On January 18, 2001, the NC-WARN released a news-release on the technical study of spent fuel pool accident risk at decommissioning nuclear power plants, which was developed by the U.S. Nuclear Regulatory Commission. The news-release states that the conclusion that decommissioning plants should meet the NRC safety goals is based on a list of 10 Industry Decommissioning Commitments (IDCs) and that possibly not all plants meet these assumptions. As a result, the risk associated with those plants could increase by at least a factor of 10. The implication is that some of the existing decommissioning plants may not be safe.

The NRC's evaluation of the risk at decommissioning nuclear power plants did take into account the 10 IDCs committed to by the nuclear industry as well as seven additional staff assumptions that were deemed important to the calculation of risk. These 17 assumptions were used to help create boundary conditions for the mathematical risk analysis of the decommissioning plants. These assumptions were derived in part from staff visits to four of the 19 decommissioning plants to gather information necessary to model a typical spent fuel pool cooling system, which turned out to be much different from those systems used to cool spent fuel pools at operating plants. These visits determined that there were many good practices employed at current decommissioning plants, but that there were few regulatory requirements that would force a licensee to necessarily develop or retain these practices. This finding motivated the NRC's decision to publically identify its important assumptions to help assure all stakeholders were aware of areas that could help keep the risk from decommissioning plants low and to provide input for future Commission rulemaking efforts.

In performing its risk evaluation, the NRC identified two types of events that could cause the spent fuel in a spent fuel pool (SFP) to heat up. The first type rapidly drains the pool of its

inventory and is considered to not be mitigatable once the event has occurred. Events belonging to this type include extremely large seismic events greater than design bases earthquakes and heavy load drops in or near the spent fuel pool (dropped objects in the 100-ton weight range). The second type either slowly drains the pool, or slowly heats up and boils off the pool inventory. Events belonging to this type include loss of offsite power due to severe weather, fires, failure of the spent fuel pool cooling system, and siphon events.

Most of the 17 assumptions directly bear on the second type of event, which is very slow in developing and provides ample time for intervention by the decommissioning plant operators or outside resources (e.g., the local fire department.) The current decommissioning plants have been shut down so long there is a margin of hundreds of hours (in many cases greater than 500 hours) between the start of an initiating event and the uncovery of spent fuel in the pool due to pool heat up and boiloff. The NRC found that the operators at the four decommissioning plants visited were highly trained, extremely professional, and very knowledgeable about the plant. Most were former senior reactor operators or reactor operators. The staff is not aware of any circumstance at current decommissioning plants that calls into question the plant's ability to effectively respond to slow heat up and boiloff events. The NRC risk assessment credits plants with effectively mitigating these events the vast majority of times.

A few of the 17 assumptions bear on the first type of event, which rapidly drains the spent fuel pool inventory. Extremely large seismic events are required to fail the spent fuel pools in a manner that would quickly drain the pool. In most cases the size of the earthquake needed to fail the pool would also fail the local infrastructure (e.g., roads, bridges, buildings, electrical power, communications) to the extent that the existence of a formal emergency evacuation plan would not alter how any evacuation was conducted, as most emergency, police, state, and

other resources would be heavily engaged in a massive rescue effort throughout the area affected. The NRC realizes that the current decommissioning plants have not implemented the seismic checklist identified in the NRC's risk assessment. Never-the-less, we are not aware of any reason to believe that any of these plants has a significant seismic vulnerability that would contradict the NRC's assumptions made in its risk assessment. The NRC will be investigating the need to incorporate aspects of the 17 assumptions into future updates to decommissioning plant inspection guidance. Another event that could rapidly drain the pool is a heavy load drop in or near the spent fuel pool. This event is assumed to not be mitigatable. For such an event, a plant that has been shutdown more than five years should take at least 24 hours for the spent fuel to heat up to a temperature where a zirconium fire could start. Since the operators would be immediately aware that a heavy load drop had occurred, there is no reason to believe that a successful evacuation of the surrounding area could not be accomplished in the time available. The NRC is not aware of anything that is going on at current decommissioning plants that would alter its assumptions about heavy load drops and their consequences. Most, if not all, plants are not moving fuel in spent fuel casks at this time. The NRC intends to investigate the frequency of heavy load lifts at decommissioning sites and will determine if changes to inspection guidance or plant-specific backfits are necessary, particularly for plants equipped with non-single failure proof cranes.

Based on length of shutdown, time available for mitigation, and time available for evacuation, at this time the NRC does not see any reason that would indicate immediate action is required to forestall a risk-significant situation at any decommissioning plant. The NRC does intend to continue to monitor and evaluate the risk of decommissioning plants and will alter its inspection guidance and other practices as necessary to assure that risk remains low.