the technology-inclusive regulatory framework where they remain necessary. While a technology-inclusive framework should avoid unnecessarily prescriptive requirements that do not apply to a particular design,

fundamental capabilities necessary to provide reasonable assurance of adequate protection should not be left solely to case-by-case licensing decisions or guidance.

With respect to 10 CFR § 50.67, DEEP supports conforming changes where necessary to ensure that the terminology and requirements remain consistent with the revised 10 CFR § 50.34 framework. Such changes should preserve the substantive protections of the existing requirements while providing appropriate flexibility for technology-inclusive designs.

DEEP Response to NRC Question #6: Are there any requirements in 10 CFR 50.34 that the NRC should consider changing that are posing undue barriers to timely and efficient submittal of CP applications, or which are unnecessary at the CP stage? Please provide a basis for your response.

DEEP has not identified any existing requirements in 10 CFR § 50.34 that pose undue barriers to the timely and efficient submittal of construction permit applications or that are unnecessary at the construction permit (CP) stage. DEEP believes the proposed rule provides applicants with appropriate flexibility and options for structuring their licensing approach.

DEEP recommends that the NRC periodically review these requirements and conduct targeted rulemakings as advanced reactor technologies mature and the NRC and industry gain additional licensing experience.

Establishing Thresholds for Changes to Reactor Designs During Construction and Operation Under 10 CFR Part 52

DEEP Response to NRC Question #7: The proposed revisions to the definitions in each of the appendices in 10 CFR part 52 identify the specific sections in the generic DCD that contain the various categories of Tier 1 information (i.e., definitions and general provisions, design descriptions, ITAAC, significant site parameters, and significant interface requirements). The proposed revisions to section VIII in each of the appendices in 10 CFR part 52 describe the change control process associated with each category of Tier 1 information. Will there be adequate regulatory clarity regarding the category of Tier 1 information in the generic DCD such that the change control process can be readily identified? Please provide a basis for your response.

DEEP believes the proposed references to the specific sections of the generic Design Control Document (DCD) provide adequate regulatory clarity for identifying the applicable category of Tier 1 information and, consequently, the associated change control process.

However, DEEP notes that the NRC provided only a 45-day comment period for a rulemaking involving 279 substantial documents incorporated by reference. DEEP was therefore unable to conduct a comprehensive review of those documents and cannot fully assess whether the proposed references will function as intended in all circumstances. The limited review period effectively places respondents other than the certificate holder at a significant disadvantage, as the certificate holder is likely the party best positioned to evaluate the detailed DCD provisions.

DEEP supports the proposed approach based on the information available but recommends that the NRC provide substantially more time for review of incorporated documents in future rulemakings to allow States and other stakeholders a meaningful opportunity to evaluate and comment on the proposed requirements.

DEEP Response to NRC Question #8: The proposed revisions to section VIII.B of appendix D to 10 CFR part 52 would effectively treat Tier 2* information for the AP1000 design as Tier 2 information during construction as well as operation. However, for appendices A (ABWR) and E (ESBWR) Tier 2* information would not be treated as Tier 2 information until after the plant has achieved full power. The basis for this difference is the construction and licensing experience gained from the COLs referencing the AP1000 design which is lacking for the ABWR and ESBWR designs. Should the flexibility provided to the AP1000 design in appendix D during construction also be extended to the ABWR and ESBWR designs in appendices A and E? Please provide a basis for your response.

DEEP believes that regulatory certainty is best supported by consistent application of regulatory requirements across comparable reactor designs. DEEP therefore supports extending the flexibility provided to the AP1000 design to the Advanced Boiling Water Reactor (ABWR) and Economic Simplified Boiling Water Reactor (ESBWR) designs once the applicable FOAK deployment has been successfully demonstrated.

This approach would recognize the construction and licensing experience gained from the first deployment while avoiding unnecessary differences in the treatment of otherwise comparable standardized designs. DEEP supports extending the flexibility to the ABWR consistent with the approach taken for the AP1000 once FOAK construction and licensing experience provides an appropriate basis for doing so.

DEEP Response to NRC Question #9: Paragraph (b) of 10 CFR 53.1535 states “The holder of a COL under this part for which the NRC has not yet made a finding in accordance with 10 CFR 53.1452(g) must request amendments required by 10 CFR 53.1525 or 53.1550 no later than 45 days from the date the licensee begins the construction of the SSCs to implement the change or departure requiring NRC approval. The licensee proceeds with such changes at its own risk recognizing that there is a possibility that the amendment will not be granted.” This differs from provisions in 10 CFR part 52 by adopting requirements that explicitly support a change process described in RG 1.237, “Guidance for Changes During Construction for New Nuclear Plants Being Constructed Under a Combined License Referencing a Certified Design Under 10 CFR part 52.” Should the provisions in 10 CFR part 52 be revised to also explicitly support this change process? Please provide a basis for your response.

DEEP supports revising 10 CFR part 52 to explicitly support a change process consistent with that provided under 10 CFR part 53. DEEP believes regulatory certainty and consistency are best supported by providing comparable change processes regardless of whether an applicant elects to license a reactor under 10 CFR part 50, part 52, or part 53. In particular, each licensing framework should provide a 10 CFR § 50.59-like process that allows licensees to evaluate and implement changes without prior NRC approval when established criteria are met, while also

allowing licensees to proceed with changes requiring subsequent NRC approval at the licensee's risk.

Providing consistent provisions across the licensing frameworks would avoid creating unnecessary differences based solely on the selected licensing pathway and would provide licensees with greater flexibility to manage changes during construction without compromising safety. The NRC has recognized that the 10 CFR Part 52 appendices already contain a 10 CFR § 50.59-like change process and is considering conforming the Part 52 process to proposed revisions to 10 CFR § 50.59. DEEP therefore supports explicitly codifying the ability to proceed at the licensee's risk, consistent with the approach proposed in 10 CFR § 53.1535, and applying a consistent, risk-informed change process across 10 CFR Parts 50, 52, and 53.

DEEP Response to NRC Question #10: The proposed revisions to 10 CFR 52.98 and 53.1550 allow holders of an OL or COL that reference a manufacturing license (ML) to make changes to the FSAR without obtaining a license amendment if the changes are identical to changes approved by the Commission by amendment to the ML for the manufactured reactor and upon determining that implementation of the changes will be consistent with the basis for the Commission's approval of the amendment to the ML and not involve any additional changes that would require an amendment to its OL or COL. Should this flexibility be provided to COLs that reference a design certification? Please provide a basis for your response.

DEEP supports extending this flexibility to COLs that reference a design certification. DEEP believes regulatory certainty is best supported by consistent application of regulatory requirements across comparable licensing frameworks. Where the NRC has determined that a change to a manufactured reactor may be addressed through an amendment to the manufacturing license and subsequently adopted by COL holders without a separate license amendment, a similar approach should be available to COL holders referencing a design certification.

Providing comparable flexibility for both manufacturing licenses and design certifications would avoid unnecessary differences between otherwise similar licensing approaches and allow licensees to efficiently implement NRC-approved changes while maintaining appropriate regulatory oversight. DEEP therefore supports extending this flexibility to COLs referencing design certifications, subject to the same limitations and conditions applicable to changes approved through the ML process.

DEEP Response to NRC Question #11: Should the proposed rule changes to 10 CFR 50.59 described in section XII of this document also be applied to the 10 CFR 50.59-like process in the appendices of 10 CFR part 52? Please provide a basis for your response.

DEEP supports applying the proposed 10 CFR § 50.59 changes consistently to the analogous 10 CFR § 50.59-like processes in 10 CFR part 52. Where such processes serve the same regulatory function, their requirements should be aligned to the extent practical to promote consistency and avoid unnecessary differences between regulatory frameworks.

The purpose of 10 CFR § 50.59 is to provide a risk-informed means of determining which changes require prior NRC review while avoiding low-value reviews that do not provide a meaningful safety or security benefit. Applying the same principles to comparable 10 CFR Part 52 processes would promote regulatory efficiency while maintaining appropriate NRC oversight.

Revision of the Emergency Preparedness Regulations for Nuclear Power Reactors

Conduct of Exercises - The NRC is considering risk-informed revisions to the conduct of exercises in section F, "Training," of appendix E to 10 CFR part 50. Paragraph IV.F.2.b of appendix E to 10 CFR part 50 requires a biennial exercise of the onsite plan to ensure that emergency response organization (ERO) proficiency in key skills is maintained. The NRC is assessing risk-informed revisions to the conduct of exercises to ensure ERO proficiency is maintained through the appropriate frequency of exercises and performance of the exercise cycle as required by paragraph IV.F.2.j of appendix E to 10 CFR part 50. Licensees conduct drills and exercises to develop and maintain key skills such as timely and accurate classification and notification of events; assessment of radiological releases and development of protective actions; planning, analysis, and implementation of mitigative actions; worker protection during emergency conditions; and coordination with offsite response organizations to include dissemination of information to the public through media channels. Following each exercise, licensees perform a critique of their actions to comply with 10 CFR 50.47(b)(14) which states, in part, "deficiencies identified as a result of exercises or drills are (will be) corrected." In 1996, the NRC revised the emergency plan regulations for exercises from annual to biennial (61 FR 30129; June 14, 1996) to allow greater flexibility in licensee emergency planning training activities while maintaining readiness. The NRC is considering another revision to the frequency to either a triennial, or quadrennial basis. For example, a quadrennial exercise cycle could be supplemented with additional drills to ensure that proficiency is maintained between exercise years. Additionally, the NRC is considering additional language in paragraph IV.F.2.c of appendix E to 10 CFR part 50 to allow for the use of tabletop exercises or other performance enhancing methods when offsite authorities are not participating in the exercise of the onsite emergency plan required by paragraph IV.F.2.b. These potential changes could increase scheduling flexibility and reduce the resource burden while maintaining reasonable assurance that ERO proficiency will be maintained. If the exercise frequency is changed to quadrennial for some sites, the NRC is considering a corresponding change to the exercise cycle from 8 to 16 calendar years in paragraph IV.F.2.j.(iii) of appendix E to 10 CFR part 50 to reflect the proposed change to quadrennial exercises. However, a change to the exercise cycle may impact the ability of the ERO to demonstrate proficiency in the key skills necessary to respond to various emergency events, particularly in sites with increased turnover in ERO members. During the 1996 change from annual to biennial, the NRC received several comments about the ability of licensees to maintain proficiency with a longer gap between exercises and how this increased gap could also affect the performance of State and local responders. These comments were ultimately resolved and the NRC determined that reasonable assurance remained with the change in exercise frequency. With an additional three decades of experience, advances in all-hazards emergency preparedness, and a range of potential new advanced reactor

designs in the future, the NRC is again interested in comments on the conduct of exercises. The NRC urges stakeholders to provide comments on the following questions:

DEEP Response to NRC Question #12: What are the potential benefits and challenges of a change to the conduct of exercises to applicants and licensees and offsite response organizations? Please provide a basis for your response.

DEEP supports greater flexibility in the frequency of formal evaluated exercises for offsite response organizations (OROs) when that flexibility is based on demonstrated performance and continued evidence of proficiency. DEEP believes that the NRC should distinguish between the frequency with which an ORO must participate in a formal evaluated exercise and the frequency with which an ORO must demonstrate proficiency in emergency response functions. These are not necessarily the same.

A formal evaluated exercise provides an important, comprehensive assessment of an ORO's ability to respond to a radiological emergency. However, once an ORO has successfully demonstrated its capabilities during an evaluated exercise, there may be a reasonable basis for extending the interval before the next formal evaluated exercise, provided the ORO continues to demonstrate proficiency through other drills, exercises, training, actual emergency response activities, and other documented performance-based activities.

DEEP believes that a performance-based approach should allow an ORO with a demonstrated history of successful performance to establish that it can maintain its own proficiency between formal evaluated exercises. Successful performance during an evaluated exercise should be an important criterion for determining whether an ORO is eligible for an extended evaluation interval. DEEP believes that the absence of Federal Emergency Management Agency (FEMA)-identified Areas Requiring Corrective Action (ARCAs) should be an important consideration in making this determination. An ORO that successfully completes an evaluated exercise without FEMA-identified ARCAs has demonstrated that its emergency response organization can effectively perform the evaluated functions.

