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**Docket:** NRC-2012-0246

Consideration on Environmental Impacts on Temporary Storage of Spent Fuel After Cessation of Reactor Operation

**Comment On:** NRC-2012-0246-0001

Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation

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Comment on FR Doc # 2012-26295

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## General Comment

See attached file(s)

**Comment#** 335  
77 FR 65137  
10/25/2012

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## Attachments

ANA waste confidence written scoping comment.final

SUNSI Review Complete  
Template = ADM - 013  
E-RIDS= ADM -03  
Add= S. Lopas (SLL2)

January 2, 2013

Cindy Bladey  
Chief, Rules, Announcements, and Directives Branch  
Office of Administration  
Mail Stop: TWB-05-B01M  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

RE: Docket No. NRC-2012-0246  
Environmental Impact Statement Scoping for Waste Confidence Rule  
10 CFR §51.23

Dear Ms. Bladey:

In addition to the group comments submitted by Diane Curran, which the Alliance for Nuclear Accountability (ANA) supports, we submit the following comments on scoping for the Nuclear Regulatory Commission's Waste Confidence Rule Environmental Impact Statement (EIS). While ANA strongly supports the detailed comments submitted by Ms. Curran, we specifically wish to draw the NRC's attention to the following topics:

1. The national nature of a generic Waste Confidence Decision
2. Meeting National Environmental Policy Act requirements
3. Threats posed by spent nuclear fuel cooling pools
4. The concept of Hardened On-Site Storage
5. The need to address storing multiple fuel forms
6. The need to further study and address changing design bases
7. "Spent nuclear fuel" is the legally defined term, not "used nuclear fuel"

### Background

"Waste confidence" is all about the most enduring product generated by nuclear power plants, namely highly radioactive nuclear waste that is regularly extracted from reactor cores. The U.S. Nuclear Regulatory Commission adopted the original Waste Confidence Decision and Rule (10 CFR 51.23) in 1984. The Decision and Rule were updated in 1990, reviewed in 1999, and updated in 2010. The Commission included key five findings in the 2010 Decision and Rule (10 CFR 51.23):

1. Safe disposal in mined geologic repository is technically feasible.
2. At least one mined geologic repository will be available when necessary.
3. High-level nuclear waste and irradiated fuel will be safely managed until a repository is available.
4. Irradiated fuel can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life.
5. Onsite or offsite storage for irradiated fuel will be made available if needed.<sup>1</sup>

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<sup>1</sup> "Waste Confidence Decision: Background." Christine Pineda. NRC Office of Nuclear Material Safety and Safeguards. October 4, 2011. <http://www.nrc.gov/waste/spent-fuel-storage/christine-pineda-10-04-2011.pdf>

In June 2012, the U.S. Court of Appeals for the D.C. Circuit of vacated the NRC's 2010 Waste Confidence Decision ("WCD") and Temporary Storage Rule ("TSR") (75 Fed. Reg. 81,037 and 75 Fed. Reg. 81,032 (Dec. 23, 2010), respectively) and remanded them to the agency for study of the environmental impacts of storing spent fuel indefinitely if no permanent repository is licensed or if licensing of a repository is substantially delayed. The Court also ordered the NRC to study the "future dangers and key consequences" of spent fuel pool fires and to evaluate the risks of spent fuel pool leakage during sixty years after the expiration of the plant's license. *Id.* at 479.

## Comments

### *The National Nature of the WCD and scope of this EIS*

ANA is concerned by the NRC's intention to prepare a generic WCD. The 65 reactor sites across the U.S. are stunningly diverse. They are located near both major population centers and agricultural hubs, surrounded by diverse ecosystems, and at risk from myriad natural hazards. NRC must be extremely careful to include these factors while bounding its analysis.

In addition to the challenges of accounting for site-specific factors including population, natural disaster hazards, and biodiversity, the task of soliciting input from affected communities across the country further complicates the NRC's work on the WCD. While technology offers some useful tools, such as webcasts and conference calls, it is not a replacement for in-person meetings. Communities affected by nuclear power reactors or nuclear waste storage facilities must be included in the NEPA process.

While the Blue Ribbon Commission on America's Nuclear Future did not perfect the process of soliciting input from the national public, it should serve as an example for the NRC in as much as it provided opportunities for public comment across the country. WCD hearings must not only happen in Rockville. Minimally, ANA suggests in-person WCD meetings occur in the following cities:

- Albany, NY
- Philadelphia, PA
- Atlanta, GA
- Chattanooga, TN
- Columbia, SC
- Chicago, IL
- Kansas City, MO
- Santa Fe, NM/Los Angeles, CA

### *Meeting National Environmental Policy Act requirements*

There are several problems with the existing WCD EIS process, the most egregious failure being the lack of "alternatives" put forward. Minimally, the NRC is responsible for identifying and assessing a "preferred alternative" and a "no action alternative" Because a WCD is required in order to license nuclear power reactors it seems that a "no action alternative" would be not

issuing a new WCD and an end to nuclear power reactor (re)licensing. NRC must explore multiple alternatives, including a “no action alternative,” through this EIS process.

In addition to NRC’s failure to identify proposed alternatives, the timeline presented to complete the EIS and issue a record of decision implies a lack of earnestness on the NRC’s part. Two years is simply not enough time to collect and analyze the data required to issue an honest WCD. The NRC’s own staff working on the Long-Term Waste Confidence Update Project has stated that it needs seven years to study topics related to updating long-term waste confidence. Certainly, the D.C. Circuit Court’s order to analyze indefinite spent fuel storage would qualify as “long-term waste confidence” and the work of the Long-Term Waste Confidence Update Project should be considered.

