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Mr. John Goshen c/o Document Control Desk U. S. Nuclear Regulatory Commission Washington, DC 20555-0001

April 4, 2011

Subject: Supplement to License Amendment Request No. 8 to Holtec International HI-STORM 100 Certificate of Compliance No. 72-1014

References:

- [1] Holtec Letter 5014692, dated November 24, 2009
- [2] USNRC Docket No. 72-1014, TAC No. L24398
- [3] Holtec Letter 5014714, dated December 14, 2010

#### Dear Mr. Goshen:

By letter dated November 24, 2009 [1] Holtec submitted License Amendment Request (LAR) #8 to Certificate of Compliance (CoC) 72-1014 [2]. The LAR consisted of three proposed changes: (1) the addition of a new canister model (MPC-68M), (2) the addition of a new PWR fuel assembly array/class (15x15I), and (3) a new definition for Metamic which would encompass Metamic Classic and Metamic-HT. By letter dated December 14, 2010 [3], Holtec requested that Proposed Change #3, i.e. the generic definition of Metamic, be withdrawn from the proposed changes.

This letter requests an additional proposed change, to clarify the statement in FSAR section 3.1.2.1.1.1 "Tip-Over", and provides justification for the clarification. See Attachment 1 for the requested change to the FSAR and the reason for the change. CoC/TS requested changes as a result of this clarification are provided in Attachment 2.

The statement in the FSAR which requires clarification currently (Revision 9) reads as follows:

"The potential of the HI-STORM Overpack tipping over during the lowering (or raising) of the loaded MPC into (or out of) it with the HI-TRAC cask mounted on it is ruled out because of the safeguards and devices mandated by this FSAR for such operations (Subsection 2.3.3.1 and Technical Specification 4.9)."

Holtec proposes to clarify this part of Section 3.1.2.1.1.1 to clearly indicate that the safeguards and devices mandated by the FSAR are only for a CTF that is discussed in Section 2.3.3.1 of the FSAR and that safeguards and devices are *not* mandated by this FSAR when the MPC transfer is performed in a Part 50 controlled structure. The justification for this proposed change is based on the following discussion and supporting statements from the FSAR, CoC/TS, NRC Safety Evaluation Report (SER), and additional correspondence between Holtec and Staff as indicated below. In FSAR Section 2.3.3.1 it states:

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"For those users choosing to perform the MPC inter-cask transfer outside of a facility governed by the regulations of 10 CFR Part 50 (e.g., fuel handling or reactor building), a Cask Transfer Facility (CTF) is required."

During the initial licensing of the HI-STORM System, a particular user needed to perform the transfer outside of a Part 50 controlled structure due to an architectural limitation in their Reactor Building. This need prompted the development of the necessary specification and guidelines for a CTF while the HI-STORM licensing application was under NRC review. The development of the requirements for a CTF occurred interactively with the NRC (see item E.2.1 in Holtec letters 5014322 and 5014323 located in Appendix 12.B of FSAR Revision 0) and the resulting design criteria were placed in the (then) TSAR Revision 8, Section 2.3.3.1 (see also ML003679629). The initial CTF design envisaged an above ground structure engineered for lifting the HI-TRAC onto the HI-STORM overpack. The first such structure was built at Exelon's Dresden station for their East ISFSI. Due to the uncertainty of the environmental conditions (e.g. large tornado missiles) that may occur during an outside stack-up, the FSAR required as defense-in-depth (FSAR 2.3.3.1.C.iii.c) that the HI-TRAC remains attached to the structure during the MPC transfer.

Following NRC's long standing guidance to limit the safety analysis in the FSAR to the certified components under Part 72 and specifications to Part 72 SSCs, it was never the intent of our FSAR to specify requirements for the MPC transfer operation while it was inside the structures controlled by Part 50. Therefore, the firm statement in Section 3.1.2.1.1.1 that the "tip-over is ruled out because of the safeguards and devices mandated by this FSAR" pertained to the safeguards and devices designated for a CTF described under the Part 72 FSAR design criteria and not Part 50.

NRC Staff's concurrence with our approach is evidenced in the last paragraph of Section 1.1 of the SER on Amendment 0. The SER specifically states that the requirements of Section 2.3.3 of the FSAR apply to "auxiliary equipment and structures ... outside of a 10 CFR Part 50 controlled structure" and specifically avoid imparting regulations inside the Part 50 controlled structure. The section is reproduced below for convenience:

"MPC transfer between the transfer cask and overpack can be performed inside or outside a 10 CFR Part 50 controlled structure (e.g., a reactor building). Section 2.3.3 of the SAR provides detailed design criteria for the auxiliary equipment and structures that would be used to perform an MPC transfer outside of a 10 CFR Part 50 controlled structure. The purpose of these design criteria is to prevent, during such transfers, the cask system from experiencing loads more severe than those considered in the structural and thermal analyses. The cask transfer facility requirements are also specified in Appendix B to the Certificate of Compliance."