An extended evaluation interval should not, however, mean that the ORO is relieved of its responsibility to maintain proficiency during the intervening years. Continued proficiency should be demonstrated and documented through the ORO's Annual Letter of Certification (ALC) process. The ALC should provide evidence that the ORO has continued to participate successfully in drills, exercises, training, and other performance-based activities during the intervening period.

At a minimum, DEEP believes this continuing demonstration of proficiency should include:

- Successful participation in applicable drills or exercises during the year;
- Demonstrated proficiency in ingestion pathway emergency response activities through appropriate training, drills, or exercises;
- Completion of applicable Hostile Action Based (HAB) activities, including appropriate engagement and training with local law enforcement and other security-related response partners;

- Demonstrated proficiency in other emergency response functions appropriate to the ORO's assigned responsibilities; and
- Documentation of any deficiencies identified through these activities and the corrective actions taken to address them.

This approach would recognize that OROs do not operate in isolation from other emergency preparedness activities. Some OROs support multiple nuclear power plant facilities and therefore may participate in evaluated exercises, drills, and other emergency preparedness activities at a frequency greater than would otherwise be required based solely on the exercise schedule for an individual facility. The NRC should recognize this existing level of demonstrated performance when determining the appropriate frequency of formal evaluated exercises.

At the same time, DEEP believes that participation must be distinguished from performance. The fact that an ORO has participated in an exercise, has an all-hazards emergency plan, or has procedures addressing a particular function should not automatically establish proficiency. The ORO should be able to demonstrate that the applicable function was actually performed and that the performance was successful.

For example, all-hazards emergency response activities or real-world events could provide evidence of proficiency in functions such as evacuation, communications, emergency operations center operations, incident command, public information, and coordination. However, credit should only be provided where the ORO actually performed the applicable function during the activity and there is a documented evaluation of the ORO's performance at that activity.. An ORO should not receive credit for an evacuation function merely because it has an evacuation plan or because evacuation is addressed in its all-hazards program. If an evacuation has not actually been conducted or evaluated during the applicable period, that capability should be demonstrated through an appropriate exercise or other performance-based evaluation.

The same principle should apply to specialized radiological emergency response functions. Functions such as independent dose assessment, offsite radiation field-team measurements, ingestion pathway sampling, laboratory analysis, and development of radiological protective action recommendations are not routinely performed during most all-hazards emergencies. Proficiency in these functions should therefore be demonstrated through participation in exercises for other nuclear facilities, off-year drills, out-of-sequence demonstrations, or other appropriate performance-based activities, and participation in any such activities should be documented.

For example, an ORO that supports multiple nuclear facilities may demonstrate dose assessment or field monitoring capabilities during an exercise at one facility while participating in a formal evaluated exercise at another facility in a different year. DEEP believes the NRC and FEMA should recognize such demonstrated performance rather than treating each facility's exercise schedule as an isolated requirement. This would allow the regulatory framework to recognize the actual emergency preparedness experience of an ORO while maintaining reasonable assurance that its capabilities remain proficient.

In all cases, these activities should be appropriately documented in the ORO's ALC. The documentation should identify the emergency response functions performed, the personnel and organization involved, the type of activity through which proficiency was demonstrated, and the results of the performance evaluation. Evaluations may be conducted through the ORO's self-assessment program, peer evaluators, exercise evaluators, or other qualified evaluators, as appropriate. Any identified deficiencies should be documented and tracked through the ORO's corrective action process, with subsequent actions taken to verify that the deficiency has been effectively corrected.

DEEP believes this approach provides an important distinction between maintaining proficiency and formally evaluating proficiency. An ORO does not need to undergo a comprehensive, resource-intensive evaluated exercise every two years simply to demonstrate capabilities that it has already successfully demonstrated and continues to routinely practice. Conversely, the NRC should not assume that proficiency is maintained merely because an ORO has a plan, training program, or organizational structure in place.

Formal evaluated exercises require substantial coordination among licensees, state and local governments, emergency management organizations, law enforcement, public safety agencies, healthcare organizations, and other participants. They require significant personnel and financial resources and can interfere with other important governmental and public safety operations. Extending the formal evaluation interval for OROs that have demonstrated successful performance would reduce this resource burden while allowing those organizations to direct resources toward maintaining actual proficiency through more frequent, targeted drills, training, and other emergency preparedness activities.

DEEP believes the appropriate regulatory test should therefore be whether an ORO can demonstrate both a successful history of evaluated performance and continuing evidence of proficiency. An ORO that has successfully completed a formal evaluated exercise without FEMA-identified ARCAs, continues to demonstrate its capabilities through drills, exercises, training, real-world responses, and other performance-based activities, and documents that performance and any corrective actions through the ALC process should be eligible for an extended formal evaluation interval.

Conversely, an ORO that has identified significant performance deficiencies, has unresolved corrective actions, has not demonstrated key emergency response functions during the intervening period, or cannot provide objective evidence of continuing proficiency should remain subject to a more frequent formal evaluation.

DEEP therefore supports a performance-based extension of the formal evaluation cycle for OROs, rather than a blanket extension that applies equally to all organizations. The formal evaluation interval should be based on demonstrated successful performance and the ORO's ability to maintain proficiency between evaluated exercises.

Such an approach would recognize that a successful ORO should be capable of managing its own proficiency, identifying and correcting its own problems, and providing objective evidence that its capabilities remain effective. It would also recognize the substantial emergency

preparedness experience of OROs that support multiple facilities and may therefore participate in exercises and drills at a frequency greater than required by any individual facility.

Connecticut's experience during the COVID-19 public health emergency provides a practical example of how proficiency can be demonstrated and maintained without relying exclusively on a scheduled formal evaluated exercise. In 2020, Connecticut was unable to conduct the planned Millstone Power Station post-plume biennial radiological emergency preparedness exercise because of the significant public health restrictions associated with the COVID-19 pandemic. Connecticut therefore requested relief from FEMA from the biennial exercise frequency requirement⁷. FEMA formally approved Connecticut's request on November 18, 2020⁸, pursuant to 44 C.F.R. § 350.9(c), and authorized alternative credit, as outlined in the Radiological Emergency Preparedness (REP) Program Manual, for most of the required exercise criteria. FEMA further provided that any outstanding criteria would be demonstrated during the June 8–9, 2021 exercise.

This experience provides a concrete example of a regulatory agency recognizing that formal exercise frequency and continued proficiency are distinct concepts. Connecticut's capabilities could be evaluated through alternative performance-based methods when circumstances prevented the scheduled evaluated exercise from occurring, while maintaining the underlying emergency preparedness standards. The subsequent successful participation in FEMA-evaluated exercises further demonstrates that proficiency can be maintained through a combination of formal exercises, drills, training, and other demonstrated performance between formal evaluations.

Importantly, Connecticut's approach was based on demonstrated performance rather than simply the existence of plans or training programs. The State had recently conducted an ingestion pathway full-scale rehearsal drill in October 2019, and the alternative assessment considered the performance of OROs during that drill, subsequent training, drills and exercises, and their response to the COVID-19 public health emergency. The assessment specifically identified emergency operations management and alert and notification as being demonstrated during the ongoing emergency, with portions of other capabilities also being demonstrated through actual response activities.

Connecticut has subsequently participated in two additional FEMA-evaluated exercises and successfully demonstrated its emergency preparedness capabilities. This experience provides practical evidence that formal evaluation and proficiency are related but distinct concepts. An ORO does not necessarily lose proficiency simply because it does not participate in a formal scheduled evaluated exercise during a particular year. Where an organization has previously demonstrated successful performance and continues to demonstrate proficiency through drills,

⁷ Connecticut Division of Emergency Management and Homeland Security (DEMHS) letter to FEMA, "Proposed Alternative Approach for Demonstration of Connecticut Response Plans and Capabilities for a Nuclear Power Plant-Related Incident for Compliance with the Evaluation Criteria of 44 CFR 350 and the Guidelines of NUREG 0654/FEMA-REP-1," dated September 9, 2020.

⁸ FEMA memorandum from Bridget Bean Senior Official Performing the Duties of Deputy Administrator for Resilience to Captain W. Russell Webster, USCG (Ret.), CEM Regional Administrator, Region I, "Approval of the Request for Relief from the Biennial Radiological Emergency Preparedness Program Exercise Frequency Requirement – State of Connecticut," dated November 18, 2020.

training, other facility exercises, real-world response activities, and other appropriate performance-based assessments, there can be reasonable assurance that the organization's capabilities remain effective.

DEEP believes this experience supports allowing a performance-based extension of the formal evaluation interval for OROs that have demonstrated successful performance. The COVID-19 experience also demonstrates the value of retaining regulatory flexibility to recognize alternative demonstrations of capability when circumstances prevent a scheduled exercise from occurring. Such flexibility should not be viewed as reducing the emergency preparedness standard; rather, it provides the ability to determine whether the standard has been met based upon actual performance using an appropriate combination of evaluation methods.

This experience is particularly relevant to the NRC's consideration of a longer evaluation cycle. A formal evaluated exercise is an important tool for independently assessing an ORO's capabilities, but it is not the only means by which proficiency can be demonstrated. Where an ORO has successfully completed a FEMA-evaluated exercise without identified ARCAs and subsequently provides documented evidence of continuing successful performance, the NRC should be able to recognize that history when determining the appropriate interval before the next formal evaluation.

The Connecticut experience also demonstrates why the ALC can serve an important role in a performance-based framework. Between formal evaluated exercises, the ALC can provide documented evidence of the ORO's continuing performance, including participation in drills and exercises, ingestion pathway proficiency activities, Hostile Action Based activities, real-world emergency responses, and exercises conducted at other nuclear facilities. These activities provide an ongoing record that the ORO is maintaining and evaluating its capabilities rather than simply relying upon the results of a prior formal exercise.

In summary, DEEP supports extending the formal evaluation interval for OROs where the extension is justified by demonstrated performance. A successful evaluated exercise, particularly one completed without FEMA-identified ARCAs, should establish the basis for an extended evaluation interval. Continued eligibility for that interval should be demonstrated annually through the ALC by documenting successful participation and performance in drills, exercises, ingestion pathway proficiency activities, HAB activities, real-world emergency responses, and other applicable performance-based activities. Specialized radiological functions that are not routinely demonstrated through all-hazards activities should continue to be demonstrated through nuclear facility exercises, off-year drills, out-of-sequence demonstrations, or other appropriate evaluations.

This approach would reduce the substantial resource burden associated with frequent formal evaluated exercises while preserving reasonable assurance of adequate protection of public health and the environment. Most importantly, it would make the exercise program genuinely performance-based: organizations that have demonstrated that they can successfully perform their emergency response functions as defined in the REP Program Manual and can continue to demonstrate and manage their own proficiency should be provided greater flexibility in the frequency of formal regulatory evaluation.

DEEP Response to NRC Question #13: What specific criteria related to maintaining onsite ERO proficiency should be considered in evaluating whether a biennial, triennial, or quadrennial exercise is appropriate? Please provide a basis for your response.

DEEP believes the principal criterion for determining the appropriate frequency of formal evaluated exercises should be demonstrated performance of Emergency Response Organization (ERO) personnel, rather than simply the amount of time that has elapsed since the last full-scale exercise. The objective of the emergency preparedness training and exercise program should be to provide reasonable assurance that personnel assigned to ERO positions can effectively perform their assigned functions under emergency conditions.

DEEP believes it is important to distinguish between formal evaluation of ERO proficiency and the ongoing maintenance of ERO proficiency. A formal evaluated exercise provides an important independent assessment of an organization's capabilities, but it is not necessarily the only means by which proficiency can be demonstrated. A licensee with a robust, systematic training and drill program that continuously evaluates ERO personnel, identifies and corrects deficiencies, and documents successful performance may be able to maintain proficiency between formal evaluated exercises and therefore support a longer formal exercise interval.

For onsite ERO personnel, the training and proficiency program should provide sufficient opportunities for personnel to demonstrate the skills necessary to perform their assigned functions. Where multiple individuals are qualified for the same ERO position, the licensee should have a systematic approach to ensuring that the organization's personnel depth remains proficient. This does not necessarily mean that every qualified individual must be directly evaluated during every formal evaluated exercise. Rather, the licensee should be able to demonstrate through its overall training, drill, exercise, and performance evaluation program that personnel qualified for ERO positions are maintaining proficiency.

Simply maintaining a training qualification or completing required training should not, by itself, be considered sufficient evidence of proficiency. The basis for extending the interval between formal evaluated exercises should be objective evidence of actual performance and the effectiveness of the licensee's proficiency assurance program.

