



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 29, 2020

MEMORANDUM TO: Christopher Regan, Deputy Director  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

FROM: Kristina L. Banovac, Project Manager */RA/*  
Storage and Transportation Licensing Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: SUMMARY OF JANUARY 15, 2020, MEETING WITH HOLTEC  
INTERNATIONAL, INC. TO DISCUSS THE UPCOMING SUBMITTAL OF  
THE APPLICATION FOR RENEWAL OF THE STORAGE CERTIFICATE  
OF COMPLIANCE NO. 1014 FOR THE HI-STORM 100 CASK SYSTEM  
(CAC/EPID NOS. 001028/L-2019-LRM-0085)

Background

On January 15, 2020, a meeting was held in Rockville, MD, between representatives of Holtec International, Inc. (Holtec) and the U.S. Nuclear Regulatory Commission (NRC) to discuss the upcoming submittal of the application for renewal of the storage Certificate of Compliance (CoC) No. 1014 for the HI-STORM 100 cask system. The list of meeting attendees is provided in Enclosure 1.

The meeting was noticed on December 26, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19360A227). The presentation slides are in ADAMS under Accession No. ML20063M015.

Discussion

The meeting discussion followed the meeting agenda, which is provided in Enclosure 2. Holtec gave a presentation on the planned HI-STORM 100 CoC renewal application. Holtec provided information on the HI-STORM 100 cask system design, which includes 14 approved amendments. Holtec provided an overview of the planned CoC renewal application, including the scoping evaluation and proposed aging management programs (AMPs) for the multi-purpose canister (MPC), overpack, HI-TRAC transfer cask, high burnup fuel assemblies, and the 100U (underground system) concrete. Holtec plans to request a 40-year renewal period for the CoC. The timely renewal due date for the renewal application is April 2020, but Holtec plans to submit the license renewal application by the end of January 2020.

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The following items were discussed between Holtec and NRC representatives during the meeting:

- Holtec clarified that the renewal application will include the changes in the proposed Amendment No. 15 to the CoC, for which the NRC review is ongoing. The NRC staff noted that it will consider the review status of the proposed amendment when the renewal application is submitted to determine when to begin its review of the renewal application. Holtec noted that the materials and environments between the approved amendments and the proposed amendment are similar, so the aging management review presented in the renewal application will be applicable to the proposed amendment.
- The NRC staff noted that it will use the guidance in NUREG-2214 (Managing Aging Processes in Storage (MAPS) Report) for its renewal review. Therefore, it would assist the staff's review if the renewal application discusses any differences between the application and MAPS. Holtec noted that the differences are likely to be with new structures, systems, and components (SSCs) that did not yet exist in the CoC when MAPS was developed.
- The NRC staff noted that the renewal application should clearly delineate what SSCs and their associated subcomponents are in-scope and out-of-scope (e.g., separate tables for the in-scope and out-of-scope subcomponents). Holtec noted that some subcomponents scope out if they do not serve a function during the extended storage period (e.g., MPC drain tube). The NRC staff noted that the applicant should verify that these subcomponents are not otherwise included in the design-basis safety analyses in the final safety analysis report (FSAR).
- For the MPC AMP, the NRC staff asked how much of the MPC is accessible for a VT-3 examination and whether the MPC weld locations, with respect to the inlet/outlet vents, are known or can be seen. The NRC staff noted that there is relevant operating experience from the Electric Power Research Institute demonstrations on inspection techniques. Holtec indicated that the weld locations on the MPC can be identified using remote inspection methods. Holtec noted that the MPC AMP will not specify a requirement for the percentage of the MPC area that must be inspected. Holtec noted that the MPC AMP may reference the future American Society of Mechanical Engineers code case on canister inspections.
- Holtec confirmed that general licensees already conduct an annual inspection of the external surfaces of every overpack, as this is already included in the FSAR. Holtec also clarified that the overpack AMP will include an inspection of the internal surface of one overpack at each site every 5-years. As the MPC AMP will include an inspection of one MPC every 5-years, the overpack AMP will recommend that the 5-year internal surface inspection of the overpack be conducted concurrently on the same system as the 5-year MPC inspection. In terms of shielding effectiveness of the overpack, Holtec noted that there are no requirements currently in the CoC for dose measurements for individual systems. Since the concrete in the overpack is between the steel inner and outer shells and is not exposed to weather, there are no credible aging effects and no aging management activities needed.
- For the HI-TRAC transfer cask, Holtec clarified that there is not a specific requirement for the storage environment for a transfer cask, so transfer casks are stored in a variety of environments. The NRC staff noted that the aging management review should consider these varied service environments.