The following excerpts are taken from the CoC/TSs, as indicated, which provide further justification that the requirements for a CTF were never intended to be invoked when Part 50 regulations

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governed. Emphasis is added in each of the excerpts.

- The CTF is defined in the Certificate of Compliance (CoC) 72-1014 Amendment 0 as: "The CASK TRANSFER FACILITY includes the following components and equipment: (1) a Cask Transfer Structure used to stabilize the TRANSFER CASK and MPC during lifts involving spent fuel *not bounded by the regulations of 10 CFR Part 50*, and (2) Either a stationary lifting device or a mobile lifting device used in concert with the stationary structure to lift the OVERPACK, TRANSFER CASK, and MPC."
- Condition #5 of the CoC Amendment 0 "Heavy Loads Requirements" states in part: "Each lift of an MPC, a HI-TRAC transfer cask, or a HI-STORM 100 overpack must be made in accordance to the existing heavy loads requirements and procedures of the licensed facility at which the lift is made. A plant-specific safety review (under 10 CFR 50.59 or 10 CFR 72.48, if applicable) is required to show operational compliance with existing plant specific heavy loads requirements. Lifting operations outside of structures governed by 10 CFR Part 50 must be in accordance with Section 3.5 of Appendix B to this certificate."
- CoC Amendment 0, Appendix B Section 3.5 "Cask Transfer Facility" states in 3.5.1: "Lifting of a loaded TRANSFER CASK and MPC *outside of structures governed by 10 CFR Part 50 shall be performed with a CTF* that is designed, operated, fabricated, tested, inspected, and maintained in accordance with the guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants" and the below clarifications. The CTF Structure requirements below do not apply to heavy loads bounded by the regulations of 10 CFR Part 50."

In summary, it was never Holtec's intent to impose in the Part 72 FSAR specific requirements on heavy load handling of the HI-STORM System while the equipment is inside the Part 50 controlled structures. Holtec's institutional memory as well as NRC generated documentation supports the conclusion the Commission agreed with Holtec's approach to exclude detailed guidance in the FSAR on Part 50 activities. As the certificate holder, Holtec expects that the licensee will perform the evaluations consistent with their Part 50 licensing basis, supported by calculations as necessary,



to determine the necessary conditions of the stack-up configuration, and any other heavy load handling evolutions involving the HI-STORM 100 components while they are in the Part 50 controlled area.

If you have any questions regarding this transmittal, please contact me at 856-797-0900 x687.

Sincerely,

Tammy S. Morin Licensing Manager Holtec Technical Services, Holtec International

cc: Mr. Michael Waters, Chief, Licensing Branch, DSFST, USNRC
Mr. Douglas Weaver, Deputy Director, DSFST, USNRC
Mr. Randy Bunt, HUG Chairman
Mr. Terry Sides, HUG Licensing Subcommittee Chairman

Attachment 1 to Holtec Letter 5014722

The proposed change (in mark-up) to FSAR Section 3.1.2.1.1.1 is as follows:

"The potential of the HI-STORM Overpack-Overpack/HI-TRAC assemblage tipping over while in an aboveground CTF during the lowering (or raising) of the loaded MPC into (or out of) it with the HI-TRAC cask mounted on itMPC Transfer is ruled out because of the safeguards and devices mandated for an aboveground CTF, as specified in Subsection 2.3.3.1.C.iii.dby this FSAR for such operations (Subsection 2.3.3.1 and Technical Specification 4.9). The use of analysis or restraints to rule out tip-over during MPC transfer shall be a site-specific determination, as evaluated under 10CFR Part 50, when this operation is performed in a 10CFR Part 50 controlled structure."

The reason for this change is that in the "Response to Region III Technical Assistance Request for FirstEnergy Operating Company Perry Nuclear Power Plant, Unit 1, Evaluation of a Freestanding Stack-up Configuration, DSFST Ticket Number 201100002" which is Attachment 2 to NRC Inspection Report 072-00069/11-002 and 050-00440/11-010, dated March 11, 2011, the SFST Staff indicates on page 4 "Not providing lateral restraints is not only a departure from a method of evaluation described in the FSAR, it also creates a possibility for an accident not previously evaluated in the Holtec FSAR". Additionally, page 7 of the inspection report states as option (2) for Perry, "...the certificate holder seek a CoC amendment from the NRC for the HI-STORM 100 Cask System". Based on those statements, Holtec considers that clarifying the text through an amendment to be the best path forward.