DEEP believes particular attention should be given to ERO positions responsible for command, control, communications, and coordination with offsite response organizations. For key positions such as the Emergency Director and Shift Manager, proficiency should include not only internal command and control responsibilities but also the ability to effectively communicate and coordinate with ORO officials during an emergency.

This coordination should be demonstrated through actual performance. For example, an Emergency Director or Shift Manager should periodically demonstrate the ability to communicate plant conditions, protective action recommendations, radiological information, and other relevant information to appropriate ORO officials and to effectively incorporate information received from offsite response organizations into the plant's emergency response.

Similarly, ERO personnel assigned to work within an ORO Emergency Operations Center (EOC) should periodically demonstrate their ability to perform their assigned responsibilities within that EOC environment and coordinate effectively with the associated ORO personnel. Proficiency in an onsite ERO position does not necessarily demonstrate proficiency in working within an offsite EOC, where personnel must understand the roles, authorities, communications protocols, and decision-making processes of the ORO.

DEEP therefore believes that the NRC should consider the following criteria when evaluating whether a biennial, triennial, or quadrennial formal evaluated exercise is appropriate:

1. *Demonstrated individual performance.* The licensee should have objective evidence that ERO personnel can perform their assigned functions, rather than relying solely on completion of training or qualification requirements.
2. *Maintenance of personnel depth.* The licensee should have a systematic process for maintaining proficiency across the personnel qualified for each ERO position. Where not every individual is directly evaluated during a formal evaluated exercise, proficiency may be demonstrated through drills, training scenarios, exercises, or other performance-based evaluations.
3. *Performance of key command and control functions.* Emergency Directors, Shift Managers, and other key command personnel should periodically demonstrate emergency decision-making, communications, coordination, and management skills under conditions representative of an actual emergency.
4. *Coordination with OROs.* ERO personnel whose responsibilities require interaction with State and local response organizations should periodically demonstrate effective communication and coordination with those organizations.
5. *Performance within ORO EOCs.* ERO personnel assigned to State or local EOCs should periodically demonstrate their ability to operate effectively within those facilities and coordinate with the associated ORO personnel and processes.
6. *Personnel turnover and organizational depth.* The NRC should consider the rate of turnover within the ERO, the number of qualified individuals available for each position, and the effectiveness of the licensee's training and drill program in maintaining proficiency across the depth of the organization.
7. *Identification and correction of performance deficiencies.* The licensee should have a systematic process for identifying deficiencies during training, drills, exercises, and actual events and ensuring that those deficiencies are appropriately corrected. The licensee should also verify the effectiveness of corrective actions.
8. *Continuous performance monitoring.* The licensee should be able to demonstrate that ERO proficiency is continuously assessed rather than relying exclusively on the results of the periodic full-scale exercise.
9. *Successful performance history.* A licensee with a demonstrated history of successful performance during formal evaluation exercises, supported by continued successful performance during intervening drills, training, exercises, or actual events, should be considered for an extended formal evaluation interval.

DEEP believes that a systematic approach to training and performance evaluation could provide an appropriate basis for allowing a longer interval between formal evaluated exercises. For

example, a licensee that continuously evaluates ERO personnel through drills and training scenarios, maintains objective performance records, systematically identifies and corrects deficiencies, and demonstrates that corrective actions are effective may be able to provide reasonable assurance of proficiency without directly evaluating every ERO member during every formal evaluated exercise.

This approach is consistent with a performance-based emergency preparedness framework. The question should not be simply whether every individual was evaluated during the most recent formal exercise, but whether the licensee has objective evidence demonstrating that its ERO personnel remain capable of performing their assigned functions. A robust proficiency assurance program can provide this evidence through multiple performance-based activities between formal evaluation exercises.

Conversely, a licensee should not receive the benefit of a longer formal evaluation exercise interval simply because it has a written training program, maintains ERO qualifications, or has completed required training. The basis for extending the evaluation interval should be demonstrated performance and the effectiveness of the licensee's proficiency assurance program.

DEEP also believes that the NRC should recognize actual emergency response activities and other exercises or drills when determining whether ERO proficiency has been demonstrated. Where ERO personnel have successfully demonstrated applicable functions during a real-world event, another facility exercise, an off-year drill, or an out-of-sequence demonstration, that performance should be considered when determining the need for a formal evaluation exercises. As with formal evaluation exercises, credit should be based on actual demonstrated and evaluated performance, rather than simply participation in an activity.

This approach is particularly appropriate for licensees or organizations that may participate in multiple emergency preparedness activities over a given period. A person or organization that has successfully demonstrated a particular emergency response capability during another applicable exercise should not necessarily have to wait for, or be required to repeat, the same demonstration solely because the activity occurred outside the formal evaluation exercise cycle for a particular facility.

DEEP believes that this distinction between formal evaluation exercises and continuing proficiency provides the NRC with an opportunity to make the formal evaluation exercise program more genuinely performance-based. Formal evaluation exercises provide independent confirmation of the organization's capabilities at a particular point in time. The licensee's broader training, drill, and performance evaluation program provides the mechanism for maintaining those capabilities between formal evaluations.

Accordingly, DEEP recommends that the NRC establish performance-based criteria for determining the appropriate formal evaluation interval rather than prescribing a single formal evaluation interval frequency applicable to all facilities. A licensee demonstrating a robust, systematic, and continuously evaluated ERO training and proficiency program, together with a successful performance history, could potentially support a triennial or, where justified, quadrennial formal evaluated exercise. Conversely, where personnel turnover is high, ERO depth

is limited, performance deficiencies are recurring or unresolved, or the licensee cannot demonstrate proficiency through its intervening training and drill program, a biennial formal evaluated exercise should be maintained.

Under such an approach, the formal exercise interval would be an outcome of the effectiveness of the licensee's proficiency assurance program rather than an entitlement based solely on the passage of time. This would provide the NRC with a more meaningful performance-based measure of emergency preparedness while allowing flexibility for licensees that can demonstrate, through objective performance evidence, that their ERO remains proficient.

Ultimately, DEEP believes the appropriate standard should be whether the licensee can provide reasonable assurance that its ERO can successfully perform its assigned emergency response functions when needed. The NRC should allow flexibility in how that assurance is demonstrated, while retaining sufficient independent evaluation to periodically confirm that the licensee's proficiency assurance program is effective.

DEEP Response to NRC Question #14: How would a potential change impact the conduct of exercises of the offsite plans required under paragraph IV.F.2.c of appendix E to 10 CFR part 50? Please provide a basis for your response.

DEEP believes the existing provisions of paragraph IV.F.2.c provide a reasonable framework consistent with the performance-based approach described in DEEP's responses to Questions #12 and #13. In particular, the provisions appropriately recognize that OROs may support multiple nuclear facilities and therefore may demonstrate proficiency through full or partial participation in exercises at different facilities.

DEEP supports retaining this flexibility and allowing demonstrated performance from exercises at other facilities, drills, real-world emergency responses, and other performance-based activities to be considered when determining the need for future formal evaluated exercises. As discussed in Questions #12 and #13, credit should be based on actual demonstrated and evaluated performance, not simply participation, the existence of a plan, or completion of training.

The existing requirement for emergency preparedness activities and interactions with offsite authorities between formal exercises should also be retained as an important means of maintaining proficiency and licensee-ORO interfaces.

DEEP further recommends that significant changes to an ORO's organizational structure, personnel, or emergency response responsibilities be considered when determining whether additional performance demonstrations are warranted. Where such changes could affect previously demonstrated capabilities, the NRC should require an appropriate performance-based demonstration to confirm continued proficiency. This need not necessarily require repeating a full evaluated exercise, but should be sufficient to demonstrate that the changed organization can effectively perform its assigned emergency response functions.

In summary, DEEP believes paragraph IV.F.2.c provides a reasonable foundation for the performance-based approach described in Questions #12 and #13. The NRC should retain the

existing flexibility for OROs supporting multiple facilities while allowing demonstrated performance from other exercises, drills, real-world events, and other evaluations to support an extended formal evaluation interval. Significant organizational changes should trigger an appropriate performance-based demonstration where necessary to confirm continued proficiency.

DEEP Response to NRC Question #15: If there was a change to the exercise frequency, should the exercise cycle be changed or otherwise be revised to ensure there is adequate opportunity for the ERO to demonstrate adequate performance under paragraph IV.F.2.j of appendix E to 10 CFR part 50? Please provide a basis for your response.

DEEP believes the scenario elements identified in paragraph IV.F.2.j remain appropriate and should continue to be addressed over the applicable exercise cycle. As discussed in DEEP's responses to Questions #12 and #13, however, the formal exercise cycle should not be the sole mechanism for demonstrating ERO proficiency.

If the NRC changes the formal exercise frequency, DEEP believes the exercise cycle should be revised to recognize proficiency demonstrated through other performance-based activities, including drills, out-of-sequence activities, training, exercises conducted at other facilities, and actual emergency responses. These activities should be appropriately documented and evaluated, including through the ALC process for OROs.

In particular, specialized activities such as ingestion pathway response and HAB response should not be deferred until they occur as scenario elements in a formal exercise cycle that could extend to 16 years. OROs should continue to demonstrate proficiency in these capabilities through appropriate drills, training, exercises, or other performance-based activities at intervals sufficient to maintain proficiency. The NRC and FEMA should provide clear and consistent guidance identifying the types and frequency of activities that may be credited for maintaining proficiency between formal evaluated exercises.

DEEP believes the existing scenario elements in IV.F.2.j—hostile action, varying radiological release conditions, rapid escalation, implementation of severe accident strategies, and integration of offsite resources—remain appropriate. The concern is not the content of the cycle, but ensuring that extending the formal evaluation interval does not result in an unintended reduction in the frequency with which critical skills are actually practiced and demonstrated.

DEEP also believes OROs have demonstrated the ability to objectively assess their performance between formal evaluated exercises through self-assessments, peer evaluations, drills, training, and corrective action programs. Where these activities demonstrate successful performance and identify and correct deficiencies, they should be recognized as evidence of continuing proficiency.

Accordingly, DEEP supports maintaining the existing scenario elements while allowing the formal exercise cycle to be supplemented by documented performance-based activities between formal evaluations. The NRC and FEMA should establish clear guidance on acceptable methods for demonstrating and documenting proficiency, including appropriate expectations for ingestion pathway and HAB activities.

In summary, DEEP does not believe that changing the formal exercise frequency necessarily requires changing the types of scenarios identified in paragraph IV.F.2.j. Rather, the exercise cycle should be supplemented by a clear, performance-based framework that recognizes drills, out-of-sequence activities, training, exercises at other facilities, and real-world emergency responses as appropriate evidence of continuing proficiency. Specialized capabilities, including but not limited to ingestion pathway and HAB response, should continue to be demonstrated more frequently than once during a potentially extended formal exercise cycle. This approach would preserve the value of the formal exercise while ensuring that an extended evaluation interval does not become an extended period without demonstrated performance.

Considerations for Emergency Planning Zones - The proposed change to 10 CFR 50.33(g)(1) would provide certainty for a site-boundary EPZ for facilities less than 300 MWt. This proposed change is based on NRC staff review of available technical analyses that estimate radiological consequences for a variety of reactor designs and design power levels. The NRC is considering factors that may obviate the need for applicants of certain reactor designs to perform detailed analyses to support a site-boundary EPZ determination or reach a determination that no EPZ is needed. Such factors may include use of novel fuel forms or the performance of functional containment that may generically demonstrate that predetermined, prompt protective measures are unwarranted. The NRC is also considering factors that may necessitate additional analysis by the applicant for facilities less than 300 MWt.

DEEP Response to NRC Question #16: Are there additional design factors or analyses that should be considered to provide certainty on EPZ determinations? Please address within the comment the technical basis for consideration and how they relate to EPZ determinations and, specifically, the criteria of 10 CFR 50.33(g)(2).

DEEP supports the NRC's consideration of design-specific factors, including novel fuel forms and functional containment, as part of the technical basis for determining the appropriate Emergency Planning Zone (EPZ). However, DEEP believes that the criteria in proposed 10 CFR § 50.33(g)(2) should consider a broader range of factors than reactor thermal power alone. In particular, the potential source term, total material at risk, mechanisms capable of mobilizing radioactive material, and the ability of the facility to detect and respond to failures should be considered when determining whether a site-boundary EPZ provides reasonable assurance of adequate protection of public health and safety.

