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November 4, 2013

Secretary
US Nuclear Regulatory Commission
Washington, DC 20555-0001
Attention Rulemaking & Adjudication Staff

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

Dear Secretary:

On behalf of the Blue Ridge Environmental Defense League, I submit the following comments on nuclear waste storage at power plant sites.

After reviewing the draft documents, we make the following observations and recommendations:

1. The NRC should completely eliminate the waste confidence rule. Because it is a general rule, it cannot apply to the 65 different commercially operated nuclear plant sites across the US. Each site is different and should be treated as such. There should be individual plant environmental impact statements.
2. So-called independent spent fuel storage installations (ISFSI) would be *de facto* nuclear waste dumps. The generic waste confidence rule would be based on finding one or more waste sites which would be located in economically stressed communities. Potential sites would be in the Southeast, such as Savannah River, or on Native American land, such as Yucca Mountain. This is fundamentally unjust.
3. Long-term storage of radioactive waste at nuclear power plant sites should be done in dry, secure canisters. The industry which made the waste and profited from it should manage it. And storage on-site at nuclear power stations represents the least hazard to public health in the areas both near the reactors and along transport routes.

Background

“Waste confidence” is all about high-level nuclear waste which is produced by nuclear reactors, generated in the reactor core and highly radioactive. The US Nuclear Regulatory Commission adopted the original Waste Confidence Decision and Rule (10 CFR 51.23) in 1984.¹ The Decision and Rule were updated in 1990, reviewed in 1999, and updated in 2010. In the 2010 Decision and Rule (10 CFR 51.23), the Commission made five findings:

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.

¹ The rule: “Temporary storage of spent fuel after cessation of reactor operation—generic determination of no significant environmental impact, 10 CFR Section 51.23.”

5. Onsite or offsite storage for irradiated fuel will be made available if needed.²

However, in 2012 the US Court of Appeals District of Columbia Circuit nullified the Nuclear Regulatory Commission's Waste Confidence Rule.³ The DC Circuit Court's landmark decision invalidated this broad federal regulation which supports all US nuclear power plant licenses and remanded the rule back down to the NRC for further action. The Court decision clearly stated the cause of the problem and ordered the direction for remedy: The NRC had "no long-term plan other than hoping for a geologic repository," and therefore, that the NRC must "examine the environmental effects of failing to establish a repository." The development of an environmental impact statement to support a new waste confidence rule is now underway and is the subject of today's public hearing.

The appellate court decision also cleared the way for a number of legal challenges at scores of commercial nuclear power reactors in the United States. Subsequently, many groups petitioned the Nuclear Regulatory Commission to ensure that the environmental analysis ordered by the Court is properly incorporated into the licensing of nuclear power plants across the nation. Blue Ridge Environmental Defense League is among these groups.⁴

Comments

The new NRC waste rule has no basis and is contrary to the law

According to the NRC Staff Requirements Memo, SECY-13-0061, the new waste confidence rule will be also be based on an assumption about the availability of a dump site for nuclear waste as follows:

10 CFR 51.23 would be revised to provide the Commission's generic determination on continued storage of spent nuclear fuel. The proposed amendments would state that the Commission has concluded that the analysis in NUREG-2157, "Waste Confidence Generic Environmental Impact Statement" (DGEIS) generically supports the environmental impacts of continued storage of spent nuclear fuel beyond the licensed life for operation of a reactor; and supports the Commission's determinations that it is feasible to safely store spent nuclear fuel beyond the licensed life for operation of a reactor and to have a mined geologic repository within 60 years following the licensed life for operation of a reactor.

To support this assumption, the Waste Confidence Generic Environmental Impact Statement, NUREG-2157, states:

[T]he activities of European countries support the technical feasibility of a deep

² "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>

³ *State of New York v. NRC*, USCA Case No. 11-1045, Decided June 8, 2012

⁴ Louis A. Zeller is duly authorized representative of: 1) Blue Ridge Environmental Defense League and Bellefonte Efficiency and Sustainability Team in the COL Proceeding for Bellefonte Units 3 and 4, Docket Nos. 52-014 and 52-015; 2) Blue Ridge Environmental Defense League and People's Alliance for Clean Energy in North Anna COL proceeding, Docket No. 52-017; and 3) Blue Ridge Environmental Defense League in W.S. Lee COL proceeding, Docket Nos. 52-018 and 52-019.

geologic repository. In late 2012, a Finnish nuclear-waste-management company (Posiva) submitted a construction licence application for a geological repository for spent fuel to Finland's Radiation and Nuclear Safety Authority.⁵

