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General Comment

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Attachments

VT MA CT NY Comments on NRC ANPR Decommissioning

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:

Regulatory Improvements for
Decommissioning Power Reactors

RIN 3150–AJ59
NRC–2015–0070

Comments of the State of Vermont, the Commonwealth of Massachusetts, and the States of Connecticut and New York

Submitted: March 18, 2016

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Note about Citations and References Contained in this Document

All citations and references mentioned in this document are hereby incorporated by reference. Should NRC Staff have difficulty obtaining any such citations or references, they are requested to contact the Office of the Attorney General for the State of Vermont for assistance.

List of Abbreviations and Acronyms

AEA	Atomic Energy Act
AEC	Atomic Energy Commission
ANPR	Advance Notice of Proposed Rulemaking
C.F.R.	Code of Federal Regulations
DECON	Immediate dismantling of a nuclear power plant
DOE	Department of Energy
EAL	Emergency Action Level
Entergy	Entergy Nuclear Operations, Inc. and Entergy Nuclear Vermont Yankee, LLC
ENTOMB	Immediate and permanent encasement of a nuclear power plant in concrete onsite
ERDS	Emergency Response Data System
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
HSEEP	Department of Homeland Security Exercise and Evaluation Program
ISFSI	Independent Spent Fuel Storage Installation
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
OECD	Organization for Economic Cooperation and Development
ORO	Offsite Response Organization

PAG	Protective Action Guidelines
PCBs	Polychlorinated biphenyls
PDEP	Permanently Defueled Emergency Plan
Petition	Petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund (Nov. 5, 2015) (ADAMS Accession No. ML15309A758)
PSDAR	Post-Shutdown Decommissioning Activities Report
RCRA	Resource Conservation and Recovery Act
SAFSTOR	Deferred dismantling of a nuclear power plant
States	The State of Vermont, the Commonwealth of Massachusetts, and the States of New York and Connecticut
TLG	TLG Services, Inc.
Vermont Yankee	Vermont Yankee Nuclear Power Station
VHWMR	Vermont Hazardous Waste Management Regulations

INTRODUCTION

On November 19, 2015, the Nuclear Regulatory Commission (NRC) issued an Advance Notice of Proposed Rulemaking (ANPR) and request for comments regarding regulatory improvements for decommissioning power reactors.[1] The State of Vermont, the Commonwealth of Massachusetts, and the States of New York and Connecticut (collectively, States) appreciate the opportunity to submit the following Comments on this matter. Given the ANPR's preliminary nature, the States reserve the right to amend or supplement today's Comments as this initiative proceeds or as the States review additional information.

The Commission appears ready to revise its regulations concerning the decommissioning of nuclear power plant sites. In undertaking rulemaking on decommissioning, the NRC should be mindful of the interests of host communities and other stakeholders. The NRC has stated that this rulemaking seeks to "support the principles of good regulation, including openness, clarity, and reliability."[2] The NRC's principles of good regulation include the requirement that the NRC consider the "many and possibly conflicting public interests," and that the public "have the opportunity to participate in the

[1] 80 Fed. Reg. 72358 (Nov. 19, 2015); *see also* 80 Fed. Reg. 80709-01 (Dec. 28, 2015) (extending deadline for submitting comments to March 18, 2016).

[2] 80 Fed. Reg. at 72358.

regulatory processes."[3] To meet these principles of good regulation, the NRC's rulemaking must incorporate the States' interests noted below.

The questions posed by NRC Staff in the ANPR unfortunately suggest that the rulemaking will be focused primarily on relaxing regulatory requirements during decommissioning to further reduce financial costs to licensees. Only a small fraction of the questions speak to the needs and concerns of States and other stakeholders. Consequently, much of the ANPR reads like a checklist of the regulatory changes that licensees would like so as to limit their obligations during decommissioning. While some of those changes are acceptable to the States, others are not. The States hope that these Comments, and those of other stakeholders, will change the focus of this decommissioning rulemaking so that the NRC will adopt rules that do not only serve the interests of licensees, but also protect public health and the environment and respect the interests of States and local governments.

As an initial matter, although the risks of a nuclear reactor accident are mitigated by the successful removal of fuel from a nuclear reactor, other substantial safety risks remain for as long as spent nuclear fuel or other radioactive materials are stored at a power plant site (onsite storage). And the decommissioning process itself introduces new risks that must be considered. These new risks include the spreading of radioactive and non-radioactive contamination from, among other things: the dismantling of buildings; the decay or accidental destruction (e.g., from a natural disaster) of buildings during any period when

[3] NRC, *Values: Principles of Good Regulation*, http://www.nrc.gov/about-nrc/values.html.

decommissioning is deferred; the spread of contamination in soil and groundwater during any period when decommissioning is delayed; the damage of spent fuel during transfer from spent fuel pools into dry casks; and the long-term onsite storage of spent nuclear fuel.

These risks are exacerbated by the NRC's failure to ensure that merchant generators set aside enough money to address these and other problems during decommissioning. The NRC has yet to address historical evidence that the costs of decommissioning outpace market increases in decommissioning trust funds. This will lead to shortfalls if the NRC does not change its current regulations. The very real possibility of a licensee going bankrupt is an issue that the NRC has never fully addressed in a meaningful way. The current regulations regarding financial assurance are woefully inadequate and—notably—fall far short of the scope and depth of financial assurances that the nuclear industry itself seeks when selling or buying a closed nuclear power plant. This is an issue that could greatly impact host states if they are left with a radiologically contaminated (or otherwise unusable) site within their borders, due to a licensee's failure to fully fund decommissioning or site restoration. The NRC cannot allow that to happen. The NRC must take the opportunity now to revise its financial assurance requirements to ensure that licensees will be able to pay for any and all expected and unexpected expenses. The financing of decommissioning—and of spent fuel management and site restoration—is a matter of critical importance to host states.

The Interest of the State of Vermont

The State of Vermont has a strong interest in the regulatory requirements applicable to decommissioning power reactors. Vermont hosts one nuclear power plant, the Vermont Yankee Nuclear Power Station (Vermont Yankee) in Vernon, Vermont, on the banks of the Connecticut River. Vermont Yankee is owned and operated by Entergy Nuclear Operations, Inc. and Entergy Nuclear Vermont Yankee, LLC (collectively, Entergy). After 42 years of generating power, Vermont Yankee has now ceased operations. The State of Vermont and its citizens have a direct and ongoing interest in all aspects of the decommissioning, site restoration, and spent fuel management of Vermont Yankee.

Although Vermont Yankee has ceased operations, the State of Vermont will continue to deal with the legacy of the plant for many decades, perhaps even centuries, to come. In particular, despite knowing that Vermont preferred immediate decommissioning, Entergy has elected to place Vermont Yankee into SAFSTOR and has sought—and received—NRC approval to delay the decommissioning of the plant for up to 60 years. And even after 60 years, the plant will likely remain a repository for spent nuclear fuel. This is not what the State of Vermont agreed to when Vermont Yankee was licensed in 1972. At that time, the Atomic Energy Commission stated that the reactor's spent fuel would be promptly transported to an out-of-state reprocessing facility.[4] But none of the spent fuel has ever been removed from the reactor property, and much of it currently remains in a densely-packed

[4] Vermont Yankee Nuclear Power Station Final EIS, ML061880207:93-94 (July 1972).

spent-fuel pool that stretches five stories above ground, outside the reactor's containment structure.

The State of Vermont has participated or attempted to participate in NRC and other proceedings regarding decommissioning. Some of those matters are currently pending before the Commissioners. Vermont has actively opposed efforts to reduce crucial emergency planning functions during the time when spent fuel remains in spent fuel pools. Vermont and two of its utilities have also sought increased transparency and NRC oversight regarding nuclear decommissioning trust funds. Vermont has noted that this is a crucial issue to host states so that they are not left with the financial responsibility for cleanup if those funds ever run short before the completion of decommissioning, site restoration, and spent fuel management. The Commonwealth of Massachusetts and the States of Connecticut and New Hampshire have supported Vermont's request for greater transparency and NRC oversight regarding decommissioning trust funds.

The Interest of the Commonwealth of Massachusetts

Like Vermont, the Commonwealth of Massachusetts (Commonwealth) has a strong interest and concern regarding the decommissioning of nuclear reactors and storage and disposal of spent nuclear fuel. The Commonwealth has one nuclear power plant within its borders and others nearby: the Pilgrim nuclear power plant located in Plymouth, Massachusetts, about forty miles from Boston, and the Vermont Yankee and Seabrook plants, each located about ten miles from the Massachusetts border (and, in the case of

Seabrook, also about forty miles from Boston). The Pilgrim plant will soon close after forty years in operation; spent fuel from those years of operation is stored onsite. The Commonwealth and its citizens have a direct interest in ensuring that Pilgrim and other plants near the Commonwealth's borders are fully and safely decommissioned in a timely manner, that their decommissioning trust funds are properly funded, preserved, and used only for actual decommissioning costs until decommissioning is complete, and that their spent fuel is secured and properly managed during the perhaps indefinite period of time that it will remain onsite.

The Interest of the State of New York, Office of the Attorney General

New York has seven power reactors at four sites: Indian Point Unit 1, which ceased generating electricity in 1974, and Fitzpatrick, Ginna, Indian Point Unit 2, Indian Point Unit 3, Nine Mile Unit 1, and Nine Mile Unit 2, each of which are still in operation.

The State of New York Office of the Attorney General has a keen interest in the implementation and enforcement of effective radiological decommissioning regulations that protect the interests of the State and local communities and ensure that responsible parties promptly and completely decommission, decontaminate, and restore those sites so that they may be used without restriction on a going-forward basis.

Many aspects of the Attorney General Office's concerns about the NRC's proposed decommissioning framework are illustrated by the risks posed by the Indian Point site. In 1956, the Atomic Energy Commission (AEC) authorized the construction of a nuclear

power plant 24 miles north of New York City, 6 miles from a New York City reservoir, and close to an interregional natural gas pipeline. The AEC later authorized the construction of two additional power plants at the Indian Point site, and the NRC thereafter authorized the dense storage of spent nuclear fuel in the site's spent fuel pools. The 50-mile area around the Indian Point reactors, spent fuel pools, and storage casks has the highest surrounding population of any nuclear power plant site in the nation.[5] Therefore, "a severe release of radioactive materials at Indian Point could have more serious consequences than that same release at virtually any other NRC-licensed site."[6]

The Indian Point spent fuel pools contain more fuel assemblies than the reactor cores, and its owner projects that the pools will continue to hold large quantities of fuel assemblies many years after the reactors cease generating electricity. Given this potential "source term" of radiation, a severe spent fuel pool accident at Indian Point could result in an off-site release and deposition of radiation affecting the New York metropolitan area.[7] The revisions under consideration by the Commission and the Staff contemplate allowing licensees to prematurely withdraw security forces, emergency planning and evacuation networks, and insurance coverage for radiological releases. The NRC must not lessen any

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[5] *See generally* Comments Submitted by the Attorney General of the State of New York on the Draft Second Supplement to the Final Supplemental Environmental Impact Statement Prepared by the Staff of the Nuclear Regulatory Commission for the Renewal of the Operating Licenses for Indian Point Unit 2 and 3 (March 4, 2016) (March 4, 2016 NYS OAG Comments).

[6] *Consolidated Edison Co. of New York* (Indian Point, Unit 2) *and Power Authority of the State of New York* (Indian Point, Unit 3), 21 N.R.C. 1043, 1049-50, CLI-85-6 (1985).

[7] *See* March 4, 2016 NYS OAG Comments.

safety, security, insurance, or emergency preparedness requirements as long as any risk of accident or radiation release remains.

Extensive subsurface radionuclide contamination has occurred and continues at the Indian Point site.[8] The revisions under consideration by the Commission and the Staff would encourage licensees to postpone the cleanup of radionuclide leaks until some far-off future date, by which time subsurface plumes may be more difficult and expensive to decontaminate and the corporations may have tried to "arrange away" their liability. The NRC must strengthen, not weaken, the companies' financial obligations to decommission and decontaminate the power plant sites.

The Attorney General's Office has participated in several decommissioning meetings and regulatory initiatives since 2007, and its previous comments regarding the risks associated with decommissioning continue to hold true.[9] The Attorney General's Office also

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[8] *See id.*

[9] *See* Supplemental Submission by the State of New York Concerning Decommissioning Issues (December 4, 2011) (ADAMS Accession No. ML11340A154); Supplemental Submission by the State of New York Concerning the June 8, 2011 Follow Up Meeting to the March 2, 2011 Decommissioning Funding Workshop & Related Decommissioning Issues (June 27, 2011) (ADAMS Accession No. ML11179A060); The State of New York, Follow Up Meeting Concerning the March 2, 2011 Decommissioning Funding Workshop & Related Decommissioning Issues (June 8, 2011) (ADAMS Accession No. ML111600259); Comments Submitted by the State of New York Concerning the March 2, 2011 Decommissioning Funding Workshop and Related Decommissioning Issues (April 7, 2011) (ADAMS Accession No. ML111030522); Presentation of the State of New York, Issues Related to Decommissioning Funding (March 2, 2011) (ADAMS Accession No. ML110560594); Supplemental Comments Submitted by the State of New York Concerning the Nuclear Regulatory Commission's Proposed Decommissioning Rulemaking (November 29, 2010) (ADAMS Accession No. ML103350167); Supplemental Comments Submitted by the State of New York Concerning the NRC's Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to Require Certain Changes in Decommissioning Planning (May 28, 2009) (ADAMS Accession No. ML091480640); Supplemental Comments Submitted by the State of New York Concerning the NRC's Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to

respectfully refers the NRC and Staff to the comments submitted by the New York State Energy Research and Development Authority.

The Interest of the State of Connecticut

The State of Connecticut has long been involved in matters related to the safe storage and disposal of spent nuclear fuel and has consistently supported efforts to protect the State's citizens and natural resources from the adverse impacts associated with a potential release of radionuclides from an accident or attack on a nuclear power station or spent fuel facility. Connecticut is a densely populated state containing several operating or decommissioned nuclear power facilities and currently hosting over 1,800 metric tons of spent nuclear fuel.

In addition, Connecticut is currently involved as an interested governmental body in the relicensing proceedings for the Indian Point nuclear power facilities.[10] Indian Point is located in New York, close to the border with Connecticut, and fully one-third of Connecticut's citizens reside within the 50-mile ingestion exposure pathway Emergency Planning Zone (50-mile EPZ).[11] As the NRC, the Federal Emergency Management Agency

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Require Certain Changes in Decommissioning Planning (November 4, 2008) (ADAMS Accession No. ML083110926); and Comments Submitted by the State of New York Concerning the NRC's Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to Require Certain Changes in Decommissioning Planning (May 8, 2008) (ADAMS Accession No. ML081340325).

[10] *See Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), Memorandum and Order (Ruling on Petitions to Intervene and Requests for Hearing), 68 N.R.C. 43, 217-19, LBP-08-13 (July 31, 2008) (ADAMS Accession No. ML082130436).

[11] *See* Generic Environmental Impact Statement, NUREG-1437, Supp. 38, at 2-3.

(FEMA), and the Department of Homeland Security have recognized, Indian Point is located in one of the most densely populated regions of the United States. On any given day, approximately 20 million Americans live, work, or travel within 50 miles of the Indian Point facilities. Two of Connecticut's counties, Fairfield and Litchfield, lie within the 50-mile EPZ. The Indian Point site is 23 miles from Greenwich, 26 miles from Stamford, 27 miles from Danbury, and 37 miles from Bridgeport. The State's main concern is the health and safety of its citizens. Any significant airborne release of radioisotopes from an incident at the Indian Point facilities or at any of the operating or decommissioned nuclear power stations in the State would directly affect Connecticut residents.

COMMENTS

The NRC has sought comments on a number of specific issues, which the States address below. But first the States will address question GEN-4 of the ANPR, where the NRC asks whether there are "any other changes to 10 C.F.R. Chapter I, 'Nuclear Regulatory Commission,' that could be clarified or amended to improve the efficiency and effectiveness of the reactor decommissioning process?" There are many such changes required. The States begin by outlining these below. Each of these Comments should be considered incorporated in full wherever relevant to the specific questions NRC Staff has posed in the ANPR.

I. Host communities and States have a right to play a meaningful role in decommissioning decisions.

One of the biggest problems with the current regulations is that they do not provide any meaningful role for host communities, including the host states. This is untenable given that it is the host communities that are most affected by decommissioning.