Functional containment and novel fuel forms. DEEP agrees that novel fuel forms and functional containment may provide an important basis for establishing a smaller EPZ where the design can demonstrate that radioactive material will remain adequately retained under credible accident conditions. However, additional scrutiny may be warranted for designs that do not employ a conventional external containment structure and instead rely on fuel particles, fuel coatings, reactor vessels, confinement systems, or other components to provide the principal barrier to release.

For example, designs utilizing TRISO (tri-structural isotropic) fuel may rely substantially on the fuel particle and its coatings to perform a functional containment role. In such cases, the NRC

should require sufficient analysis and demonstrated performance to establish the reliability of those barriers under the full range of relevant accident conditions, including conditions that could challenge fuel coatings or otherwise result in the release and transport of fission products. The analysis should not assume that the performance of individual fuel particles necessarily provides the same degree of defense-in-depth as a separate, robust containment structure unless that conclusion is supported by the design-specific technical basis.

Total material at risk. DEEP also believes that total material at risk (MAR) should be considered independently from reactor thermal power. A lower-power reactor may nevertheless contain a substantial inventory of radioactive material, particularly where a design utilizes a long-life core, extended fuel residence time, or other features that allow radioactive material to accumulate over time. Consequently, a determination based solely on instantaneous thermal power could fail to account for the total radioactive inventory potentially available for release.

The NRC should therefore consider the total inventory of radionuclides that could reasonably become available for release, including the mechanisms and conditions under which that material could be mobilized. The relevant consideration should not simply be how much power the reactor produces at a particular point in time, but should also include consideration of the magnitude and characteristics of the potential source term under the accident conditions.

Failure of safety functions and operator response. DEEP recommends that the NRC also consider whether the design provides an independent or diverse means of performing a safety function following failure of the primary means of performing that function. Designs in which a single failure could prevent the licensed operator from initiating an action or prevent an alternate safety function from being performed should receive additional scrutiny in an EPZ determination.

This is particularly important for advanced designs that rely heavily on passive or automated systems. While passive systems may substantially reduce the likelihood of an accident or radioactive release, the EPZ analysis should consider the consequences if the credited safety function fails or does not perform as assumed. The analysis should also consider whether operators have a practical means of recognizing the failure and initiating an alternative action before conditions develop that could result in a significant release.

Novel coolants and stored energy. DEEP also recommends consideration of the characteristics of novel reactor coolants and other materials that could affect the magnitude or timing of a release. Coolants or other reactor materials may contain substantial stored thermal or chemical energy that could influence fuel damage, radionuclide mobilization, or transport following an accident. Designs using novel coolants should therefore evaluate the potential energy available to drive a release and the resulting impact on the timing, magnitude, and characteristics of the source term.

Radionuclide inventory and form. The NRC should also consider whether a design contains significant quantities of gaseous fission products or other radionuclides that may be readily released or transported under accident conditions. Particular consideration should be given to designs containing significant quantities of tritium or other radionuclides with physical or

chemical characteristics that could result in release pathways substantially different from those associated with conventional light-water reactors.

The analysis should consider not only the total inventory but also the chemical and physical form of the radionuclide, its mobility, the barriers credited for retention, and the conditions that could result in its release. This is particularly important where the design's safety case relies on assumptions concerning retention of radionuclides in fuel, coolant, confinement, or other functional barriers.

Site-specific and geographic considerations. Finally, DEEP recommends that EPZ determinations consider relevant geographic and site characteristics that could influence the consequences of a release. Certain terrain, meteorological, or other geographic features could potentially concentrate or channel a release into a relatively small area or otherwise produce localized consequences that are not adequately represented by a generic analysis. Where such characteristics exist, site-specific analysis should be required to determine whether the proposed EPZ remains appropriate.

DEEP believes these factors should be considered within the context of the criteria in proposed 10 CFR § 50.33(g)(2), particularly the potential for a radiological release to result in protective actions beyond the site boundary. The NRC should establish sufficient criteria to ensure that a site-boundary EPZ is based on the actual characteristics of the facility and its potential source term rather than relying principally on reactor thermal power as a surrogate for potential radiological consequences.

In summary, DEEP supports providing regulatory certainty for EPZ determinations where the technical basis demonstrates that prompt protective actions beyond the site boundary are not warranted. However, DEEP recommends that the NRC's evaluation consider, at a minimum, novel fuel and functional containment, total material at risk, radionuclide inventory and mobility, novel coolants and stored energy, failure of credited safety functions and availability of diverse or alternate actions, and relevant site-specific geographic characteristics. These factors should be evaluated based on the consequences of credible accident conditions and the resulting source term, rather than relying solely on reactor power level.

DEEP Response to NRC Question #17: Should design features, other than power level, or site attributes be considered for determining when additional analysis by the applicant is necessary to justify site-boundary EPZ for facilities less than 300 MWt? Please provide the basis for your response.

DEEP believes the NRC should consider other design features in addition to reactor power and site attributes when determining whether an applicant should be required to perform additional analysis to justify a site-boundary EPZ for a facility less than 300 MWt. As discussed in DEEP's response to Question #16, reactor thermal power alone is not necessarily an adequate surrogate for potential radiological consequences.

DEEP recommends that the factors identified in Question #16 be incorporated into the criteria for determining when additional applicant analysis is warranted. These include:

- Novel fuel forms and functional containment, including designs that rely on TRISO fuel particles, fuel coatings, reactor vessels, confinement systems, or other components rather than a conventional external containment structure;
- Total material at risk and radionuclide inventory, recognizing that a lower-power facility, particularly one with a long-life core, may contain a significant inventory of radioactive material;
- The ability to detect and respond to failures of credited safety functions, including whether a licensed operator can initiate an alternative or diverse safety function if the primary credited function fails;
- Novel coolants and other sources of stored thermal or chemical energy that could affect fuel damage, radionuclide mobilization, or the magnitude and timing of a release;
- Significant quantities of gaseous fission products, tritium, or other readily mobile radioactive materials whose release characteristics may differ from those of conventional reactor designs; and
- The physical and chemical form and mobility of radionuclides, including the barriers credited for their retention and the conditions that could challenge those barriers.

DEEP believes these factors should be used as screening criteria for determining when additional analysis is necessary, rather than requiring every applicant below 300 MWt to perform the same level of analysis. Where a design clearly demonstrates that these factors do not present a credible potential for offsite consequences requiring prompt protective actions, a generic or standardized EPZ determination may provide appropriate regulatory certainty. Conversely, where one or more of these factors could materially affect the source term or release consequences, additional applicant-specific analysis should be required.

DEEP also recommends that the NRC consider the combination of design features rather than evaluating each feature independently. For example, a low-power design with novel fuel may have a very different risk profile depending on the total radionuclide inventory, the effectiveness of functional containment, the energy available to mobilize radioactive material, the availability of diverse safety functions, and the characteristics of the site. The need for additional analysis should therefore be based on whether the overall design and site characteristics provide a sufficient technical basis to conclude that prompt protective actions beyond the site boundary would not be warranted.

These considerations are directly relevant to the criteria proposed in 10 CFR § 50.33(g)(2), because the fundamental question for an EPZ determination is whether the facility's design and site characteristics could result in radiological consequences requiring predetermined prompt protective measures beyond the site boundary. The NRC should therefore ensure that the screening criteria capture characteristics that could materially alter either the magnitude, timing, pathway, or geographic distribution of a potential release.

In summary, DEEP supports the use of design- and site-specific screening criteria to determine when additional applicant analysis is warranted for facilities below 300 MWt. The factors identified in DEEP's response to Question #16—including functional containment and novel fuel, total material at risk, safety-function reliability and diversity, novel coolants and stored

energy, radionuclide inventory and mobility, and relevant geographic characteristics—should be incorporated into that determination. This approach would provide regulatory certainty for designs that clearly meet the criteria while ensuring that designs with characteristics that could materially affect potential offsite consequences receive sufficient site- and design-specific analysis to support the EPZ determination.

Optional Submittal of Operational Programs

The NRC is proposing to add a new provision in 10 CFR 52.158(c) that will allow an applicant for an ML to voluntarily submit standardized operational program information for approval and to revise 10 CFR 52.171 to provide finality for such information that is approved by the NRC in the ML review. The NRC is proposing these changes in response to stakeholder interest in the context of deployment of factory-fabricated reactors.

DEEP Response to NRC Question #18: Should the NRC consider making similar changes to the requirements in 10 CFR 52.47, 52.63, 53.1239, and 53.1263 for design certifications? Please provide a basis for your response.

DEEP supports extending similar provisions to design certifications. As DEEP has noted throughout its comments, consistency across regulatory frameworks is important to maintaining regulatory certainty and predictability. Providing comparable flexibility for design certifications would allow standardized operational programs to be reviewed and approved as part of the design certification process and subsequently referenced by COL holders.

This approach would promote consistency not only in the design and construction of standardized reactor designs, but also in their operation. Standardized operational programs could help ensure that reactors of the same certified design are operated consistently, while reducing unnecessary duplicative reviews and supporting consistent implementation of safety requirements across the country. DEEP therefore supports providing similar provisions for design certifications to promote regulatory certainty, standardization, and public safety.

DEEP Response to NRC Question #19: If the NRC were to add a provision for the optional submittal of standardized operational program information in a design certification application, please describe how change control should be accounted for as a part of certifying the design.

DEEP supports using the proposed change process in Section VIII of the design certification provisions to establish change control for standardized operational programs included in a design certification. As DEEP has consistently noted, a common change-control process across licensing frameworks is important to provide regulatory certainty and ensure consistent treatment of changes that could affect safety.

The approach would be similar to the established use of 10 CFR § 50.59, under which licensees apply a consistent evaluation process to changes that may affect the licensing basis, whether the change involves facility design, maintenance activities, procedures, or operational programs. Applying the proposed design certification change process to standardized operational programs

would allow appropriate changes to be evaluated and controlled consistently while preserving NRC review for changes that warrant it. This would further support standardization in the design, construction, and operation of standardized reactors.

Early Site Permit for Nuclear Power Plants

DEEP Response to NRC Question #20: With the proposed change to remove the requirement for renewal, all changes to update the early site permit (ESP) must be made by amendment. What other options could the staff consider to increase the useability of an ESP? Could the provisions in the, “Commission Policy Statement on Deferred Plants,” (52 FR 38077; October 14, 1987) be applied to ESPs? Please provide a basis for your response.

DEEP supports considering additional options to increase the usability and longevity of an ESP, including consideration of the approach reflected in the Commission’s Policy Statement on Deferred Plants. As DEEP has stated in its responses to the preceding questions, consistent application of effective regulatory processes, where appropriate, is important to providing regulatory certainty and maximizing the usefulness of existing licensing tools.

ESP is an important component of the nuclear development process because it provides communities an opportunity to demonstrate interest in hosting nuclear facilities before a specific developer or reactor project has been identified. This could allow communities to prepare suitable sites and actively seek potential developers and aligns with state approaches, including Connecticut’s, to encourage ESP. Providing greater flexibility to maintain and update an ESP, without unnecessarily requiring a complete amendment for every change, would help preserve the viability of these sites and provide greater certainty to both communities and prospective developers. DEEP therefore supports consideration of applying appropriate elements of the Deferred Plants Policy to ESPs, where consistent with the underlying purpose of the ESP process.

DEEP Response to NRC Question #21: For a COL application that references an ESP, the changes proposed in 10 CFR 52.39 and 53.1188 would limit finality on safety and environmental issues to 20 years following ESP issuance or approval of an update amendment. Because the proposed rule would also retain the requirement for applicants to review for new and significant information when referencing an ESP, the NRC requests input on whether limiting finality to 20 years is necessary to ensure that all relevant environmental information is considered in licensing decisions.

DEEP supports the concept of removing a fixed expiration date from an Early Site Permit (ESP) to allow a site to be effectively banked for future development. However, DEEP has concerns with establishing a fixed 20-year period of finality for site characteristics without requiring the applicant to demonstrate that the underlying analyses remain valid for that period.

If a 20-year period of finality is established, the NRC should require the applicant to demonstrate that the analyses supporting the ESP adequately account for time-dependent site characteristics, aging mechanisms, and other factors that could reasonably change during the 20-year period.

The basis for the finality period should be supported by the technical analysis rather than simply by a regulatory assumption that conditions will remain bounded.

