



March 15, 2016

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

**Re: Advance Notice of Proposed Rulemaking; Regulatory Improvements for Decommissioning Power Plants (Docket ID NRC–2015–0070)**

The Jones River Watershed Association (JRWA) submits the following comments regarding the above-referenced Notice of Proposed Rulemaking.

Our comments are offered in the context that JRWA has been working since 2006 on matters related to the Pilgrim Nuclear Power Station, located on Cape Cod Bay in Plymouth, Massachusetts. Our mission is to protect, enhance, and restore the quality of the natural resources in Southeastern Mass., in particular the Jones River and Cape Cod Bay. Cape Cod Bay was deemed an Ocean Sanctuary in July 1970, predating Pilgrim. Steps that the NRC takes in terms of Pilgrim’s pending decommissioning – from decommissioning plans, trust funds, and other mechanisms related to the decommissioning process – must be taken to restore the coastal and marine resources in Cape Cod Bay that have been affected by contamination and other impacts associated with Pilgrim’s operations since 1972.

***Emergency Preparedness***

Currently, there are no clear regulatory provisions distinguishing emergency preparedness requirements for reactors that have been shut down from those still operating. Reactors that shut down can request an exemption that relieves them of the requirement to maintain formal offsite emergency preparedness to control or escape radiological exposure, including the 10 mile emergency planning zone and alert/notification systems -- based on the notion that there are no possible design-basis events at a decommissioning facility that could result in an offsite radiological release. The NRC assumes that a spent fuel pool fire is highly unlikely and licensees will have the ability to maintain water in the pool and keep assemblies cool.

Currently the NRC views reactor accidents as the biggest threat. A paradigm shift is needed in this thinking. Spent fuel that remains in wet pool storage post shutdown, as well as spent fuel stored on-site in dry casks pose different, but still dangerous threats. This is especially true as terrorism and climate-related threats have become the 'new normal.' The assumption that serious radiological releases cannot occur post shutdown is flawed. An accident or attack involving a spent fuel pool or dry cask storage facility would create the need for evacuation and/or emergency response, regardless if a reactor is still operating. Having emergency preparedness and response plans is required to protect public and environmental health and safety.

A 2006 report to the Massachusetts Attorney General states that a large release (100% release) of cesium-137 due to a pool fire could result in damages up to about \$488 billion and 24,000 latent cancers.<sup>1</sup> Nuclear spent fuel assemblies can remain in wet pool storage for years after shutdown. Water loss in the spent fuel pool can occur from electrical or mechanical failure, human error, or acts of malice.

Even once a pool is empty, assemblies remain onsite in dry casks for an undetermined length of time. Dry casks, if not sited and designed robustly, also pose a risk. For example, at the Pilgrim Nuclear Power Station located directly on the Atlantic coast, casks have been placed within reach of rising tides, coastal storms, and saltwater degradation and will be a potential source of radioactive waste contamination, long after shutdown occurs. Monitoring for degradation is in question. Dry casks were also not specifically designed to resist terrorist attacks.

Reactors that shut down should be required to maintain formal offsite radiological emergency preparedness, including at least a 10-mile emergency planning zone and alert/notification systems, until any and all radiological waste is shipped offsite to a repository. Before any waivers or relaxed standards are allowed, dry casks stored on site should at least meet additional robust safeguards against climate change and terrorism.

### ***Application of Amended Regulations***

The new amended regulations will only apply to reactors newly shutting down, not those already shut down. We suggest the NRC apply new and more stringent regulations retroactively, at least to all reactors that have shut down since 2013 since the most recent closures (five in total) have occurred since 2013. This is particularly true if, and only if, more stringent regulations are developed. Decommissioned facilities need uniform regulations to ensure needed protections for people and the environment.

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<sup>1</sup> Beyea J. 2006. Report to the MA Attorney General on the potential consequences of a spent-fuel-pool fire at the Pilgrim or Vermont Yankee nuclear plant. Consulting in the Public Interest. 35 pp.

### ***Physical Security Requirements***

Physical security requirements for spent fuel pools, including armed responders, should not be reduced post-shutdown, and the Design Basis Threat for radiological sabotage should continue to apply to decommissioned reactors until all nuclear waste is transferred offsite. As mentioned above, there are serious threats posed by nuclear waste stored in a spent fuel pool due to accidents or acts of terror.

