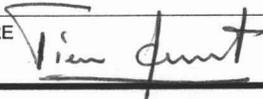


NRC FORM 699 (9-2003)		U.S. NUCLEAR REGULATORY COMMISSION		DATE 03/17/2009
CONVERSATION RECORD				TIME 2:00pm
NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU Stefan Anton, Tammy Morin, Kelly Kozink, Chuck Bullard		TELEPHONE NO. 856-797-0900		TYPE OF CONVERSATION <input type="checkbox"/> VISIT <input type="checkbox"/> CONFERENCE <input checked="" type="checkbox"/> TELEPHONE <input type="checkbox"/> INCOMING <input checked="" type="checkbox"/> OUTGOING
ORGANIZATION HOLTEC INTERNATIONAL				
SUBJECT Structural and Materials RAIs for the HI-STAR 60 transport package application				
SUMMARY (Continue on Page 2)				
Other Holtec Attendees: Debu Mitra-Majumdar, John Zhai, John Griffiths				
NRC Attendees: Jason Ptotter, Matthew Gordon, Pierre Saverot				
As part of an open dialogue and communication with the applicant, staff called Holtec to listen to Holtec's comments and proposed responses for the HI-STAR 60 structural and materials RAIs.				
RAI 2.1: Holtec will correct Table 2.7.2 to reflect correct G load values.				
RAI 2.2: Holtec provided an explanation illustrating an agreement on peak accelerations between the Classical Dynamics Method and LS-DYNA. Staff stated that this was the type of response that staff had expected to see (and did not find) in the package application. Staff also stated that some applicants provide "minimal SARs" and that Holtec shall take the time and effort to include all details in the application to allow staff to understand the methodology used, the data reported for the HI-STAR 100 package and used for the HI-STAR 60 package. Staff said that the two packages "are tied together", that it appeared that the HI-STAR 60 was behaving in a different way from the HI-STAR 100, and that this was a "red flag" because of the lack of test data presented for the HI-STAR 60 package. Staff also stated that the information presented was either not consistent between the two cases or not capturing the "as built" conditions. Holtec explained the spike in the G load and said that it understands staff's concerns and will do a better job in explaining the generalized acceleration behavior.				
RAI 2.3: As is the case for RAI 2.2. above, staff stated that this is another case where Holtec "did not tell the complete story" and that Holtec should explain more thoroughly the methodology used for the calculated Factors of Safety for the Lid Bolts. Holtec agreed.				
RAI 2.4: Holtec stated that it will "fully respond to the RAI by proving that the bottom end drop is a more limiting case, with a maximum feasible gap of 5 mm, as opposed to the top end drop".				
Continue on Page 2				
ACTION REQUIRED None				
NAME OF PERSON DOCUMENTING CONVERSATION Pierre Saverot		SIGNATURE 		DATE 03/18/2009
ACTION TAKEN				
TITLE OF PERSON TAKING ACTION		SIGNATURE OF PERSON TAKING ACTION		DATE

CONVERSATION RECORD (Continued)

SUMMARY (Continue on Page 3)

RAI 2.5 : Staff agreed to provide an appropriate reference for an acceptable failure criteria for peak cladding strain. Holtec had referenced a PNNL paper with values between 1.7% and 3% while staff believes that a range of 1% to 1.5% is more appropriate for moderate burnup fuel.

RAI 2.6: Staff agreed that this RAI might be mitigated by the response on RAI 2.2. Holtec stated that it will provide a response on the value used for the cask ground spring stiffness.

RAI 2.7: Holtec stated that the stress categories in the ASME Code are not applicable to a cask. Holtec said that it will respond to the question.

RAIs 2.8 and 2.9: Holtec said that it understands staff's concerns on the methodologies and will provide a complete response.

RAI 2.10: Holtec said that all material is specified as biaxial.

RAI 2.11: Holtec agreed to delete the statement on the greater mesh density.

RAI 2.12: Holtec agreed to run the other four drop orientation cases using lowerbound crush strength.

RAI 2.13: Holtec stated that it fully understands the question and that further investigation is needed on this RAI. Holtec said that it was "not concerned" by any acceleration because it was "not trying to match accelerometer values" from a drop test.