DEEP recommends instead that the finality period be risk- and performance-based, with the applicant proposing a finality period based on the analyses and assumptions supporting the ESP. The applicant could request a period shorter or longer than 20 years, provided it demonstrates that the selected period is supported by the underlying technical and environmental analyses.

The ESP should also establish requirements for monitoring significant site parameters and conditions where those parameters are relied upon to support finality. Appropriate trigger levels should be established such that changes in monitored conditions that could invalidate or challenge the assumptions underlying the ESP require evaluation and, where appropriate, NRC review or an update to the ESP.

This approach would preserve the benefit of a long-lived, bankable ESP while ensuring that finality remains tied to the demonstrated validity of the underlying analyses and actual site conditions, rather than the passage of an arbitrary period of time.

Manufacturing License Term Extension

DEEP Response to NRC Question # 22: The manufacturing license term extension aligns with the recently promulgated July 2, 2025, direct final rule, “Revising the Duration of Design Certifications,” where the NRC replaced the 15-year duration for design certifications with a 40-year duration period. The Commission is interested in determining if a manufacturing license or design certification term limit is necessary. Should the NRC eliminate time limits for manufacturing licenses, design certifications, or both? Please provide a basis for your response.

DEEP does not support eliminating time limits for manufacturing licenses or design certifications. Periodic review provides an important opportunity to confirm that the technical analyses, assumptions, and commitments underlying these certifications remain valid in light of advances in the state of the art, operating experience, and evolving understanding of safety.

A defined term also provides an appropriate mechanism to ensure that significant new information and advances in regulatory knowledge are considered rather than allowing certifications to remain in effect indefinitely based solely on the information available at the time of the original application. Periodic review can also provide opportunities to incorporate updated regulatory guidance and strengthen safety margins where appropriate.

DEEP therefore supports retaining a defined term for both manufacturing licenses and design certifications, with sufficient duration to avoid unnecessary regulatory burden while maintaining a meaningful opportunity for periodic reassessment.

Nuclear Power Plant License Renewal

Safety Guidance - The NRC currently has separate safety guidance for initial and subsequent renewal to address 40 to 60 years and 60 to 80 years of operation, respectively. In addition, some licensees may soon apply for a third renewal, for which no guidance has yet been developed. One option would be to maintain a single set of safety guidance that represents the state-of-the-art for aging management, covering initial renewal, subsequent renewal, and periods beyond. This guidance would identify an acceptable approach for managing aging and evaluating time-limited aging analyses, regardless of the renewal period. The question below applies to the Generic Aging Lessons Learned Report for initial (NUREG-1801) and subsequent (NUREG-2191) license renewal and the Standard Review Plan for initial (NUREG-1800) and subsequent (NUREG-2192) license renewal.

DEEP Response to NRC Question #23: Should the NRC consolidate its safety guidance into one collection that is time-independent (i.e., the same guidance applying to all periods of extended operation), instead of having separate guidance for initial renewal, subsequent renewal, and the upcoming third renewal term? Is there a different approach that should be considered? Please provide a basis for your response.

DEEP supports consolidating the NRC's safety guidance into a single, time-independent set of guidance for license renewal. A consistent and comprehensive set of guidance would improve regulatory certainty, reduce unnecessary complexity, and make the regulatory framework easier for applicants, regulators, and other stakeholders to understand and apply. It would also avoid maintaining separate guidance documents that may contain duplicative or inconsistent approaches as additional periods of extended operation are considered.

Time-independent guidance should not, however, imply that the scope or rigor of a renewal review is the same regardless of the period of extended operation. As plants operate for increasingly longer periods, the likelihood and consequences of aging-related degradation and failures may increase, potentially warranting additional analyses, expanded inspection programs, or other aging-management measures.

In addition, renewal reviews should account for changes that may occur over the period of extended operation that are not directly related to component aging. These may include changes in climate and environmental conditions, population and demographics, land use, and other factors that could affect plant risk or the assumptions underlying previous analyses.

DEEP therefore supports a single, time-independent framework that establishes consistent expectations while allowing the scope and depth of the review to increase as warranted by plant age, operating experience, aging mechanisms, and changes in external conditions. This approach would provide the benefits of simple, consistent guidance without creating a one-size-fits-all approach to subsequent periods of extended operation.

Implementation of Aging Management

DEEP Response to NRC Question #24: With the proposed change to use a 40-year "tack-on" license, what regulatory approach should the NRC take with respect to aging management activities that are currently required to be implemented prior to the period of

extended operation? Should conditions that are currently included in the renewed license be revised or instead imposed by different means? Please provide a basis for your response.

DEEP believes it is critical that aging-related degradation of structures, systems, and components (SSCs) important to safety be effectively managed throughout the period of plant operation. The transition to a 40-year “tack-on” license should not result in any reduction in the regulatory controls or oversight associated with aging management activities that are necessary to ensure safety-related SSCs continue to perform their intended functions.

DEEP believes the NRC should continue to establish enforceable terms and conditions necessary to ensure that required aging management activities are implemented and maintained. The NRC should provide a clear mechanism for ensuring that activities required before the period of extended operation remain binding and subject to NRC oversight, even though the renewed license would not become effective until that period begins.

More broadly, DEEP believes the NRC should consider incorporating appropriate aging-management requirements into all operating licenses, rather than relying solely on conditions imposed during license renewal. Aging mechanisms do not necessarily align with a fixed 40-year period, and some SSCs may experience significant aging-related degradation earlier or later than the standard license-renewal timeframe. Establishing aging-management expectations from the outset would provide greater assurance that aging is addressed throughout the life of the facility and would reduce the potential for gaps when transitioning between license terms.

DEEP therefore supports the use of enforceable license terms and conditions, or an equally effective regulatory mechanism, to ensure that required aging-management activities remain in place and subject to NRC oversight. At the same time, the NRC should consider a more comprehensive approach in which aging-management requirements are established as an integral part of the operating license and appropriately updated as plant-specific operating experience, aging mechanisms, and the understanding of degradation evolve. This would provide a more consistent and risk-informed framework for ensuring that safety-related SSCs remain capable of performing their intended functions throughout the life of the plant.

Considerations for Shorter License Renewal Term

DEEP Response to NRC Question #25: Should the NRC retain an option for licensees seeking shorter renewals (those that would not exceed 40 years when combined with the number of years remaining on an existing license) to apply for a “supersession” license?

DEEP does not support retaining an option for licensees to seek shorter “supersession” renewal terms. While flexibility in license duration may provide an applicant with additional options, excessive flexibility can create unnecessary regulatory complexity and burden for both the NRC and licensees, particularly if multiple renewal terms and associated licensing actions must be reviewed on different schedules.

DEEP supports a consistent approach to renewal terms that establishes clear and predictable regulatory expectations. A standardized renewal term would also reduce the potential for case-

specific requests, exemptions, or other licensing actions that could arise from different license durations or the need to align individual requirements with a shortened renewal period.

A licensee that does not need or intend to operate for the full renewal term would not be precluded from making that choice; the licensee could cease operations before expiration of the license. DEEP therefore believes the regulatory framework should provide a consistent renewal term rather than creating additional flexibility through shorter supersession licenses. This approach would promote regulatory efficiency, reduce administrative burden, and provide greater certainty for licensees, the NRC, and other stakeholders.

Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors

Expansion of 10 CFR 71.55(g) Enrichment Levels - The NRC is proposing to change 10 CFR 71.55(g) to expand the exception from 10 CFR 71.55(b) for enrichment levels between 5.0 and 10.0 weight percent U-235. The NRC is not considering expanding the exception for enrichments from 10.0 weight percent U-235 up to but less than 20.0 weight percent U-235 for two reasons: (1) limited technical data with respect to overall mechanisms and consequences of a canister breach allowing water in-leakage that would provide additional risk insights; and (2) the current transportation package certification path using 10 CFR 71.55(c) adequately addresses the potential need to ship UF₆ enriched above 10.0 weight percent U-235, has no enrichment limitation, and is technology neutral.

DEEP Response to NRC Question #26: 10 CFR 71.55(c) provides a certification pathway that has limited prescriptive requirements and no enrichment limitations. Should the NRC add another option to the exception in 10 CFR 71.55(g) to account for enrichment levels from 10.0 weight percent U-235 up to but less than 20.0 weight percent U-235? Please provide a basis for your response.

DEEP does not have sufficient information or review time to support adding an additional exception under 10 CFR § 71.55(g) for enrichments from 10.0 weight percent U-235 up to, but less than, 20.0 weight percent U-235. Given the potential safety implications of higher enrichment, DEEP believes the existing certification pathway under 10 CFR § 71.55(c) provides an appropriate technology-neutral mechanism unless and until sufficient technical information is available to support a broader exception.

The 45-day comment period is not adequate for DEEP to fully evaluate the technical and environmental implications of the proposed changes. A meaningful review would require evaluation of novel fuel performance, high-burnup fuel behavior and LOCA considerations, embrittlement and materials-aging mechanisms, fuel fragmentation behavior, and transportation package criticality under 10 CFR part 71. It would also require review of the underlying PRA and technical-basis frameworks and consideration of potential long-term environmental consequences.

DEEP therefore cannot support expanding the 10 CFR § 71.55(g) exception to higher enrichment levels based on the information and review period provided. DEEP recommends that the NRC

retain the existing certification pathway for enrichments above 10.0 weight percent U-235 until sufficient technical data and analysis are available to demonstrate that an additional exception would provide an equivalent level of safety.

Regulatory Certainty of Performance-Based ECCS Rod Embrittlement Criteria

DEEP Response to NRC Question #27: Will there be adequate regulatory certainty if the fuel system criteria for uranium oxide or uranium-plutonium oxide pellets within cylindrical zirconium-based cladding are located in guidance and 10 CFR 50.46a(f) of the proposed rule is performance-based? Please provide a basis for your response.

DEEP believes additional information and review would be necessary to determine whether a performance-based requirement in 10 CFR § 50.46a(f), supported primarily by guidance, would provide sufficient regulatory certainty. Given the safety significance of emergency core cooling system (ECCS) performance and the potential consequences of fuel and cladding degradation, DEEP is concerned that placing key technical acceptance criteria solely in guidance could result in uncertainty regarding the standards that must be met by licensees and applicants.

A meaningful evaluation would require sufficient technical basis to understand how the performance-based criteria would be applied, including the treatment of novel fuel designs, high-burnup fuel behavior, cladding embrittlement mechanisms, and accident conditions. The NRC should also demonstrate that the guidance provides clear, measurable, and consistently applied criteria that can be used to determine compliance.

DEEP therefore supports a performance-based approach only if the fundamental safety criteria and acceptance standards remain clearly established in regulation, with guidance providing appropriate methods for demonstrating compliance. Given the limited review period, DEEP does not have sufficient information to conclude that the proposed approach provides adequate regulatory certainty. The NRC should ensure that implementation guidance is developed and publicly available before the requirements take effect and allow sufficient time for States and other stakeholders to evaluate the technical basis and implementation approach.

Inspection Requirements

The NRC is proposing to add non-destructive evaluation inspection requirements for circumferential welds in piping systems with inner diameters that are larger than the TBS to provide assurance that an acceptable level of performance monitoring is maintained in these systems such that breaks larger than the TBS remain highly unlikely.

The NRC has evaluated several sampling schemes to determine the most effective approach for providing assurance against breaks larger than the TBS in these systems. These inspections may support plant-specific applicability of the TBS. The option in this proposed rule is:

Inspecting a smart sample of those welds with attributes (e.g., operating temperature, type of welding, fabrication history) most conducive to degradation

and having the highest failure potential before implementation of the proposed rule and in every subsequent inservice inspection interval thereafter.

Other schemes include:

Inspecting all welds at least one-time over the plant's remaining licensing period.

Inspecting a random sample of the weld population before implementation of the proposed rule and in every subsequent inservice inspection interval thereafter.

DEEP Response to NRC Question #28: Please provide feedback on the effectiveness of the proposed sampling scheme in providing assurance against breaks larger than the TBS in these systems. Are there pros and cons to the other sampling schemes, an alternative sampling scheme, or a holistic approach relying on existing performance monitoring strategies that the NRC should consider, and why? Should the sampling scheme be required before or as plants enter into extended operation beyond what is currently authorized in the operating fleet (e.g., if authorized beyond 80 years)?

