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Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
ATTN: Rulemakings and Adjudications Staff

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

**Re: Direct Final Rule for the List of Approved Spent Fuel Storage Casks: HI-STORM 100 Revision**

Public Citizen and the Nuclear Information and Resource Service (NIRS) submit the following comments on NRC's Direct Final Rule for the List of Approved Spent Fuel Storage Casks: HI-STORM 100 Revision, which was published in the Federal Register (Vol. 71, No. 199) on October 16, 2006. Public Citizen is a 35-year-old consumer advocacy organization with more than 100,000 members nationwide. NIRS is the 28-year-old information and networking center for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues. Many members of Public Citizen and NIRS live near nuclear power plants that use Holtec dry storage casks, or live along transportation routes that are targeted for the shipment of Holtec rail transport casks.

Public Citizen and NIRS strongly oppose the proposed weakening of standards for the Holtec International HI-STORM 100.

First, the NRC is proposing to allow the elimination of cooling of HI-STORM 100 cask cavities prior to re-flooding them with water during cask unloading procedures. Cooling, however, is a vital step in maintaining the structural integrity of the casks. If adequate cooling is not done prior to re-flooding with water during cask unloading, the casks could experience brittle fracturing caused by the sudden temperature change from hot to cold. This fracturing could be in addition to the brittle fracturing already introduced into the casks by forced cooling during their original manufacture. Forced cooling violates NRC regulations and applicable ASME and ANSI codes.

During welding, the strength of the material decreases dramatically with the increased temperature of the material. After welding, federal regulations require cooling at 100°F without forced cooling. If the material does not cool properly, voids inside the heated zones caused by welding could remain and cause cracking in the future. These cracks may not be detected by testing that is performed immediately after cooling. This potential delayed cracking is why federal regulations require that specific tests are performed to assess whether the material's strength, which is reduced by welding, is returned to its original design strength. Such cracking is also why forced cooling – such as immersion in water baths or forced air fan cooling – is not allowed by NRC regulations and applicable ASME and ANSI codes.

Holtec casks are currently not manufactured according to federal regulations. Oscar Shirani, a former senior lead quality assurance inspector for Commonwealth Edison/Exelon, identified

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serious quality assurance violations affecting Holtec casks at the U.S. Tool and Die factory in Pittsburgh, Pennsylvania, which is subcontracted to construct them. In June and July 2000, Shirani's quality assurance team found 9 major quality assurance violations, including regulatory code violations, weld flaws, design flaws, and manufacturing flaws, that call into question the structural integrity of the Holtec shipping containers, especially under transport accident conditions. NRC Region III dry cask inspector Dr. Ross Landsman shared Shirani's concerns about these QA violations. Despite this, the NRC has failed to address these issues. Eliminating cooling prior to re-flooding casks with water during cask unloading procedures unnecessarily and unacceptably introduces additional risks, and should not be allowed.

In addition to brittle fracturing, we are also concerned about the proposed revision to the Holtec license that would allow "linear interpolation between minimal soluble boron concentrations, for certain fuel enrichments in the MPC-32/32F." Boron concentrations must be maintained very carefully, given the risk of inadvertent criticality due to the fissile materials (such as U-235 and Pu-239) still present in the irradiated fuel. The NRC should allow no such rollbacks on criticality safety regulations.

We are also concerned about the proposed "modifications to the definitions of fuel debris, damaged fuel assembly, and non-fuel hardware." Fuel debris and damaged fuel assemblies are among the most risky high-level radioactive waste to handle, store, transport, and dispose, because the integrity of the fuel cladding has been ruined. Radioactive particles and gases, and even entire nuclear fuel pellets, are thus able to escape the fuel rods, worsening contamination of the Holtec inner canister and cask systems. This can potentially increase radiation doses for nuclear workers and the public, as well as increase criticality risks in certain accident scenarios such as underwater submersions. Likewise, non-fuel hardware is a hazardous material due to the radioactive contamination and radioactive activation it has experienced, and thus presents a danger to workers and the public. The rigor of these definitions must be maintained, not weakened.

Finally, we are concerned that permitting "the storage of pressurized water reactor fuel assemblies with annular fuel pellets in the top and bottom 12 inches of the active fuel length" will risk increasing doses to nuclear workers and the public during cask loading, handling, storage, transport, and disposal operations. This storage should not be allowed by NRC.

The proposed changes to the Holtec license will weaken the protections for public health and safety and the environment that NRC regulations are supposed to uphold. We disagree with NRC's position that savings of "time and money" to NRC, cask licensees and nuclear utilities should outweigh protecting public health and safety and the environment, which is NRC's mission.

Sincerely,

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**Subject:** Comments on HI-STORM Amended Regs

Comments attached.

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