



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

February 21, 2017

MEMORANDUM TO: Anthony H. Hsia, Deputy Director  
Division of Spent Fuel Management, NMSS

FROM: Pierre Saverot, Project Manager **/RA/**  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management, NMSS

SUBJECT: SUMMARY OF FEBRUARY 14, 2017, MEETING WITH HOLTEC  
INTERNATIONAL

Background

On September 23, 2015, Holtec International (Holtec) submitted an application for the Model No. HI-STAR ATB 1T package. The staff issued a request for supplemental information letter dated November 10, 2015. Meetings were held on November 24, 2015, January 19 and March 16, 2016, on a benchmark test program, the general acceptability of the test model, and test sequences. Drop tests were conducted at Sandia National Laboratories on September 12-14, 2016, and Holtec submitted a new application by letter dated February 6, 2017.

The meeting was noticed on January 10, 2017 (ML17010A018). The meeting attendance list and the proprietary presentation are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

The Model No. HI-STAR ATB 1T package is a rectangular package, 3.7 m long, 1.8 m wide, and 2.9 m high, with a gross weight of 116 metric tons. The package, which does not have any impact limiters, is designed for the transport of up to 12 tons of Greater Than Class C (GTCC) waste, such as core grids, core shrouds, shroud heads, top guides, etc.

In order to address staff's concerns regarding (i) the LS-DYNA benchmarking used for the modeling of the package and (ii) the need for a "quality" model, Holtec performed three drop tests in the following sequential order: (1) a 9-meter top-down oblique drop with the potential to open the containment closure lid joint and challenge the lid, (2) a 9-meter bottom down center of gravity over corner drop to challenge the containment boundary bottom corner welds with the potential to break the welded joint connecting the containment baseplate and two side walls of the package, and (3) a 1-meter side puncture drop with the potential to shear through the containment shell region behind the lifting trunnion. The quarter-scale model was instrumented with a combination of 12 accelerometers and 12 strain gauges to capture the package dynamic response.

Holtec presented the key results from the physical drop tests and their comparison with the benchmark simulation, i.e., deformation, deceleration, and strain comparisons in particular. The containment boundary components meet the stress limits per ASME Section III, Subsection NB,

for normal conditions of transport and the allowable strain limits per ASME Appendices EE and FF for hypothetical accident conditions. Local material damage is demonstrated to be acceptable and the containment closure seals remain protected. Staff noted the good correspondence of the benchmarking results with those from the drop tests.

Results of the physical drop tests also led to some design modifications in the package for the closure lid reinforcement, lid locking system and top flange, as well as the lifting trunnions.

Staff took the opportunity of this meeting to remind Holtec that it had to replace ANSI N14.5 (1997) with ANSI N14.5 (2014) in the SAR and operating procedures for the Model No. HI-STAR 80 (Docket No. 71-9374) in view of the fact that this is a new application, that ANSI N14.5 (2014) was issued, while staff did also issue an Information Notice (IN14-6) in April 2016.

Staff made no regulatory commitment during the meeting.

Docket No. 71-9375  
CAC No. L25185

Enclosures:

1. Meeting Attendees
2. Proprietary Presentation

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Docket No. 71-9375  
CAC No. L25185

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Distribution: Attendees, M. Layton

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**ADAMS Package No.: ML17052A663      Memo No.: ML17052A668      Presentation: ML17052A676**

<b>OFC</b>	SFM	E	SFM	C	SFM			
<b>NAME</b>	PSaverot		SFigueroa		JMcKirgan			
<b>DATE</b>	02/15/2017		02/16/2017		2/21/17			

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**Meeting Between HOLTEC and the  
Nuclear Regulatory Commission  
February 14, 2017  
Meeting Attendees**

**NRC/NMSS/SFM**

Pierre Saverot  
Antonio Rigato  
Steve Everard  
Joe Borowski  
David Tang

**HOLTEC**

Stefan Anton  
Chuck Bullard  
Venkat Prabhala

**SKB**

Johan Rosenblad  
Jenny Holmstrom