

ENVIRONMENTAL ASSESSMENT AND FINDING OF  
NO SIGNIFICANT IMPACT  
ON  
PROPOSED AMENDMENT TO 10 CFR PART 72  
LIST OF APPROVED SPENT FUEL STORAGE CASKS: HI-STORM 100 CASK SYSTEM  
REVISION 3

Office of Nuclear Material Safety and Safeguards

U.S. Nuclear Regulatory Commission (NRC)

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I. THE PROPOSED ACTION

The proposed action is to amend 10 CFR Part 72 to revise the Holtec International HI-STORM 100 cask system listing within the 10 CFR Part 72 "List of approved spent fuel storage casks" to include Amendment No. 3 to the Certificate of Compliance (CoC). Amendment No. 3 would modify the present cask system design to permit a Part 72 licensee to store spent fuel in the cask under the revised conditions under a general license. The amendment would revise Technical Specification (TS) 3.1.3 to eliminate cooling of the Multi-Purpose Canister (MPC) cavity prior to reflood with water as part of cask unloading operations; TS 3.3.1 to allow linear interpolation between minimal soluble boron concentrations for certain fuel enrichments in the MPC-32/32F; Appendix B, Section 1, to make modifications to the definitions of fuel debris, damaged fuel assembly, and non-fuel hardware; and Appendix B, Section 2, to permit the storage of pressurized water reactor fuel assemblies with annular fuel pellets in the top and bottom 12 inches of the active fuel length. Other changes would be made to incorporate minor

editorial corrections. The cask can be relied on to provide safe confinement of spent fuel at any reactor site when used in accordance with the CoC. To use an NRC-approved cask system, the reactor licensee must ensure that the reactor site parameters and potential site-boundary doses are within the scope of the cask system safety analysis report and reactor license.

## II. THE NEED FOR THE PROPOSED ACTION

This rulemaking is needed to revise a cask system listing within the “List of approved spent fuel storage casks” in 10 CFR 72.214. On November 7, 2005, and as supplemented on April 30, 2006, the certificate holder, Holtec International, submitted an application to the NRC to amend CoC No. 1014 requesting changes to eliminate cooling of the MPC cavity prior to reflood with water as part of cask unloading operations; changes to allow linear interpolation between minimal soluble boron concentrations for certain fuel enrichments in the MPC-32/32F; modifications to the definitions of fuel debris, damaged fuel assembly, and non-fuel hardware; changes to permit the storage of pressurized water reactor fuel assemblies with annular fuel pellets in the top and bottom 12 inches of the active fuel length; and other changes to incorporate minor editorial corrections. No other changes to the HI-STORM 100 cask system design were requested in this application. The staff performed a detailed safety evaluation of the proposed CoC amendment request and found that an acceptable safety margin is maintained. In addition, the staff has determined that there continues to be reasonable assurance that public health and safety and the environment will be adequately protected.

### III. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

The potential environmental impact of using the HI-STORM 100 cask system was initially presented in the Environmental Assessment for the final rule to add the HI-STORM 100 cask system to the list of approved spent fuel storage casks in 10 CFR 72.214 (65 FR 25241; May 1, 2000). Furthermore, each general licensee must assess the environmental impacts of the specific Independent Spent Fuel Storage Installation (ISFSI) in accordance with the requirements of 10 CFR 72.212(b)(2)(iii). This section requires the general licensee to perform written evaluations to demonstrate compliance with the environmental requirements of 10 CFR 72.104, "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or MRS [Monitored Retrievable Storage Installation]."

HI-STORM 100 cask systems are designed to mitigate the effects of design basis accidents that could occur during storage. Design basis accidents account for human-induced events and the most severe natural phenomena reported for the site and surrounding area. Postulated accidents analyzed for an ISFSI include tornado winds and tornado-generated missiles, design basis earthquake, design basis flood, accidental cask drop, lightning effects, fire, explosions, and other incidents.

Considering the specific design requirements for each accident condition, the design of the cask would prevent loss of containment, shielding, and criticality control. Without the loss of either containment, shielding, or criticality control, the risk to public health and safety is not compromised.

The staff reviewed the proposed changes and confirmed that the changes provide reasonable assurance that the spent fuel can be stored safely and that the changes meet the acceptance criteria specified in 10 CFR Part 72. The staff documented its findings in a Safety Evaluation Report.

The occupational exposure is not significantly increased, and offsite dose rates remain well within the 10 CFR Part 20 limits. Therefore, the proposed action now under consideration would not change the potential environmental effects assessed in the initial rulemaking. Therefore, the NRC staff has determined that an acceptable safety margin is maintained and that no significant environmental impacts occur as a result of the amendment. Because the proposed changes will not change the environmental requirements for the storage of spent fuel, no change in environmental impact is anticipated.

#### IV. ALTERNATIVE TO THE PROPOSED ACTION

The alternative to the proposed action would be to deny approval of the amendment.

#### V. ALTERNATIVE USE OF RESOURCES

There were no irreversible commitments of resources determined in this assessment.

#### VI. AGENCIES AND PERSONS CONTACTED

No agencies or persons outside the NRC were contacted in connection with the preparation of this environmental assessment.

#### VII. FINDING OF NO SIGNIFICANT IMPACT

The environmental impacts of the proposed action have been reviewed under the requirements in 10 CFR Part 51.

Based on the foregoing environmental assessment, the NRC concludes that this rulemaking entitled “List of Approved Spent Fuel Storage Casks: HI-STORM 100 Revision 3” will not have a significant effect on the quality of the human environment. Therefore, the NRC has determined that an environmental impact statement is not necessary for this rule.

Certain documents related to this rulemaking, including comments received by the NRC, may be examined at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD. These same documents may also be viewed and downloaded electronically via the rulemaking website (<http://ruleforum.llnl.gov>).