DEEP believes the proposed inspection requirements and the underlying technical basis for the treatment of breaks larger than the Technical Basis Structure (TBS) require additional evaluation before the proposed approach can be supported. In particular, the TBS and risk-informed Loss of Coolant Accident (LOCA) framework rely on assumptions regarding the likelihood and consequences of pipe failures that warrant careful consideration before reducing or otherwise changing existing conservatism.

A complete evaluation should include both deterministic and probabilistic fracture-mechanics analyses, including the basis for demonstrating that breaks larger than the TBS remain highly unlikely. The NRC should also evaluate the proposed "smart sample" approach against alternatives, including inspection of all applicable welds over the remaining licensing period and statistically based random sampling. The analysis should consider how weld attributes, fabrication history, operating conditions, inspection results, and plant-specific operating experience affect the ability of each approach to identify degradation and provide reasonable assurance of piping integrity.

The NRC should also evaluate how the proposed inspection strategy interacts with the broader risk-informed LOCA framework, including potential consequences for emergency planning and the potential for reduced conservatism in safety margins. The performance objective for the inspection program should be clearly defined and supported by both fracture-mechanics and probabilistic risk assessments.

DEEP therefore cannot support adoption of the proposed sampling approach without a more complete evaluation of the fracture-mechanics and PRA bases supporting the TBS and the associated inspection requirements. Any final approach should provide reasonable assurance that aging and degradation of piping welds will be identified before they could challenge the assumed performance of the piping system or undermine the safety basis for extended operation.

DEEP also believes the required inspection should occur before a plant enters any period of extended operation beyond the currently authorized operating period, particularly for operation beyond 80 years. This would provide an appropriate opportunity to establish a plant-specific baseline and confirm the applicability of the TBS and associated risk-informed assumptions before additional years of operation are authorized.

The NRC is also proposing a requirement to evaluate the effect of any identified indications found during inspections required by this proposed rule on the TBS. The NRC recognizes that any such findings must be dispositioned under ASME section XI, which would require a demonstration that the indications remain acceptable for continued service or are repaired before placing the component back into service. However, the NRC has not included criteria in this proposed rule regarding what constitutes an acceptable additional evaluation of any inspection findings. The NRC is considering that an acceptable additional evaluation would consist of two parts. The first part would be a deterministic or probabilistic fracture mechanics analysis to demonstrate that the failure likelihood of any indications identified during the inspection resulting in a likelihood of ruptures greater than the TBS is less than 10^{-6} per year. The second part would, if the indications are evidence that active degradation is occurring, recharacterize the risk-informed inspection examination category for the population of all similar welds to be commensurate with the expected degradation mechanism. All future inspections of this weld population would then be performed according to the ASME section XI requirements associated with that inspection category.

DEEP Response to NRC Question #29: The NRC is interested in obtaining feedback on the efficacy of this proposed evaluation method and more broadly on what an acceptable additional evaluation of any indications found during the inspection should entail.

DEEP refers the NRC to its response to Question #28. The proposed evaluation of indications, including the use of deterministic or probabilistic fracture-mechanics analyses and potential reclassification of inspection requirements, should be supported by a complete technical basis demonstrating that the TBS and associated risk-informed approach provide reasonable assurance of piping integrity.

DEEP believes any identified indication should also be evaluated for its potential implications for other similar welds and the broader plant-specific risk assessment. The adequacy of the proposed evaluation criteria should be demonstrated before they are incorporated into the regulatory framework.

DG-1261—Breakaway Oxidation

DEEP Response to NRC Question #30: The DG-1261, Revision 1, “Measuring Breakaway Oxidation Behavior,” contains breakaway oxidation testing criteria. The NRC is interested in obtaining feedback on this regulatory position. Please provide a basis for your response. The NRC is interested in specific information on how quality assurance practices and industry operating experience have evolved since the underlying research was published, and whether these developments should inform potential adjustments to this provision.

DEEP refers the NRC to its response to Question #28 regarding the need for additional technical evaluation and the limitations of the 45-day comment period. The proposed changes involve complex technical issues related to fuel performance and cladding behavior, and DEEP does not have sufficient information or review time to determine whether the testing criteria in DG-1261, Revision 1, remain appropriate.

A complete review should consider advances in quality assurance practices and relevant industry operating experience, as well as novel fuel performance, high-burnup LOCA behavior, cladding embrittlement mechanisms, and the implications of increased enrichment and fuel designs. These issues should be evaluated against the underlying technical basis for the proposed breakaway oxidation criteria.

DEEP therefore cannot provide meaningful support for, or opposition to, specific changes to the DG-1261 criteria based on the review period provided. The NRC should provide additional time for technical review and stakeholder input before finalizing the guidance, particularly where the guidance would establish acceptance criteria relied upon to demonstrate compliance with safety requirements.

Regulatory Analysis

DEEP Response to NRC Question #31: The NRC is interested in feedback on the draft regulatory analysis, in particular, the benefits associated with power uprates under the proposed 10 CFR 50.46a. Please provide a basis for your response.

DEEP believes the regulatory analysis supporting the proposed rule should be based on sufficient research and stakeholder engagement conducted before the rule is proposed. The NRC should have developed a reasonable understanding of the anticipated use of the proposed flexibility, including the number and types of licensees expected to pursue power uprates or other changes under proposed 10 CFR § 50.46a, as part of developing the proposal.

As presented, the NRC appears to be proposing a significant expansion of regulatory flexibility and then seeking information through the rulemaking process to determine how frequently that flexibility may actually be used and, consequently, whether the proposed changes can be justified. DEEP believes this reverses the appropriate sequence for rule development. The need for, scope of, and expected benefits of the proposed flexibility should be established before the rule is proposed and should form the basis for the regulatory analysis.

DEEP therefore recommends that the NRC obtain and evaluate this information before finalizing the rule and revise the regulatory analysis accordingly.

DG-1426—Risk-Informed Evaluation and Risk-Informed Evaluation Process

An entity that wishes to make changes under the proposed rule would have to perform a risk-informed evaluation and demonstrate that the proposed change meets the acceptance criteria in proposed 10 CFR 50.46a(h). The acceptance criteria in the proposed rule would include that the total increases in core damage frequency (CDF) and large early release

frequency (LERF) due to the proposed change are very small and that the overall plant baseline risk remains small. “Small” and “very small” are defined in RG 1.174 and DG-1426. The acceptance criteria are limited to very small changes instead of small changes, in part, because the TBS initiating event frequency is the same as the limit for small changes (i.e., change in CDF of approximately 1×10^{-5}). If the acceptance criteria were limited to small changes, a PRA would show that not mitigating a TBS or DEGB LOCA is always less than the small threshold, making the risk assessment unnecessary and overly burdensome.

An entity seeking to make changes under the proposed rule without prior NRC approval would have to have an NRC-approved risk-informed evaluation process and demonstrate that any increases in the estimated risk are minimal. The proposed acceptance criteria for proposed changes that may be made without prior NRC approval were chosen to be an order of magnitude lower than the acceptance criteria for changes that require prior NRC approval for consistency with other established risk-informed programs.

The DG-1426 contains draft guidance that would be acceptable to the NRC for performing a risk-informed evaluation and establishing a risk-informed evaluation process that satisfies the requirements of the proposed rule. This DG follows the structure for risk-informed changes in RG 1.174. Entities would be able to leverage changes made for previous risk-informed amendments, such as 10 CFR 50.69, “Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors,” or Technical Specification Task Force Traveler 505, “Provide Risk-Informed Extended Completion Times—RITSTF Initiative 4B,” when performing the risk-informed evaluation. Therefore, the NRC does not expect that the risk-informed evaluation would be burdensome.

Under current 10 CFR 50.59, “Changes, tests and experiments,” a licensee would need to obtain a license amendment if there would be more than a minimal increase in frequency or consequences of accidents or malfunctions. As described in the preamble for the 10 CFR 50.59 final rule (64 FR 53582; October 4, 1999), PRAs (i.e., total increases in CDF and LERF) may not be used to determine if the minimal increase standard is met because 10 CFR 50.59 concerns DBEs, while RG 1.174 includes risk from severe accidents beyond the design basis. Similar to the change in proposed 10 CFR 50.59 as described in section XII, “Discussion—Risk-Informing 10 CFR 50.59 and Allowing Flexibility for Changes to Methods,” of this document, the risk-informed evaluation process in proposed 10 CFR 50.46a would provide additional flexibility by allowing a licensee to use the total increases in CDF and LERF to determine if the increase in risk associated with a change enabled by this proposed rule would be minimal.

In this proposed rule, the NRC is including the risk-informed evaluation and risk-informed evaluation process that were included in the previously proposed but discontinued 10 CFR 50.46a rulemaking in SECY-10-0161. As part of the development of that previous rule, the NRC received comments from the public and the Advisory Committee on Reactor Safeguards on the risk-informed evaluation and risk-informed evaluation process related to, among other things, the use of the “very small” threshold for changes, the definition of “minimal increase in risk,” PRA maintenance and upgrade, the evaluation of cumulative

risk, and the relationship of the risk-informed evaluation process to 10 CFR 50.59. In addition, the NRC staff received direction from the Commission in SRM-SECY-07-0082 to use the “very small” threshold for changes. While some of these issues are addressed in this proposed rule, the NRC is seeking additional information to identify if further changes are needed.

DEEP Response to NRC Question #32: The NRC is interested in any additional considerations or feedback on the risk-informed evaluation and risk-informed evaluation process proposed in 10 CFR 50.46a and the implementing guidance in DG-1426, including whether they should be modified or removed from the proposed rule in their entirety. Specifically, what are the advantages and disadvantages of including a risk-informed evaluation as a necessary part of implementing the rule? In addition, what are the advantages and disadvantages of restricting all changes to very small risk increases? Would the risk-informed evaluation, restricting changes to very small risk increases, or both, make it burdensome to implement changes under the proposed rule? What are the advantages and disadvantages of removing the risk-informed evaluation and risk-informed evaluation process from the proposed rule? If the NRC removed the risk-informed evaluation and risk-informed evaluation process from the proposed rule, how should changes that could impact the risk calculation be evaluated? Please provide any supporting basis or justification for your response.

DEEP refers the NRC to its response to Question #28 regarding the need for additional technical evaluation of the proposed risk-informed framework, including the TBS, fracture-mechanics analyses, PRA, and associated safety margins.

More broadly, DEEP is concerned that the proposed rule already encompasses a broad and technically complex set of changes. The 45-day comment period has not provided sufficient time for States and other stakeholders to fully evaluate the technical basis, implementation implications, and potential consequences of these changes. Adding further significant changes to the risk-informed evaluation process in the final rule, particularly changes that have not been subject to meaningful public review and comment, would further limit the ability of stakeholders to assess and provide informed input.

DEEP therefore recommends that any substantive changes to the proposed risk-informed evaluation framework or DG-1426 be addressed through a separate rulemaking or subsequent public process. This would allow adequate time for technical review, stakeholder input, and evaluation of the cumulative effects of the proposed changes before they are incorporated into the regulatory framework.

New Reactor Applicability

DEEP Response to NRC Question #33: The proposed rule would establish a TBS based on nuclear power reactor licensees' operating experience with piping materials, piping designs, service conditions, operational programs, and mitigation and control of age-related degradation programs. The proposed rule would allow new reactors to submit for NRC approval an alternate TBS that includes a demonstration that the proposed reactor

design is similar to the designs of reactors authorized to operate under 10 CFR part 50 on December 31, 2015. This provision might not be applicable to some new reactor designs, including small modular reactors, due to fundamental design differences. For example, some of the new reactor designs may have novel LOCA mitigation strategies, such as passive features or use of valves and associated flanges in the piping system to ensure coolant inventory retention. Some applicants may be able to demonstrate that the failure frequencies at particular locations in the piping system are extremely low and can be maintained extremely low during plant operation. In lieu of the TBS, the failure frequencies of the piping system may be established and maintained extremely low during the plant operation to justify relaxation of the required assumptions for the analyses similar to the proposed rule (e.g., a realistic treatment of defense-in-depth features and best-estimate analyses). The NRC is interested in receiving feedback on the applicability of the proposed rule to such new reactor designs. Please include in your feedback whether it is appropriate to risk-inform the LOCA requirements in light of novel design features, and language that would appropriately allow entities to treat breaks at particular locations in the piping systems for new reactor designs similarly to break sizes larger than the TBS in the proposed rule. Please also include in your feedback whether the option for a non-size-based TBS would improve the applicability of the proposed rule to these designs along with any supporting basis or justification for your response.