We also believe that current security requirements for dry cask storage are inadequate. The dry casks storage facility area currently requires two physical barriers -- one at the perimeter of the protected area (a fence or similar barrier) and another offering penetration resistance (the storage cask itself). Dry casks are not without risk. These physical barriers do not provide enough security to protect against attack. Furthermore, natural elements and corrosion will always impact the integrity of dry casks. A reliable method for monitoring and maintaining design integrity is needed. The storage of casks away from climate-related risks (at higher elevations, away from the shoreline for coastal plants) and out of flood zones for others, should also be part of a physical security plan required by the NRC.

### ***Current Regulatory Approach***

Many licensees choose SAFSTOR as their decommissioning option, which allows 60 years before decommissioning is completed. As the NRC explains in the proposed rule, 60 years is chosen since it corresponds to 10 half-lives for cobalt-60, one of the more common radioactive isotopes left behind at a facility. At 60 years, cobalt-60 will decay to background levels.

We do not believe licensees should be allowed to defer environmental cleanup for 60 years. In the case of Pilgrim Nuclear Power Station (slated to close no later than June 2019), this would mean that environmental contamination could remain on the site until 2079. We know that radioactive contaminants are already present on the site (e.g., radionuclides have been detected since limited testing began in 2007<sup>2</sup>). This contamination is already migrating toward Cape Cod Bay and it will continue to do so after shutdown, especially as rising sea levels and groundwater tables, flooding, and coastal storms increasingly impact the site over the next 60 years. These climate change impacts will progressively create challenges for cleanup activities. Licensees should be required by the NRC to fully and promptly transfer fuel to properly sited dry casks and clean up contaminants on the site (within a decade), rather than be allowed to let contaminants disperse and dilute into local water bodies over time.

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<sup>2</sup> See the Mass. Department of Public Health's Environmental Monitoring webpage for Pilgrim's groundwater monitoring: [www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/exposure-topics/radiation/environmental-monitoring.html](http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/exposure-topics/radiation/environmental-monitoring.html)

We request that the NRC reinstate the requirement that licensees develop a comprehensive and detailed decommissioning plan before closure, which would require NRC approval and oversight. The PSDAR should be based on this approved comprehensive plan, which must be submitted for final NRC approval.

The NRC needs a way to approve, deny and/or critique these plans with regard to hazards posed to the environment and public. Since the NRC is the sole controlling entity for radiation on the site, it must weigh in on the decommissioning schedule and the methods adopted for decommissioning. While the NRC currently seeks public comment on a licensee's draft PSDAR, comments are not analyzed, nor is the licensee required to make any changes based on the comments before a final PSDAR is issued. Comments submitted by states, local governments, general public and other interested parties should be meaningful (i.e., analyzed by the NRC and incorporated into the final decommissioning plan and PSDAR). This is needed in order to encourage public participation in the process, improve the quality of decommissioning plans, and strengthen connections between the NRC, industry, and the communities where these decommissioned sites and nuclear waste will remain for potentially hundreds of years.

The methods for eventual offsite transfer of spent fuel should also be addressed in PSDARs and decommissioning plans. Where and how spent fuel is stored should be addressed on a case-specific basis. For instance, at Pilgrim Nuclear, if the shipping of nuclear waste offsite will occur within 5 years, then storing casks close to the shoreline is acceptable (if barge transport is involved). However; if nuclear waste is to be stored onsite for a longer period, then it should be stored in a protected facility, higher from the sea, in a bunker or covered facility until offsite shipment occurs. The schedule for disposal of nuclear waste MUST be addressed.

The Department of Energy (DOE) recently kicked off Consent-based Siting Initiative meetings to develop a plan and a process for disposal of high level waste and spent nuclear fuel.<sup>3</sup> PSDARs and decommissioning plans should also consider DOE's initiative and outline how future DOE plans could apply. The responsibilities of both agencies, as related to decommissioning efforts of individual plants, should be addressed.