However, when investigated by our staff, all three "Latest publications" posted to the Posiva website via the following links were unavailable.⁶ They are:

- 29.10.2013 / Workreport 2013-23 Human Intruder Dose Assessment for Deep Geological Disposal
- 29.10.2013 / Workreport 2012-102 Studies on Reference Mires: 1. Lastensuo and Pesänsuo in 2010–2011
- 29.10.2013 / Workreport 2012-101 Studies of Quaternary Deposits in Investigation Trench OL-TK19 on the Olkiluoto Study Site, Eurajoki, SW Finland

The proposed waste confidence rule appears to be going down the same path as the one it is supposed to replace; i.e., specious claims based on unsupported assumptions. This is not only incongruous; it is contrary to the order of the appellate court. With limited time to justify its predetermined conclusions, the Commission has produced a flawed draft generic EIS and a similarly flawed draft rule.

The NRC's one-size-fits-all generic approach is unjustified

The Commission is abrogating due process required under the Constitution by abandoning its responsibility to allow public to participate in decisions which affects them. The NRC's summary of the proposed rule proposed waste confidence rule states:

If this proposed rule is adopted as a final rule, the NEPA analyses for future reactor and spent-fuel storage facility licensing actions would not need to consider the environmental impacts of continued storage on a site specific basis.⁷

A generic decision to allow the creation of additional irradiated nuclear reactor fuel and other radioactive waste associated with the uranium fuel cycle should be accompanied by 65 well-supported and well-documented plant-specific safety findings. And it would need scores of credible, plant-specific environmental impact statements that fully assesses the health and environmental impacts of the uranium fuel cycle with a reasonable array of alternatives.

The NRC is rushing the process

NRC must resolve many technical issues including long-term waste integrity, vulnerability, deterioration and accidents. For example, the nuclear waste stored at Fukushima is still being evaluated. According to an NRC staff plan, a long-term waste confidence update was expected to take eight years.⁸ Yet the NRC has set a deadline of September 2014 to finalize the new rule. The agency's two-year deadline is rushing the process and the public will suffer if the

⁵ Draft NUREG-2157, Section B.2.1 Technical Feasibility of a Repository, page B-2, August 2013

⁶ The Posiva website was accessed by the author of these remarks most recently on November 4, 2013 at http://www.posiva.fi/en/final_disposal

⁷ SECY-13-0061, Staff Requirements Memorandum, August 5, 2013

⁸ "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>

NRC persists in pleasing the industry at the expense of public safety. One consequence of the foreshortened schedule is that it has eliminated any opportunity to participate by members of the public who live far from NRC Headquarters or have not the capability to access Internet webinars. This practice creates an artificial divide, favoring those in locations with high-speed Internet and the latest hardware and software. This is patently discriminatory and manifestly unfair. Within the context of the extant EIS process, the Commission should stop and reassess this procedure.

The US Court of Appeals for the District of Columbia DC ruled that the NRC's analysis was "not thorough enough" to support the waste confidence rule at 10 CFR 51.23. Yet on remand, the NRC has elected to pursue generic rule, a decision we believe is unwise. The NRC must account for the consequences of specific risks at varied sites. Therefore, all reactor sites must be included whether seaside, riverside, inland, etc. It is impractical for this to be done adequately to cover all sites and be completed within 24 months. When asked about this, NRC staff replied, "We can bound these analyses."⁹ But bounding 104 reactors at 65 sites cannot be done with baling wire and masking tape. And to artificially limit the alternatives is in contravention of the law. In order to satisfy the National Environmental Policy Act (NEPA), the NRC must address the original agency action that caused the production of irradiated nuclear fuel and the resulting impacts: i.e., the licensing of nuclear reactors. In fact, within the context of the DGEIS, the most practicable alternative for preventing or mitigating high-level nuclear waste storage impacts is the cessation of further reactor licensing.

In sum, we recommend that the Commission heed the advice of those who estimate that the waste confidence rule should take three to four times as long as what the Commission has ordained.

No Dump Site for Nuclear Waste

Under the Nuclear Waste Policy Act of 1982, commercial nuclear power reactor waste disposal is limited to no more than 63,000 metric tons at the nation's first nuclear dump site. Additional waste is prohibited at such a location, and a second waste site would be required to dispose of waste in excess of that figure. The NWPA prohibits:

"...the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation..."¹⁰

The 70,000 metric tons would be 90% commercial nuclear reactor waste, the balance of 10%, or 7000 metric tons, would be waste from nuclear weapons production and nuclear energy research. Therefore, only 63,000 metric tons of commercial irradiated nuclear fuel could be disposed until a second national waste dump becomes available.¹¹

According to the U.S. Department of Energy's Office of Civilian Radioactive Waste Management, a total of 63,000 metric tons of commercial irradiated nuclear fuel was reached in

⁹ December 5, 2012 NRC Waste Confidence Rule EIS Internet webinar: oral reply to question posed by L. Zeller.