- Holtec noted that no 100U systems are currently in service, but Holtec will request renewal of the CoC amendments that involve the 100U system. Holtec clarified that the 100U concrete AMP is only for the exposed concrete and is similar to the concrete AMP in MAPS. Holtec clarified that the cavity enclosure containers (CECs) (storage cavity for the MPCs in the 100U system) are coated carbon steel. The overpack AMP would cover the CECs, and the CECs would be accessed for inspection through the vents. The NRC staff noted that the application should discuss any differences in the environments for the aboveground overpack and the 100U CECs.
- Considering timely renewal and the variability in loading dates, the NRC staff noted that any proposed CoC conditions for general licensee implementation of AMPs should clearly define the timing for the general licensee actions.
- The NRC staff also noted that the applicant should review the FSAR for all time-based references (e.g., design life) and update the references in the proposed FSAR supplement to be included in the renewal application.
- Holtec clarified that operating experience will be summarized in the application, including evaluation of 10 CFR 72.48 changes and manufacturing deviations and their impacts on aging management. The AMPs will also reference reporting of future operating experience to the Aging Management Institute of Nuclear Power Operations Database (AMID).

After Holtec and NRC representatives completed their discussion, the meeting was opened to public comments or questions.

- Suzanne Leblang, a general licensee representative, noted that, in addition to general area radiation surveys, the licensee assesses worker doses from daily rounds. Another general licensee representative, Jack DeSando, noted that the licensee conducts radiation surveys at the time of loading and before any work is completed at the independent spent fuel storage installation (ISFSI). These additional radiation surveys would allow the licensee to see if there are any changes in ISFSI dose rates.
- Diane D'Arrigo asked what happens if a crack is found on an MPC. The NRC staff noted that the licensee would be responsible for bringing the MPC back into compliance with the regulations, and the industry is currently developing methods for in-situ repairs of canister cracks.
- Kalene Walker asked if fuel was inspected to identify damaged or undamaged fuel. The NRC staff noted that fuel characterization is conducted before loading to determine the condition of the fuel. Ms. Walker noted she was concerned with spent fuel storage at the San Onofre Nuclear Generating Station (SONGS) and the potential for galvanic reactions between the MPC and CEC and that there are no specific corrective actions identified for canister repairs. She noted that if a canister is dropped, the fuel should be inspected. The NRC staff noted her concerns and clarified that the HI-STORM 100 CoC is not used at SONGS. Ms. Walker also noted that she is concerned about storage systems exploding and asked if her related comment on the draft NUREG-2224 (Dry Storage and Transportation of High Burnup Spent Nuclear Fuel) would be addressed. The NRC staff noted that as part of the finalization of NUREG-2224, the staff will address public comments received on the draft.

- Donna Gilmore noted she was concerned about MPC degradation from galvanic corrosion between the stainless steel MPC and carbon steel guide channels in the overpack. The NRC staff noted that for a stainless steel/carbon steel couple, the carbon steel will be the sacrificial anode that protects the stainless steel, so galvanic corrosion is not a credible aging effect for the MPC. The staff also noted that local corrosion of deposited carbon steel, like all evidence of corrosion, would be expected to be followed up in the MPC AMP to evaluate the condition of the MPC. Ms. Gilmore noted she was also concerned about MPC degradation due to narrow clearance and scraping of the MPC. The NRC staff noted that the proposed AMPs would need to address any operating experience related to scraping of an MPC.
- Jan Boudart asked why there are no credible aging mechanisms for low burnup fuel. The NRC staff noted that research and a low burnup fuel demonstration program form the basis for the conclusion that there are no credible aging effects for low burnup fuel. This research is summarized in the MAPS report.
- Diane D'Arrigo asked why a storage renewal does not address transportation of the MPC. The NRC staff clarified that the storage renewal review only addresses renewal of the storage period, per the 10 CFR Part 72 requirements. The NRC has separate requirements for transportation in 10 CFR Part 71, and a separate NRC review would be conducted for a transportation approval of any MPCs associated with the HI-STORM 100 storage CoC.
- A few public attendees expressed concern with transporting canisters to a secondary storage facility (e.g., consolidated interim storage facility (CISF)). The NRC staff noted that a CISF is not the subject of the meeting. A public attendee noted that the current CISF applications note that the CISF would not accept a canister that was damaged during transport and would return the damaged canister to the origin site. The attendee noted a damaged canister should not be transported back to the origin site, and the CISF should have the capability to repair the damaged canister or repackage the fuel. Another attendee noted that all ISFSIs should have a hot cell or transfer station to repackage fuel. A few attendees expressed concern that separate regulatory reviews for storage renewals, transportation, and CISF applications may allow areas to be overlooked because the NRC reviewers think it will be addressed in a separate review. One attendee noted that the NRC staff should tour Switzerland to see its framework for spent fuel storage.