RAI 2.14: Staff said it was concerned that Holtec might have underestimated the G load that affects the basket and that Holtec "must make its case". Holtec agreed that more work is needed to justify the peak decelerations when reporting maximum values for a given drop orientation.

RAI 2.15: Holtec stated that, in the current submittal, there is flexibility for the designer to vary materials as long as the energy absorption of the spring rate of the FIA device meets the characteristics and requirements over a temperature range, as specified in Fig 2.1.1. and Table 2.2.10. Holtec said that it will include a commitment in the application that the FIA device meets the requirements of Fig 2.1.1. Staff told Holtec that a stipulation of the device "being constructed with ASME qualified materials" may probably be acceptable but that there must be a quality level associated with the materials.

RAI 2.16: Holtec said that Note 2 from Table 2.2.1 is an "artifact" going back to the HI-STAR 100 application and that the note will be deleted. Holtec also said that the 2004 edition of the ASME Code includes the properties.

RAI 2.17: Holtec will specify the forging designation of the SA 336 steel.

RAI 2.18: Staff said that Holtec "has free rein" with NITS items but that there shall be no substitution of non-code materials for components important to safety (ITS). Holtec stated that it wants the ability to say "weld per section 9, test per section 5, procure per section 2, etc." and does not want to commit to an ASME Code. Holtec finally agreed to revise Table 2.1.6 or expand it, as is the case in the HI-STAR 100 application. Staff said that it needs to have a clear understanding of what materials are intended for use in a package.

RAI 2.19: The insulating material is ceramic and ceramic thermal properties (e.g. thermal conductivity) remain essentially unchanged. Staff requested Holtec to put a quantitative statement (in %) instead of stating either that "changes will be small" or that the 'effect will be marginal".

RAI 2.20: Holtec will insert a note in Table 2.2.9 that the insulating material will have all of the critical characteristics at the maximum temperatures under normal operating conditions.

RAI 2.21: Holtec agreed to clarify Table 2.1.13 so that each individual test sample will meet a minimum Charpy Impact Energy requirement of 15 ft-lbs.

RAI 2.22: Holtec agrees with staff's request.

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CONVERSATION RECORD (Continued)

SUMMARY (Continue on Page 4)

RAI 2.23: Holtec stated that post-weld heat treatment is already exempted in the Code for non pressure related components. Holtec will remove it from Table 2.1.17.

RAI 2.24: Holtec said that the statement in Table 2.1.17 is an exemption carried over from the HI-STAR 100 application. Staff requested to have the full justification for that exemption.

RAI 2.25: Holtec said that (a) it will specify a temperature of retraction after conferring with Parker, (b) it will provide dimensional tolerances and provide the calculation for the "squeeze", (c) the helium permeability is a "touchy issue" and it will evaluate the best approach for measuring the maximum permeability and deriving a leak rate test plan. Staff requested to know the performance of the material, whatever material is chosen, and said that leak testing of the seal is required. Once the cask is loaded, the seal temperature may go up to 70 degrees C and the permeability jumps up, (d) it will specify a hardness range, (e) it believes that the minimum elongation is not relevant to the application (the value is used only to stretch the seal to put it into the groove). Staff answered that a minimum elongation is a defining characteristic of the seal material.

RAI 8.1: Holtec will remove the statement, as suggested.

RAI 8.2: Holtec stated that it does not accept materials that do not meet specifications. Such a statement should be inserted in the purchasing specifications. Holtec will check if they can be transmitted to staff for review.

RAI 8.5: Holtec stated that (i) corrosion is an issue in wet storage, (ii) Metamic does not corrode in a dry environment and (iii) anodization is related to the increase in surface emissivity, not to corrosion. Holtec agreed to specify that the Metamic panels are surface-treated (through sand blasting for example).

RAI 8.6: The statement will be removed.

RAI 8.7: Holtec stated that Metamic has no interconnected porosity and that water does not enter the Metamic panels. Staff said that the sourcebook for Metamic shows a 1.5% total porosity. Holtec said that it will clarify this and staff recommended to have a quantitative, not qualitative, statement.

RAI 8.8: Holtec said that it is the sole manufacturer of Metamic.

RAI 8.9: Holtec will clarify the statement.

Holtec intends to provide responses for staff review as early as the end of this month. Staff reiterated its openness for dialogue with the applicant.

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