For instance, under the current regulatory framework, the licensee may choose one of three decommissioning pathways and timelines: (1) prompt decommissioning and return of the site to unrestricted use, referred to as "DECON"; (2) immediate encasing of the reactor building and associated structures in concrete, referred to as "ENTOMB"; or (3) deferral of decommissioning activities for 60 years with most of the work not starting until the last decade, referred to as "SAFSTOR." The NRC is agnostic about whether a licensee chooses immediate decommissioning (DECON) or a 60-year SAFSTOR timeline (or anything in between). But the length of decommissioning matters enormously to host communities, which universally prefer immediate decommissioning to avoid the prolonged risks to human health, the environment, and the local economy posed by the delay of decommissioning. The States are not aware of any host communities that support leaving a power plant mothballed for decades, posing a constant threat of radiological and non-radiological hazardous contamination, and preventing the use of that land for other productive economic activities.

And most importantly, at the end of decommissioning, it is the host communities and host states that could be left with a site that contains radiological contamination and other

hazards if the licensee fails to fully clean up and restore the site. This is a significant risk because the current NRC regulations, as well as NRC Staff's routine granting of exemptions, create a significant risk that decommissioning funds will run short at a number of plants throughout the country.[12]

For these and other reasons, host communities and States should be given a place at the table in determining what constitutes adequate financial assurance, as well as the timing and standards of decommissioning, site restoration, and spent fuel storage.

a. The NRC should exercise affirmative regulatory authority over decommissioning, beginning with its review of the Post-Shutdown Decommissioning Activities Report (PSDAR).

NRC regulations currently require each licensee to prepare a document reporting the licensee's approach to decommissioning, called the Post-Shutdown Decommissioning Activities Report (PSDAR); however, NRC Staff asserts that it does not take regulatory action based on that report. It neither approves nor denies the licensee's choice of decommissioning method or the timeline for completion of decommissioning activities and site restoration. It neither grants nor denies an amendment to the site's existing license. One way to increase host community involvement is to require affirmative NRC approval or disapproval of a PSDAR, after input and a hearing opportunity for host communities and

[12] *See, e.g.*, Fisher, *A $23 Billion Potential Shortfall for 27 Utilities with Nuclear Power Plants*, and study cited therein, *available at* http://seekingalpha.com/article/3186946-a-23-billion-potential-shortfall-for-27-utilities-with-nuclear-power-plants?page=2; Government Accountability Office, *NRC's Oversight of Nuclear Power Reactors' Decommissioning Funds Could Be Further Strengthened,* GAO-12-258 (Apr. 5, 2012).

other stakeholders. The PSDAR should not be a "report" at all, but rather a request for NRC approval.

The Atomic Energy Act authorizes the NRC to issue operating licenses to nuclear power plants. 42 U.S.C. §§ 2133, 2134(b). That license authorizes a corporation to operate a power reactor, its adjacent spent fuel pool, and affiliated auxiliary systems, structures, and components. Once a power reactor ceases generating electricity, the licensee nevertheless must continue to comply with operating requirements for the continued operation of the spent fuel pool, the handling and possession of nuclear material and fuel, and the decommissioning of the site. This change in reactor operations does not terminate NRC oversight or a licensee's obligations to comply with the Atomic Energy Act, NRC regulations, and license conditions. Given this continuation of regulatory authority after the cessation of power generation, the NRC has authority to approve and regulate all aspects of radiological decommissioning, including a licensee's timeline for decommissioning activities.

The PSDAR could serve an important role in the NRC's exercise of regulatory decision-making. The PSDAR provides a roadmap of a licensee's proposed decommissioning activities. It includes important planning information such as the licensee's decommissioning method (DECON or SAFSTOR), its proposed decommissioning activities and schedule, a Decommissioning Cost Estimate, and an assessment of certain environmental impacts associated with planned decommissioning activities.[13] This information is critical to local

[13] *See* 10 C.F.R. § 50.82(a)(4)(i).

communities in their own planning efforts stemming from the closure of a nuclear power plant.

Though current regulations require that NRC Staff analyze PSDAR submissions, NRC Staff has interpreted its role as limited to determining whether the submission contains the required information listed in § 50.82(a)(4)(i). It is the States' understanding that there is little to no substantive or technical review of the PSDAR contents, and no requirement that NRC approve or disapprove a PSDAR unless the information requirements of § 50.82(a)(4)(i) are not met by the initial submission. Although licensees are required to notify the public and the NRC before performing decommissioning activities that are inconsistent with the submitted PSDAR, there does not appear to be any additional public process required. And there does not appear to be any requirement to submit an actual amendment of the PSDAR to the NRC, and no further review by NRC of whether decommissioning activities are consistent with the PSDAR.

This type of review not only fails to meet the NRC's legal duty under the Atomic Energy Act to protect public health and the environment, but it is also a clear violation of the National Environmental Policy Act (NEPA). The PSDAR should include much more detail regarding potential environmental impacts, and the NRC has a legal duty to review that information and provide a NEPA-compliant analysis of it. Instead of treating the filing as a mere report, the NRC should decide—in concert with the relevant host State and communities—whether to approve or deny the licensee's filing. For reasons explained in

detail in the State of Vermont's Comments on Vermont Yankee's PSDAR (ADAMS Accession No. ML15082A234), the NRC's current approach to evaluating the potential environmental impacts of decommissioning does not comply with NEPA. The NRC should take the opportunity now to revise its regulations to come into compliance with NEPA.

There is little downside—and enormous benefit—to NRC undertaking a NEPA-complaint technical review of a PSDAR and any PSDAR amendments. The NRC should then issue findings and a written decision approving or denying the PSDAR or PSDAR amendment. Given the significance of the PSDAR as the primary planning tool for decommissioning activities, the NRC must undertake a more substantive review and approval process. The NRC should require that NRC Staff make specific findings of a PSDAR's compliance with informational and applicable technical requirements, and issue a written approval (or denial) of the PSDAR, including a full NEPA analysis, before allowing the licensee to begin major decommissioning activities at the site. This clear, final agency action would be reviewable and would thus ensure greater transparency and accountability for NRC decisions.

Additionally, a licensee should be required to submit an amendment to the PSDAR before undertaking any decommissioning-related action that deviates from or is otherwise inconsistent with its approved PSDAR. An amendment proposing a deviation from the initial PSDAR should undergo the same level of NRC review and the same public notice process as an initial PSDAR submission.

These changes are in line with what the NRC puts forward as its five "principles of good regulation": independence, openness, efficiency, clarity, and reliability.[14] In particular, the NRC asserts that openness requires that "regulation is the public's business, and it must be transacted publicly and candidly," with the public having "the opportunity to participate in the regulatory processes."[15] As Commissioner Baran recently noted, "Public confidence matters."[16] Without a formal NRC review process, incorporating and responding to public comments and providing an opportunity for a hearing, the public cannot be confident that the NRC is reviewing the PSDAR to ensure that it will protect public health and the environment.

b. In approving a PSDAR, the NRC should invite the host State to file an opinion of support, opposition, or conditional support that includes specific recommendations for changes to the PSDAR, and the NRC should include all such recommendations as conditions of approval.

The NRC's proposed rule on radiological decommissioning will have important consequences for states and local communities that host or that could otherwise be affected by nuclear power plants and decommissioning-related activities. Indeed, it is the host communities and states that are most affected by decommissioning decisions. The NRC should treat co-sovereign host states, which represent their citizens, as having, at a minimum, equal standing with licensees and their representatives.

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[14] NRC, *Values: Principles of Good Regulation*, http://www.nrc.gov/about-nrc/values.html.

[15] *Id.*

[16] Remarks by NRC Commissioner Jeff Baran, 2016 Regulatory Information Conference March 9, 2016, No: S-16-004, at 5, *available at* http://pbadupws.nrc.gov/docs/ML1606/ML16069A222.pdf.

When it comes to the decommissioning of a nuclear power plant, host states need to have a meaningful role, beginning with the planning and review process. The NRC should amend their regulations so that the NRC is required to invite the host state to file an opinion of support, opposition, or conditional support that includes specific recommendations for changes to the PSDAR. Then, crucially, unless the imposition of a State-recommended condition would violate federal law, the NRC should include all of the host state's recommendations as conditions of approval. This type of approach would create a strong incentive for licensees to work cooperatively with host states in planning decommissioning.

c. In approving a PSDAR, the NRC must provide an opportunity for a hearing, with host states granted automatic party status as intervenors on any issues they wish to raise.

As with other matters potentially affecting public health or the environment, there should be an opportunity for an Atomic Energy Act § 189 hearing if an interested party has concerns with a PSDAR or a PSDAR amendment. The matters that arise during decommissioning involve significant safety issues and are often site-specific in terms of the potential public health and environmental impacts on the host community, as well as the mitigation options available at a particular site.

Further, host states should be granted automatic intervenor status on any issues they wish to raise during a hearing on a PSDAR or PSDAR amendment. The NRC's practice of limiting intervention is based on the concern that licensing boards and the Commissioners themselves will spend time addressing frivolous matters. That concern has no place when it

comes to requests for intervention filed by co-sovereign host or neighboring states, which are necessarily impacted directly by decommissioning decisions. Host states should thus be granted automatic intervenor status on the issues they wish to raise in the NRC's review of a licensee's proposal for decommissioning or the financing of decommissioning.

d. The NRC should provide other opportunities for meaningful public input and involvement in the review and approval of a PSDAR and in the NRC's rulemaking more generally.

The NRC should increase opportunities for participation by requiring multiple public meetings to be held on the proposed PSDAR or amendment (instead of a single meeting), and require that meetings be held in various locations around the state, not solely "in the vicinity" of the plant. There are economic and other implications for citizens throughout the entire host state when it comes to the decommissioning of a nuclear power plant. Meetings in neighboring states should also be considered when a plant is within 50 miles of neighboring states. The NRC should provide for the submission of comments (orally or in writing) by interested parties, and should require that the licensee and NRC respond to all comments, with the responses considered by the NRC in its review of the PSDAR.

The ability to receive responses to comments and questions submitted on a proposed PSDAR is an important function of a public process, as it enhances the understanding of interested parties of the proposed actions, and allows the licensee to vet and respond to important issues that may not be addressed in the proposed submission. Information obtained through responses to comments also enhances state regulatory entities' abilities to

provide regulatory oversight and assistance and to ensure that proposed activities are conducted in compliance with applicable state laws.

This would improve the NRC's current commenting process, which is inadequate in several ways. For instance, the State of Vermont submitted a robust set of detailed comments on a wide range of important matters related to Entergy's PSDAR for Vermont Yankee. The NRC did not require Entergy to respond to Vermont's comments, nor is there any evidence that the NRC investigated or reviewed the many concerns Vermont identified with Entergy's PSDAR. Instead, nearly a year after Vermont submitted its comments, NRC Staff issued a short response that did not meaningfully address Vermont's comments and concerns. Leaving Vermont's questions and concerns unanswered benefits no one, and is detrimental to public health and the environment. It is also detrimental to licensees and to the NRC itself when both appear unresponsive to legitimate concerns raised by sovereign states and their citizens.

Providing a more extensive public process—including additional opportunities to educate interested parties on the details of a proposed PSDAR and to submit comments for NRC's consideration of a PSDAR—would provide significant value to the PSDAR review process. It would also serve the NRC's stated principles of good regulation by providing transparency and improving the quality and legitimacy of NRC decisions related to

licensees' decommissioning plans.[17] Further, during such hearings, NRC Staff should respond to public questions.

More generally, the rulemaking process (including submission of comments on the ANPR) provides a valuable opportunity for states, local entities, and other interested stakeholders to share their experiences with the nuclear facilities that have begun or have completed radiological decommissioning activities. Additionally, the process will serve as a critical educational opportunity for locations that host nuclear facilities that plan to cease operations in the near future, and that will be commencing the decommissioning planning process. The NRC should therefore provide additional opportunities for meaningful public participation in the decommissioning rulemaking process.

Specifically, the NRC should hold several public hearings on the proposed decommissioning rulemaking in communities near nuclear power plants around the country, so that interested stakeholders, including affected state legislative and regulatory entities, have a full opportunity to identify concerns with the scope and proposed content of proposed rules. The NRC should also provide opportunities to participate in public hearings via Webinar or teleconferencing services to allow participation and observation of parties who cannot travel or otherwise be physically present. Further, the NRC should improve its advance notification of public hearings held via Webinar or teleconferencing. Additionally,

[17] NRC, *Values: Principles of Good Regulation*, http://www.nrc.gov/about-nrc/values.html.

the NRC should provide a careful and balanced review of all comments it receives regarding the ANPR and any proposed rule.

II. The NRC should expressly recognize state authority over the non-radiological activities associated with the decommissioning process.

While the NRC has authority over the radiological aspects of decommissioning, it is the host states that regulate non-radiological activities and waste at nuclear power plants. That is clear under both federal and state law. Unfortunately, the recent experience of some states, such as Vermont's interactions with the owner of Vermont Yankee, indicate that licensees believe state authority is more limited than it is.

A host state's environmental and natural resources agency protects human health and the environment in many ways, including: by regulating activities that affect the quality of the State's air and water; by ensuring that solid and hazardous wastes are managed and disposed of in a safe and environmentally protective way; and by requiring that contaminated sites be thoroughly investigated and remediated so as to reduce or eliminate risks to human health and the environment posed by non-radiological hazardous contamination. The States request that the NRC clarify the authority of host states over non-radiological activities of nuclear licensees.

In enacting the Atomic Energy Act, 42 U.S.C. § 2011 et seq. (AEA), Congress provided the NRC with regulatory authority over nuclear safety. However, the inherent authority of State and local government to regulate nuclear activities for purposes other than protection against radiation hazards has been expressly reserved by the AEA's savings clause

in 42 U.S.C. § 2021(k). The plain language of § 2021(k) is that states retain authority to regulate non-radiological aspects of nuclear licensees' activities so long as they do not oust the Commission of its authority. Thus, for instance, the NRC has long recognized that States have full authority over the ultimate site restoration standards that apply after NRC license termination.

Where state regulatory authority has been federally authorized or federally delegated—such as a federally authorized Resource Conservation and Recovery Act (RCRA) hazardous waste program or a federally delegated Clean Water Act program—the analysis is not properly framed as potential preemption, but rather as statutory interpretation. In such cases, nuclear licensees must comply with applicable state authority to the extent that there is no actual and irreconcilable conflict with the licensee obligations under the AEA.[18]

The assertion that a State Agency's non-radiological human health and environmental laws and regulations are broadly preempted by the AEA is not reflective of current law, and would create a regulatory vacuum when it comes to dangerous contaminants like lead and asbestos. These arguments are especially problematic when a licensee is allowed to

[18] On July 31, 2015, the Vermont Agency of Natural Resources, in consultation with the EPA, drafted a more complete legal analysis of this issue, which Vermont has provided to Entergy Nuclear Vermont Yankee and to the NRC's Regional Administrator for Region 1, and would be happy to provide to others at the NRC. This analysis was in response to an assertion by Entergy that the AEA broadly preempts a state agency's statutory authority to regulate non-radiological hazardous waste at a nuclear site, and that Entergy was thus not required to comply with state regulations and timeframes governing hazardous waste identification, remediation, and management.

significantly delay the decommissioning process through SAFSTOR and, if allowed to stand, would severely hamper a host State's obligation to protect public health and the environment from non-radiological hazardous waste and remediation activities at a nuclear site. It is thus critical for the NRC to recognize host states' important roles over the non-radiological activities of closed nuclear power plants.

III. Spent nuclear fuel should be moved from spent fuel pools before, or as soon as possible after, a plant's cessation of power generation.

Most of the movement of spent fuel from spent fuel pools to dry cask storage should ideally occur while a plant is still operating. The NRC has repeatedly made clear that spent fuel management is an operating expense, not a decommissioning expense.[19] If, however, the licensee fails to move spent fuel during operations or fuel needs further cooling before it can be moved, the NRC should require that licensees move the fuel out of the spent fuel pool as soon as possible.

After Fukushima, NRC Staff began working on issues that arose from that experience. One issue was moving spent fuel as soon as possible to dry casks. The NRC has recognized that dry cask storage is safer than spent fuel pool storage.[20] Spent fuel pools, which are often packed to maximum capacity, are "active" systems that require constant circulation of cold water to avoid a meltdown. Dry casks, by contrast, are "passive" systems

[19] *See, e.g.*, 10 C.F.R. § 50.75(c) n.1 (decommissioning does "not include the cost of removal and disposal of spent fuel").

[20] COMSECY-13-0030 at 2 (Nov. 12, 2013) (recognizing "a minor or limited safety benefit" to dry-cask storage over spent fuel pools).

that do not need electricity, and they are much more secure from terrorist attacks, earthquakes, and floods than spent fuel pools. As a former NRC Chair correctly recognized, "[p]assive systems are certainly better than active systems—systems that have to be activated."[21]

In addition, the NRC has previously recognized that "fuel assembly geometry and rack configuration . . . are subject to unpredictable changes after an earthquake or cask drop that drains the pool."[22] Dry casks are not subject to those particular risks. Further, dry cask storage is required to transfer spent fuel to a permanent or interim federal repository, so all plants have to do it at some point—the only question is when.

