



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

October 17, 2018

MEMORANDUM TO: Michael C. Layton, Director
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

FROM: Kristina L. Banovac, Project Manager /RA/
Renewals and Materials Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF SEPTEMBER 12, 2018, MEETING WITH HOLTEC
INTERNATIONAL, INC. TO DISCUSS THE UPCOMING SUBMITTAL OF
THE APPLICATION FOR RENEWAL OF THE STORAGE CERTIFICATE
OF COMPLIANCE NO. 1008 FOR THE HI-STAR 100 CASK SYSTEM
(CAC/EPID NOS. 001028/L-2018-LRM-0051)

Background

On September 12, 2018, 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. 1008 for the HI-STAR 100 cask system. The list of meeting attendees is provided in Enclosure 1.

The meeting was noticed on August 24, 2018 (Agencywide Documents Access and Management System Accession No. ML18236A345).

Discussion

The meeting discussion followed the meeting agenda, which is provided in Enclosure 2. Holtec gave a presentation on the planned HI-STAR 100 CoC renewal application, which is included in Enclosure 3. Holtec provided information on the HI-STAR 100 cask system design and noted there are seven systems deployed at two independent spent fuel storage installation (ISFSI) sites. Holtec provided an overview of the planned CoC renewal application, including the scoping evaluation, aging management program (AMP) for the HI-STAR 100 overpack exterior, AMP for the HI-STAR 100 ISFSI pad, and the focus of baseline AMP inspections. Holtec plans to request a 40-year renewal period for the CoC. The timely renewal due date for the renewal application is September 2019, but Holtec plans to submit the license renewal application by the end of 2018.

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

- The NRC staff noted that the renewal application should clearly discuss what is the basis for the scoping determinations for the various structures, systems, and components (SSCs) and their associated subcomponents (e.g., quality category on drawings, how the SSC is included or modeled in the various safety analyses).
- Holtec clarified that both Metamic and Boral are part of the design bases for the HI-STAR 100 system, as they are both included in the final safety analysis report (FSAR). The seven systems currently in use only contain Boral and do not contain Metamic. However, since Metamic is part of the HI-STAR 100 design bases, it will be addressed in the renewal application. The staff noted that Holtec may reference both public and proprietary test results on the long term performance of Metamic in support of the aging management review.
- Holtec clarified that SSCs for fuel transfer, such as lifting yokes and the transporter, are not part of the design bases and are not discussed in the FSAR, so Holtec considers these SSCs to be out-of-scope for the renewal. The NRC staff noted that Holtec should consider its design-bases retrievability and what SSCs are necessary to ensure retrievability at the end of storage.
- The NRC staff asked about the function of the overpack seals in the system design. Holtec clarified that the seals are not relied on for confinement in storage, as the multi-purpose canister (MPC) serves as the confinement boundary. However, the seals are included in the thermal analyses for maintaining helium in the overpack. Holtec currently anticipates that seal inspections would be more of a corrective action of the overpack AMP (e.g., if corrosion of the overpack exterior is detected, a seal inspection would follow). The NRC staff noted that the application should be clear in how the seals are considered in the renewal. If the seals are credited in the thermal analyses, they may scope into the renewal, triggering an aging management review. Also, the application should be clear on how the seals are relied upon to maintain an inert environment for the MPC, to support the aging management review for the MPC. The NRC staff also noted that the application should justify the proposed frequency for any seal inspections, if no operating experience from seal inspections is currently available.
- The NRC staff noted that Holtec should be aware of, and may refer to recent renewal applications for examples of, analyses that were performed in the initial system design that need to be revisited as time-limited aging analyses in the renewal application (e.g., fatigue analyses per the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III, Division I, Subsections NB-3222.4 and NG-3222.4).
- The NRC staff noted that the renewal application should include any proposed changes to the FSAR, including an AMP summary. Holtec may refer to the current guidance in NEI 14-03, Revision 2, and recent renewal applications regarding the level of detail to be included in the AMP summary (e.g., scope, parameters monitored and inspected, detection of aging effects, and acceptance criteria).
- Holtec clarified that for proposed AMPs that continue the existing inspections in the FSAR, the renewal application will include a summary of the operating experience from the

inspections that have already been conducted in the operating experience element of the AMPs. The NRC staff noted that these proposed AMPs should not only reference the existing FSAR inspection, but also should address the 10 AMP elements in NUREG-1927, Revision 1, including details on detection of aging effects (e.g., frequency, coverage, sample size) and acceptance criteria.