DEEP refers the NRC to its response to Question #28 regarding the need for a complete technical evaluation of the proposed TBS and risk-informed LOCA framework. The issues identified in that response are even more challenging when applied to new reactor technologies, where there may be limited operating experience and significant differences in materials, piping configurations, accident response, and LOCA mitigation strategies.

DEEP recognizes that a risk-informed approach may provide appropriate flexibility for novel reactor designs, particularly where design-specific analyses can demonstrate that the likelihood of significant piping failures is extremely low. However, the proposed approach raises significant technical and regulatory questions regarding how such demonstrations would be developed, reviewed, and maintained over the life of the facility. These questions warrant substantially more technical evaluation than can reasonably be completed during the 45-day comment period.

DEEP is also concerned that the NRC appears to be seeking comment not only on whether these approaches are technically appropriate, but also on their potential costs and benefits. Developing the technical basis for an alternative TBS or a non-size-based approach could effectively require stakeholders to develop and justify the regulatory framework themselves. DEEP does not believe the rulemaking comment period is the appropriate mechanism for developing such a significant expansion of the proposed framework.

If the NRC determines that alternative approaches are appropriate for new reactor technologies, applicants with a specific design and technical basis could instead pursue those approaches through an appropriate licensing process or petition for rulemaking. This would allow the NRC and stakeholders to evaluate a specific technical proposal with the benefit of detailed design information rather than attempting to establish a broadly applicable framework without sufficient technical basis.

Alternate Transition Break Size

DEEP Response to NRC Question #34: The NRC incorporated in the proposed rule enabling language to allow currently operating power reactor licensees to recommend and justify an alternative TBS. The NRC is interested in feedback on this option. Please include in your feedback the potential advantages that could be realized by this alternative and if potential benefits are more likely to be realized generically or for individual plants. Please also provide any disadvantages that may result from a loss of regulatory consistency if similar plants have different TBS values and any potential impacts on fulfilling the inspection requirements in proposed 10 CFR 50.46a(b)(3). Please also describe the impact of any associated costs necessary to develop a risk-informed technical basis for an alternative TBS and the associated uncertainties due to the lack of current guidance for developing this basis.

DEEP refers the NRC to its response to Question #28 regarding the need for a complete technical and risk-informed evaluation of the transition break size (TBS), including fracture mechanics, PRA, inspection strategies, and associated safety margins.

DEEP recognizes that an alternative TBS could provide useful plant-specific flexibility where a licensee can demonstrate a sound technical basis. However, allowing different plants to establish different TBS values could reduce regulatory consistency and create additional complexity in inspection requirements, NRC reviews, and comparisons of safety margins among similarly designed facilities.

DEEP is particularly concerned that the NRC is seeking, through this rulemaking, to establish a process without first providing sufficient guidance or technical criteria for developing and evaluating an alternative TBS. The 45-day comment period is not adequate to fully assess the technical basis, costs, benefits, uncertainties, and potential long-term regulatory implications of such an approach.

If the NRC believes alternative TBS values are warranted, DEEP recommends that the issue be addressed through a separate process that establishes clear criteria and guidance before applicants are expected to develop plant-specific alternatives. Alternatively, a licensee with a specific technical basis could petition the NRC for approval of an alternative approach. This would provide an opportunity for the NRC and stakeholders to evaluate the technical justification, costs, and safety implications of a specific proposal rather than attempting to resolve these complex issues through the current rulemaking.

Alternative 10 CFR 50.46a Licensing Pathways

DEEP Response to NRC Question #35: This proposed rule would add a voluntary alternative to 10 CFR 50.46 designed to provide flexibility by allowing licensees to adopt tailored approaches for ECCS performance evaluations. This flexibility is proposed in 10 CFR 50.46(a)(1), which would provide applicants and licensees the ability to select between two acceptance criteria pathways. The first is presented in proposed 10 CFR 50.46(b),

which is the current 10 CFR 50.46 acceptance criteria. The second is presented in proposed 10 CFR 50.46a(f), which contains the new performance-based acceptance criteria. The NRC expects that the performance-based requirements in proposed 10 CFR 50.46a(f) would facilitate implementation of potential alternative approaches to FFRD such as those described in the regulatory basis for this rulemaking, some of which are already being considered by the NRC. These alternatives could be beneficial for licensees that elect not to pursue the remainder of proposed 10 CFR 50.46a. Please comment on any elements of the proposed rule that could have unintended consequences for implementation of these alternatives.

DEEP recognizes the potential benefit of providing licensees with an alternative, performance-based pathway for ECCS performance evaluations. However, DEEP has significant concerns regarding the ability to adequately evaluate the proposed changes within the 45-day comment period.

The proposed risk-informed framework, including the use of PRA and a Technical Basis Structure, raises important questions regarding fracture mechanics, including deterministic and probabilistic fracture mechanics and the proposed treatment of low-probability rupture events, as well as changes to weld sampling, inspection requirements, fuel behavior, and associated safety margins. DEEP has not had sufficient time to evaluate these issues, their interaction with emergency preparedness and potential accident consequences, or the potential for reduced conservatism in the proposed acceptance criteria.

DEEP therefore cannot support adoption of the proposed alternative pathway without additional opportunity to review the underlying technical basis, including the supporting PRA, fracture-mechanics evaluations, TBS framework, and associated guidance. The NRC should provide additional time for review and stakeholder input before finalizing these provisions to ensure that regulatory flexibility does not inadvertently reduce established safety margins or create unintended consequences for public health and safety.

ECCS Reporting Requirements

DEEP Response to NRC Question #36: The industry has proposed that a graded approach could be used to relax the ECCS reporting requirements based on context beyond the current 10 CFR 50.46 criteria. Please provide thoughts on how a graded approach could be applied to relax the ECCS reporting requirements in 10 CFR 50.46 and proposed 10 CFR 50.46a. Please provide a basis for your response.

DEEP supports the NRC's proposed changes to the ECCS reporting requirements and does not recommend expanding the proposed graded approach at this time. While DEEP understands the industry's interest in reducing reporting burden, the NRC is simultaneously proposing significant changes to ECCS acceptance criteria, quality assurance requirements, the treatment of changes in methodology under 10 CFR §50.59, and other aspects of ECCS analysis and performance. In this context, maintaining appropriate reporting of anomalies and unexpected conditions is particularly important.

Reporting provides the NRC with information needed to identify trends, assess the implementation of revised requirements, and determine whether unexpected conditions have broader safety significance. Reducing reporting requirements before sufficient experience has been gained with the proposed framework could limit the NRC's ability to identify emerging issues.

DEEP also notes that the record does not appear to establish the scope and frequency of current ECCS reports or the actual regulatory burden associated with them. Without this information, it is difficult to determine whether a graded approach would provide a meaningful benefit or whether the potential reduction in regulatory information would outweigh the administrative savings.

DEEP therefore supports the NRC's proposed reporting changes as written but does not recommend additional relaxation at this time. The NRC should first gain experience with the revised ECCS acceptance criteria and associated requirements before considering further reductions in reporting.

Threshold for Significance Determination

DEEP Response to NRC Question #37: The proposed fixed 50-degree peak clad temperature (PCT) threshold for significant errors can either overstate or understate the safety significance of a change depending on available margin to the acceptance criterion. Further, it does not consider designs where a parameter other than PCT is proposed as the acceptance criterion. Alternative approaches, such as a margin-based threshold can more accurately reflect actual risk significance. Please provide your thoughts, with justification and any supporting information, on alternative approaches for determining the significance of errors in the LOCA evaluation model (e.g., percent reduction in the margin between the acceptance criteria and the approved maximum value of the acceptance parameter).

DEEP recognizes that a margin-based approach could more directly reflect the safety significance of an error than a fixed 50-degree PCT threshold. However, as discussed in DEEP's response to Question #36, DEEP does not recommend expanding or adding additional flexibility to the proposed requirements at this time.

Given the significant changes proposed to ECCS acceptance criteria, analysis methodologies, and associated requirements, DEEP believes the NRC should first gain experience with the revised framework before adopting additional approaches for determining error significance. Further changes could be considered after sufficient operating and implementation experience is available to demonstrate that they would maintain appropriate safety assurance while reducing unnecessary regulatory burden.

ECCS Performance

DEEP Response to NRC Question #38: The proposed rule explicitly only provides the TBS-based approach to address FFRD. The TBS-based approach may not provide enough

margin to demonstrate coolability at the upper end of the burnup range allowed by the proposed rule and therefore, could result in implementation and licensing challenges. The NRC previously included a dose consequence-based approach to addressing FFRD in the regulatory analysis for the Increased Enrichment Rule (Docket ID: NRC-2020-0034). What are the advantages and disadvantages of including an explicit option in the performance-based ECCS acceptance criteria in proposed 10 CFR 50.46a(f) that is based on dose-consequence? What implementation challenges (e.g., acceptance threshold) would need to be addressed for such an option? Please provide the rationale and any supporting information for your response.

DEEP refers the NRC to its response to Question #28 regarding the need for additional technical evaluation of the TBS and risk-informed LOCA framework, including fracture mechanics, PRA, and the potential impacts on safety margins.

DEEP recognizes that a dose-consequence approach may provide an alternative means of demonstrating ECCS performance, particularly for higher-burnup fuel. However, the technical basis, acceptance thresholds, and relationship to the existing TBS-based approach would require significant additional evaluation. Given the limited 45-day comment period, DEEP does not have sufficient information to assess whether such an approach would provide an equivalent level of safety or how it should be implemented.

DEEP therefore recommends that the NRC complete the necessary technical and risk-informed evaluation before incorporating a dose-consequence option into the final rule.

Streamlined Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

DEEP Response to NRC Question #39: Appendix T of 10 CFR is intended to address nuclear supply chain constraints by providing a graded approach for additional QA flexibilities and aligning with international standards. The proposed rule limits the applicability of appendix T to nth-of-a-kind (NOAK) plants referencing a first-of-a-kind (FOAK) plant constructed and operated under appendix B. How can the NRC expand the applicability of appendix T to FOAK plants and existing licensees, including any guardrails or restrictions that may be desirable (e.g., vendor inspections for FOAK and new suppliers for NOAK)? Should the NRC consider alternative approaches to appendix T such as endorsement of ISO 19443 or changes to appendix B? Please provide the basis for your recommendations, including any unintended consequences.

DEEP supports the NRC's objective of modernizing quality assurance requirements and providing greater flexibility to address supply-chain constraints, provided that flexibility continues to ensure the reliability and availability of safety-significant SSCs. DEEP previously recommended that Quality Assurance (QA) modernization recognize equivalent quality management systems and allow alternative approaches that achieve equivalent safety outcomes.

DEEP believes the same principles should apply to Appendix T. However, DEEP does not believe its applicability should be expanded to FOAK facilities without appropriate safeguards.

For FOAK facilities, the absence of operating experience warrants greater NRC oversight, including enhanced vendor qualification, inspection, and verification of the implementation of an alternative QA program. For NOAK facilities, the use of Appendix T should be supported by demonstrated successful implementation and operating experience from the referenced FOAK facility.

DEEP would support consideration of alternative approaches, including recognition of equivalent international quality management standards such as ISO 19443, provided the NRC establishes clear, objective criteria for demonstrating equivalence. Such an approach could broaden the qualified supplier base and reduce unnecessary regulatory burden without reducing safety.

DEEP recommends that the NRC establish clear, risk-informed guardrails rather than simply expanding Appendix T broadly. QA requirements should remain commensurate with the safety significance of the SSCs and the hazards and risks of the facility. This approach would provide needed flexibility while maintaining appropriate additional oversight where operating experience is limited.

DEEP Response to NRC Question #40: The change process for the Quality Management System (QMS) in proposed 10 CFR 50.54(a)(5) requires changes to the QMS be submitted to the NRC for NRC approval prior to implementation. Should the change process have a graded approach or mirror 10 CFR 50.54(a)(4) in which only changes that reduce the commitments be submitted to the NRC for prior approval? Please explain if there is a preferred method.

DEEP supports establishing an appropriate, graded licensee change process for Quality Management Systems (QMS), rather than requiring prior NRC approval for all QMS changes. Consistent with DEEP's response to Question #39, flexibility should be provided where a licensee can demonstrate that its QMS continues to provide an appropriate level of quality commensurate with the safety significance of the SSCs and activities being controlled.

