

## Rulemaking1CEm Resource

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**From:** RulemakingComments Resource  
**Sent:** Monday, March 21, 2016 7:45 PM  
**To:** Rulemaking1CEm Resource  
**Subject:** FW: Docket ID: NRC-2015-0070, Proposed Rule, 80 FR 80709  
**Attachments:** 160318\_BREDL comments on ANPR decommissioning.pdf

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**TITLE:** Regulatory Improvements for Decommissioning Power Reactors

**COMMENT#:** 121

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**From:** bredl [mailto:bredl@skybest.com]  
**Sent:** Saturday, March 19, 2016 12:07 AM  
**To:** RulemakingComments Resource <RulemakingComments.Resource@nrc.gov>  
**Subject:** [External\_Sender] Docket ID: NRC-2015-0070, Proposed Rule, 80 FR 80709

March 18, 2016

Annette Vietti-Cook, Secretary  
U.S. Nuclear Regulatory Commission  
Rulemakings and Adjudications Staff.  
Washington, DC 20555-0001

**RE: Docket ID: NRC-2015-0070, Proposed Rule, 80 FR 80709**

On behalf of the Blue Ridge Environmental Defense League, I submit these comments in response to the questions presented by the NRC in this notice. I had difficulty submitting via regulations.gov before the 11:59 PM deadline. The site would not upload my comments.

Louis A. Zeller

# Blue Ridge Environmental Defense League

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March 18, 2016

Annette Vietti-Cook, Secretary  
U.S. Nuclear Regulatory Commission  
Rulemakings and Adjudications Staff.  
Washington, DC 20555-0001

**RE: Docket ID: NRC-2015-0070, Proposed Rule, 80 FR 80709**

On behalf of the Blue Ridge Environmental Defense League, I submit these comments in response to the questions presented by the NRC in this notice.

The U.S. Nuclear Regulatory Commission issued an advance notice of proposed rulemaking (ANPR) to obtain public input on the development of possible changes to the NRC's regulations for the decommissioning of nuclear power reactors. The NRC's stated purpose of the ANPR is to "provide an efficient decommissioning process, reduce the need for exemptions from existing regulations, and support the principles of good regulation, including openness, clarity, and reliability."

There are three general options for decommissioning:

- Immediate Dismantling (DECON): The dismantling and decontamination of the nuclear plant begin soon after cessation of power productions and, depending on the facility, removed from regulatory control within about five years. Eventually, the site becomes available for re-use.
- Safe Enclosure (SAFSTOR): The nuclear plant is placed into a storage mode pending dismantling and decontamination, with removal of controls after 40 to 60 years.
- Entombment (ENTOMB): The nuclear plant is mothballed with radioactive material remaining at the site indefinitely. This method consolidates the radioactive material and encloses the facility in concrete.

The NRC's ANPR states: "Experience has demonstrated that licensees for decommissioning power reactors seek several exemptions and license amendments per site..." and further, that, "The licensees are seeking NRC approval of exemptions and amendments, to reduce requirements no longer needed or no longer relevant for permanently shutdown reactors." In view of the uncertainties and lack of experience with decommissioning, we recommend that the Commission resist the prompting of the nuclear industry's representatives to the regulations.

The United Nations Environmental Programme has outlined the following factors regarding nuclear decommissioning worldwide:

The costs of decommissioning and waste disposal include the possibility of risks to public health, safety and the environment when not properly managed. Some

unexpected incidents have been reported during decommissioning, including releases of radioactive elements and fires and floods affecting the storage sites. The primary problems arising from decommissioning relate to reprocessing and removing radioactive wastes for subsequent storage or disposal. One of the greatest dangers arising during equipment disassembly is exposure to radiation, since protective safety barriers are dismantled and a large amount of radioactive substances can migrate outside the confines of the units (Bylkin and others 2011). During the cutting up of the materials for decommissioning, the radioactivity is in a different form (dust and gas) than during the running of the NPP. This has potential to create radioactivity leaks to the environment (Shimada and other 2010). Decommissioning one 1 000 MW reactor generates about 10,000 m<sup>3</sup> of low and intermediate level waste (LILW), much of which is concrete and other building materials containing small amounts of radioactive materials (CORWM 2006).<sup>1</sup>

Decommissioning costs are high, and although they may be borne by the operators of the shuttered plant, “in the event of operator default or non-performance, this responsibility likely reverts to the regulating entity.”<sup>2</sup> Another factor adding to uncertainty is the extent of soil and groundwater contamination, which cannot be ascertained until late in the decommissioning process. These and other factors lead to financial uncertainty.

Since few NPPs have been fully decommissioned, the exact costs of accomplishing this phase are unknown (Ramana 2009). Estimates vary from 9% to 200% of the construction costs (Lenzen 2008). Data are often not made available to the public owing to contractual arrangements, property rights and other reasons. Cost estimates are only accurate from -5% to +15% (Laguardia 2006). A report estimating the cost of decommissioning a site in the United States shows that for some projects, documentation on the data used to estimate costs is in fact missing (GAO 2010).<sup>3</sup>

Finally, we recommend that the Commission also factor in the often overlooked global warming impacts of nuclear power and decommissioning:

Although in general nuclear energy generation does not produce any CO<sub>2</sub>, the full life-cycle of a nuclear power station is not "CO<sub>2</sub>-neutral". Decommissioning is one of the processes that produces CO<sub>2</sub>, although studies vary greatly in estimating the amount produced. Based on several studies, it produces an estimated mean of 12g of CO<sub>2</sub> emission per kilowatt hour (12 g CO<sub>2</sub> e/kWh); while the mean emission level over the lifetime of a nuclear power plant is estimated to be 66 g CO<sub>2</sub> e/kWh (Sovacool 2008). While this cost varies according to technique and reactor type, the total energy required for

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<sup>1</sup> United Nations Environmental Program, *The Decommissioning of Nuclear Reactors and Related Environmental Consequences*, [http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article\\_id=70](http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=70)

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

decommissioning can be as much as 50% more than the energy needed for the original construction (Fleming 2007).<sup>4</sup>

Thank you for the opportunity to present our views.

Respectfully,

A handwritten signature in black ink, appearing to read "Louis A. Zeller", written over a horizontal line.

Louis A. Zeller  
Executive Director

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<sup>4</sup> *Id.*