



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

April 8, 2019

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

FROM: Pierre Saverot, Project Manager /RA John McKirgan acting for/
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF MARCH 19, 2019 MEETING WITH HOLTEC
INTERNATIONAL

Background

On September 23, 2015, Holtec International (Holtec) submitted an application for the Model No. HI-STAR ATB 1T package. Holtec submitted a new application by letter dated February 6, 2017. After two requests for additional information on August 9, 2017, and May 29, 2018, respectively, Holtec made several design changes to resolve the structural and containment design issues of the package.

The March 19, 2019, meeting was noticed on January 29, 2019 (ML19029A111). The meeting attendance list and the presentation are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

The Model No. HI-STAR ATB 1T package is a rectangular package designed for the transport of up to 12 tons of Greater Than Class C waste such as core grids, core shrouds, shroud heads, top guides, etc.

Holtec presented the changes made in the package design to resolve the previous structural and containment issues and ensure a full demonstration of the sealing capability of the package. The new design, no longer based on strain-based acceptance criteria per American Society of Mechanical Engineers Appendices EE and FF, uses the well-established stress-based acceptance criteria per ASME Section III, Subsection NB.

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The package design now includes a higher strength material for the containment boundary, an increased cavity space, an additional lid locking mechanism, impact absorbers (aluminum and/or stainless steel), additional sacrificial material at the chamfered corners of the package, reduced impact decelerations during a 9 meter drop, and the addition of an insulating material to protect the closure lid seals from exposure to high temperatures.

Considering the magnitude of the design changes, staff told Holtec that the pending application will be treated as a new application, with an acceptance review phase not to exceed 60 days before a detailed technical review begins.

The fabrication of this package, as now designed, raised some questions from staff, including (i) the stiff weld overlays and the use of clad commensurate with high strength materials, (ii) the performance of non-destructive evaluations, (iii) the fact that solid aluminum tends to get weak over time due to heat loads (the vertical stiffeners in the center of the package are also made of aluminum), (iv) the impossibility to have tack welds on the containment boundary, and (v) the problems related to welding 304 stainless steel to a high strength carbon steel.

The application should include the full specification sheet of the thermal insulation board and staff said that the applicant shall carry forward the puncture drop simulations onto the chamfered corners of the package. Staff noted that the thermal analysis shall account for the deformation, followed by the crush, of the thermal insulation board.

Staff suggested that a finer mesh should be used, for an increased accuracy at the chamfered corners of the package, in order to better evaluate the extent of plastic deformation in this region. NUREG-1609 is unambiguous on the unacceptability of any inelastic deformation of the containment closure and seal systems, and the applicant should consider the stochastic nature of the accident tests. Staff noted that some slight changes in the boundary conditions (i.e., unknown/unforeseen perturbations that are not accounted in the modeled boundary conditions) would affect the observed results. Considering the small dimensions associated with the closure and seal areas, staff remains concerned that a plot would show no plastic strain at the seals while having, at the same time, plastic strain near the seals. Staff reminded the applicant there shall be no inelastic strain in the closure region, i.e., not only at the seal groove locations.

A member of the public asked why the U.S. Nuclear Regulatory Commission was performing reviews of "foreign" packages. Staff made no regulatory commitment during the meeting.

Docket No. 71-9375
EPID L-2019-LRM-0006

Enclosures:

1. Meeting Attendees
2. Presentation

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DOCUMENT DATE: April 8, 2019

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ADAMS Package No.: ML19098A177

OFC	SFM	E	SFM	C	SFM			
NAME	PSaverot		SFIGUEROA		JMcKIRGAN			
DATE	03/21/2019		03/23/2019		04/08/2019			

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**Meeting Between HOLTEC and the
Nuclear Regulatory Commission
March 19, 2019
Meeting Attendees**

NRC/NMSS/DSFM

Pierre Saverot
Antonio Rigato
Gordon Bjorkman
Joe Borowsky
David Tarantino

HOLTEC

Chuck Bullard
Venkat Prabhala
Robert Mahorter

PUBLIC

Michael Keegan
Nicolas Guibert
Carlyn Greene