Spent fuel storage is the biggest safety issue that exists at nuclear power plants once they have ceased power generation, and the NRC should treat it with the seriousness it warrants. The consequences of a release from a spent fuel pool are potentially many times worse than a release from the reactor itself, because there is much more fuel in the spent fuel pool than in an active reactor core, which could increase the amount of radionuclides potentially dispersed during an accident (the "source term"). This risk is heightened when

[21] U.S. Senate Committee on Environment and Public Works, Subcommittee on Clean Air and Nuclear Safety, "Oversight Hearing: NRC's Implementation of the Fukushima Near-Term Task Force Recommendations and other Actions to Enhance and Maintain Nuclear Safety" (SD-406) (Jan. 30, 2014) (Chair MacFarlane at 1:51:54).

[22] NRC, *Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants*, NUREG-1738 at x, 5-2 (2001).

there is no containment surrounding the spent fuel pools, since they were built only for temporary storage.

Further, the only explanation the NRC has ever provided for not requiring expedited transfer of spent fuel is its view that the cost of transferring spent fuel is too great compared to the safety benefits obtained. The NRC came to this conclusion even though it has recognized that in some scenarios the benefits would exceed the costs.

As an initial matter, the States oppose the NRC letting an economic decision override a safety and environmental danger that can be substantially reduced by requiring the expedited transfer to dry casks. But regardless of whether expedited transfer should be required of operating plants, there is no doubt the NRC should require it of closed plants, because any cost-benefit analysis for closed plants weighs in favor of expedited transfer. It is much more cost effective to move spent fuel to dry-cask storage immediately, rather than continuing to operate a spent fuel pool. That is why most, if not all, closed plants have done precisely that. The NRC should codify this as a requirement in its regulations and thereby remove any concerns host communities have about whether this will happen.

IV. Critical emergency protocols, including the Emergency Response Data System and the 10-mile Emergency Planning Zone, should remain in place for as long as spent nuclear fuel remains in a spent fuel pool, and ongoing health and environmental monitoring should continue until the license is terminated.

Although the States agree that the likelihood of a nuclear incident decreases once fuel is removed from the reactor, the NRC should not allow licensees to abandon critical

emergency protocols when spent nuclear fuel is still stored onsite in a spent fuel pool. In particular, licensees should be required to maintain the 10-mile Emergency Planning Zone (EPZ) and the radiological monitoring and meteorological data of the Emergency Response Data System (ERDS) until all fuel has been removed from spent fuel pools. The NRC should further require that ongoing health and environmental monitoring continue until the license is terminated.

NRC practice to date has been out of step with host community expectations. In Vermont, for instance, nearly two-thirds of the public comments received by the Vermont Department of Public Service regarding Vermont Yankee's closure included requests to retain the 10-mile EPZ that currently surrounds the plant, at least until all fuel has been removed from its spent fuel pools. This was by far the biggest issue raised by the public and it continues to be raised as Vermont gets closer to the implementation date for eliminating the EPZ. Vermont's request to maintain the 10-mile EPZ has so far been rejected by the NRC, although an appeal and motion to reconsider the matter is pending before the Commissioners.

The States oppose the current practice of eliminating the offsite EPZ and the ERDS system while fuel remains in a spent fuel pool. The basis for these actions is flawed. For instance, as explained in more detail below, the NRC's zirconium fire analysis does not adequately consider what could happen if accelerants are in a spent fuel pool as a result of a hostile action or sabotage scenario. The NRC has also failed to consider site-specific

meteorological, geological, and hydrological conditions that could lead contamination to spread more rapidly offsite. And the NRC fails to recognize that even small amounts of contamination offsite, especially of food, agricultural land, and water, still require some degree of emergency response and environmental remediation.

Title 10 of the Code of Federal Regulations outlines the regulations nuclear power plants are required to follow to ensure "there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."[23] These regulations serve as the cornerstone for ensuring that emergency responders are ready in case of an incident at an operating nuclear power plant. The requirements outline a framework for an emergency response organization both onsite and offsite that will remain robust regardless of the type of incident that might occur. Specifically, when licensees transfer fuel out of reactors and into spent fuel pools as a part of the decommissioning process, the need still exists to ensure this framework remains in place. The vast majority of the requirements in § 50.47 and Appendix E to 10 C.F.R. part 50 should remain in place for licensees that continue to store spent nuclear fuel in spent fuel pools onsite.

The States oppose the NRC's routine practice of granting exemptions to § 50.47 and Appendix E to 10 C.F.R. part 50 regulations without fully developed requirements for emergency preparedness in a decommissioning environment. Licensees currently develop Permanently Defueled Emergency Plans (PDEP) and Emergency Action Level (EAL)

[23] 10 C.F.R. §§ 50.47(a)(1)(i) and Part 50 Appendix E.

schemes based on guidance derived from plant decommissioning information that the NRC compiled in SECY-00-145, well before the September 11, 2001 attacks. By the NRC's own admission, the SECY-00-145 guidance has not been updated since then because plant security concerns raised by the September 11, 2001 attacks were given higher priority. As such, the SECY-00-145 guidance has not been reevaluated while considering post-9/11 plant security concerns.

Licensees also utilize the requirements specifically written for Independent Spent Fuel Storage Installations (ISFSI) to develop PDEP/EAL schemes. These requirements are not written to support the inherently different hazards presented while fuel is stored in a spent fuel pool and not in dry cask storage. While the circumstances and possible credible accident scenarios for spent fuel pools are different than they are for operating reactors, the emergency preparedness requirements for ISFSIs as outlined in 10 C.F.R. § 72.32 are simply not detailed enough to address onsite and offsite capabilities in response to a spent fuel pool incident. The requirements in § 50.47 and Appendix E to 10 C.F.R. part 50 provide a validated and justified methodology for handling all hazards and threats posed to both operating reactors and spent fuel pool systems.

The use of ISFSI standards also fails to account for the specific hazards posed by the transfer of spent fuel from a spent fuel pool to dry cask storage. These include the potential for a canister drop while removing fuel from the spent fuel pool, and the potential for a cask drop (as has occurred previously) during movement of dry casks. In Vermont, for instance,

this transfer will be happening less than half a mile away from an operating elementary school. If there is a canister drop, a cask drop, or any other incident during a transfer of spent fuel, particularly if it occurs when schoolchildren are present nearby, emergency protocols will be crucial to protect both public health and the environment.

Further, the States oppose the idea of transposing early-phase Protective Action Guidelines (PAGs) of 1 rem at the boundary line into the separate context of what constitutes the correct threshold for the exemption of licensees from 10 C.F.R. § 50.47 requirements. The NRC proposes using the PAG of 1 rem as a justification to not require emergency planning or liability insurance.[24] The States disagree with this proposal. The PAGs are insufficiently protective of public health when applied to the early phase following an accident and radiological release. The PAGs initially were derived from the so-called "Reference Man," a decades-old generic proxy that does not protect citizens who are outside of its parameters. The States also oppose efforts to relax PAGs (make them less protective of the public health) with respect to radionuclide contamination of water sources including drinking water resources, which are protected via maximum contaminant levels established pursuant to the Safe Drinking Water Act.

Any release of radioactive material offsite would have significant consequences, even if below the early-phase PAGs. The public looks to State agencies for information about any incident that occurs at a nuclear power plant. Just because a radiological release might be

[24] *See, e.g.*, 80 Fed. Reg. at 72369.

below the early-phase PAGs does not mean that the radiological incident and radiation dispersion can be ignored in emergency planning and decontamination efforts.

The States also recommend that both interim guidance and new regulations for decommissioning provide for maintaining support (including funding) for offsite response capabilities that can integrate with those of the licensee. This would allow for an efficient response to any industrial incident or natural disaster that results in radioactive material releases that could lead to a dose to any member of the public of 0.1 rem or more at the exclusion area boundary. This is the same public dose limit used for reactor operations in 10 C.F.R. part 20, and it is based on lifetime risk. Decommissioned reactors should pose less radiological impacts on the community while awaiting and undergoing decontamination and dismantlement, as compared to operating nuclear reactors, so maintaining public doses to less than 0.1 rem per year should be readily achievable. On the other hand, the steps necessary to verify that contamination levels and doses are clearly understood should a release occur are not readily accomplished by jurisdictions employing all hazards response plans that do not commonly include radiological capabilities. The 10-mile Emergency Planning Zone would be an appropriate geographic area to bound the area for offsite response organization capabilities for radiological and nuclear emergency response.

The States also object to any reliance on a 10-hour period for onsite mitigation actions that the NRC hopes the licensee might take. This optimistic timeline ignores the possibility (arguably probability) that any nuclear incident caused by a natural disaster or

hostile attack would be accompanied by significant barriers to transportation and communication. For instance, Vermont has experienced flooding numerous times in recent years that limited the capabilities of all authorities for much more than 10 hours. Sometimes limitations persisted for days and weeks because of impacts to roads and communications, and due to competing demands on resources for lifesaving and protection of critical infrastructure.

Offsite response capabilities should be maintained to be as robust as they were during reactor power operations at least until all spent fuel is removed from a spent fuel pool. This level of capability and time frame is appropriate especially because of the significant amount of major industrial activity associated with DECON. Industrial and transportation accident rates will increase during DECON, and, if combined with more prevalent natural disasters, a 10-hour mitigation time frame simply may not be possible.

The States also disagree with the NRC's analysis of a spent fuel pool zirconium fire beyond-design basis event. The NRC's analysis assumes that the only energy source that can heat spent nuclear fuel to the zirconium fire ignition temperature of 900°C is the spent fuel decay heat following the loss of spent fuel pool water. Additionally, the acceptance criterion for this zirconium fire event is set arbitrarily at the point when it would take more than 10 hours for the fire event to reach the 900°C ignition temperature.

The "10-hour" criterion cannot be justified. For instance, since it took longer than 10 hours for the Fukushima Da'ichi units to reestablish a means to provide spent fuel pool

cooling on March 11-16, 2011, it is not appropriate to use 10 hours as a sufficient response time. The States further note that it is possible for accelerants such as thermite or jet fuel to be introduced into a spent fuel pool as the result of a hostile action. The presence of these accelerants could result in the spent fuel igniting in fewer than 10 hours.

For power reactors without a full containment structure surrounding their spent fuel pools—which includes most Boiling Water Reactors—the concern is heightened. With spent fuel pools that are not completely enclosed within a reinforced containment structure, the risk of accelerants being introduced is much greater. Thus, it is crucial to maintain a 10-mile EPZ at decommissioning Boiling Water Reactors that have spent fuel stored in a spent fuel pool.

Additionally, in the introduction to this Decommissioning ANPR, the NRC went to great lengths discussing a Sandia National Laboratory investigation into zirconium fire events. But the States have no way of verifying this information because the investigation will not be publically available due to security concerns. Thus, for instance, the States do not know if these studies analyzed the potential impact of accelerants on a spent fuel pool. As co-sovereigns, the States request that the NRC grant them access to this investigation and all similar Sandia reports. As a preliminary matter, the NRC should also identify all the Sandia reports by date, title, document number, page count, authors, participating Sandia staff, participating consultants, involved NRC Staff and contract supervisor, and federal contract number. The States further request that the NRC grant access to this investigation

to an independent organization (such as the National Science Foundation or other experts identified by the States) for an independent evaluation. The NRC should not use the Sandia reports to support regulatory initiatives without first granting the States an opportunity to inspect and analyze these reports.

To ensure that emergency response capabilities remain sufficient throughout decommissioning, there must be a means to certify the preparedness levels of both onsite and offsite responders. A critical element of 10 C.F.R. § 50.47 is the identification of the Federal Emergency Management Agency (FEMA) to independently validate the ability of Offsite Response Organizations (OROs) to respond to an incident at the plant. The NRC should not eliminate that requirement, since it provides the only way to evaluate all of the responses to an incident at the plant, including the assistance provided by local fire, police, EMS, and other responders.

Further, licensees should be required to exercise on a regular basis as outlined in the current regulations, and should utilize the Department of Homeland Security Exercise and Evaluation Program (HSEEP) as the baseline methodology for the conduct and evaluation. HSEEP outlines a range of exercises, from operations-based to discussion-based that effectively evaluate all parties holistically. The Department of Homeland Security requires most exercises conducted at the federal and state level to use this methodology, which uses a building-block approach to exercising. FEMA's role in evaluating OROs and publishing thorough after action reports is important not only to validating the competence of key

decision-makers, but also to communicating the preparedness of all parties to the general public.

V. The NRC should eliminate the 60-year delayed decommissioning option for single-reactor sites, and should require all decommissioning to be complete within 10 years of the closure of the last operating reactor at each site.

The States request that the NRC eliminate the 60-year delayed decommissioning option known as SAFSTOR for single-reactor sites. The NRC should ensure that the decommissioning rules meet the legitimate and reasonable expectations of host communities that a site will be decommissioned shortly after it ceases operating.

The underlying rationale for SAFSTOR is outdated and inaccurate. NRC Chairman Burns recently wrote in a letter to a federal legislator that "[s]cientific studies concluded that 50 years was the optimal time for radioactive decay and would result in radiation dose rates being reduced to 1%-2% and radioactive waste volumes being reduced to about 10% compared to the levels that exist at the time of permanent plant shutdown."[25] As explained below, neither claim (the reduction of radiation dose rates to 1%-2% or the reduction of radioactive waste volumes to 10%) is correct. The reality is that SAFSTOR, in practice, has become a financial mechanism that licensees use to claim sufficient—or even *excess* funds—for decommissioning, when they in fact do not have sufficient funds.

[25] Letter from NRC Chairman Steven G. Burns to the U.S. Representative Peter Welch (VT) (Nov. 30, 2015) (ADAMS Accession No. ML15303A121).

Although reductions in radiation dose rates would be significant if workers were dismantling nuclear facilities without any protective gear, that is obviously not the case. Rather, improved radiation protection technologies—the same equipment that now allows nuclear power plant refueling outages to be less than 30 days long—have eliminated the need to wait to decommission until radiation has naturally decayed. If there were any doubt as to this, and certainly if delayed decommissioning actually reduced radiation dose rates to workers by the claimed 98%-99%, then the NRC would not allow for immediate DECON. But it obviously does, and a number of plants have been immediately decommissioned. Big Rock Point, Fort St. Vrain, Haddam Neck, Maine Yankee, Rancho Seco, Trojan, Yankee Rowe, and San Onofre 1 have all completed DECON, and Humboldt Bay 3, LaCrosse, and Zion 1 and 2 are currently in DECON. This has allowed commercial entities to develop expertise in carrying out prompt decommissioning via DECON, which further undermines any claim that immediate DECON poses a greater radiation dose risk to workers.

The NRC is also incorrect in its claim that SAFSTOR leads to "radioactive waste volumes being reduced to about 10% compared to the levels that exist at the time of permanent plant shutdown."[26] In practice, there in fact appears to be no reduction in radioactive waste volumes during SAFSTOR, let alone the 90% reduction that NRC cites as a basis for SAFSTOR. While decay may reduce the number of curies in radioactive materials, actual waste volumes are not decreased because the reduction is not enough to

[26] *Id.*

make radioactive materials non-radioactive. Entergy recently confirmed this in its Decommissioning Cost Estimate for Vermont Yankee: "No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone (i.e., systems radioactive at shutdown [will] still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides)."[27]

Indeed, Entergy came to this conclusion after doing specific studies comparing the SAFSTOR decommissioning option to DECON. The Decommissioning Cost Estimate for Vermont Yankee shows "666,693" cubic feet of waste at the end of SAFSTOR.[28] That number is *higher* than the "653,060" cubic feet of waste that Entergy previously estimated when evaluated immediate DECON.[29] Consequently, if anything, there is an increase in waste volumes when decommissioning is delayed. There is thus no technical basis for delaying decommissioning. And its costs greatly outweigh any benefits. It is time for the NRC to take the approach followed by other major countries, such as France, which requires immediate dismantling of closed nuclear reactors.[30]

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[27] Vermont Yankee Decommissioning Cost Estimate § 5, page 2 (ADAMS Accession No. ML14357A110).

[28] *Id.* at § 5, page 6.

[29] 2012 TLG Study for Vermont Yankee at Estimate § 5, page 7; *compare also id.* ("653,060" cubic feet of waste with DECON) *with id.* at § 5, page 8 ("669,899" cubic feet of waste after SAFSTOR).

[30] *See, e.g.*, Lachaume, *From Operation to Decommissioning: A French Perspective*, *available at* https://ric.nrc-gateway.gov/docs/abstracts/lachaumej-l-th30-hv.pdf.