#### *Threats posed by spent nuclear fuel cooling pools*

Cooling pools are not a safe place to hold spent nuclear fuel indefinitely, particularly at the density that most U.S. pools are now packed. This EIS must examine opportunities to remove spent nuclear fuel from cooling pools. In addition to the leakage and fire risks identified by the D.C. Circuit Court, many U.S. cooling pools are poorly designed and not sufficiently hardened against possible terrorist attack.

The GE Mark I and II reactor design placing the cooling pool atop the reactor core has long been known to be problematic, and in a post-Fukushima world we cannot continue to ignore the risks associated with this design. This EIS should examine solutions to the risks of the GE Mark I and II designs and should prioritize emptying these pools.

Decreasing the density of spent nuclear fuel in cooling pools must be part of this EIS. The density of most U.S. cooling pools is far beyond their designed capacities. Spent fuel density increases the probability of both cooling pool leaks and fires. This EIS should examine alternative plans for long-term on site storage of spent nuclear fuel

#### *The concept of Hardened On-Site Storage*

Hardened On-Site Storage is the only realistic short and intermediate solution to the problem of spent nuclear fuel. This EIS is the perfect opportunity for the NRC to assess standards for passively cooled dry onsite storage. ANA, along with scores of other environmental organizations, has compiled a set of principles for Hardened On-Site Storage, which is appended to this comment. This EIS is the appropriate process for the NRC to determine how best to require and regulate Hardened On-Site Storage and the EIS should build on the work already started by environmental groups with the attached Hardened On-Site Storage principles

#### *The need to address storing multiple fuel forms*

For the purposes of this EIS, the NRC must assume that the National Nuclear Security Administration will succeed in persuading some utility to use Mixed Oxide Plutonium fuel (MOX). This EIS must therefore explore the special needs of spent MOX. The Nuclear Waste Technical Review Board has stated that

[The] decay heat of a spent MOX fuel assembly would be between 1.3 and 1.7 times higher than that for an equivalent spent-uranium fuel assembly. Consequently, the used MOX would need to be kept in dry cask storage for an additional 56 years to have the same thermal impact on a repository at the time of emplacement. For certain repository designs, that difference could be consequential.<sup>2</sup>

The Nuclear Waste Technical Review Board's conclusion that spent MOX fuel stays hotter longer means that it will require longer than average cool-down periods in both pools and dry cask storage before it can be taken to an off-site repository. This EIS should explore appropriate density and duration for storing spent MOX fuel on-site at nuclear power reactors.

*The need to further study and address changing design bases*

This EIS must examine the changing design bases at existing and potential nuclear power reactors. Dynamic factors such as shifting populations, improved understanding of geology, and climate change must be analyzed in this EIS and accounted for in a new WCD. Factors that affect reactor sites' susceptibility to natural disasters must be carefully considered, including new developments in seismology and shifting weather patterns, are particularly important to the usefulness of a new WCD.

The NRC may be able to make a technical determination about the feasibility of a permanent spent nuclear fuel repository; however the politics of siting such a repository cannot be so clearly determined. Because of the uncertainties inherent in our political system, it is unsound to assume that a permanent repository will be available in the foreseeable future and this EIS must include analysis of storing spent nuclear fuel on-site indefinitely.

While the WCD is only applicable to the period after a reactor's license expires, the NRC acknowledges that it plays a critical role in the license issuance and renewal processes for reactors and spent nuclear fuel storage sites.<sup>3</sup> Thus, broader questions related to the continued generation of spent nuclear fuel are relevant to this EIS' process and the prospect of cessation of reactor licensing should be studied as a "no action" alternative.

*"Spent nuclear fuel" is the legally defined term, not "used nuclear fuel"*

Section 2 (23) of the *Nuclear Waste Policy Act of 1982* (NWPA) defines the term "spent nuclear fuel." According to the NWPA, "The term "spent nuclear fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." The term "spent nuclear fuel" is used consistently throughout the NWPA and in other U.S. laws pertaining to regulation of nuclear materials.

Likewise, DOE has thus adopted official use of the term "spent nuclear fuel," as reflected in DOE orders such as DOE O 410.2 – *Management of Nuclear Materials* - and in DOE M 435.1-1 – *Radioactive Waste Management Manual*. The term "spent fuel" is also defined in the DOE's *Nuclear Terms*

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<sup>2</sup> Stout, Daniel. Letter from Nuclear Waste Technical Review Board to Assistant Secretary for Nuclear Energy

<sup>3</sup> "Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation." Proposed Rules. Federal register, Vol. 77, Issue 207. Oct. 25, 2012. Page 65138

*Handbook* of 1993 and is used consistently in the Department of Energy's NEPA Regulations (10 CFR Part 1021), as reflected in the terminology used in Yucca Mountain EIS documents.

No formal, legal definition of "used nuclear fuel" is found in the Nuclear Waste Policy Act, in other DOE orders or DOE's *Nuclear Terms Handbook* or in NRC definitions.

For the most part, the Nuclear Regulatory Commission uses the legally defined term "spent nuclear fuel" and does not use the extra-legal term "used nuclear fuel." The NRC must stick with the legally defined term and not use an informal and confusing term which DOE and the plutonium industry have started using to imply that spent nuclear fuel can be reused, or reprocessed.

Thank you,

A handwritten signature in black ink, appearing to read 'Katherine Fuchs', with a long horizontal flourish extending to the right.

Katherine Fuchs  
Program Director  
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