

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 REVISION 4”

Office of Nuclear Material Safety and Safeguards

U.S. Nuclear Regulatory Commission (NRC)

January 2007

I. THE PROPOSED ACTION

The proposed action is to amend 10 CFR 72.214 to revise the Holtec International (Holtec) HI-STORM 100 cask system listing within the “List of approved spent fuel storage casks” to include Amendment No. 4 to the Certificate of Compliance (CoC) No. 1014. Amendment No. 4 would modify the present cask system CoC by including changes to add site-specific options to the CoC to permit use of a modified HI-STORM 100 cask system at the Indian Point Unit 1 (IP1) Independent Spent Fuel Storage Installation (ISFSI). These options include the shortening of the HI-STORM 100S Version B, Multi-Purpose Canister (MPC)-32 and MPC-32F, and the HI-TRAC 100D Canister to accommodate site-specific restrictions. Additional changes address the Technical Specification (TS) definition of transport operations and associated language in the safety analysis report (SAR); the soluble boron requirements for Array/Class 14x14E IP1 fuel; the helium gas backfill requirements for Array/Class 14x14E IP1 fuel; the addition of a fifth damaged fuel container design under the TS definition for damaged fuel container; addition of separate burnup, cooling time, and decay heat limits for

Array/Class 14x14 IP1 fuel for loading in an MPC-32 and MPC-32F; addition of antimony-beryllium secondary sources as approved contents; the loading of all IP1 fuel assemblies in damaged fuel containers; the preclusion of loading of IP1 fuel debris in the MPC-32 or MPC-32F; the reduction of the maximum enrichment for Array/Class 14x14E IP1 fuel from 5.0 to 4.5 weight percent uranium-235; changes to licensing drawings to differentiate the IP1 MPC-32 and MPC-32F from the previously approved MPC-32 and MPC-32F; and other editorial changes, including replacing all references to US Tool and Die with Holtec Manufacturing Division. The HI-STORM 100 cask system can be relied on to provide safe confinement of spent fuel at any reactor site when used in accordance with the conditions and TS of CoC No. 1014.

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 June 23, 2006, the certificate holder, Holtec, submitted an application to the NRC that requested changes to add site-specific options to the CoC to permit use of a modified HI-STORM 100 cask system at the IP1 ISFSI. These options included the shortening of the HI-STORM 100S Version B, MPC-32 and MPC-32F, and the HI-TRAC 100D Canister to accommodate site-specific restrictions. Additional changes addressed the TS definition of transport operations and associated language in the SAR; the soluble boron requirements for Array/Class 14x14E IP1 fuel; the helium gas backfill requirements for Array/Class 14x14E IP1 fuel; the addition of a fifth damaged fuel container design under the TS definition for damaged fuel container; addition of separate burnup, cooling time, and decay heat limits for Array/Class 14x14 IP1 fuel for loading in an MPC-32 and MPC-32F; addition of antimony-beryllium secondary sources as approved contents; the loading of all

IP1 fuel assemblies in damaged fuel containers; the preclusion of loading of IP1 fuel debris in the MPC-32 or MPC-32F; the reduction of the maximum enrichment for Array/Class 14x14E IP1 fuel from 5.0 to 4.5 weight percent uranium-235; changes to licensing drawings to differentiate the IP1 MPC-32 and MPC-32F from the previously approved MPC-32 and MPC-32F; and other editorial changes, including replacing all references to US Tool and Die with Holtec Manufacturing Division. No other changes to the HI-STORM 100 cask design were requested in this application. The NRC staff performed a detailed safety evaluation of the proposed CoC amendment request and found that an acceptable safety margin is maintained.

III. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

The potential environmental impact of using the HI-STORM 100 cask system was initially analyzed 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). The environmental assessment for the May 1, 2000, final rule concluded that there would be no significant environmental impact to adding the HI-STORM cask system, and therefore, the NRC issued a finding of no significant impact (FONSI), which continues to be valid. The instant environmental assessment, for this Amendment No. 4, tiers on the environmental assessment for the May 1, 2000, final rule. Tiering on past environmental assessments is a standard process under NEPA.

HI-STORM 100 casks 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, the type of facility at which a holder of a power reactor

operating license would store spent fuel in casks in accordance with 10 CFR Part 72, include tornado winds and tornado-generated missiles, a design basis earthquake, a design basis flood, an 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 NRC staff performed a detailed safety evaluation of the proposed CoC amendment request and found that an acceptable safety margin is maintained, that the proposed changes provide reasonable assurance that the spent fuel can be stored safely and meet the acceptance criteria specified in 10 CFR Part 72, and that there continues to be reasonable assurance that public health and safety will be adequately protected.

The staff documented its findings in a safety evaluation report which is available electronically via the NRC's Electronic Reading Room at <http://www.nrc.gov/NRC/ADAMS/index.html>. From this site, the public can gain entry into the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The safety evaluation report for Amendment No. 4 can be found under ADAMS Accession No. ML072220481.

Any resulting increase in either occupational exposure or offsite dose rates would remain well within the 10 CFR Part 20 limits. Therefore, the proposed action now under consideration would not change the potential effects analyzed in the environmental assessment for the May 1, 2000, final rule. Thus, the NRC staff has determined that an acceptable safety margin is maintained and that there will be no significant effect on the human environment as a result of the NRC approving Amendment No. 4.

IV. ALTERNATIVE TO THE PROPOSED ACTION

The alternative to this action is to withhold approval of Amendment No. 4 and to require any Part 72 general licensee, seeking to load spent fuel into HI-STORM 100 casks under Amendment No. 4, to request an exemption from the requirements of 10 CFR 72.212 and 72.214. Under this alternative, each interested Part 72 licensee would have to prepare, and the NRC would have to review, a separate exemption request, thereby increasing the administrative burden upon the NRC and the costs to each licensee.

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 4"

will not have a significant effect on 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.