With no technical basis for allowing SAFSTOR, the NRC should accept what has become obvious—that SAFSTOR, in practice, is a financial mechanism for licensees. The NRC's current regulations allow a licensee to state that it has confidence about future economic conditions and investment market returns. As a result of an NRC regulatory announcement, nuclear power plants can assume that they will receive a 2% real rate of return on money in a decommissioning trust fund for each year that decommissioning is delayed during SAFSTOR. This creates an irresistible incentive for licensees, particularly merchant generators, to always select SAFSTOR. Consider, for instance, if a licensee has $500 million in its decommissioning trust fund at the time of closure, and it estimates that decommissioning will cost $1 billion. If that licensee wanted to choose DECON, the NRC would require the licensee to come up with another $500 million immediately. If, on the other hand, the licensee chooses SAFSTOR, it can assume a 2% real rate of return over the next 55 years, and $500 million suddenly triples into nearly $1.5 billion. Then, rather than a $500 million shortfall, the licensee now allegedly has "excess" amounts in its decommissioning trust fund and can even seek an exemption to use those alleged excess funds for non-decommissioning expenses such as spent fuel management.

As explained below (*see infra* Part VII), when a licensee is a merchant generator that might seek to file for bankruptcy, the financial mechanism of SAFSTOR creates a significant risk that host states—and the NRC itself—may be left with a radiologically contaminated

site. The NRC should not allow licensees to place public health and the environment at risk in this way.

Add to this three other factors. First, SAFSTOR introduces tens to hundreds of millions of dollars in costs that are not incurred if a plant goes into immediate DECON. These include all of the expenses associated with preparing a plant for SAFSTOR, as well as security and maintenance costs during the many years the plant is in SAFSTOR. Such an allocation of resources is wasteful and is not a good use of ratepayer or licensee funds. And the amount of wasted funds could quickly balloon if contamination ends up spreading to new places during SAFSTOR. For instance, as Vermont Yankee recently experienced, uncontaminated groundwater can inundate the basements of contaminated buildings, picking up radiation as it enters. This increases the amount of contaminated materials that must be managed and removed. Similarly, a plume of unknown contamination left unmonitored for decades may expand over time and contaminate other environmental receptors, escalating cleanup costs significantly.

This is not just theoretical; a report in 2010 by the Organization for Economic Cooperation and Development (OECD) noted that certain nuclear sites in the United States saw cleanup costs increase "by factors of *two to five times* the original estimate" when "leaking pools or tanks leached into surrounding areas and extended the plant decommissioning

boundary significantly."[31] Indeed, the avoidable costs associated with groundwater intrusion, building deterioration, security, and spreading contamination have led TLG Services, Inc. (TLG), a subsidiary of Entergy Nuclear, Inc., to recommend that fossil-fuel sites be decommissioned immediately after closure.[32] Those rationales apply with even more force to nuclear sites.

Second, several studies have shown that delays in decommissioning can lead to decommissioning cost increases that more than offset any alleged 2% real rate of return.[33] Historically, "decommissioning costs have risen between 4.7% and 9.0% per annum since 1986."[34] In evaluating a hypothetical situation in which a trust fund begins with $345 million of an estimated $600 million needed for decommissioning, NRC Staff noted that in the best-case scenarios there was "about a 1 in 3 chance" of a shortfall, and other cost-escalation scenarios had "the probability of success declin[ing] to 1%."[35] And this dismal success rate involved only a 22-year delay in decommissioning. Cost increases would have an even larger impact if a licensee elects the maximum SAFSTOR period. Models have shown that, "in

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[31] OECD, Cost Estimate for Decommissioning: An International Overview of Cost Elements, Estimation Practices and Reporting Requirements, at 79-80 (2010), available at https://www.oecd-nea.org/rwm/reports/2010/nea6831-cost-estimation-decommissioning.pdf (emphasis added).

[32] Direct Testimony and Exhibits of Francis W. Seymore, at 20-21 (Nov. 22, 2011), available at https://www.xcelenergy.com/staticfiles/xe/Regulatory/Regulatory%20PDFs/PSCo-Electric-2011-Phase-1/8_Seymore_Testimony.pdf.

[33] *See, e.g.*, NRC Staff, *Options to Evaluate Requests to Use Discounted Parent Company Guarantees to Assure Funding of Decommissioning Costs for Power Reactors* (ADAMS Accession No. ML111950031) at 25-34.

[34] *Id.* at 33.

[35] *Id.* at 32.

cases where shortfalls occur, adding time to the investment horizon actually increases the size of the shortfall."[36]

Third, as NRC Staff has previously noted, a GAO study shows that market volatility increases the chances of a shortfall when a licensee is allowed to elect SAFSTOR.[37] Because a mothballed plant has constant maintenance and security expenses throughout SAFSTOR, withdrawals from a decommissioning trust fund will be "necessary at a time when the investments have lost value."[38] By contrast, because the licensee is not contributing to the trust fund during this time, it cannot take advantage of market volatility through additional investments when stock prices are low. Thus, "using SAFSTOR to project larger earnings credits under the NRC's deterministic rules may mask an increased risk of shortfalls due to market volatility."[39]

SAFSTOR thus creates significant risks that host states and communities will be left with a contaminated site 60 years after closure. But, just as importantly, even if a site were fully decontaminated and restored at the end of SAFSTOR, host communities would be harmed by having to wait 60 years for that to happen.

It is highly impractical and economically detrimental for host communities to have to wait up to 60 years for site decommissioning to be completed. SAFSTOR harms host

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[36] *Id.* at 33.

[37] *Id.*

[38] *Id.*

[39] *Id.*

communities in at least two ways. First, the presence of a mothballed nuclear power plant has significant economic impacts on the host community. The most immediate impact is that it hinders redevelopment of the decommissioning power reactor site. Prompt decommissioning can lead to a quicker "release" of the site to "unrestricted use" and accelerate the repurposing of the site for beneficial uses. At many sites, elements of electricity distribution could be used for a new electric generator sooner if a licensee did prompt DECON, rather than SAFSTOR. But SAFSTOR creates many other negative economic impacts on the host communities as well. These include suppressed property values and less economic activity in the areas surrounding the plant due to reluctance to move to an area that is scheduled for a major deconstruction and dismantlement activity. That economic suppression will exist until the plant is decommissioned.

Second, SAFSTOR creates risks to host communities of radiological and non-radiological environmental contamination of land, food, and water as dormant facilities age. The elimination of SAFSTOR would eliminate concerns about the deterioration of structures, systems, and components that might release radioactive materials into the environment. There is insufficient evidence that former nuclear reactor facilities in SAFSTOR for up to fifty years or more minimizes the risks to public health and the environment in the broadest definitions of those risks.

Immediate DECON, by contrast, eliminates these risks to host communities, and also creates a crucial bridge for local economies in the years immediately after closure. The

closure of a nuclear power plant can lead to the loss of many jobs, which, in turn, can affect other local businesses that depended on business from those employees. Immediate DECON can bring a large number of employees to the area and thus allows the host communities more time to transition their economies.

Nuclear plant employees also benefit directly from immediate DECON because a significant number of them can transition to positions related to decommissioning the plant. These employees, in turn, bring institutional knowledge and other intangible benefits (such as good working relationships with local and federal regulatory agencies) to the decommissioning process. Similarly, immediate DECON takes advantage of the institutional knowledge of federal, state, and local regulators who are already familiar with the plant, rather than losing this knowledge during the decades between closure and cleanup.

Lastly, prompt decommissioning ensures that the responsible party—the licensee—covers the decommissioning and site restoration costs. This, in turn, reduces unnecessary societal transaction costs associated with local communities and States pursuing compensation and cleanup costs from that party 60 years after the plant ceased revenue-generating operations.

For these and other reasons, the States strongly support removing SAFSTOR as an option for single-reactor sites, and requiring that decommissioning be completed within 10 years of the closure of the last operating reactor at each site. Because most, if not all, host communities support immediate decommissioning of closed nuclear power plants, this

simple change in NRC regulations would go a long way toward addressing their concerns. This would in turn foster improved relations between the NRC and host states and communities.

VI. The NRC should require a full radiological and non-radiological site investigation and characterization before, or immediately after, the plant stops generating power.

Fifteen years ago, the Government Accountability Office (GAO) recommended that the NRC "require licensees to assess their plant sites for contamination *earlier in the decommissioning process*."[40] The GAO noted that current NRC requirements create significant "cost uncertainty" by allowing site characterization to be delayed until two years before license termination (which can be 60 years after operations cease).[41] This creates a risk of "the discovery of contamination problems late in the decommissioning process, when most or all of the funds have been spent."[42]

The States agree with the GAO that early site characterization at nuclear power plants is crucial. The characterization should address radiological contamination, but it should also cover the non-radiological hazardous materials and contamination that are present at all nuclear plant sites. It should include a full identification and assessment of the locations and amounts of lead, asbestos, polychlorinated biphenyls (PCBs), and other

[40] GAO, *NRC's Assurances of Decommissioning Funding During Utility Restructuring Could Be Improved*, at 5, GAO-02-48 (Dec. 2001) (emphasis added).

[41] *Id.*

[42] *Id.*

hazardous materials onsite. The characterization should require taking representative samples of all buildings that will be decontaminated or dismantled, and obtaining borings of soils that may need to be excavated and remediated or disposed of to reach unrestricted release criteria.

The need for site investigation and characterization is not merely hypothetical, and it can be a significant cost-saving measure. It is safe to say that previously unknown contamination has been discovered at every nuclear power plant that has been decommissioned to date. The extent of the contamination varies, but in several instances there were significant unanticipated radioactive sources that had to be remediated. For instance, during the decommissioning of Maine Yankee, the licensee encountered pockets of highly contaminated groundwater dammed up by existing structures, leading to cost increases. The Yankee Rowe site in Massachusetts incurred significant cost increases during decommissioning when PCBs were discovered in paint covering the steel from the vapor container that housed the nuclear reactor, as well as in sheathing on underground cables. The situation was much worse at Connecticut Yankee, where previously undiscovered strontium-90 contamination required excavation and remediation of a 25-foot-deep 225-foot-long area around the reactor water storage tank. Consequently, the decommissioning of Connecticut Yankee ended up costing around twice what had been estimated.

The strontium-90 contamination at Connecticut Yankee is particularly concerning because strontium-90 contamination was also recently discovered at the Vermont Yankee

site in locations that it had not previously been detected or reported. The extent of that contamination remains unknown, as there has not been a full site investigation and characterization of Vermont Yankee.

To avoid these types of situations, the NRC should require that a full site investigation and characterization occur before, or immediately after, the plant stops generating power. In particular, the NRC should require that a full site investigation and characterization occur—and that the results be included in—the site-specific decommissioning cost estimate and PSDAR. This is again an area where licensees should be making use of the staff that operated the reactor and thus have institutional knowledge of where hazardous materials are most likely to be found onsite. Investigation and characterization of contamination are necessary baseline steps in decommissioning and site restoration. These steps have to be done at some time, and there are significant benefits to requiring that they occur sooner, rather than later. To be of the most value to the licensee and to federal, state, and local regulators, site investigation and characterization should be performed before, or immediately after, the plant stops generating power.

Thorough site investigation and characterization is necessary to protect public health and the environment. An early site-wide investigation would allow States to identify, monitor, and remediate risks to public health and the environment. In addition, the investigation would allow a licensee to identify and characterize both radiological and non-radiological contamination simultaneously, and enable the facility to prioritize and sequence

further characterization and remediation activities. Additionally, as the GAO noted many years ago, an early and thorough investigation would significantly reduce the likelihood of discovering unexpected contamination at a later time when the licensee may not have the funds to address it.

Another reason the NRC should require a full site investigation and characterization at the earliest possible time is to facilitate state regulation of non-radiological hazardous contamination. For instance, Vermont law requires that the owner of a closed facility conduct a site-wide investigation and characterization of any non-radiological contamination of the site, and then remediate any contamination through appropriate corrective actions.[43] It is difficult for a state agency to fulfill those duties when a licensee has failed to conduct a comprehensive site investigation to identify and characterize non-radiological contamination requiring remediation.

The absence of a complete and thorough site-wide investigation and characterization of contamination at Vermont Yankee has been a significant hindrance to the State of Vermont's effort to enforce its federally-authorized RCRA hazardous waste program and state laws requiring the clean-up of contaminated sites. The Vermont Agency of Natural Resources has had to instead rely on piecemeal documentation and historical records to identify the location and extent of contamination that may exist onsite. Despite submitting

[43] *See* 10 V.S.A. § 6615; Vermont Hazardous Waste Management Regulations (VHWMR) § 7-309(c).

several Requests for Information and Records to Entergy, the Agency has yet to obtain much of the information it seeks. Consequently, the scope of non-radiological contamination at Vermont Yankee, and the extent and associated costs of the work needed to fully restore the site, remain unclear.

This has created many problems for the State of Vermont, and it will be a problem for other States as well if the NRC fails to address this issue. For instance, the NRC has long recognized that states have authority over ultimate site restoration standards at a closed nuclear power plant. This has led some states to require licensees to set aside funding for site restoration. But without a comprehensive site characterization, it is difficult to evaluate whether those funds will be adequate to cover the activities that will be required to restore the site to unrestricted use.

Further, early site investigation and characterization will require licensees to work cooperatively with the federal, state, and local officials who will be involved in the decommissioning and site restoration process. This would include setting up systems for information sharing with these regulatory officials. This would help build trust among all of the entities involved in decommissioning and site restoration.

Early site investigation and characterization also facilitates determining the scope of an ongoing environmental surveillance program to monitor health and environmental risks during the decommissioning and site restoration process. The requirements for a site-wide investigation of contamination and implementation of an environmental monitoring

program are especially important if the NRC continues to allow delays in the commencement of decommissioning.

VII. The NRC must ensure that merchant generators (or their affiliates and parent corporations) pay for all expected and unexpected decommissioning, site restoration, spent fuel management, and other expenses.

Current NRC regulations provide important protections for decommissioning trust funds, but they do not require enough financial assurance that merchant generators will have the funds to pay for all expected and unexpected expenses once they cease operating. Many of the issues raised here are matters that are pending before the Commissioners, in a Petition filed by the State of Vermont and two utilities (Petition),[44] and supported by the Commonwealth of Massachusetts and the States of Connecticut and New Hampshire.[45] The States respectfully request that NRC Staff monitor that Petition and incorporate into the proposed rulemaking any requirements that the Commissioners impose on licensees regarding the use of decommissioning trust funds in response to that Petition.

[44] Petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund (Nov. 5, 2015) (ADAMS Accession No. ML15309A758); *see also* Reply of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund (Dec. 17, 2015) (ADAMS Accession No. ML15351A530).

[45] Reply of the Commonwealth of Massachusetts and the States of Connecticut and New Hampshire to NRC Staff's and Entergy's Answers to the Petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund (Dec. 17, 2015) (ADAMS Accession No. ML15351A531).

a. The NRC should prevent nuclear decommissioning trust funds from being used for spent fuel management or any other non-decommissioning expenses until decommissioning is complete.

The NRC should maintain the current regulatory requirement that decommissioning trust funds must be used for decommissioning expenses only. NRC regulations explicitly prohibit the use of decommissioning funds for any purpose other than legitimate decommissioning expenses that reduce residual radioactivity at the site. 10 C.F.R. §§ 50.75(h), 50.82(a)(8)(i)(A). Those regulations should remain in place, and licensees should not be exempted from them.

b. The NRC should confirm that "decommissioning" expenses are limited to activities that reduce radiological contamination at the site.

It is the States' position that current regulations clearly limit the definition of "decommissioning" to activities that "reduce residual radioactivity" at the site.[46] As the NRC has made clear, "[d]ecommissioning activities *do not include the removal and disposal of spent fuel* which is considered to be an operational activity or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license."[47] Further, decommissioning "do[es] not include the cost of demolition and removal of noncontaminated structures, storage and shipment of spent fuel, or restoration of the

[46] 10 C.F.R. § 50.2.

[47] *General Requirements for Decommissioning Nuclear Facilities*, 53 Fed. Reg. 24018-01, 24018 (1988) (emphasis added).

site."[48] Rather, only costs that "reduce residual radioactivity" can be withdrawn from a decommissioning fund.[49]

Despite these clear requirements, licensees have used decommissioning trust funds for non-decommissioning activities, either after obtaining an exemption or without even applying for one. The NRC should therefore confirm that decommissioning trust funds cannot be used for expenses such as spent fuel management, property taxes, emergency preparedness, insurance and legal fees, lobbying fees, payments to host states and communities, or disposal of non-radiologically-contaminated materials.

c. The NRC and the federal government should not allow licensees and affiliated corporations to arrange their way out of decommissioning liability.

As explained in detail in the Petition and in the State's response in Part V above, the NRC has never truly addressed the financial consequences of the nuclear industry's move from rate-regulated entities to merchant generators. The NRC must review its financial assurance requirements and take a number of actions to ensure that merchant generators will pay for all expected and unexpected decommissioning, site restoration, spent fuel management, and other expenses.