DEEP recommends a graded approach under which changes that could reduce the level of quality assurance or otherwise diminish commitments important to safety would require prior NRC approval. Other changes could be implemented by the licensee under an approved change-control process, similar to the flexibility provided by the existing 10 CFR § 50.54(a)(4) framework.

As a backstop, DEEP recommends that licensees periodically submit a summary of QMS changes to the NRC, preferably annually, regardless of whether prior NRC approval was required. This would provide the NRC an opportunity to verify that licensees have appropriately applied the change criteria and maintained the required level of quality assurance. The existing 10 CFR § 50.59 process provides a useful precedent for this type of risk-informed, licensee-managed change process.

This approach would provide regulatory flexibility and reduce unnecessary NRC review while maintaining an effective mechanism to ensure that changes do not result in an unintended reduction in the quality assurance necessary to protect public health and safety.

Alternative Risk-Informed and Performance-Based Acceptance Criteria for 10 CFR Parts 50 and 52

DEEP Response to NRC Question #41: The NRC is seeking views on increasing the flexibility provided by the proposed rule. The rule currently does not include the allowance for a licensee or applicant to adopt a previously approved alternative without submitting an application to the NRC, provided that the basis for the staff's approval is demonstrated and documented to be applicable to the adoptee's plant or facility. Would adding such flexibility increase or accelerate the use of the proposed rule? What are some viable approaches to resolve any conflicts of such flexibility with the requirements in 10 CFR 50.59?

DEEP generally supports a graded approach to changes that would reduce unnecessary regulatory burden while maintaining appropriate NRC oversight. However, DEEP has concerns with allowing a licensee to adopt a previously approved alternative without NRC review. NRC approvals are often based on specific plant designs, licensee circumstances, assumptions, or technical bases that may not be broadly applicable to another facility.

DEEP therefore recommends adopting a simplified NRC approval process rather than eliminating prior NRC approval. The process could require the applicant to identify the essential elements, assumptions, and technical basis underlying the previously approved alternative and demonstrate that those conditions are applicable to the proposed adoption. The NRC could then focus its review on whether those conditions are satisfied rather than repeating the full review of the original alternative.

This approach would provide greater efficiency and could accelerate adoption of previously approved alternatives while maintaining the important distinction between licensee implementation authority under 10 CFR § 50.59 and changes that warrant prior NRC approval. It would also reduce the potential for inconsistent application of an NRC-approved alternative at facilities with materially different designs or circumstances.

Siting

DEEP Response to NRC Question #42: The proposed rule introduces a new graded approach to siting that provides entry criteria for the less restrictive requirements in subpart A to 10 CFR part 100 (i.e., demonstrating an unmitigated consequence of less than 25 rem (0.25 Sv) TEDE at the site exclusion area boundary) as an alternative to the prescriptive siting requirements in subpart B. The associated draft guidance provides detailed information on how to evaluate this entry criteria. Given the significance of this new graded approach to siting, are there implications in terms of implementation of this new approach that should be further explored in guidance or addressed at the final rule stage?

DEEP recognizes the potential benefit of a graded approach to siting that provides greater flexibility for designs capable of demonstrating low radiological consequences. However, DEEP believes several aspects of the proposed approach warrant additional consideration in the final rule and guidance.

First, DEEP recommends retaining the footnote explaining the basis for the 25-rem TEDE figure of merit. Although the value is appropriately described as a figure of merit, retaining the technical basis provides important context for why the NRC considers this level of unmitigated consequence acceptable for purposes of the siting analysis. The 25-rem value is also significant because it is approximately twice the 10-rem value referenced by the NRC in its proposed Reforming and Modernizing the NRC's Radiation Protection Framework rulemaking⁹, where the NRC discusses the absence of adverse health effects below 10 rem. The NRC should explain and reconcile these values rather than remove the existing basis for the 25-rem criterion. The 25-rem value should continue to represent an absolute upper bound on unmitigated consequences, rather than a target for acceptable design performance.

Second, DEEP recommends that the NRC establish a lower consequence threshold to provide a meaningful incentive for applicants to reduce unmitigated consequences. If the NRC intends the approach to be genuinely risk-informed and graded, an entry criterion based on 10 rem TEDE would provide a more appropriate benchmark and would be consistent with the value the NRC is considering in its radiation protection framework rulemaking. Designs capable of demonstrating lower unmitigated consequences should receive greater siting flexibility than designs that merely remain below an upper limit.

Third, DEEP has concerns with the proposed criterion that a site may be found acceptable based on “assessments of societal risks in comparison to societal benefits for the specific site.” This criterion is highly subjective and provides insufficient regulatory clarity regarding how such a determination would be made. The proposed language does not establish specific criteria in regulation, does not define the scope of the “society” whose risks and benefits would be balanced, and could result in decisions that give insufficient consideration to the interests of populations located near the facility. DEEP is concerned that a case-by-case societal benefit determination could effectively diminish the importance of population considerations in siting decisions.

If the NRC retains a societal risk-benefit criterion, DEEP recommends that the final rule establish clear, objective criteria and defined boundaries for the assessment, including how local, regional, and broader societal interests are to be considered. The decision should not rest solely on an unconstrained NRC determination of societal benefit.

DEEP therefore supports the concept of a graded siting approach but recommends that the NRC retain the technical basis for the 25-rem value, establish a lower consequence threshold to incentivize safer designs, and provide substantially greater regulatory clarity regarding any societal risk-benefit criterion. These changes would help ensure that the proposed approach

⁹ “Reforming and Modernizing the NRC's Radiation Protection Framework” rulemaking (91 FR 43456, July 15, 2026)

provides meaningful flexibility without turning an upper-bound consequence criterion into a target or introducing subjective, case-by-case siting decisions without clear regulatory standards.

Plain Writing

DEEP provides the following responses to the specific request for comments in Section XLII, Plain Writing, of the FRN:

DEEP Response to NRC requests comment on this document with respect to the clarity and effectiveness of the language used.

DEEP disagrees with the NRC's apparent conclusion that this proposed rule satisfies the Federal plain-language requirement. The volume, technical complexity, and breadth of the proposal make it difficult for stakeholders—including State and local governments, tribal governments, and members of the public who are not specialists in every aspect of nuclear regulation—to understand the proposed changes and their practical implications.

The proposal spans an unusually broad range of highly technical subjects, including digital instrumentation and controls, common-cause failures, severe accident progression, Loss of Coolant Accident (LOCA) and fuel fragmentation/relocation/dispersal (FFRD), emergency core cooling systems (ECCS), PRA, quality management systems (QMS), emergency preparedness, emergency planning zones (EPZs), reactor siting, fuel enrichment, aging management, fracture mechanics, and risk-informed and performance-based regulatory frameworks. The NRC's own table of contents demonstrates the breadth of these topics, extending across updates to construction permits, design changes, emergency preparedness, early site permits, license renewal, reactor siting, and increased fuel enrichment.

The extensive use of over 150 acronyms further compounds the problem. Acronyms used throughout the proposal include NRC, AEA, DI&C, CCF, BDBE, ALWR, DCD, ITAAC, QMS, QA, ECCS, LOCA, FFRD, PCT, PRA, TBS, RCS, EP, EPZ, ERO, ORO, PWR, BWR, ABWR, ESBWR, TEDE, SOARCA, PIRT, NUREG, SECY, SRM, LMP, FSAR, HALEU, TRISO, CDF, LERF, PRA, SSC, BDBE and others. The issue is not simply the number of acronyms; it is that readers must understand highly specialized concepts associated with them across multiple technical disciplines. For example, the proposal simultaneously addresses digital control system common-mode failures, fuel fragmentation and dispersal under LOCA conditions, emergency planning, and probabilistic risk assessments.

DEEP recognizes that nuclear regulations necessarily involve technical terminology. However, plain writing requires more than defining individual terms. The NRC should explain, in accessible terms, what the proposed changes would actually do, why the changes are being made, what protections would change, and what the practical implications would be for licensees, workers, members of the public, State and local governments, and Tribal Nations.

The NRC should also recognize that the proposed rule is not a single technical change. It is a collection of substantial regulatory changes being considered simultaneously. The proposal includes, among other things, alternative ECCS acceptance criteria, changes involving fuel fragmentation and dispersal, changes to quality assurance and software used in safety-related applications, revisions to emergency preparedness and EPZ requirements, changes to siting criteria, and changes to 10 CFR § 50.59 and design certification change processes.

Most importantly, the lack of plain-language presentation is compounded by the 45-day comment period. Given the breadth and technical complexity of the proposal, meaningful review requires stakeholders to understand not only the proposed regulatory text but 279 incorporated guidance documents, technical analyses, regulatory bases, and supporting documents referenced in Section XLVIII. The NRC itself recognizes that the proposal involves substantial technical bases, including ongoing research concerning fuel dispersal and uncertainties in its consequences.

DEEP therefore believes that a meaningful and complete review of this proposal cannot reasonably be accomplished within the 45-day comment period, particularly by State and local governments and other stakeholders that do not have the resources of the NRC or affected industry. The NRC should provide additional time for review and, for future rulemakings of comparable breadth and complexity, should provide substantially more accessible explanations of the proposed changes and their practical implications.

Cumulative Effects of Regulation (CER)

DEEP provides the following responses to the specific request for comments in Section XLI. Cumulative Effects of Regulations of the FRN:

DEEP Response to CER Question #1: The NRC is proposing an effective date that will be 30 days after the date of publication of a final rule. Does this provide sufficient time to implement the proposed requirements? Please provide a rationale for your response.

DEEP does not believe that a 30-day implementation period is sufficient given the breadth and complexity of the proposed regulatory changes. The proposed rule would require significant changes to existing regulatory programs, licensing processes, and implementation practices, along with review and potential revision of numerous associated guidance documents.

The NRC is also seeking comment on 42 specific issues that could result in substantive changes to the final rule. It would therefore be premature to establish a 30-day implementation period when the final requirements and associated guidance may differ significantly from the proposal.

DEEP recommends that the NRC provide an appropriate notice-and-comment opportunity for any substantive changes resulting from these questions before adopting them. If the proposed requirements are finalized, DEEP recommends an implementation period of at least two years to allow the NRC, Agreement States, licensees, and other stakeholders sufficient time to revise regulations and procedures, update guidance, provide training, and establish the necessary infrastructure to implement the new requirements consistently.

DEEP Response to CER Question #2: Are there unintended consequences related to this rulemaking and how should they be addressed? Please provide a rationale for your response.

DEEP has identified several potential unintended consequences throughout its comments on this rulemaking, including concerns regarding regulatory consistency, changes to established licensing and change-control processes, and the potential for gaps or inconsistencies across licensing frameworks. These concerns warrant careful consideration before finalizing the proposed changes.

More importantly, DEEP is concerned that the 45-day comment period is inadequate to fully evaluate the depth and breadth of the proposed changes. The NRC is proposing substantial revisions across multiple regulatory provisions, while several related rulemakings are proceeding concurrently. The cumulative effect of these changes makes it difficult for stakeholders, particularly State regulatory agencies with limited resources, to identify and evaluate potential interactions, unintended consequences, and gaps in the proposed regulatory framework. An abbreviated review period increases the likelihood that significant issues will be overlooked.

DEEP recommends that the NRC provide additional time for review and comment and consider the proposed changes collectively with the other concurrent rulemakings before finalizing them. This would reduce the likelihood of unintended consequences and help ensure that changes

intended to improve regulatory efficiency do not inadvertently create gaps that could adversely affect public health and safety.

DEEP Response to CER Question #3: Please comment on the NRC's cost and benefit estimates in the regulatory analysis that supports this proposed rule.

DEEP believes the NRC's cost and benefit estimates are highly dependent on the assumptions regarding the number and types of applicants that will use the proposed regulatory framework. The NRC is seeking additional stakeholder input on these assumptions as part of this rulemaking; therefore, the ultimate costs and benefits may differ significantly depending on the information received and the assumptions used in the final regulatory analysis.

DEEP also notes that the regulatory analysis does not appear to fully account for costs or benefits to State and local government entities. In particular, the proposed emergency planning changes could result in substantial changes to the responsibilities, processes, training, and resources required of offsite response organizations. These impacts should be identified and incorporated into the regulatory analysis to provide a more complete assessment of the costs and benefits of the proposed rule.

DEEP recommends that the NRC consider these factors, including the potential costs to State and local governments and offsite response organizations, when developing the final regulatory analysis.