### **Action Items/Next Steps**

Holtec plans to submit the HI-STORM 100 CoC renewal application by the end of January 2020.

Docket No. 72-1014

CAC/EPID Nos. 001028/ L-2019-LRM-0085

Enclosures:

1. Meeting Attendees
2. Agenda

SUBJECT: SUMMARY OF JANUARY 15, 2020, MEETING WITH HOLTEC INTERNATIONAL, INC. TO DISCUSS THE UPCOMING SUBMITTAL OF THE APPLICATION FOR RENEWAL OF THE STORAGE CERTIFICATE OF COMPLIANCE NO. 1014 FOR THE HI-STORM 100 CASK SYSTEM (CAC/EPID NOS. 001028/L-2019-LRM-0085)

DOCUMENT DATE: February 29, 2020

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**ADAMS Package Accession No.: ML20064F631    Memo: ML20064F616**  
**Presentation slides: ML20063M015**

<b>OFC</b>	NMSS/DFM	NMSS/DFM	NMSS/DFM
<b>NAME</b>	KBanovac	WWheatley	DDoyle
<b>DATE</b>	2 / 26 / 2020	2 / 26 / 2020	2 / 29 / 2020

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## MEETING ATTENDEES

Meeting with Holtec International, Inc. to discuss the upcoming submittal of the application for renewal of the storage Certificate of Compliance No. 1014 for the HI-STORM 100 cask system

January 15, 2020, 1:00 p.m. – 3:00 p.m.

Kristina Banovac	NRC/NMSS/DFM/STL
Dan Doyle	NRC/NMSS/DFM/STL
Chris Markley (via teleconference)	NRC/NMSS/DFM/STL
Meraj Rahimi	NRC/NMSS/DFM/MSB
John Wise	NRC/NMSS/DFM/MSB
Darrell Dunn	NRC/NMSS/DFM/MSB
Yaira Diaz-Sanabria	NRC/NMSS/DFM/CTCF
Jason Piotter	NRC/NMSS/DFM/CTCF
Zhian Li (via teleconference)	NRC/NMSS/DFM/NARA
Marlone Davis (via teleconference)	NRC/NMSS/DFM/IOB
Kimberly Manzione	Holtec
Brian Seawright	Holtec
Suzanne Leblang	Entergy/HUG Licensing Subcommittee
Jack DeSando	Exelon/HUG Design Subcommittee
Kimberly Hobbs (via teleconference)	Exelon
Glenn Schwartz (via teleconference)	PSEG Nuclear
Sandra Christianson (via teleconference)	Energy Northwest
Mark Tursa (via teleconference)	Portland General Electric Company
Brian Gutherman (via teleconference)	Gutherman Technical Services, LLC
Steve Baker (via teleconference)	TransWare Enterprises
John Pfabe (via teleconference)	Westinghouse
Jan Boudart (via teleconference)	Nuclear Energy Information Service
Donna Gilmore (via teleconference)	Public
Karen Douglas (via teleconference)	Public
Michael Keegan (via teleconference)	Public
Diane D'Arrigo (via teleconference)	Nuclear Information and Resource Service
Kalene Walker (via teleconference)	Public
Carlyn Greene (via teleconference)	UxC

## MEETING AGENDA

Meeting with Holtec International, Inc.

January 15, 2020

1:00 p.m. – 3:00 p.m. (Eastern Standard Time)

Two White Flint North Building, T-9 D2

**Purpose:** Meeting with Holtec International, Inc. to discuss the upcoming submittal of the application for renewal of the storage Certificate of Compliance No. 1014 for the HI-STORM 100 cask system.

**Agenda:**

- Welcome, introductions, and meeting objectives
- Holtec International Inc. presentation and discussion
- Public questions or comments
- Wrap-up and closing remarks
- Meeting adjourned