In addition to eliminating the financial mechanisms associated with SAFSTOR and its alleged 2% real rate of return, the NRC needs to change the amount of financial assurance

[48] *Id.* at 24028.

[49] *Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors*, NUREG-1713, Final Report, at 4, § (B)(3) (2004).

beyond 100% of estimated expenses. The NRC should look to examples of what the free market requires in terms of financial assurances when a licensee sells a nuclear power plant for decommissioning. For instance, the sale of the Zion facility included a financial assurance that began at 120% of estimated costs and increased to 200%.[50] Requiring 200% is reasonable in light of historical instances such as Connecticut Yankee, where costs were actually around double what was anticipated.

The cost increase at Connecticut Yankee cannot be viewed as an isolated instance. Decommissioning a nuclear power plant is a major industrial activity with many unknowns. The NRC's website currently claims that "[a]lthough there are many factors that affect reactor decommissioning costs, generally they range from $300 million to $400 million."[51] Yet several years ago the NRC recognized that under its "minimum formula" for decommissioning, every reactor will cost more than $400 million to decommission.[52] Further, in the few instances where operators have done site-specific cost estimates, the NRC has now seen multiple examples where those estimates resulted in expected costs of roughly double what the minimum formula predicted.[53] In particular, four reactors (Diablo

[50] NRC Staff, *Options to Evaluate Requests to Use Discounted Parent Company Guarantees to Assure Funding of Decommissioning Costs for Power Reactors* (ADAMS Accession No. ML111950031) at 24.

[51] NRC, *Backgrounder on Decommissioning Nuclear Power Plants*, http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html#improv.

[52] *See, e.g.*, NRC, SECY-13-0105, at Summary Table, available at http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2013/2013-0105scy.pdf (listing estimated costs under the NRC's minimum formula ranging from $438 million to over $1 billion).

[53] *See id.*

Canyon 1, Diablo Canyon 2, San Onofre 2, and San Onofre 3) each went from an estimate of $521 million to estimates of over $1 billion.[54]

The Department of Energy has a similar track record of routinely underestimating the costs of remediating radiological contamination at some of the nuclear sites that it oversees. For instance, a 2008 GAO report notes that 5 DOE cleanup sites already have cost overruns of more than 40% at best, and at least one of those sites is at risk of more than doubling its expected costs.[55]

All of this is strong evidence that decommissioning cost estimates truly are "estimates." They are by no means guarantees. If a significant and unexpected decommissioning cost increase occurs at any merchant generator facility, it is unclear where the extra money will come from. That is a risk that the States should not have to face.

Requiring additional financial assurances from merchant generators would not be a major burden, as these licensees could provide the additional financial assurances through parental contributions, obligations, or trusts. That would reallocate risk appropriately from host states and communities to the plant owner and their affiliates and parent companies, which benefitted financially from many years of plant operations.

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[54] *Id.*

[55] GAO, *Action Needed to Improve Accountability and Management of DOE's Major Cleanup Projects*, GAO-08-1081 (Sept. 2008), at 13, http://www.gao.gov/new.items/d081081.pdf.

VIII. Any more stringent regulations should apply to plants already in decommissioning, and the NRC should more generally limit exemptions to exceptional, unforeseen situations, based on objective criteria, with public participation and hearing rights before it considers additional exemptions from decommissioning regulations.

The States request that the NRC adopt the changes suggested in these Comments. Where those changes create more stringent requirements for licensees, the licensees generally should have to abide by the new regulations even if the licensee has already ceased power operations. This is necessary to ensure that all host states and communities receive the benefits of new regulations, such as additional financial assurance requirements. The NRC has unfortunately indicated in the ANPR that, until the new requirements of the Rule are adopted, licensees will "continue to use existing regulatory processes . . . to establish their decommissioning regulatory framework."[56] But the NRC has full authority to change its position on this, and it should do so. Where the regulations provide greater protections for public health and the environment, those protections should flow to all citizens regardless of the status of the plant they host.

Further, to ensure that the current and any new decommissioning rules are actually followed, it is incumbent on the NRC to change its exemption process. Commissioner Baran recently noted that one of the "two main purposes for the decommissioning rulemaking effort that is now underway" is so that the NRC can "move away from regulating

[56] *See* 80 Fed. Reg. 72362, Section IV(B).

by exemption in this area."[57] Commissioner Baran correctly noted that "[t]he exemption approach isn't efficient for anyone and it provides no opportunity for public comment."[58]

The NRC must limit the exemption process to exceptional, unforeseen situations, based on objective criteria, and the NRC must provide for public participation and hearing and discovery rights in the exemption process. Without these changes, it is unclear what purpose is actually served by the significant rulemaking that the NRC has decided to undertake. If licensees remain free to apply for exemptions, and NRC Staff does not change the way it has treated exemptions historically, licensees could get all of the benefits of relaxed regulations, and then be exempted from any more stringent regulations. The losers in such a system would be all other stakeholders, including the States, particularly if the NRC continues to stand by its current view that exemptions can be granted without any opportunity for a hearing or even any public input at all.[59] Such an unbalanced system does not protect public health and the environment, and it erodes public confidence in the overall decommissioning process. It is also at odds with the NRC's own stated principles for good regulation because, for instance, it provides the public with no "opportunity to participate."[60]

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[57] Remarks by NRC Commissioner Jeff Baran, 2016 Regulatory Information Conference March 9, 2016, No: S-16-004, at 5, available at http://pbadupws.nrc.gov/docs/ML1606/ML16069A222.pdf.

[58] *Id.*

[59] For instance, on at least one recent occasion, a State specifically requested an opportunity to participate in an exemption proceeding, and NRC Staff denied the request.

[60] NRC, *Values: Principles of Good Regulation*, http://www.nrc.gov/about-nrc/values.html.

IX. The proposed regulatory changes will require site-specific analyses as part of any rulemaking proceeding.

Each of the more than 100 operating or post-operations commercial nuclear power plants in the United States has a unique license issued by the federal government that details conditions under which it may operate, including, for instance, what river water levels, wind speeds, hurricane surge levels, or seismic forces require a shutdown. The regulatory changes now under consideration by the Commissioners and Staff will have widely differing effects at each of the nation's more than 60 power reactor sites depending on the unique characteristics of the host communities and each facility's operational history. For example, Vermont Yankee has an operational history of leaking underground pipes that produced subsurface plumes of Strontium-90 migrating towards the Connecticut River; Seabrook has saltwater intrusion that affects its concrete structures; the September 11 attackers likely considered attacking Indian Point; additional seismic hazards have been identified at the Diablo Canyon site; the Mississippi River flooded the Fort Calhoun site in 2011; and recent articles reported radiation seeps from Turkey Point into Biscayne Bay.

In any rulemaking proceeding, to comply with the Administrative Procedure Act, the Atomic Energy Act, and the National Environmental Policy Act, the NRC must prepare, among other things, a safety evaluation, an environmental impact statement, and a regulatory analysis. Each of those evaluations must, in turn, examine the site-specific impacts to the host communities and the environment, including the identification of various means to eliminate or mitigate those impacts.

X. In addition, the States submit the following comments concerning the additional questions that NRC Staff asked in the ANPR.

In addition to the above comments, the States provide the following responses to the specific questions NRC Staff has asked in the ANPR:

a. Questions Related to Emergency Preparedness Requirements for Decommissioning Power Reactor Licensees

EP-1(a) What specific EP requirements in § 50.47 and appendix E to 10 CFR part 50 should be evaluated for modification, including any EP requirements not addressed in previously approved exemption requests for licensees with decommissioning reactors?	See the States' response in Part IV above.
EP-1(b) What existing NRC EP-related guidance and other documents should be revised to address implementation of changes to the EP requirements?	See the States' response in Part IV above.

EP-1(c) What new guidance would be necessary to support implementation of changes to the EP requirements?	If any changes are made to the EP requirements, the States request that the NRC explain how the effectiveness of an all-hazards Emergency Plan can be retained without the training, equipment, and funding with offsite radiological emergency response plans. Additionally, the States request that any NRC guidance identify how the continued effectiveness of an all-hazards emergency plan to a radiological-based emergency is assessed when there are no testing or remediation standards in place to demonstrate effectiveness against such an emergency. Further, the States request that any new NRC guidance be thoroughly reviewed by FEMA, in cooperation with the representatives of affected States, for its practicality, rather than having FEMA defer to the NRC.
EP-2(a) Rulemaking may involve a tiered approach for modifying EP requirements based on several factors, including, but not limited to, the source term after cessation of power operations, removal of fuel from the reactor vessel, elapsed time after permanent defueling, and type of long-term onsite fuel storage. a. What tiers and associated EP requirements would be appropriate to consider for this approach?	The States appreciate the NRC's willingness to consider a tiered approach to modifying certain EP requirements, particularly an approach that looks at the type of long-term onsite fuel storage. As explained in detail in Part IV above, the States believe that robust emergency protocols, including the ERDS system (for its radiological monitoring and meteorological information) and a 10-mile EPZ, must remain in place whenever fuel is stored in a spent fuel pool.

EP-2(b) What factors should be considered in establishing each tier?	One of the most important factors—and one that licensees and the NRC have ignored to date—is the expectation of the host communities regarding what constitutes adequate emergency protection. As explained earlier, spent fuel poses a greater risk to the public when it is stored in a spent fuel pool (an active system) than when it is in dry cask storage (a passive system). The public thus justifiably expects robust emergency protocols, including ERDS and a 10-mile EPZ to remain in place whenever fuel is stored onsite in a spent fuel pool. As previously noted, these protections are particularly important for the many nuclear power plants that do not have a full containment structure surrounding the spent fuel pool. Other factors to consider should include updated data regarding population, meteorology, geography, geology, and hydrology, the quality of first responders (e.g., are they first responders by profession or are they volunteers?), the proximity of U.S. military installations that could assist in an emergency response, and the proximity of other, nearby nuclear power plant or otherwise secure facilities that could supplement the decommissioning plant's emergency plan. On this last factor, it is important to note that some states have only one nuclear power plant. That is the case for Vermont, for instance. Thus, when that plant closes and the licensee is allowed to reduce funding, training, and other support for local emergency responders, the host state has no one providing this crucial funding, training, and support.
EP-2(c) What type of basis could be established to support each tier or factor?	Again, as noted, the bases should include scientific analysis and community expectations, with a recognition at all times that the issue of radiological contamination of food, water, and land warrants taking a precautionary approach to emergency preparedness.

EP-2(d) Should the NRC consider an alternative to a tiered approach for modifying EP requirements? If so, provide a description of a proposed alternative.	As explained in detail in Part IV above, whatever approach the NRC takes, it should be in line with the expectations of host communities that robust emergency protocols remain in place whenever spent fuel is stored in a spent fuel pool.
EP-3(a) Presently, licensees at decommissioning sites must maintain the following capabilities to initiate and implement emergency response actions: Classify and declare an emergency, assess releases of radioactive materials, notify licensee personnel and offsite authorities, take mitigative actions, and request offsite assistance if needed. What other aspects of onsite EP and response capabilities may be appropriate for licensees at decommissioning sites to maintain once the requirements to maintain formal offsite EP are discontinued?	This question assumes that offsite emergency preparedness requirements should be discontinued for all licensees at decommissioning sites. As noted earlier, the States' position is that so long as fuel remains in a spent fuel pool, the emergency preparedness requirements of § 50.47 and appendix E to 10 C.F.R. part 50 should remain in place.

EP-3(b) To what extent would it be appropriate for licensees at decommissioning sites to arrange for offsite assistance to supplement onsite response capabilities? For example, licensees at decommissioning sites would maintain agreements with offsite authorities for fire, medical, and law enforcement support.	The NRC must continue to require licensees to maintain agreements with offsite response organizations such as local fire, police, rescue, and state-level emergency response assets. Licensees must be required to present those agreements, fully executed, to the NRC before any regulatory or licensure changes can be executed. These agreements must continue to outline not only onsite assistance to be provided but also emergency notification and warning parameters and ongoing responsibilities of both entities onsite and offsite.
EP-3(c) What corresponding changes to § 50.54(s)(2)(ii) and 50.54(s)(3) (about U.S. Federal Emergency Management Agency (FEMA)-identified offsite EP deficiencies and FEMA offsite EP findings, respectively) may be appropriate when offsite radiological emergency plans would no longer be required?	Again, this question assumes that emergency preparedness requirements would be lifted for all decommissioning sites, when it is important that these requirements remain in place for licensees that continue to store spent fuel in pools. Currently, in defining the penalties related to a lack of reasonable assurance, 10 §§ 50.54(s)(2)(ii) and 50.54(s)(3) ensures the licensee is prepared for an emergency and continues to do so by working closely with offsite response organizations. Without some method of regulatory substantiation, as is provided by FEMA's evaluations of offsite response organization preparedness, there is no means to provide reasonable assurance that the licensee and offsite response organizations can handle an incident at a decommissioning power plant.

EP-4(a) Should § 50.54(q) be modified to recognize that nuclear power reactor licensees, once they certify under § 50.82, "Termination of License," to have permanently ceased operation and permanently removed fuel from the reactor vessel, would no longer be required to meet all standards in § 50.47 and all requirements in appendix E? If so, describe how.	No. As noted in other responses and in Part IV above, the States' position is that so long as fuel remains in a spent fuel pool, the emergency preparedness requirements of § 50.47 and appendix E to 10 C.F.R. part 50 should remain in place.

EP-4(b) Should nuclear power reactor licensees, once they certify under § 50.82 to have permanently ceased operation and permanently removed fuel from the reactor vessel, be allowed to make emergency plan changes based on § 50.59, "Changes, Tests, and Experiments," impacting EP related equipment directly associated with power operations? If so, describe how this might be addressed under § 50.54(q).	No. The processes of 10 C.F.R. § 50.59, "Changes, Tests, and Experiments," are insufficient for the thorough and wide-ranging impacts of emergency planning requirements and interim guidance during decommissioning. Modifying the effectiveness of emergency plans is the single technical area that the Commissioners have not delegated to the NRC Staff. The purpose of 10 C.F.R. § 50.59 is to allow a reactor licensee to make minor modifications without NRC technical review. The NRC should not move to that significantly lower level of oversight for emergency planning requirements. As indicated by the NRC's decision not to delegate authority in this one technical area, any changes to emergency plans require significant public attention. As noted earlier, there is significant public interest in emergency preparedness measures at decommissioning plants. Allowing emergency plan changes to be made via a § 50.59 process could limit public input and endanger public health and the environment. Additionally, it is not clear that there are enough emergency plan-related change requests to warrant such a drastic shift in NRC policy to date.

EP-5 Under § 50.54(t), nuclear power reactor licensees are required to review all EP program elements every 12 months. Some EP program elements may not apply to permanently shut down and defueled sites; for example, the adequacy of interfaces with State and local government officials when offsite radiological emergency plans may no longer be required. Should § 50.54(t) be clarified to distinguish between EP program review requirements for operating versus permanently shut down and defueled sites? If so, describe how.	No. The requirements in § 50.54(t) should be maintained to ensure that emergency preparedness programs onsite include the interface with state and local government. Without this, it is unclear how similar validation will be achieved under the requirements for ISFSIs under 10 C.F.R. § 72.32 since similar language is not included. The fact that similar language does not exist for ISFSIs is greater cause for concern and raises questions about the simplified emergency preparedness requirements of those facilities. This inconsistency lends even more credence to the need for the requirements of § 50.47 and appendix E to 10 C.F.R. part 50 to remain in place.

EP-6 The Emergency Response Data System (ERDS) transmits key operating plant data to the NRC during an emergency. Under § 50.72(a)(4), nuclear power reactor licensees are required to activate ERDS within 1 hour after declaring an emergency at an "Alert" or higher emergency classification level. Much of the plant data, and associated instrumentation for obtaining the data, would no longer be available or needed after a reactor is permanently shut down and defueled. Section VI.2 to appendix E of 10 CFR part 50 does not require a nuclear power facility that is shut down permanently or indefinitely to have ERDS. At what point(s) in the decommissioning process should ERDS activation, ERDS equipment, and the instrumentation for obtaining ERDS data, no longer be necessary?	State emergency response personnel have been trained in how to use the Emergency Response Data System (ERDS) and have been ERDS users for many years. The States find the system valuable during actual emergencies and emergency exercises. Although some ERDS parameters are no longer useful after the cessation of reactor power operations, other parameters are crucial—in particular, meteorological data and radiation levels from the site. The NRC should ensure that this information remains available to offsite response organizations through redundant pathways. The NRC should acknowledge that ERDS is used in many, if not all, state Radiological Emergency Response Plans (RERP) to communicate real-time meteorological and radiological monitoring data at the site to State Emergency Operations Centers. This information aids decision-makers in determining protective actions for the general public due to emergency conditions at a site. Real-time meteorological and radiological monitoring data is crucial during a radiological incident. If that real-time data can be provided to a State Emergency Operations Center through alternative reliable pathways, ERDS may no longer be needed. However, if no other real-time means is provided, the meteorological and radiological data from ERDS must be retained at least until all spent nuclear fuel is removed from spent fuel pools.