#### 1.0 USE AND APPLICATION

# 1.1 Definitions

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The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
CASK TRANSFER FACILITY (CTF)	A CASK TRANSFER FACILITY is an aboveground or underground system used during the transfer of a loaded MPC between a transfer cask and a storage OVERPACK. The A CASK TRANSFER FACILITY includes the following components and equipment: (1) a Cask Transfer Structure used to stabilize the OVERPACK, TRANSFER CASK and/or MPC during lifts-movements involving spent fuel not bounded by the regulations of 10 CFR Part 50, and (2) Either a stationary lifting device or a mobile lifting device used in concert with the stationary structure to lift the OVERPACK, TRANSFER CASK, and/or MPC.
DAMAGED FUEL ASSEMBLY	DAMAGED FUEL ASSEMBLIES are fuel assemblies with known or suspected cladding defects, as determined by a review of records, greater than pinhole leaks or hairline cracks, empty fuel rod locations that are not filled with dummy fuel rods, missing structural components such as grid spacers, whose structural integrity has been impaired such that geometric rearrangement of fuel or gross failure of the cladding is expected based on engineering evaluations, or that cannot be handled by normal means. Fuel assemblies that cannot be handled by normal means due to fuel cladding damage are considered FUEL DEBRIS.

(continued)

Certificate of Compliance No. 1014 Appendix A

## DESIGN FEATURES (continued)

- 3.4 Site-Specific Parameters and Analyses (continued)
  - 7. In cases where engineered features (i.e., berms and shield walls) are used to ensure that the requirements of 10CFR72.104(a) are met, such features are to be considered important to safety and must be evaluated to determine the applicable quality assurance category.
  - LOADING OPERATIONS, TRANSPORT OPERATIONS, and UNLOADING OPERATIONS shall only be conducted with working area ambient temperatures ≥ 0° F.
  - 9. For those users whose site-specific design basis includes an event or events (e.g., flood) that result in the blockage of any OVERPACK inlet or outlet air ducts for an extended period of time (i.e., longer than the total Completion Time of LCO 3.1.2), an analysis or evaluation may be performed to demonstrate adequate heat removal is available for the duration of the event. Adequate heat removal is defined as fuel cladding temperatures remaining below the short term temperature limit. If the analysis or evaluation is not performed, or if fuel cladding temperature limits are unable to be demonstrated by analysis or evaluation to remain below the short term temperature limit for the duration of the event, provisions shall be established to provide alternate means of cooling to accomplish this objective.
  - 10. Users shall establish procedural and/or mechanical barriers to ensure that during LOADING OPERATIONS and UNLOADING OPERATIONS, either the fuel cladding is covered by water, or the MPC is filled with an inert gas.
  - 11. The requirements specified in HI-STORM 100 FSAR Section 2.3.3.1, A through R, shall be met when performing MPC TRANSFER in a facility outside of a 10 CFR Part 50 controlled structure.

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### DESIGN FEATURES (continued)

### 3.5 Cask Transfer Facility (CTF)

#### 3.5.1 TRANSFER CASK and MPC Lifters

Lifting of a loaded TRANSFER CASK and to perform MPC TRANSFER using devices that are not integral to structures governed by 10 CFR Part 50 shall be performed with a CTF that is designed, operated, fabricated, tested, inspected, and maintained in accordance with the guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants", as applicable, and the below clarifications. The CTF Structure requirements given below for a CTF Structure do notonly apply to heavy loads when MPC TRANSFER takes place in an aboveground CTF not bounded by the regulations of 10 CFR Part 50 or to the loading of an OVERPACK in a belowground restraint system which permits MPC TRANSFER near grade level and does not require an aboveground CTF.

#### 3.5.2 CTF Structure Requirements

#### 3.5.2.1 Cask Transfer Station and Stationary Lifting Devices

- The metal weldment structure of the CTF structure shall be designed to comply with the stress limits of ASME Section III, Subsection NF, Class 3 for linear structures. The applicable loads, load combinations, and associated service condition definitions are provided in Table 3-2. All compression loaded members shall satisfy the buckling criteria of ASME Section III, Subsection NF.
- If a portion of the CTF structure is constructed of reinforced concrete, then the factored load combinations set forth in ACI-318 (89) for the loads defined in Table 3-2 shall apply.
- 3. The TRANSFER CASK and MPC lifting device used with the CTF shall be designed, fabricated, operated, tested, inspected and maintained in accordance with NUREG-0612, Section 5.1.
- 4. The CTF shall be designed, constructed, and evaluated to ensure that if the MPC is dropped during inter-cask transfer operations, its confinement boundary would not be breached. This requirement applies to CTFs with either stationary or mobile lifting devices.

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Certificate of Compliance No. 1014 Appendix B