- Holtec clarified that they will use information from the Managing Aging Processes in Storage (MAPS) Report (NUREG-2214) regarding thermal and radiation effects. NRC staff noted that MAPS is likely to be finalized in the next several months, and when it is finalized, the staff will be using it for its renewal reviews. Therefore, it would assist the staff's review if the renewal application discusses any differences between the application and MAPS.
- The NRC staff noted that Holtec should be aware of, and may refer to recent renewal applications for examples of, analyses of whether gas generation was credible from thermal and radiation effects on polymeric neutron shielding material.
- Holtec clarified that the renewal application will include the changes in the proposed Amendment No. 3 to the HI-STAR 100 CoC, for which the NRC review is ongoing. The NRC review of the proposed CoC amendment is not expected to be completed by the time Holtec plans to submit the renewal application at the end of 2018. The NRC staff advised Holtec to consider the timing of the submittal of the renewal application to reduce the NRC and Holtec resources in coordinating the parallel reviews and ensuring that changes made in one application are accounted for in the other application and review. The NRC staff will also 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.
- The NRC staff clarified that as long as the renewal application is timely per the 10 CFR 72.240(b) provision (i.e., submitted not less than 30 days before the expiration date of the CoC), the CoC will not expire until the NRC makes a decision on the renewal. Considering the timely renewal provisions, the NRC recognizes that general licensee implementation of AMPs (including development of procedures for AMP implementation) may not be possible before loaded systems enter the period of extended operation. To address this case, the CoC renewal application should include a clear discussion of, and propose any CoC conditions for, the time periods needed for AMP implementation by general licensees after the renewal is issued.
- The NRC staff noted that in the CoC renewal application, Holtec may summarize the changes made to the FSAR (e.g., via 10 CFR 72.48 changes or CoC amendments) since the last biennial submittal of the FSAR, or it may submit the current version of the FSAR (even if outside the biennial submittal window) to reflect the current design bases to support the renewal application.

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

- Donna Gilmore asked if the HI-STAR 100 overpack could be loaded with canisters that have been in prior service and have potentially experienced aging effects. Ms. Gilmore noted that, because such a canister would not have benefited from the inert helium environment within the HI-STAR overpack for its entire service life, there may need to be canister inspections. The NRC staff stated that it will consider this in its review of the applicant's

proposed AMPs. Ms. Gilmore also asked about person-rem dose reporting for cask loading. The NRC staff noted that person-rem reflects collective dose and is usually used in reporting of occupational exposure accumulated by all workers involved in a particular licensed activity. The NRC does not have limits for collective dose for workers or for particular licensed activities; rather, the NRC has limits for individual worker doses in 10 CFR 20.1201.

- Karen Hadden asked whether ultrasonic examination is required for the HI-STAR 100 AMPs. The NRC staff noted that the proposed AMPs in Holtec's renewal application will need to include details on what inspections and monitoring will be conducted to detect aging effects. The NRC staff will review the application to determine if the proposed AMPs are adequate for detecting and managing aging effects so that the dry storage systems continue to safely store spent fuel in the period of extended operation.
- Ace Hoffman commented that 10,000 casks should not be placed in a consolidated interim storage facility. The NRC staff noted that a consolidated interim storage facility is not the subject of the meeting.

Action Items/Next Steps

Holtec plans to submit the HI-STAR 100 CoC renewal application before the end of 2018. Holtec will notify the NRC staff of any changes to its planned submittal date, considering the ongoing review of the proposed Amendment No. 3 to the HI-STAR 100 CoC.

Docket No. 72-1008

CAC/EPID Nos. 001028/L-2018-LRM-0051

Enclosures:

1. Meeting Attendees
2. Agenda
3. Handout – Holtec Presentation on HI-STAR 100 CoC Renewal

SUMMARY OF SEPTEMBER 12, 2018, MEETING WITH HOLTEC INTERNATIONAL, INC. TO DISCUSS THE UPCOMING SUBMITTAL OF THE APPLICATION FOR RENEWAL OF THE STORAGE CERTIFICATE OF COMPLIANCE NO. 1008 FOR THE HI-STAR 100 CASK SYSTEM (CAC/EPID NOS. 001028/L-2018-LRM-0051)

DOCUMENT DATE: October 17, 2018

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ADAMS Package No.: ML18291B229 Memo: ML18291B081 Enclosure 3: ML18291B230

OFC	NMSS/DSFM	NMSS/DSFM	NMSS/DSFM
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DATE	10 / 15 / 18	10 / 15 / 18	10 / 17 / 18

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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. 1008 for the HI-STAR 100 cask system

September 12, 2018, 10:30 a.m. – 12:00 p.m.

Kristina Banovac	NRC/NMSS/DSFM/RMB
Meraj Rahimi	NRC/NMSS/DSFM/RMB
Tae Ahn	NRC/NMSS/DSFM/RMB
Ricardo Torres	NRC/NMSS/DSFM/RMB
John Wise	NRC/NMSS/DSFM/RMB
Darrell Dunn	NRC/NMSS/DSFM/RMB
John McKirgan	NRC/NMSS/DSFM/SFLB
Mike Call	NRC/NMSS/DSFM/CSRAB
Stefan Anton	Holtec
Kimberly Manzione	Holtec
Joyce Tomlinson	Holtec
Rob Mahorter	Holtec
Kristopher Cummings (via teleconference)	Curtiss-Wright Corporation
Brian Gutherman (via teleconference)	Gutherman Technical Services
Jan Boudart (via teleconference)	Nuclear Energy Information Service
Donna Gilmore (via teleconference)	Public
Karen Hadden (via teleconference)	Public
Ace Hoffman (via teleconference)	Public
Michael Keegan (via teleconference)	Public
Gabriel Grant (via teleconference)	Southern Nuclear Company
Ernest Bates (via teleconference)	Southern Nuclear Company
Will Phillips (via teleconference)	Southern Nuclear Company

MEETING AGENDA

Meeting with Holtec International, Inc.

September 12, 2018
10:30 a.m. – 12:00 p.m. (Eastern Daylight Time)

One White Flint North Building, O-16D3

Purpose: Meeting with Holtec International, Inc. to discuss the upcoming submittal of the application for renewal of the storage Certificate of Compliance No. 1008 for the HI-STAR 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

HANDOUTS