The clean-up standards to be achieved for on-site contamination in water and soils should also be outlined in an approved PSDAR and decommissioning plans. Furthermore, if plans do not involve a high level of review of contaminants on the site and a cleanup plan that meets the standards set out by the U.S. EPA for groundwater, then they should not be considered acceptable. Right now, the NRC has no specific restrictions or standards for radioactive

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<sup>3</sup> DOE Consent-Based Siting Initiative Kickoff Meeting - Washington, DC - Part 1  
<[www.youtube.com/watch?v=v0\\_Z\\_mWUChY&feature=youtu.be](http://www.youtube.com/watch?v=v0_Z_mWUChY&feature=youtu.be)>

contamination in groundwater. The NRC sets a total dose limit of 25 mrem per year from all radiological sources, or pathways, as the cleanup standard to be achieved before a facility's license can be terminated. On the other hand, EPA favors more restrictive protections and views groundwater as an important national resource; therefore it has specific standards for groundwater. While we understand that the NRC and EPA entered into a Memorandum of Understanding in 2002 regarding the coordination of decommissioning, we strongly believe that the EPA's more restrictive standards should be achieved and plans that do not aim to meet these standards should be rejected.

NRC guidance currently exists that recommends licensees create a community committee for the decommissioning process. In the draft rule, the NRC should explain how successful this guidance has been (i.e., how many decommissioned facilities have created effective community committees?). Industry should not be in charge of a community committee, but the NRC should facilitate the states or local communities in creating one (either a community committee or a public advisory committee). Industry should contribute to the committee, but not be the entity behind development and management of the committee. The NRC states in the proposed rule that state and local governments are currently involved in an advisory capacity, but this is not enough. These stakeholders should have higher stature, at least equivalent to industry, in the decommissioning process.

The role of states, town governments, and the public should be enhanced in the decommissioning process. As discussed above, comments submitted by stakeholders on the PSDAR and decommissioning plans should be analyzed by the NRC and incorporated into final drafts. The role of these stakeholders should also be expanded in non-radiological areas. For all non-radiological effluents created during decommissioning, licensees are required to comply with EPA or state regulations related to liquid effluent discharges to bodies of water. These activities should be transparent, and stakeholders should be able to provide input at all steps. Furthermore, local conditions and guidance – for example, the Cape Cod Bay Ocean Sanctuary abutting Pilgrim Nuclear – must be given high consideration and govern cleanup standards.

### **Trust Funds**

Decommissioning activities, as defined by the NRC, currently do not include waste management, cleanup of non-radiological waste, or demolition costs to achieve “greenfield” restoration. Decommissioning Trust Funds, today, are only to be used for cleanup and removal of radioactive materials. However this is a gross flaw caused by lack of comprehensive planning for nuclear activities and industrial sites. Trust funds should be expanded and grown so that all activities associated with shutdown – management of spent nuclear fuel and related leaks, cleanup of non-radiological contamination, demolition costs, etc. – can be effectively

accomplished. Decommissioning Trust Funds or other industry-supplied funds must be provided and used to restore sites to “greenfield” standards.

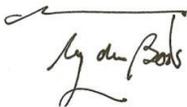
### **General Comments/Regulatory Changes**

*Wet pool storage:* After shutdown, licensees should be required to move all spent fuel out of pool storage as soon as technologically feasible. Reducing the amount of spent fuel in the pool should lessen the release of radioactivity in the event of an accident or act of malice. Emptying the pool eliminates massive ocean (and other water sources) withdrawals for cooling, and reduces the demand for offsite electricity and pumps. Given the potential consequences from an accident or terrorist attack on a spent fuel pool, spent nuclear fuel should be transferred to dry cask storage as soon as it is safe to do so.

*Dry Cask Storage:* While the risks posed by spent nuclear fuel in wet pool storage can be reduced by moving it to dry casks, casks are still subject to safety and security hazards. The NRC should upgrade existing regulations so that dry cask storage sites are more secure against a terrorist attack, and require casks to be moved to higher elevations and further from shorelines to protect against hazards associated with rising tides, coastal storms, and saltwater degradation (e.g., such as those at Pilgrim Nuclear), or dam breaches and flooding from climate impacts at other facilities.

*Regulatory Oversight:* Because of the perceived reduced risks related to the storage of spent nuclear fuel, the NRC stated in the 1996 decommissioning final rule that “[t]he degree of regulatory oversight required for a nuclear power reactor during its decommissioning stage is considerably less than that required for the facility during its operating stage.” However, there are major risks associated with pool storage and dry casks, and the NRC should maintain strong oversight of facilities during and post decommissioning – until any and all radiological waste is permanently transferred offsite. These hazardous and volatile residuals of the nuclear industry pose ongoing threats to the environment, public health and safety from climate impacts and acts of terror, and are the responsibility of industry and the NRC to provide dedicated oversight to assure final and complete site cleanup.

Thank you,



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