NRC FORM 699 (9-2003) U.S. NUCLEAR REGULATORY COMMISSION

CONVERSATION RECORD

DATE: 10/09/2007

TIME:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU: **Donis Shaw**

TELEPHONE NO.:

ORGANIZATION: **Transnuclear Inc.**

TYPE OF CONVERSATION: ☐ VISIT ☐ CONFERENCE ☑ TELEPHONE ☐ INCOMING ☐ OUTGOING

SUBJECT: **Summary of 10/09/07 phone call with Transnuclear to discuss requests for additional information associated with Amendment 10 to the Standardized NUHOMS design (docket 72-1004)**

SUMMARY *(Continue on Page 2)*

On 10/9/07 staff from the Division of Spent Fuel Storage and Transportation held a phone call with Transnuclear, Inc. to discuss requests for additional information (RAIs) associated with Amendment 10 to the Standardized NUHOMS design. The participants in the call were:

Transnuclear (TN): Robert Grubb, Jayant Bondre, Peter Shih, Don Shaw, Raheel Haroon

Structural Integrity: Stan Tang

NRC: Bob Tripathi, Bob Einziger, Joe Sebrosky

The phone call was a followon to discussions that the staff had with TN in a September 19, 2007, meeting (see ADAMS accession number ML072780244 for a summary of the meeting). The phone call was also a followon to a discussion that was held with TN on October 3, 2007 (see ADAMS accession number ML072830570 for a summary of this phone call).

RAI 3-4:

As documented in the October 3, 2007, phone call summary, TN provided a preliminary response to RAI 3-4 regarding fuel cladding properties. During discussion of TN's proposed response TN took the following actions items:

1) The staff has previously reviewed the paper by Joseph Rashid and Albert Machiels, "Assessment of Data Availability and Data Needs for Spent Fuel Transportation," ANS Winter Meeting, Washington, D. C. 2005, that TN references in its proposed response. The staff stated that it has previously identified issues with this paper and TN indicated it would consider whether or not it would reference this document in its official response to the RAI.

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ACTION REQUIRED

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
Joseph M. Sebrosky		**10/09/2007**

ACTION TAKEN

TITLE OF PERSON TAKING ACTION	SIGNATURE OF PERSON TAKING ACTION	DATE

CONVERSATION RECORD (Continued)

SUMMARY *(Continue on Page 3)*

2) The staff suggested that TN should consider reviewing a paper from Steven Yagnik that was provided at a light water reactor meeting in Orlando in 2004. The staff stated that this paper appears to have relevance to TN's proposed response. TN indicated that it would review the paper and determine if it should be included in the response to the RAI.

The NRC staff took the following action item related to TN's proposed response:

1) Review the paper that TN provided in its draft response by H. C. Chu, S. K. Wu, K. F. Chien and R. C. Kuo, "Effect of radial hydrides on the axial and hoop mechanical properties of Zircaloy-4 Cladding," Journal of Nuclear Materials, Vol. 362, 2007." The staff indicated that it would not be able to provide any feedback on this paper until early November which may not be in time to be factored into TN's official response to the RAI. TN's official response to the RAI is scheduled to be provided to the staff by November 5, 2007.

RAI 3-6:

As discussed in the October 3, 2007, phone call summary TN wanted to know the basis for the 15ksi uncertainty in the yield that the staff refers to in its observations associated with this RAI. TN indicated that it did not believe that at high burnups there is a 15 ksi penality. TN then referred the staff to page 3 of its proposed response. TN indicated based on these results that they believe they have a minimum of a 10, 000 psi margin. In response to this issue the staff provided TN with the following information prior to the 10/9/07 phone call:

- Look on page 17 , Fig 8 of TN response (the one with all the proprietary pages) for a plot of yield stress vs fluence. You will see three high fluence (but no hydrogen) points. This plot shows that the equation under predicts the yield by as much as ~100 MPa. This is equivalent to 1000 bars or 14700 psi. In other words the yield stress at a particular temperature and fluence calculated using the equation can be as much as 14.7, nominally 15 ksi too low. If the calculated stress in the cladding is within 14.7 ksi of this calculated yield stress, TN can not be sure it met the criteria not to exceed the actual yield stress. Ergo the origin of the 15 Ksi.

In response to the staff concern TN discussed the graph and there basis for why they believed they were being conservative. TN indicated that they believed that the Beyer report predicts a lower value than actual and that there is not a 15 ksi penality. The staff stated that it understood TN's proposed response and that at a high-level it appeared that the reference to the Beyer report in the response in this area was conservative and maybe acceptable.

TN took the following action item related to this RAI:

- Consider providing in the response a clear discussion on how calculated-values were derived. Also consider placing example calculations as part of its response. TN also indicated that it would consider the NRC guidance that any value that is provided in its response to provide a reference to where the value originated and the parameters associated with that value (e.g., temperature associated with the value).

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