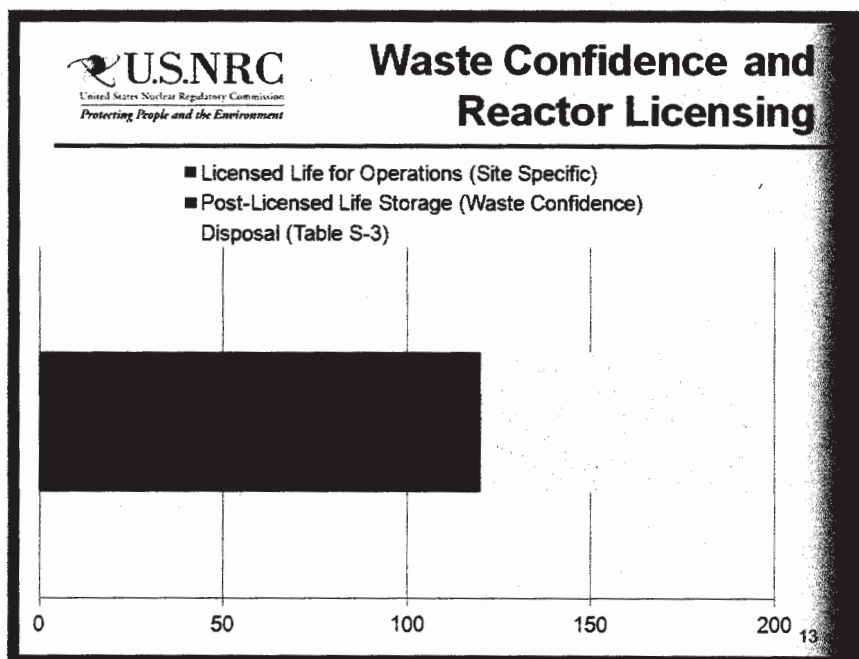
¹⁰ Nuclear Waste Policy Act of 1982, Section 114(d); 42 U.S.C. § 10134(d)

¹¹ Yucca Mountain EIS at A-1

2010.¹² So the existing, operating commercial nuclear power reactors have effectively filled the nation's first waste site and are now well into the second. Within the next twenty years, over 80,000 metric tons of irradiated nuclear fuel will have been generated at commercial nuclear reactors in the U.S. This was known well before the NRC's last review of waste confidence in 1999.¹³ In fact, the DOE predicted that there would be over 105,000 metric tons of commercial irradiated nuclear fuel by the year 2046.¹⁴ Although the NRC's standard license extension is for 20 years, the DOE's assessment was based on license extensions of only 10 years. Further, DOE's estimate included no new commercial nuclear reactors in the U.S. Therefore, the high-level nuclear waste generated by existing reactors is well on the way to filling twice over a mined geologic repository which the NRC has assumed will be "available when necessary."

Further, the NRC's lack of basis for a finding of confidence in the technical feasibility of a repository fatally undermines Table S-3 of the NRC's Uranium Fuel Cycle Rule, which depends on the assumption that radioactive releases from a repository will be zero.

In their internal scoping for irradiated nuclear fuel, the NRC staff identified three scenarios: 1) evaluate storage until a repository is available mid-century, 2) evaluate storage until a repository is available at the end of the century and 3) continued storage if a repository is not available.



Scenario Three is "unavailability of a national nuclear waste repository." The scenario of a repository being unavailable is the most likely of the three and the yellow arrow in slide number 13 should extend for at least 10,000 years and have 65 arrow points.

¹² DOE OCRWM Director Ward Sproat III at the U.S. Nuclear Regulatory Commission's Regulatory Information Conference

¹³ U.S. Nuclear Waste Technical Review Board "Disposal and Storage of Spent Nuclear Fuel: Finding the Right Balance," (March 1996)

¹⁴ "Final Environmental Impact Statement for a Repository for Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada," (Feb. 2002)

During the 1980's, I observed the fruitless search to locate a site for a waste repository 20 miles from my home. The history of the Nuclear Waste Policy Act of 1982 as amended in 1987 does not lend confidence in the ability to locate a repository. The US Department of Energy's Office of Civilian Radioactive Waste Management's methodology and conclusions were inadequate to the task. Recently, the President's Blue Ribbon Commission outlined a site search using a warmed over DOE approach. Further, the fundamental environmental justice issues of a volunteer waste site have not been addressed. The Commission should entertain no false confidence in the ability to find a national waste site.

