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Comment On: NRC-2012-0246-0361
Waste Confidence - Continued Storage of Spent Nuclear Fuel

Document: NRC-2012-0246-DRAFT-0697
Comment on FR Doc # 2013-21708

Submitter Information

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General Comment

See attached file(s)

Attachments

Proposed Rule - Nuclear Waste Storage

Lauren Lyons

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November 13, 2013

U.S. Nuclear Regulatory Commission

Washington, D.C. 20555-0001

To whom it may concern:

I am submitting my comment for consideration of Proposed Rule docket NRC-2012-0246 concerning "Waste Confidence – Continued Storage of Spent Nuclear Fuel". As a United States citizen concerned with the health and safety of our environment, I was interested in commenting on this proposed rule.

I respect the difficult decision that the NRC has to make but overall, I oppose the passing of this rule. My comment discusses the potential negative effects of on-site nuclear waste storage, including environmental contamination and psychological stress on the public, the dubious future of a long-term national repository, and possible alternative actions the NRC may be interested in considering.

Thank you for the consideration of my comment.

Respectfully,
Lauren Lyons

Lauren Lyons

Dr. Charles Shorten

ENV 447

13 November 2013

On September 13, 2013, the U.S. Nuclear Regulatory Commission (NRC) submitted a proposed rule concerning the current and future storage of spent nuclear waste. This rule is proposing a few changes to 10 CFR 51.23 including having a generic environmental impact statement (EIS) for all nuclear waste storage sites that supports the continued on-site storage of wastes until a nuclear waste repository is found within the next 60 years. This would be an improvement because, in the past, the NRC did not require an EIS at nuclear waste storage sites. Having a generic EIS available will ease and simplify the licensing process for nuclear reactors in the country.

However, there are also several issues associated with this rule change. The first issue is that on-site storage is not necessarily appropriate for long-term nuclear waste storage, as it can present hazardous conditions. Secondly, it is not certain that a new nuclear waste repository will be found in the next sixty years. I oppose this proposed rule because I feel that the negative impacts of its passing would surpass the benefits. I suggest that the NRC reevaluate its options and present a new proposal.

The proposed rule states that the Nuclear Regulatory 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."

However, the most common methods of on-site storage currently in use are concrete-lined pools or large concrete and steel casks which are not meant for long-term storage (Harnett, 2013). The lifetime of a cask is decades, yet nuclear waste remains dangerous for thousands of years ("Nuclear waste can't," 2013). Moreover, these casks are not in a form that can be stored at a repository – even if one is found in the next sixty years (Wald, 2013). Every year reactors in the United States generate about 2000 metric tons of radioactive waste (Kintisch, 2011). As they continue to generate nuclear waste and store it in these casks, they are losing precious storage space every day.

Additionally, concrete-lined pools are not 100% percent foolproof. They can leak wastes into the ground which can contaminate ground water (Harnett, 2013). These pools can also present a target for terrorism or danger in the event of a natural disaster (Kintisch, 2011). The Fukushima nuclear plant disaster is still recent enough to cause concern and, needless to say, a terroristic attack on a nuclear storage site would be disastrous to the United States. Storage casks and pools are not only expensive to build, but they are expensive to maintain as well due to the necessity to constantly guard them from terrorism. According to an article in Science Journal, "fuel in U.S. spent fuel pools is packed four times as densely as it was 25 years ago". Obviously, this could pose serious health risks if there was any leakage or terroristic attacks (Kintisch, 2011).

Highlighted by the recent disaster in Fukushima, Japan, nuclear waste leakage can present a variety of problems. Nuclear waste that leaks from storage pools or casks can contaminate the surrounding earth and groundwater. In addition to potential physiological issues such as cancer, the threat of potential contamination can severely tax people's psychological health (Revkin, 2012). Because nuclear energy is still misunderstood by many people, the fear of the unknown often dictates their mindsets. Even if any potential contamination in the ground is so minimal that it becomes negligible, the public does not know or necessarily understand that. As history has shown, it is easy to scare the public with threat of potential nuclear waste leakage. Obviously, keeping the public comfortable and happy is important; living in constant fear that on-site storage containers, like the concrete pools and casks, could be leaking will not help achieve this goal at all.

The new rule also asserts that a mined geologic repository will be available within the next 60 years for long-term nuclear waste storage. Although Yucca Mountain in Nevada is ideal for long-term storage and stands as one of the safest places in the country to store nuclear wastes ("Nuclear waste can't," 2013), the Obama administration shut down plans for the location in 2010 after spending about $10 billion on the project. Without the Yucca repository, which has been targeted as the planned location for a national repository for decades, the United States does not have another potential location.

Furthermore, there has been a long debate over where to host the national repository and the final deadline for a long-term repository has been extended multiple times (Wald, 2013). If the Yucca repository is not even option, this deadline may be extended even further –

which could present problems for the nuclear waste currently being stored on-site. Ed Burke, chairman of the waste management committee in Aiken, South Carolina, was quoted as saying, "the department's decision not to make it [Yucca Mountain] the permanent repository suggests the next effort to find a permanent site will be even more lengthy and costly" (Carr, 2013). A new repository site would have to satisfy many requirements in order to be considered even a possibility. Factors such as seismic activity, groundwater flow, surrounding earth composition, and location of major cities and landmarks are all considered for potential sites (Jonsson, 2012). The required testing and monitoring of the site could take years or even decades. With this in mind, extending the sixty year deadline does not seem improbable.

Although on-site storage is not appropriate for long-term storage and a national repository does not appear to be available in the present, there are other options. A recent Senate bill discussed the option to have interim repositories which would act as locations where several reactors could consolidate their waste. These would not take the place of a national repository but would act as "buffer locations" until the national repository is accessible (Dolley, 2013). Interim locations are a way of alleviating the problem but are not a permanent solution.

Another option would be alternative designs for nuclear plants. A South African company called PBMR Ltd. began developing a new type of reactor called the pebble bed modular reactor in the 1990s. This design would improve the efficiency of the process, reduce overall quantities of waste, and reduce dangerous conditions (Adams, 2001). Improving the design of the plants would help with the long-term waste storage problem because it would allow plants to generate less waste. Not only will pebble bed modular reactor plants generate

less waste, but they will also be designed with a system to make the waste they do generate safer. PBMR proposes to coat the waste with a layer of fuel that will keep it separate from the environment and allow it to safely degrade into a stable substance (Adams, 2001). Furthermore, this design will include specifically engineered areas within the facilities themselves large enough to store the by-products that the plants generate (Adams, 2001). This would make the plants almost self-sufficient and greatly reduce, if not eliminate, the need for substantial off-site storage. Now other countries, like China, have also begun developing the pebble bed reactors. It may prove beneficial for the United States to look into this technology as well.

This rule, proposed by the Nuclear Regulatory Commission concerning nuclear waste storage, is attempting to change the wording of 10 CFR 51.23. It would alter the way the code discusses a potential long-term national repository and the environmental impacts of storage at nuclear waste reactors by including a generic environmental impact statement. Although it is beneficial to have an EIS for all reactors, as it will ease the licensing process, there are several problems with passing this rule. On-site storage is not appropriate for long-term, as it can present disastrous effects, and the possibility of a new repository being selected is, to say the least, uncertain. For these reasons, I do not support this rule and feel that it should be reconsidered.

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