EP-7 Under § 50.72(a)(1)(i), nuclear power reactor licensees are required to make an immediate notification to the NRC for the declaration of any of the emergency classes specified in the licensee's NRC-approved emergency plan. Notification of the lowest level of a declared emergency at a permanently shut down and defueled reactor facility may no longer need to be an immediate notification (*e.g.,* consider changing the immediate notification category for a Notification of Unusual Event emergency declaration to a 1-hour notification). What changes to § 50.72(a)(1)(i) should be considered for decommissioning sites?	The regulations in § 50.72(a)(1)(i) specify that the licensee will make a notification to the NRC after a declaration of an emergency class in its emergency plan. Licensees of decommissioning sites are still required to have an emergency plan with an approved Emergency Action Level (EAL) scheme. For the majority of the decommissioned sites, that EAL scheme includes two of the emergency classifications, Unusual Event and Alert. While the circumstances have changed at each of these facilities, it remains important for both the NRC and the host states to know as soon as possible if a declaration has been made. This is especially relevant when a hostile action is in progress or has occurred. In this case, responders need to be notified as soon as possible so that the safety of people both inside and outside the site boundary can be addressed. For this reason, as well as other potential hazards that could precipitate the declaration of an emergency, the notification timelines in § 50.72(a)(1)(i) need to be maintained throughout decommissioning. The initial declaration of an EAL results in a flurry of activity at a reactor site, regardless of whether the power reactor is in operation or has stopped generating power. In particular, the Emergency Response Organization begins mobilization, and the posture of site security personnel changes. In short, a significant physical movement of power plant staff begins, which can be a source of confusion (particularly if a hostile action condition disrupts this movement). The States oppose any relaxation of the immediate notification requirement for Unusual Events. With Unusual Events only declared at the onset of an emergency condition, the idea of delaying the NRC notification increases the risk that it will be lost, and possibly not made, during the confusion as power plant staff mobilizes. For consistency, the NRC should keep the requirement for immediate notification at the entry of any Emergency Action Level, including Unusual Event.

EP-8 Under § 50.72(b)(3)(xiii), nuclear power reactor licensees are required to make an 8-hour report of any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (*e.g.,* significant portion of control room indication, emergency notification system, or offsite notification system). Certain parts of this section may not apply to a permanently shut down and defueled site (*e.g.,* a major loss of offsite response capability once offsite radiological emergency plans would no longer be required). What changes to § 50.72(b)(3)(xiii) should be considered for decommissioning sites?	The notification requirements detailed in § 50.72(b)(3)(xiii) have previously been important from a regulatory perspective and have ensured the NRC could follow up with a thorough inspection of the licensee to ensure all safety and plants systems were adequately restored. This 8-hour notification requirement, and the other notification timelines listed in § 50.72, are not only a regulatory means for follow-up, but also ensure basic safety for both workers onsite and the general public offsite. For instance, Vermont has experienced several cases in which natural hazards such as snow, ice, and flooding events have impaired offsite communications and emergency response capabilities. Providing a framework for notification allows the host state to have accurate and timely information to provide assistance at the site. Especially in times when a disaster has impeded the ability of offsite response organizations to assist the licensee in a timely manner, communicating ongoing issues at the site early and often could save lives. The States thus oppose changes to the notification timelines in § 50.72.

b. Questions Related to the Physical Security Requirements for Decommissioning Power Reactor Licensees

PSR-1 Identify any specific security requirements in § 73.55 and appendices B and C to 10 CFR part 73 that should be considered for change to reflect differences between requirements for operating reactors and permanently shut down and defueled reactors.	At of this time, the NRC has not shared such information with the States. The States are not privy to the details of implementing the physical security requirements of 10 C.F.R. part 73 and its appendices at any nuclear power station. Nor has the NRC shared all Sandia reports and documents with the States. Consequently, the States are not in a position to assess whether any 10 C.F.R. part 73 physical security requirements could be relaxed for a decommissioning power reactor. Accordingly, the States recommend that the physical security requirements for operating power reactors remain fully applicable to decommissioning power reactors. The States are aware that, despite Congressional authorization to do so, the NRC's design basis threat (DBT) rule promulgated in the wake of the September 11, 2001 events does not include airplane impacts within its scope. The States are also aware that the NRC has exempted existing nuclear power plants from analyzing the consequences of airplane impacts. The NRC should amend the DBT rule to include large commercial jet airplanes within its scope and to require licensees to analyze the consequences of airplane impacts to unprotected spent fuel pools.

PSR-2(a) Are there any suggested changes to the physical security requirements in 10 CFR part 73 or its appendices that would be generically applicable to a decommissioning power reactor while spent fuel is stored in the SFP (*e.g.*, are there circumstances where the minimum number of armed responders could be reduced at a decommissioning facility)? If so, describe them.	The States are not privy to the details of implementing the physical security requirements of 10 C.F.R. part 73 and its appendices at any nuclear power station. Consequently, the States are not in a position to assess whether any 10 C.F.R. part 73 physical security requirements could be relaxed for a decommissioning power reactor. Moreover, it is not clear why fewer armed responders would be needed to respond to an incident just because the incident occurs after fuel has been moved out of the reactor and its containment structure. Nonetheless, the States incorporate their response to the previous question. The State of Vermont further notes that after Vermont Yankee shutdown, the plant owner modified its on-duty security force requirements through the realignment of security forces and the demolition of several plant support structures deemed unnecessary after permanent shut down and defueling. This suggests that the current 10 C.F.R. part 73 physical security requirements are not overly burdensome. Accordingly, the States recommend that the current physical security requirements remain unchanged. The States further recommend that when decommissioning power reactor licensees consider demolishing non-essential plant structures to simplify their site security plans, the evaluation must include the cost and physical impact of addressing state non-radiological hazardous material clean-up requirements. The States also remind the NRC that its Force on Force Security Working Group is currently preparing recommendations to clarify security force training and procedures that could have impacts on decommissioning power reactor sites. These should be reviewed as part of the Reactor Decommissioning Rulemaking efforts.

PSR-2(b) Which physical security requirements in 10 CFR part 73 should be generically applicable to spent fuel stored in a dry cask independent spent fuel storage installation?	The States are not privy to the details of implementing the physical security requirements of 10 C.F.R. part 73 and its appendices at any nuclear power station. Consequently, the States are not in a position to assess whether any 10 C.F.R. part 73 physical security requirements could be relaxed for a decommissioning power reactor. Accordingly, the States recommend that the physical security requirements for operating power reactors remain fully applicable to decommissioning power reactors and spent fuel stored in a dry cask independent spent fuel storage installation.
PSR-2(c) Should the DBT for radiological sabotage continue to apply to decommissioning reactors? If it should cease to apply in the decommissioning process, when should it end?	The radiological sabotage design basis threat (DBT) should remain in effect at decommissioning plants until all Spent Nuclear Fuel has been removed from the Spent Fuel Pool. Not only should the DBT for radiological sabotage continue to apply, but beyond DBT bases should be applicable to decommissioning reactors. For instance, a severe natural disaster combined with a fire, industrial accident, or transportation incident demands adequate onsite and offsite planning and resources. A terrorist or other hostile action, alone or in conjunction with other incidents, could also adversely affect public health and the environment onsite and offsite. This application of DBT and beyond DBT should not end until all licenses at the site, including any independent spent fuel storage installation license, are terminated by the NRC. The investments to meet the DBT and beyond DBT incidents are well worth the potential consequences should an event actually occur. The earthquake, tsunami, and consequent reactor and spent fuel meltdowns at Fukushima in 2011 demonstrated that previously unanticipated events can occur.

PSR-3 Should the NRC develop and publish additional security-related regulatory guidance specific to decommissioning reactor physical protection requirements, or should the NRC revise current regulatory guidance documents? If so, describe them.	The States are not privy to the details of implementing the physical security requirements of 10 C.F.R. part 73 and its appendices at any nuclear power station. Consequently, the States are not in a position to assess whether any 10 C.F.R. part 73 physical security requirements could be relaxed for a decommissioning power reactor. The States note that after Vermont Yankee shutdown, the plant owner made changes to its site security plan in fairly short order. This suggests that the current 10 C.F.R. part 73 physical security requirements are not overly burdensome. Accordingly, the States recommend that the current physical security requirements remain unchanged. The States further recommend that when decommissioning power reactor licensees consider demolishing non-essential plant structures to simplify their site security plans, the evaluation must include the cost and physical impact of addressing state non-radiological hazardous material clean-up requirements. The States also remind the NRC that its Force on Force Security Working Group is currently preparing recommendations to clarify security force training and procedures that could have impacts on decommissioning power reactor sites. These should be reviewed as part of the Reactor Decommissioning Rulemaking efforts. Finally, if the NRC is going to publish further guidelines or revise current regulations, it should require licensee consideration of all DBT and beyond DBT incident analysis.

PSR-4 What clarifications should the NRC make to target sets in § 73.55(f) that addresses permanently shut down and defueled reactors?	The States are not privy to the details of implementing the physical security requirements of 10 C.F.R. part 73 and its appendices at any nuclear power station. Consequently, the States are not in a position to assess whether any 10 C.F.R. part 73 physical security requirements could be relaxed for a decommissioning power reactor. Nonetheless, to the extent the question is whether to eliminate permanently abandoned systems, structures, or components from target set considerations at a permanently shut down site, the answer is No. It is not prudent to eliminate previously identified target sets simply because they are now a permanently abandoned system, structure, or component. (For instance, the system, structure, or component can still create line of sight considerations.) The only way that a permanently abandoned system, structure, or component can be completely eliminated from target set considerations is if the system, structure, or component is completely removed from the permanently shut down site. The States further recommend that when decommissioning power reactor licensees consider a permanently abandoned system, structure, or component to modify their target sets or simplify their site security plans, the evaluation must include the cost and physical impact of addressing state non-radiological hazardous material clean-up requirements associated with the removal of the abandoned system, structure, or component.

PSR-5 For a decommissioning power reactor, are both the central alarm station and a secondary alarm station necessary? If not, why not? If both alarm stations are considered necessary, could the secondary alarm station be located offsite?	The secondary alarm station should remain for decommissioning power reactors. A secondary system is necessary to guard against potential hardware failures in the central alarm station, which leave the decommissioning facility without valid information for one or more significant alarm functions. While the States do not object to the idea of remote access to central alarm or secondary alarm station information, both onside alarm stations must be maintained, since remote access systems can be disrupted as a result of offsite systems or equipment beyond the control of the decommissioning power reactor site.

PSR-6(a) Section 73.54 clearly states that the requirements for protection of digital computer and communications systems and networks apply to power reactors licensed under 10 CFR part 50 that were licensed to operate as of November 23, 2009. However, § 73.54 does not explicitly mention the applicability of these requirements to power reactors that are no longer authorized to operate and are transitioning to decommissioning. Are any changes necessary to § 73.54 to explicitly state that decommissioning power reactors are within the scope of § 73.54? If so, describe them.	Section 73.54 clearly states that all licensed power reactors must develop and submit a cybersecurity plan for NRC review and approval (that will meet the requirements of 73.54) no later than November 23, 2009. Unless their reactor licenses have been terminated through NRC action, permanently shut down and decommissioning power reactors are still NRC-licensed facilities, albeit ones that are not permitted to generate power. In this respect, permanently shut down and decommissioning power reactors are no different than an operating power reactor assigned to NRC oversight Category 5. Category 5 oversight reactors are clearly still subject to § 73.54 requirements. Hence, permanently shut down and decommissioning power reactors are still clearly subject to these requirements. Consequently, no changes to § 73.54 are necessary to clarify that this section is applicable to permanently shut down and decommissioning power reactors.

PSR-6(b) Should there be reduced cyber security requirements in § 73.54 for decommissioning power reactors based on the reduced risk profile during decommissioning? If so, what would be the recommended changes?	In general, No. The States oppose reducing cyber security requirements in any systems, structures, or components that remain actively in service or potentially useable in response to an emergency or abnormal condition at a decommissioning power reactor site. However, the States are open to eliminating cyber security requirements at a decommissioning power reactor site for digital assets in systems, structures, or components that have been permanently abandoned or dismantled. Properly abandoning digital assets requires the complete and permanent disconnection of all potential power sources to the digital asset, including any potential wireless power source. This includes removing all connections between still-active and abandoned systems, structures, or components that contain digital assets. The States are also open to eliminating cyber security documentation requirements for digital assets at permanently shut down or decommissioning power reactors once digital assets are permanently abandoned or dismantled, with two crucial caveats: (1) cyber security documentation dating from when the digital assets were part of an active system, structure, or component must be retained until the decommissioning reactor's operating license is terminated; and (2) cyber security documentation for any permanently abandoned or dismantled systems, structures, or components that were part of an investigation into a potential cyber-attack should be retained until the decommissioning reactor's operating license is terminated. Finally, if the NRC is going to change any of the current requirements, it must do so in a way that requires consideration of all DBT and beyond DBT incident analysis.

PSR-7 Based on this discussion, are there any concerns about changing the regulations to include the [certified fuel handler (CFH)] as having the authority to suspend certain security measures during certain emergency conditions or during severe weather for permanently shut down and defueled reactor facilities? If so, describe them.	Although the CFH will be familiar with these matters, the details and impact of plant security methods and procedures are better known by shift security supervisors rather than the CFH. The shift security supervisors are in a better position than the CFH to understand the implications of temporarily suspending a plant security measure. The States thus recommend that suspending a plant security measure be the decision of the on-duty shift security supervisor with consultation from the CFH.
PSR-8 Based on the discussion above, are there any concerns related to changing the regulations in § 73.55(j)(4)(ii) to allow another communications system between the alarm stations and the shift manager/CFH in lieu of the control room at permanently shut down and defueled reactors? If so, describe them.	Because structures at nuclear power plants use large amounts of steel, high-density metals, and concrete, all of which can disrupt communication signals, any plans to implement such "floating" managerial and supervisory control must include a "transfer of command" procedure to assure that decisions can be made in the event that communication with the shift manager or CFH is lost. Any floating managerial and supervisory control procedures must be suspended in the event that an Emergency Action Level is declared. In these circumstances, the managerial and supervisory control would need to revert to the control room or another qualified location clearly identified in plant procedures. More generally, the requirements for communications onsite and offsite must be driven by safety and health concerns, not by potential economic savings for licensees. The requirements for communications should be created by a panel of experts that go beyond licensees and their employees. Decommissioned reactors should be treated as high-interest targets by terrorists who might believe security is compromised due to lesser regulatory control.

c. Questions Related to Fitness for Duty (FFD) Requirements for Decommissioning Power Reactor Licensees

FFD-1(a) Should the NRC pursue rulemaking to describe what provisions of 10 CFR part 26 apply to decommissioning reactor licensees or use another method of establishing clear, consistent and enforceable requirements? Describe other methods, as appropriate.	The States oppose creating separate Fitness for Duty (FFD) rules for decommissioning power stations. The current FFD rules for active power reactors should remain in effect until the reactor license is terminated. Workers at a reactor transitioning to SAFSTOR or undergoing active decommissioning are subject to work-site conditions that will change on a day-to-day (or even hour-to-hour) basis. Such changing conditions require a significant level of situational awareness by all workers onsite to assure that a safe working environment is maintained. Reductions in FFD requirements could result in impaired judgment or reduced situational awareness of individual or groups of onsite workers. This would increase risks to the safety of workers and others. Also, decommissioning reactor sites exhibit many of the same potential risks found at reactor construction sites. Just as the NRC is not considering less rigorous FFD requirements in reactor construction (with its increased risks to worker safety and adverse plant construction quality), there is no justification for pursuing less rigorous FFD requirements at decommissioning power reactors sites. The current FFD requirements must also remain in effect at SAFSTOR and ISFSI-only decommissioning power reactor sites. The work force at such sites is almost exclusively for site security. Since nuclear power plant site security consists of para-military forces that protect the special nuclear material stored at a decommissioning power reactor site from Hostile Actions, the current FFD requirements are essential to the effectiveness of all site security staff. FFD and fatigue management requirements are critical to security and proper management of an industrial facility storing large quantities of radioactive materials. These requirements should be driven by safety and health concerns, not by potential economic savings for licensees. The requirements for FFD and fatigue management should be created by a panel of experts that go beyond licensees and their employees. Decommissioned reactors should be treated

	as high-interest targets for terrorists who might believe security is compromised due to lesser regulatory control.
FFD-1(b) As an alternative to rulemaking, should the drug and alcohol testing for decommissioning reactors be described in RG 5.77, with appropriate reference to the applicable requirements in 10 CFR part 26? This option would be contingent on an NEI commitment to revise NEI 03-12 to include the most recent revision to RG 5.77 (which would include the applicable drug and alcohol testing provisions) and an industry commitment to update their security plans with the revised NEI 03-12.	For the reasons already noted in response to FFD-1(a), all regulatory guidance should assure that the FFD requirements of 10 C.F.R. part 26 remain applicable to decommissioning power reactors until license termination.
FFD-1(c) Describe what drug and alcohol testing requirements in 10 CFR part 26 are not necessary to fulfill the IMP requirements to assure trustworthiness and reliability.	For the reasons already noted in response to FFD-1(a), all of the drug and alcohol testing requirements of 10 C.F.R. part 26 should remain applicable to decommissioning power reactors until license termination.