Duck Tape: Because All Nuclear Waste Solutions are Temporary

The general principles for at-reactor storage of high-level nuclear waste has been outlined in a letter from national, regional and local non-governmental organizations and endorsed by the Blue Ridge Environmental Defense League.¹⁵ We recommend these principles as a starting point:

- **Require a low-density, open-frame layout for fuel pools:** Fuel pools were originally designed for temporary storage of a limited number of irradiated fuel assemblies in a low density, open frame configuration. As the amount of waste generated has increased beyond the designed capacity, the pools have been reorganized so that the concentration of fuel in the pools is nearly the same as that in operating reactor cores. If water is lost from a densely packed pool as the result of an attack or an accident, cooling by ambient air would likely be insufficient to prevent a fire, resulting in the release of large quantities of radioactivity to the environment. A low density, open-frame arrangement within fuel pools could allow enough air circulation to keep the fuel from catching fire. In order to achieve and maintain this arrangement within the pools, irradiated fuel must be transferred from the pools to dry storage within five years of being discharged from the reactor.
- **Establish hardened on-site storage (HOSS):** Irradiated fuel must be stored as safely as possible as close to the site of generation as possible. Waste moved from fuel pools must be safeguarded in hardened, on-site storage (HOSS) facilities. Transporting waste to interim away-from-reactor storage should not be done unless the reactor site is unsuitable for a HOSS facility and the move increases the safety and security of the waste. HOSS facilities must not be regarded as a permanent waste solution, and thus should not be constructed deep underground. The waste must be retrievable, and real-time radiation and heat monitoring at the HOSS facility must be implemented for early detection of radiation releases and overheating. The overall objective of HOSS should be that the amount of releases projected in even severe attacks should be low enough that the storage system would be unattractive as a terrorist target. Design criteria that would correspond to the overall objective must include: a) Resistance to severe attacks, such as a direct hit by high-explosive or deeply penetrating weapons and munitions or a direct hit by a large aircraft loaded with fuel or a small aircraft loaded with fuel and/or explosives, without major releases. b) Placement of individual canisters that makes detection difficult from outside the site boundary.
- **Protect fuel pools:** Irradiated fuel must be kept in pools for several years before it can be stored in a dry facility. The pools must be protected to withstand an attack by air, land, or water from a force at least equal in size and coordination to the 9/11 attacks. The security

¹⁵ Principles for Safeguarding Nuclear Waste at Reactors, September 15, 2007, available at: http://www.beyondnuclear.org/storage/principles_for_safeguarding_irradiated_fuel_knownukestnvalley_9152008.pdf

improvements must be approved by a panel of experts independent of the nuclear industry and the Nuclear Regulatory Commission.

- **Require periodic review of HOSS facilities and fuel pools:** An annual report consisting of the review of each HOSS facility and fuel pool should be prepared with meaningful participation from public stakeholders, regulators, and utility managers at each site. The report must be made publicly available and may include recommendations for actions to be taken.
- **Dedicate funding to local and state governments to independently monitor the sites:** Funding for monitoring the HOSS facilities at each site must be provided to affected local and state governments. The affected public must have the right to fully participate.
- **Prohibit reprocessing:** The reprocessing of irradiated fuel has not solved the nuclear waste problem in any country, and actually exacerbates it by creating numerous additional waste streams that must be managed. In addition to being expensive and polluting, reprocessing also increases nuclear weapons proliferation threats.

Conclusion

The old Waste Confidence Rule merely presumed that waste stored at reactors would go to a waste dump someday, but the government's quest for a permanent waste dump is not only as doubtful as ever, it is a political hot potato and a questionable ethical proposition.

The NRC's generic approach to the environmental assessment and rulemaking remains utterly inadequate to satisfy the requirements of both the Atomic Energy Act and the National Environmental Policy Act for the licensing decisions necessary for nuclear power plants. And the Commission fails to give due consideration to the alternative of shutting down nuclear plants and not producing any additional radioactive waste, an approach now taken by other advanced industrial nations.

Thank you for your attention to these issues. I plan to submit further remarks before the close of the public comment period.

Respectfully,



Louis A. Zeller

Executive Director, Blue Ridge Environmental Defense League