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## Gallagher, Carol

**From:** Linda Seeley <lindaseeley@gmail.com>
**Sent:** Monday, May 04, 2015 11:42 PM
**To:** Gallagher, Carol
**Subject:** Comments for Docket NRC-2014-0273, Impact of Variation in Environmental Conditions on the Thermal Performance of Dry Storage Casks, Draft Report

Please add my comments below to those already received.

The issue of climate change does not appear to be addressed. Using historical data is important. However, given that climate change will create more extreme conditions, this should be considered to ensure the most conservative thermal margins are used, especially since you are considering this for long term storage.

Please include the definition of "long term storage" as used in this NUREG. The 2014 NRC decision on Continued Storage has some specific definitions of time periods. It is not clear how these relate to this NUREG. The NRC Continued Storage decision referred to short term as being about 100 years (60 years after end of operating license). Or maybe 120 years, if it includes a 20-year license extension.

Should there be a recommendation in this NUREG to consider reevaluating approved and pending dry cask designs to address the potential need for lower thermal limits, since the critical information you are providing here **could create thermal conditions such that spent fuel could degrade and lead to gross rupture**?

Should there be a recommendation in this NUREG to identify existing loaded canisters that may have **thermal conditions such that spent fuel could degrade and lead to gross rupture**?

Is there any remediation that should or could be done if any existing loaded canisters may have **thermal conditions such that spent fuel could degrade and lead to gross rupture**?

There should be a recommended minimum time that fuel should cool in the pool for lower burnup and another for high burnup fuel. The high burnup fuel at Diablo Canyon in existing canisters requires 9 to 15 years to cool.

Are you pushing the thermal limits on what is safe, especially with the information about climate change and longer on-site storage requirements. Canisters that were not intended for long term storage and are subject to corrosion and cracking and other degradation mechanisms are being used at Diablo Canyon. These thin canisters cannot be inspected for cracks and cannot be repaired or maintained. There is no early warning, prior to a radiation leak and no plan in place to deal with a failed canister (especially if there is no spent fuel pool, as is allowed in decommissioned plants).

A comparable stainless steel welded container at the Koeberg nuclear power plant, had a 0.6" deep crack in 17 years from chloride-induced stress corrosion cracking. Most of US canisters are thinner than this crack (1/2" to 5/8"). Diablo Canyon has the same environment as Koeberg -- on shore winds, high surf and daily morning or evening fog most of the year. And because the canisters at Diablo Canyon are filled with spent nuclear fuel, the crack growth rate will be higher

from higher heat. The Koeberg container was at ambient temperatures. We don't know when a crack may initiate, but we know we have all the conditions for cracking. We don't appear to be prepared for this. If a canister has cracks, how will this affect your heat load calculations and do we run a higher risk of faster crack growth with these higher temperatures (once the temperature is below 85 degrees C)?

What are the range of environmental consequences of a microscopic through-wall crack in one of these thin canisters with gross ruptured spent fuel? Dr. Singh, Holtec President and CEO, said a microscopic crack will release millions of curies of radiation and its not feasible to repair these canisters. https://www.youtube.com/watch?v=euaFZt0YPi4&feature=youtu.be

Thank you.

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