FFD-1(d) Should another regulatory framework be used, such as a corporate drug testing program modelled on the U.S. Department of Health and Human Services' Mandatory Guidelines for Federal Workplace Drug Testing or the U.S. Department of Transportation's drug and alcohol testing provisions in 49 CFR part 40? If this option is proposed, describe how (i) the laboratory auditing, quality assurance, and reporting requirements would be met by the proposal; (ii) licensees would conduct alcohol testing; and (iii) the performance objectives of 10 CFR 26.23(a), (b), (c), and (d) would be met.	No. For the reasons already noted in response to FFD-1(a), all of the drug and alcohol testing requirements of 10 C.F.R. part 26 should remain applicable to decommissioning power reactors until license termination. Accordingly, no alternative regulatory framework should be pursued.
FFD-2(a) Should any of the fatigue management requirements of 10 CFR part 26, subpart I, apply to a permanently shut down and defueled reactor? If so, which ones?	The State's responses to FFD-1(a) apply equally to impaired judgment from worker fatigue as they do to impaired judgment from alcohol or drug use. Hence, the States believe that all fatigue management requirements set forth in 10 C.F.R. part 26 should remain applicable to all workers at decommissioning power reactor sites until license termination.

FFD-2(b) Based on the lower risk of an offsite radiological release from a decommissioning reactor, compared to an operating reactor, should only specific classes of workers, as identified in § 26.4(a) through (c), be subject to fatigue management requirements (*e.g.,* security officers or certified fuel handlers)? Please provide what classes of workers should be subject to the requirements and a justification for their inclusion.	For the reasons already noted in response to FFD-1(a), all fatigue management requirements set forth in 10 C.F.R. part 26 should remain applicable to all workers at decommissioning power reactor sites until license termination.

FFD-2(c) Should the fatigue management requirements of 10 CFR part 26, subpart I, continue to apply to the specific classes of workers identified in response to question b above, for a specified period of time (*e.g.,* until a specified decay heat level is reached within the SFP, or until all fuel is in dry storage)? Please provide what period of time workers would be subject to the requirements and the justification for the timing.	For the reasons already noted in response to FFD-1(a), all fatigue management requirements set forth in 10 C.F.R. part 26 should remain applicable to all workers at decommissioning power reactor sites until license termination.
FFD-2(d) Should an alternate approach to fatigue management be developed commensurate with the plant's lower risk profile? Please provide a discussion of the alternate approach and how the measures would adequately manage fatigue for workers.	For the reasons already noted in response to FFD-1(a), all fatigue management requirements set forth in 10 C.F.R. part 26 should remain applicable to all workers at decommissioning power reactor sites until license termination. Accordingly, no alternative regulatory framework should be pursued.

d. Questions Related to Training Requirements for Certified Fuel Handlers for Decommissioning Power Reactor Licensees

CFH-1(a) When should licensees that are planning to enter decommissioning submit requests for approval of [Certified Fuel Handler (CFH)] training/retraining programs?	A CFH training/retraining program could be developed while a power reactor was still operating and well before any announcement regarding early closure of an operating power reactor. If necessary, the program's documentation could indicate that the described program will not be in effect until the plant has been declared permanently shut down and defueled. Consistent with timelines for other nuclear power plant personnel training programs identified in 10 C.F.R. § 50.120, the CFH training program should be available at least 18 months before implementation at a decommissioning reactor site.
CFH-1(b) What training and qualifications should be required for operations staff at power reactors that decommission earlier than expected and that do not have an approved CFH training/retraining program?	Until a CFH training or retraining program is in place, existing Reactor Operator and Senior Reactor Operator training, including training for refueling outages, should be required.
CFH-1(c) Should the NRC issue new requirements that prohibit licensees from surrendering operators' licenses before implementation of an approved CFH training/retraining program, or should other incentives or deterrents be considered? If so, what factors must be included?	As noted in response to CFH-1(b), until a CFH training or retraining program is in place, the duties of a CFH would need to be performed by a Reactor Operator or Senior Reactor Operator to assure that qualified staff is used for CFH duties. As an alternative to prohibiting surrendering operators' licenses before CFH training/retraining is in place, the NRC could prohibit the reductions in minimum on-shift staffing that are typically requested after a plant's permanent shutdown, until the site's CFH training/retraining program is in place.

CFH-1(d) Should the contents of a CFH training/retraining program be standardized throughout the industry? If so, how should this be implemented?	Standardization of CFH training/retraining programs should be implemented consistent with the standardization requirements of other nuclear power plant personnel, particularly reactor operators and shift supervisors. More generally, the training requirements for CFHs must be rigorous and driven by safety and health concerns, not by economic savings for licensees. CFHs have a wide range of authorities that were once granted only to Senior Reactor Operators. The requirements for CFH training should be created by a panel of experts that go beyond industry and its employees. Decommissioned reactors should be treated as high-interest targets for terrorists who might believe security is compromised due to lesser regulatory control.
CFH-1(e) Should a process be implemented that requires decommissioning power reactor licensees to independently manage the specific content of their CFH training/retraining program based on the systems and processes actually used at each particular plant instead of standardization? If so, how should this work?	The States favor standardization of CFH training/retraining programs, as this will lead to an overall regulatory consistency between decommissioning plants. Nonetheless, there could be flexibility to not require training for systems or programs that are not implemented at a particular decommissioning facility, so long as such training would occur if a CFH were to move to another plant.

CFH-1(f) Is there any existing or developing document or program (from the Institute of Nuclear Power Operations, NEI, NRC, or other related sources) that provides relevant guidance on the content and format of a CFH training/retraining program that could be made applicable to CFH training?	Not to the States' knowledge. If there is, the States respectfully request the ability to review and comment on any such documents or programs before the NRC adopts them in whole or in part. As noted in response to CFH-1(d), the requirements for CFH training should be created by a panel of experts that go beyond industry and its employees.
CFH-1(g) Should the requirements for CFH training programs be incorporated into an overall decommissioning rule, or addressed using other regulatory vehicles such as associated NUREGs, regulatory guides, standard review plan chapters or sections, and inspection procedures?	The States recommend incorporating CFH training requirements into the rule, rather than having those requirements appear in multiple documents.

e. Questions Related to the Current Regulatory Approach for Decommissioning Power Reactor Licensees

REG-1(a) Should the current options for decommissioning—DECON, SAFSTOR, and ENTOMB—be explicitly addressed and defined in the regulations instead of solely in guidance documents, and how so?	Yes, these definitions should be in the regulations. Most importantly, as discussed in several of the States' other responses, SAFSTOR should be redefined as requiring the completion of decommissioning and license termination within 10 years of the time when the last operating reactor at a plant site ceases operations. Further, the NRC should eliminate the ENTOMB option. It is highly unlikely that any licensee could or would use this option. (Decommissioning following a severe accident condition at a plant is the only scenario where ENTOMB would likely be considered. However, this case would also result in special NRC and Department of Energy actions that would likely supersede the ENTOMB option.) The NRC should also define a hybrid DECON/SAFSTOR option. (For instance, San Onofre's decommissioning plan should not be considered DECON since it includes a 10-to-20-year dormancy period.) The NRC should also better define the transition period between the permanently shut down and defueled state to the selected decommissioning option. During this transition, a significant number of plant systems are dismantled, abandoned in place, or reconfigured to support long-term spent fuel storage in the spent fuel pool. System abandonment and dismantling activities are DECON activities, even if the plant is being placed in SAFSTOR. Likewise, system reconfiguration supporting spent fuel pool use for long-term storage is best categorized as a SAFSTOR activity. However, even a plant undergoing immediate DECON may still have an active spent fuel pool.

REG-1(b) Should other options for decommissioning be explored? If so, what other technical or programmatic options are reasonable and what type of supporting documents would be most effective for providing guidance on these new options or requirements?	As discussed in the States' other responses, SAFSTOR should be redefined as requiring full decommissioning and license termination within 10 years of the closure of the last operating reactor at a plant site.
REG-1(c) Should the requirements be changed so that the timeframe for decommissioning is something other than the current 60-year limit? Would this change be dependent on the method of decommissioning chosen, site specific characteristics, or some other combination of factors? If so, please describe.	Yes, the 60-year limit needs to change to 10 years. As discussed in the States' other responses, SAFSTOR should be redefined as requiring full decommissioning and license termination within 10 years of the closure of the last operating reactor at a plant site. *See, e.g.*, *supra* Part V above.

REG-2(a) Is the content and level of detail currently required for the licensee's PSDAR, adequate? If not, what should be added or removed to enhance the document?	The content and level of detail is not adequate. For instance, it is very difficult for the public to reconcile the PSDAR technical details to line items in the accompanying Decommissioning Cost Estimate (DCE). In some instances, it is unclear which identified PSDAR tasks factor into which DCE sections. The DCE needs to include more details so that the correlation between DCE line items and PSDAR tasks is easier to follow. Further, the DCE is based upon a number of technical documents that do not accompany the DCE. The NRC should require the licensee to include those documents as attachments to the DCE. Additionally, there are a number of decommissioning, site restoration, and spent fuel management tasks that are identified in a PSDAR that are not legitimate uses of the Nuclear Decommissioning Trust (NDT) Fund. The States once again recommend that the NRC clarify what uses of the NDT Fund are allowed or not allowed. Additionally, the PSDAR tasks and DCE line items that are either questionable or clearly not legitimate uses of the NDT Fund require clear identification in the PSDAR and DCE documentation. The NRC should also require the licensee to identify how it will pay for each cost that cannot come from the NDT Fund. Also, in the absence of an established national interim or final repository for spent nuclear fuel, PSDARs must include more detail on how spent nuclear fuel will be stored indefinitely at decommissioned power reactor sites. This additional detail must, at a minimum, identify: (a) all costs for maintaining security at the site indefinitely; (b) the date when new storage systems (such as new dry casks) will be required; (c) all costs associated with procuring and constructing new storage systems; (d) all costs associated with establishing a spent fuel transfer station onsite; (e) all costs associated with actively transferring spent fuel to new storage systems; (f) all safety and environmental concerns to be addressed regarding these matters; and (g) the funding sources for these matters. This part of the PSDAR should be revisited and revised at least

	every 5 years, similar to current requirements for active power reactors to revise their DCEs at regular intervals. The PSDAR must also include much more detail regarding potential environmental impacts. For reasons explained in detail in the State of Vermont's Comments in Response to Vermont Yankee's PSDAR (ADAMS Accession No. ML15082A234), the NRC's current approach to evaluating the potential environmental impacts of decommissioning does not comply with the National Environmental Policy Act (NEPA).
REG-2(b) Should the regulations be amended to require NRC review and approval of the PSDAR before allowing any "major decommissioning activity" as that term is defined in § 50.2, to commence? What value would this add to the decommissioning process?	Yes, this would add immense value. The States strongly recommend that the NRC adopt a formal review and approval process of PSDARs before allowing major decommissioning activities to commence. Doing so would demonstrate to power reactor decommissioning stakeholders that the NRC takes its regulatory oversight duties at decommissioning facilities as seriously as it takes its regulatory oversight duties at operating power reactors. Also, as explained in detail in the State of Vermont's Comments in Response to Vermont Yankee's PSDAR (ADAMS Accession No. ML15082A234), formal NRC approval of a PSDAR is necessary to meet the NRC's obligations under the National Environmental Policy Act (NEPA).

REG-3(a) Should the current role of the States, members of the public, or other stakeholders in the decommissioning process be expanded or enhanced, and how so?	Yes. The role of States, host communities, other stakeholders, and interested members of the public must be enhanced to assure that these groups have opportunity equal to that afforded reactor licensees through organizations such as the Nuclear Energy Institute. The enhancements should include the opportunity for these non-licensee stakeholders to engage the NRC personnel directly responsible for overseeing the decommissioning of a facility of interest, preferably in a manner similar to current NRC practices for "government to government" consultation, rather than current NRC practices for public meetings and petition requests for rulemaking or intervention. In engaging these stakeholders, the NRC must recognize that most stakeholders will not be intimately familiar with NRC regulations and procedures. Accordingly, the NRC must severely limit or stop its practice of dismissing stakeholder concerns on procedural grounds rather than actually addressing the merits of the questions being raised. The NRC must also make efforts to assure that its responses to stakeholder questions can be understood by the general public. Far too often, responses rely upon documentation that is difficult to obtain, let alone comprehend. This often results in stakeholders concluding that the NRC is either incapable of or uninterested in answering their questions. In particular, the NRC must allow for public participation and hearing opportunities related to license exemption requests. The NRC Staff currently provide for *no* public input into crucial license exemption requests. That is contrary both to general principles of administrative law and to the NRC's own stated principles of good regulation. It also creates an incentive for licensees to frame issues as exemption requests rather than license amendment requests. Consequently, all stakeholders are deprived of the opportunity to question the supporting technical justifications for the request. And once NRC Staff approves the request, licensees and NRC Staff cite it as precedent, even though stakeholders have never had an opportunity to be heard.

	It is imperative that State, host communities, and their appropriate local government authorities are actively engaged early in the power reactor decommissioning process. Reactor licensees should engage these stakeholders in the decommissioning planning process as well as the active decommissioning of the power reactor site as early as possible once the decision is made to decommission the plant.
REG-3(b) Should the current role of the States, members of the public, or other stakeholders in the decommissioning process for non-radiological areas be expanded or enhanced, and how so? Currently, for all non-radiological effluents created during the decommissioning process, licensees are required to comply with EPA or State regulations related to liquid effluent discharges to bodies of water.	Yes. The States support enhancing the role of States, host communities, and other stakeholders regarding *all* non-radiological aspects of power reactor decommissioning and site restoration. In addition to "liquid effluent discharges to bodies of water," there are many non-radiological hazardous wastes associated with decommissioning a nuclear power plant, and the NRC should make clear that licensees must comply with all state laws regarding those materials. Unlike radiological contamination, there have not been clear requirements for reactor licensees to document or remediate onsite non-radiological contaminations. For instance, at Vermont Yankee, the licensee has at times claimed to be exempt from state or even EPA hazardous waste and industrial contaminant documentation and remediation requirements on the theory that their compliance with NRC regulation takes precedence. This makes site characterization for non-radiological hazardous waste and industrial contaminants extremely difficult. These process difficulties must be addressed, which requires new regulations clearly defining the limitations of the NRC's authority, and recognizing the full powers of the State and local authorities in addressing non-radiological contamination at a decommissioning power reactor site.

