72-1027

March 7, 2006
E-23391

Mr. José Cuadrado
Spent Fuel Project Office, NMSS
U. S. Nuclear Regulatory Commission
11555 Rockville Pike M/S 0-6-F-18
Rockville, MD 20852

Subject: Additional Information Regarding Application
for Amendment 1, TN-68 CoC 72-1027
Docket 72-1027, TAC L23802

Reference: Email from Jose Cuadrado to Jayant Bondre, dated February 23, 2006,
"ACTION: Additional Information Needed for TN-68, Amendment 1"

Dear Mr. Cuadrado:

Transnuclear, Inc. (TN) herewith submits information pertaining to recent discussions with the NRC staff regarding the referenced request for additional information for Amendment 1 to Certificate of Compliance 72-1027.

TN wishes to clarify that TN-32 Safety Analysis Report, Revision 11, Appendix 6A, Reference 5 is EPRI TR-103949, "Temperature Limit Determination for the Inert Dry Storage of Spent Nuclear Fuel," May 1994. Additionally, enclosed herewith are seven copies of one TN-68 Safety Analysis Report page, showing pages 8.1-3 (Rev. 2) and 8.1-4 (Rev. 0).

Should you or your staff require additional information to support review of this application, please do not hesitate to contact me at 410-910-6881 or Mr. U. B. Chopra at 510-744-6053.

Sincerely,

Jayant Bondre

Jayant Bondre, PhD
Director of Engineering and Licensing

cc:
William Bracey, Transnuclear
UB Chopra, Transnuclear
Mark Dedrich, PBAPS

Enclosure: Seven copies of one TN-68 Safety Analysis Report page, showing pages 8.1-3 (Rev. 2) and 8.1-4 (Rev. 0)

7135 Minstrel Way, Suite 300, Columbia, MD 21045
Phone: 410-910-6900 • Fax: 410-910-6902

NMSS01

Enclosure to Transnuclear, Inc. Letter E-23391

Seven copies of one TN-68 Safety Analysis Report page, showing pages 8.1-3 (Rev. 2) and 8.1-4 (Rev. 0)

8.1.2 Flow Sheets

The suggested sequence of operations to be performed in loading fuel into the TN-68 storage cask and placing the cask into storage at the ISFSI is outlined in Table 8.1-1. Some variations in this sequence may be expected after site specific procedures are developed by TN-68 users.

Details of the number of personnel and the time required for the various operations are given in Tables 10.3-1 and –2 as part of the radiation exposure determinations discussed in Chapter 10. The data is based on Transnuclear's experience with transport cask operations and will vary for an individual licensee. Temporary shielding, measures to facilitate surface decontamination and minimization of operation time will maintain operational doses ALARA as discussed in the flow sheets.

8.1.3 Vacuum Drying System

A vacuum drying system is utilized to remove residual moisture from the cask cavity, after the cask has been drained. This method is successfully used by Transnuclear on both its transport casks and storage casks.

After a loaded cask is removed from a pool and drained, it is placed under a vacuum. After bolting the lid, residual water is removed by the following or equivalent method:

a) Using a wand attached to the vacuum system, remove excess water from the seal areas through the passageways at the overpressure, drain and vent ports.
b) Remove the quick disconnect from the drain port, and install the drain port cover.
c) With the quick disconnect removed to improve evacuation, install a flanged vacuum connector over the vent port, purge or evacuate the helium supply lines, and evacuate the cask to 4 millibar (4×10^{-4} MPa) or less. Make provision to prevent or correct icing of the evacuation lines.
d) Isolate the vacuum pump with two valves between the pump and the cask. Alternately, one valve may be used if the vacuum pump is shut off. If, in a period of 30 minutes, the pressure does not exceed 4 millibar (4×10^{-4} MPa), the cask is adequately dried. Otherwise, repeat vacuum pumping until this criterion is met.
e) Backfill the evacuated cask cavity with helium (minimum 99.99% purity) to slightly above atmospheric pressure, remove the vacuum connector, and immediately install the quick disconnect fitting.
f) Attach the vacuum/backfill manifold to the fitting, purge or evacuate the helium supply lines, and re-evacuate the cask to below 100 mbar.
g) Isolate the vacuum pump, backfill the cask cavity to above atmospheric pressure with helium (minimum 99.99% purity), and leak test. (See Section 8.1.4).

The evacuation and backfill process is repeated if the cask cavity is exposed to the atmosphere.

8.1.4 Leak Detection

After backfill, the cask is leak tested by helium mass spectrometry by pressurizing the annular space and measuring the total leak rate of all seals, both inner and outer, including the overpressure system. This conservative leak rate must be less than 1×10^{-5} ref-cm^3/sec (1.0×10^{-5} mbar-l/sec). Leak test procedures make provision for cases where a quick disconnect fitting may prevent communication between the cask cavity and the inside of a port inner seal.

Failure to meet the leak test acceptance criterion requires evaluation of the leak location, for example by the use of the helium mass spectrometer in the "sniffer" mode, examination of sealing surfaces, replacement of the leaking seal(s), and re-performance of the leak test. Replacement of the main lid seal requires reflooding of the cask and removal of the lid, similar to the steps described under Section 8.2.

8.1.5 Major Tools and Equipment

The following tools and equipment are normally required for loading and unloading the TN-68 casks:

- A transport frame which is used to transport the empty cask from the manufacturer's facility to the utility. The transport frame is not important to safety, since it is only used in conjunction with an empty cask.
- A spreader lift beam to connect the cask to the crane hook. The lift beam is used to remove the cask from the transport frame, to move the cask into the pool, into the processing stations such as the decontamination area and eventually to a location where the cask can be lifted by the cask transporter. This lift beam is designed and fabricated in accordance with ANSI N14.6.[1] The load bearing components of the lift beam are evaluated by the user under its heavy lifting program in accordance with NUREG-0612[3].
- A vertical cask transporter. The cask transporter is set to ensure that the loads from a postulated drop accident will be bounded by the maximum analyzed loads and given in Technical Specifications 4.1.2 and 5.2.2. The cask transporter is used to move the cask from the cask loading bay to the storage pad or from the pad back to the plant. The cask transporter may be self-propelled or be pulled by a tow vehicle to the ISFSI. The cask transporter is not important to safety, since the cask is analyzed to withstand an 18 inch drop onto a concrete pad which is bounding for the transfer path. The cask transporter is designed to lift the cask by means of the top trunnions.
- A lid lifting system. This may consist of a set of slings threaded into the top of the lid or a lifting pintle. The load bearing components of the lid lifting system are evaluated by the user under its heavy lifting program in accordance with NUREG-0612.
- Helium leak detector including port connectors. The leak detector is designated as not important to safety, but will be calibrated.
- Vacuum drying system including hoses and connectors. The vacuum drying system is designated as not important to safety, but all appropriate gages will be calibrated.
- Pumps for removing water from the cask. The pumps are not important to safety.