

**Fire Protection Mitigative Actions for Spent Fuel Pools in  
Decommissioning Plants**

1. Scoping high-expansion foam experiment using input from FP staff/NIST.
2. Concerns raised in the following areas:
  - (A) Physics - heat transfer aspects
  - (B) Implementation: Fire brigade response, hoses, available water sources
  - (C) Consideration of other options for fire mitigation: Argon gas, Metal-X, water spray, etc..
3. Staff recommended approach

	<b>PROS</b>	<b>CONS</b>
<b>(1) Address preventative measures first.</b>	(1) Not duplicating efforts done by GSI - 82 <sup>1</sup> . (2) Done within TWG timeframe. (3) Already working on seismic checklist and heavy loads to identify vulnerabilities and provide extra SFP protection.	(1) Incomplete assessment of accident scenarios due to exclusion of possible mitigative outcomes.
<b>(2) Identify options that the staff looked into for fire protection mitigation methods and recommend no further research at this time. Discuss uncertainties with each method regarding method implementation.</b>	(1) The staff does not have to invest time into one method that may not work. (2) Provide insight so that we can say we looked into these areas, and note any uncertainties that might affect implementation of these methods. (3) Would not require contractor review since the staff is only offering (not requiring) options for consideration.	(1) Backfit concerns (2) New methods might involve obtaining new equipment (costs) (3) Limited scenarios for use (HLS, maybe seismic) (4) Cost/Benefit - NUREG 5281 <sup>2</sup>

<sup>1</sup>Throm, E.D., "Regulatory Analysis for the Resolution of Generic Issue 82, "Beyond Design Basis Accidents in Spent Fuel Pools", NUREG-1353, April 1989.

<sup>2</sup>Jo, J.H., et. Al., "Value/Impact Analyses of Accident Preventative and Mitigative Options for Spent Fuel Pools", NUREG/CR-5281 (BNL-NUREG-52180), March 1989.

432

	PROS	CONS
<b>(3) Recommend the further research be invested into the mitigative methods.</b>	<p>(1) For vulnerable plants could not do more from a seismic or heavy load standpoint to reduce risk, then they might consider the mitigative options suggested by the staff.</p> <p>(2) Industry might take the lead to come up with mitigation methods if this affects a number of plants.</p>	
<b>(4) NEI</b>	<p>(1) Shows we are considering industry input by making them aware of our concerns.</p> <p>(2) No surprises in final report.</p> <p>(3) Get an idea of NEI's thought's regarding mitigation - "on the same page"</p>	

4. What types of preventative measures is the staff looking at?

(A) Heavy Load Drop - NUREG - 0612 Phase I (Prevent) / Phase II (mitigate) consequences

(B) Seismic - Seismic checklist to identify vulnerabilities.

-no water sources, fixed equipment are guaranteed to survive

-no off-site equipment can be guaranteed to be able to survive or arrive onsite

-no cost benefit to add/modify systems to assist mitigation

5. Where are we in decommissioning? Politics/NEI/Comm.