REG-3(c) For most decommissioning sites, the State and local governments are involved in an advisory capacity, often as part of a Community Engagement Panel or other organization aimed at fostering communication and information exchange between the licensee and the public. Should the NRC's regulations mandate the formation of these advisory panels?	While the States strongly support the formation of Citizen Engagement Panels for fostering communication between the licensee and the public, the States do not recommend that NRC regulations mandate the formation of such advisory panels. The States are concerned that by doing so, the formation of these panels would become largely dictated by the licensees, which could produce inadequate representation of all stakeholders on the panel. Various stakeholders should have opportunities to participate in decommissioning decisions through such panels. These panels need to be formed at the State and local level by a means most appropriate for the communities surrounding the decommissioning power reactor. Hence, NRC regulations and guidance for community engagement panels need to remain flexible regarding their creation and continuation. The States instead recommend that the NRC require licensees to support these panels once they are formed, by providing funding and other support, including convenient access to meeting spaces, making appropriate office equipment available, etc. The States encourages the NRC to use the Vermont Nuclear Decommissioning Citizens Advisory Panel (formed by State law and incorporating an independent survey to identify key stakeholders) as one example of how to compose and create an engagement panel.

f. Questions Related to the Application of Backfitting Protection for Decommissioning Power Reactor Licensees

BFP-1(a) The protections provided by the backfitting and issue finality provisions in 10 CFR parts 50 and 52, respectively, can apply to a holder of a nuclear power reactor license when the reactor is in decommissioning. Backfitting and issue finality during decommissioning can be divided into two areas: When a licensee's licensing basis for operations continues to apply during decommissioning until: (1) The licensee changes the licensing basis, (2) the NRC's regulations set forth generic criteria delineating when changes can be made to the licensing basis, or (3) the NRC takes a facility-specific action that changes the licensee's licensing basis. Why would backfitting protection apply in this area?	The premise that underlies the backfit questions is incorrect. At industry's request, NRC has promulgated a regulation concerning the modification of systems, structures, or components that affect the "design, construct[ion] or operat[ion of] a facility." 10 C.F.R. § 50.109. By its terms, § 50.109 does not apply to the decommissioning and decontamination of a reactor site—activities that take place after the reactor has ceased operation and that are directed at restoring a site for unrestricted use within the host community. The backfit rule cannot be an impediment to prompt decommissioning and decontamination of a site. A number of sites have experienced significant radiological contamination. For example, at the Indian Point site, years of radionuclide leaks have contaminated the soil and bedrock as well as the groundwater resources. It is imperative that sites which have hosted power plants be promptly decommissioned and decontaminated and returned to host communities for unrestricted use. Likewise, strontium-90 and other radionuclides are present in the soil at the Vermont Yankee site. Power reactor sites cannot be left with subsurface contamination that will remain for generations to come. NRC, its staff, and licensees may not use § 50.109 to avoid, minimize, or delay decommissioning and decontamination of affected sites. The States oppose any changes to the backfitting rule that would extend backfitting analysis to decommissioning decisions. The "protections" of backfitting are for the licensee only, and come at the expense of the public and other stakeholders. Backfitting should not be applied to any decommissioning decisions.

BFP-1(b) When a licensee engages in an activity during decommissioning for which no prior NRC approval was provided. The activity could be required by an NRC regulation or new NRC approval (through an order or licensing action). Why would backfitting protection apply in this area?	The premise that underlies the backfit questions is incorrect. At industry's request, NRC has promulgated a regulation concerning the modification of systems, structures, or components that affect the "design, construct[ion] or operat[ion of] a facility." 10 C.F.R. § 50.109. By its terms, § 50.109 does not apply to the decommissioning and decontamination of a reactor site—activities that take place after the reactor has ceased operation and that are directed at restoring a site for unrestricted use within the host community. The backfit rule cannot be an impediment to prompt decommissioning and decontamination of a site. A number of sites have experienced significant radiological contamination. For example, at the Indian Point site, years of radionuclide leaks have contaminated the soil and bedrock as well as the groundwater resources. It is imperative that sites which have hosted power plants be promptly decommissioned and decontaminated and returned to host communities for unrestricted use. Likewise, strontium-90 and other radionuclides are present in the soil at the Vermont Yankee site. Power reactor sites cannot be left with subsurface contamination that will remain for generations to come. NRC, its staff, and licensees may not use § 50.109 to avoid, minimize, or delay decommissioning and decontamination of affected sites. The States oppose any changes to the backfitting rule that would extend backfitting analysis to decommissioning decisions. The "protections" of backfitting are for the licensee only, and come at the expense of the public and other stakeholders. Backfitting should not be applied to any decommissioning decisions.

BFP-2 Should the NRC propose amendments to § 50.109 consistent with the preliminary amendments proposed in SECY-00-0145 that would have created a two-section Backfit Rule: one section that would apply to nuclear power plants undergoing decommissioning and the other section that would apply to operating reactors?	No. The States oppose any changes to the backfitting rule that would extend backfitting analysis to decommissioning decisions. The "protections" of backfitting are for the licensee only, and come at the expense of the public and other stakeholders. Backfitting should not be applied to any decommissioning decisions.

g. Questions Related to Decommissioning Trust Funds

DTF-1 Should the regulations in §§ 50.75 and 50.82 be revised to clarify the collection, reporting, and accounting of commingled funds in the decommissioning trust fund, that is in excess of the amount required for radiological decommissioning and that has been designated for other purposes, in order to preclude the need to obtain exemptions for access to the excess monies?	No. As an initial matter, the States disagree with a number of the statements and premises underlying this question. For instance, the question asserts that the NRC has allowed the use of decommissioning trust funds for spent fuel management only "where the level of funding needed to complete decommissioning is not adversely affected." This is incorrect. As explained in detail *supra*, Part VII above, neither the NRC nor licensees knows how much money is "needed to complete decommissioning" until decommissioning is complete. It is thus irresponsible and places people and the environment at risk of radiological contamination when the NRC grants exemptions allowing licensees to use trust funds for non-decommissioning expenses before decommissioning is complete. Such exemptions should never be granted. The States oppose changing §§ 50.75 and 50.82 "to preclude the need to obtain exemptions for access to the excess monies." Such a change goes in exactly the wrong direction. As explained in detail *supra*, Part VII above, the NRC should be *increasing* its oversight over decommissioning trust funds, and should be *increasing* the opportunities for transparency, public engagement, and hearings over what happens to these trust funds. The proposed change does the opposite.

DTF-2(a) What changes should be considered for §§ 50.2 and 50.82(a)(8) to clarify what constitutes a legitimate decommissioning activity?	This matter is pending before the Commissioners, in a Petition filed by the State of Vermont and two utilities, and supported by the Commonwealth of Massachusetts, and the States of Connecticut and New Hampshire. As the States have argued in that Petition, the NRC should clarify that legitimate decommissioning activities are limited to actions that reduce radiological contamination onsite. Other activities, such as spent fuel management, property taxes, emergency preparedness, insurance and legal fees, lobbying fees, payments to host states and communities, disposal of non-radiologically-contaminated materials, and employee pension payouts do not reduce radiological contamination onsite. Although it is the States' position that the current regulations clearly prohibit such expenses from coming out of decommissioning trust funds, licensees seem to take the opposite position. The States expect the Commissioners will resolve this matter.
DTF-2(b) Regulations in § 50.82(8)(ii) state that 3 percent of the decommissioning funds may be used during the initial stages of decommissioning for decommissioning planning activities. What should be included or specifically excluded in the definition of "decommissioning planning activities?"	The NRC should specifically exclude planning expenses for matters that are not legitimate decommissioning expenses, such as spent fuel management, property taxes, emergency preparedness, insurance and legal fees, lobbying fees, payments to host states and communities, disposal of non-radiologically-contaminated materials, and employee pension payouts.

h. Questions Related to Offsite Liability Protection Insurance Requirements for Decommissioning Power Reactor Licensees

LP-1(a) Should the NRC codify the current conservative exemption criteria (*i.e.,* 10 hours to take mitigative actions) that have been used in granting decommissioning reactor licensees exemptions to § 140.11(a)(4)?	No. As explained in detail in the States' other responses, including Part IV above, the NRC is endangering the public and the environment by granting exemptions on the incorrect theory that at a certain point all spent fuel accidents could be mitigated within 10 hours. Any reduction in emergency planning requirements or in the amount of insurance required for offsite incidences should begin only after all fuel has been removed from the spent fuel pool(s).
LP-1(b) As an alternative to codifying the current conservative exemption criteria (*i.e.,* 10 hours to take mitigative actions), should the NRC codify a requirement to allow decommissioning reactor licensees to generate site specific criteria (*i.e.,* time period to take mitigative actions) based upon a site specific analysis?	No. Although this alternative is preferable to the suggestion in LP-1(a), it is still inadequate because it assumes that at some point a spent fuel pool no longer poses a risk to the public or the environment. This is incorrect, for the reasons explained in the States' other responses, including Part IV above and the States' response to LP-1(a). Any reduction in emergency planning requirements or in the amount of insurance required for offsite incidences should begin only after all fuel has been removed from the spent fuel pool(s).

LP-1(c) The use of $100 million for primary liability insurance level is based on Commission policy and precedent from the early 1990s. The amount established was a qualitative value to bound the claims from the Three Mile Island accident. Should this number be adjusted?	Yes. As an initial matter, as noted above, any reduction in emergency planning requirements or in the amount of insurance required for offsite incidences should begin only after all fuel has been removed from the spent fuel pool(s). Further, if a reduction is going to be allowed, the NRC should increase the $100 million number to reflect three developments since the 1990s: (1) inflation; (2) potential increased costs due to the use of high-burnup fuel; and (3) the enormous real-world offsite costs resulting from more recent radiological incidents such as Fukushima. The real world experience of the Fukushima accident is far different than what the NRC has previously assumed in terms of (1) the problems created by the need to decontaminate a large area; (2) the time and money required for cleanup; and (3) the lost economic revenue when a large area is rendered unusable for a longer period of time. *See, e.g.*, David McNeil, *Squelching Efforts to Measure Fukushima Meltdown* (NY Times March 16, 2014) (explaining how the actual damage caused by Fukushima may be much greater than reported by Japan and that just removal of contaminated dirt—not its ultimate disposal—will cost at least $50 billion); *Fukushima operator restarts water decontamination system* (AFP March 24, 2014) ("The embattled firm [TEPCO] said two of three lines that clean the toxic water were running again as of Monday afternoon. A third line remained offline while workers tried to fix a filter defect which had prevented proper decontamination. . . . TEPCO is struggling to handle a huge—and growing—volume of contaminated water at the tsunami-damaged plant. There are about 436,000 cubic metres of contaminated water stored at the site in about 1,200 purpose-built tanks."); *Contaminated water still troubles Fukushima* (Press TV March 11, 2014) ("The radioactive water at Japan's crippled nuclear power plant remains the biggest problem, hampering the cleanup process three years after the disaster, officials say."); *Fukushima water decontamination might be suspended indefinitely* (Rt.com March 20, 2014); *see also* D. Lochbaum et. al., *Fukushima—The Story of a Nuclear Disaster* (New Press 2014).

	This information about Fukushima suggests that a previous NRC study may have been correct in its high estimate for a fuel pool release as an economic cost of $566 billion, not including health effects and 143,000 latent fatalities. Travis et al., *A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants*, NUREG/CR-6451 (1997), at 4-2. In light of these figures, the NRC should significantly increase the amount of primary insurance required.
LP-1(d) What other factors should be considered in establishing an appropriate primary insurance liability level (based on the potential for damage claims) for a decommissioning plant once the risk of any kind of offsite radiological release is highly unlikely?	Again, the risk of an offsite radiological release remains significant whenever spent fuel is stored in a spent fuel pool *See, e.g., supra* Part IV above; States' responses to LP-1(a), LP-1(b), and LP-1(c). Any reduction in emergency planning requirements or in the amount of insurance required for offsite incidences should begin only after all fuel has been removed from the spent fuel pool(s). In addition to the existence of a spent fuel pool, the next most important factor to consider is whether a plant is a merchant generator. For the reasons explained *supra* Part VII above, merchant generators do not have an income stream once they stop operating, and do not have an ability to go back to ratepayers in the event of unforeseen expenses. The NRC should thus require a higher level of primary insurance from merchant generators.

i. Questions Related to Onsite Damage Protection Insurance Requirements for Decommissioning Power Reactor Licensees

ODI-1(a) Should the NRC codify the current exemption criteria that have been used in granting decommissioning reactor licensees exemptions from § 50.54(w)(1)? If so, describe why.	No. Again, the risk of an offsite radiological release remains significant whenever spent fuel is stored in a spent fuel pool *See, e.g., supra* Part IV above; States' responses to LP-1(a), LP-1(b), LP-1(c), and LP-1(d). Any reduction in emergency planning requirements or in the amount of insurance required for offsite incidences should begin only after all fuel has been removed from the spent fuel pool(s).
ODI-1(b) The use of $50 million insurance level for bounding onsite radiological damages is based on a postulated liquid radioactive waste storage tank rupture using analyses from the early 1990s. Should this number be adjusted? If so, describe.	Yes, it should be increased significantly, for the same reasons explained in the States' response to LP-1(c), noting the need to reflect three developments since the 1990s: (1) inflation; (2) potential increased costs due to the use of high-burnup fuel; and (3) the enormous real-world offsite costs resulting from more recent radiological incidents such as Fukushima.
ODI-1(c) Is the postulated rupture of a liquid radioactive waste storage tank an appropriate bounding postulated accident at a decommissioning reactor site once the possibility of a zirconium fire has been determined to be highly unlikely?	No. As explained in Part IV above, the risk of a zirconium fire should be considered significant until all fuel has been removed from the spent fuel pool(s).

j. General Questions Related to Decommissioning Power Reactor Regulations

GEN-1 Based on the discussion above, what regulatory changes should be considered that address the performance or condition of certain long-lived, passive structures and components needed to provide reasonable assurance that they will remain capable of fulfilling their intended functions during the decommissioning period?	As explained in Part V above, the NRC should eliminate SAFSTOR for single-reactor sites, and should require all decommissioning to be complete within 10 years of the closure of the last operating reactor at each site. The elimination of SAFSTOR as a decommissioning option would also eliminate concerns about the deterioration of structures, systems, and components that might release radioactive materials into the environment.

GEN-2 Based on precedent used at most previous permanently shut down reactors, and considering the demonstrated safety performance of reactor decommissioning sites over many years, the NRC has found that an operations staff crew complement consisting of one certified fuel handler and one non-certified operator is an acceptable minimum staffing level. Considering the discussion above, should minimum operations shift staffing at a permanently shut down and defueled reactor be codified by regulation?	The States support codifying required staffing levels, but disagree with looking to past "precedent" at decommissioned plants to determine the appropriate level of staffing. The States support codified staffing levels because staffing estimates provided by planners are vague regarding the skills and duties of staff beyond those of the security staff. Without better definition, the States will lack confidence that the licensee staff will be able to meet all of the emergency and environmental surveillance needs of these sites. That said, the States disagree with looking to past "precedent" at decommissioned plants to determine the appropriate level of staffing. The NRC should put together a panel of experts, representing diverse stakeholders (not just industry representatives), to determine the appropriate staffing levels. The determination of staffing levels should be based on public health and environmental concerns, not the economic concerns of licensees.
GEN-3 Based on the discussion above, what regulatory changes should be considered for a permanently shutdown and defueled reactor to prevent ambiguities concerning the meaning of the control room for decommissioning reactors and should minimum staffing levels be specified for the control room?	The States support codifying the requirements of the space for controlling functions required for decommissioning. Without better definition, the States lack confidence that the licensee staff will be able to meet all of the emergency and environmental surveillance needs of these sites. That said, the States disagree with looking to past "precedent" for determining these requirements. The NRC should put together a panel of experts, representing diverse stakeholders (not just industry representatives), to determine the appropriate requirements. Any substitutions of space for functions currently designated for the control room should be based on public health and environmental concerns, not the economic concerns of licensees.

GEN-4 Are there any other changes to 10 CFR Chapter I, "Nuclear Regulatory Commission," that could be clarified or amended to improve the efficiency and effectiveness of the reactor decommissioning process?	Yes, as explained in the States' other responses, including the specific suggestions made in Parts I through IX above. At least 90% of the issues raised in the current Advance Notice of Proposed Rulemaking are issues where industry has specifically sought a relaxation of current regulatory requirements. If the NRC is serious about engaging other stakeholders in this process, it needs to also consider the many concerns of those stakeholders, including, for instance, the specific suggestions made in Parts I through IX above.
GEN-5(a) The NRC is attempting to gather information on the costs and benefits of the changes in the regulatory areas discussed in this document as early as possible in the rulemaking process. Given the topics discussed, please provide estimated costs and benefits of potential changes in these areas from either the perspective of a licensee or from the perspective of an external stakeholder. From your perspective, which areas discussed are the most beneficial or detrimental?	The routine use of the exemption process has a number of detriments to stakeholders including the States. It forecloses public participation. That harms everyone—the public, the environment, and, crucially, licensees and the NRC as well, since they will necessarily make less informed decisions when they preclude public participation. The routine granting of exemptions also impedes the process of cooperative agreements between state and local jurisdictions on matters such as environmental surveillance and radiological emergency preparedness capabilities. There are no beneficial areas for state and local government and host communities under the exemption process. There are only detriments. More generally, from the States' perspective, the regulatory changes suggested in Parts I through IX above are the most beneficial.

GEN-5(b) From your perspective, assuming you believe changes are needed to the NRC's reactor decommissioning regulatory infrastructure, what are the factors that drive the need for changes in these regulatory areas? If at all possible, please provide specific examples (*e.g.*, expected savings, expectations for efficiency, anticipated effects on safety, etc.) about how these changes will affect you.	In everything the NRC does, the most important factor should always be protecting public health and the environment.
GEN-5(c) Are there areas that are of particular interest to you, and for what reason?	The areas of particular interest to the States are those discussed in Parts I through IX above.
GEN-5(d) Please provide any suggested changes that would further enhance benefits or reduce risks that may not have been addressed in this ANPR.	See Parts I through IX above.

CONCLUSION

The States appreciate the opportunity to provide these comments and look forward to a continued dialogue on these important matters.