

December 17, 2012

Mr. Donald R. Krause
Manager, Regulatory Compliance and EHS
GE Hitachi Nuclear Energy
Vallecitos Nuclear Center
6705 Vallecitos Rd.
Sunol, CA 94586

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
MODEL NO. 2000 PACKAGE

Dear Mr. Krause:

By letter dated October 10, 2012, General Electric-Hitachi (GEH) submitted an amendment request to Certificate of Compliance No. 9228 for the Model No. 2000 package.

In connection with the staff's review of your application, we need the information identified in the enclosure to this letter. We request that you provide this information by January 15, 2013. If you are unable to meet this deadline, you must notify us in writing no later than December 21, 2012, of your submittal date and the reasons for the delay. The staff will then assess the impact of the new submittal date and notify you of a revised schedule.

Please reference Docket No. 71-9228 and TAC No. L24690 in future correspondence related to this request. The staff is available to meet with you to discuss your proposed responses. If you have any questions regarding this matter, I may be contacted at (301) 492-3408.

Sincerely,

/RA/

Pierre Saverot, Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9228
TAC No. L24690

Enclosure: Request for Additional Information

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Request for Additional Information
for the
Model No. 2000 Package
Docket No. 71-9228

By application dated October 10, 2012, General Electric-Hitachi (GEH) submitted an amendment request for the Model No. 2000 package.

This Request for Additional Information (RAI) identifies information needed by the staff in connection with its review of the application. The requested information is listed by chapter number and title in the applicant's Safety Analysis Report. The staff reviewed the application using the guidance in NUREG 1609, "Standard Review Plan for Transportation Packages for Radioactive Material."

Each individual RAI section describes information needed by the staff to complete its review of the application and to determine whether the applicant has demonstrated compliance with the regulatory requirements.

Chapter 1 – General Information

Licensing Drawings and Bill of Materials

1.1 Justify and/or re-evaluate the tolerances shown in Drawing No. 129D4922, Rev. 3.

Staff determined that a "comprehensive" ± 0.25 inch dimensional tolerance is not acceptable. For example, using the lower bound of the tolerance for the bottom plate fabricated from 0.38 inch 304 stainless steel would give a minimum tolerance of only 0.13 inch. In addition, the drain tube has a wall thickness of 0.6 inch, which is less than the 0.25 inch tolerance.

Staff notes that upper or lower bound dimensions with such a dimensional tolerance may not be evaluated in the licensing basis analyses and that the applicant must ensure that the most conservative use of dimensional tolerances is used in the thermal, criticality, shielding, and structural analyses.

Staff also notes that, despite the wording of note 2 in the drawing, the "Product Form" and "Spec No." of each lead liner subcomponent are not indicated; thus, "standard mill tolerances" for each item are ambiguous.

This information is needed to ensure compliance with 10 CFR 71.33.

1.2 Provide a tabular bill of materials for Drawing No. 129D4922, Rev. 3.

Providing a tabular bill of materials ensures clarity for demonstrating compliance with safety requirements and regulations during licensing, fabrication, and operation of the

package. The bill of materials should incorporate each component's classification according to safety, per NUREG/CR-6407.

This information is needed to ensure compliance with 10 CFR 71.33.

1.3 Provide fabrication details of the lead liner.

Staff notes that the drawing does not detail either welding information or codes that will be used for fabrication of the liner shell (e.g., liner inner to bottom plate). Please, reference the appropriate sections of NUREG/CR-5502 to assist in the preparation of licensing drawings.

Staff questions the ability of the lead to fill the entire cavity without any voids. Provide fabrication and post-fabrication examination details to ensure that the lead fills the entire annulus and around the drain tube (due to the rapid change of geometry).

This information is needed to ensure compliance with 10 CFR 71.31.

1.4 Correct/justify the following errors in Drawing No. 129D4922, Rev. 3.

Staff noted a typographical error in "INTERCHNGEABILITY" in Drawing No. 129D4922, Rev. 3, note 1.

Staff noted that the approval code table in Drawing No. 129D4922, Rev. 3, Zone A2 appears to be incomplete in that a "RESPONSIBLE ENGINEER" did not review/sign/date the drawing.

Staff noted that Drawing No. 129D4922, Rev. 3, "SAFETY RELATED CLASSIFICATION CODE -----," appears to be left blank.

Staff assumes that all dimensions are in inches; add an additional note to the drawing for that purpose.

This information is needed to ensure compliance with 10 CFR 71.31.

Chapter 2 – Structural Evaluation

2.1 Provide the structural analysis of the lead liner for normal conditions of transport (NCT) conditions. Justify that the liner will maintain its configuration under hypothetical accident conditions (HAC).

Responses provided by GEH to those RAIs from a previous NRC request for Information dated July 23, 2012, are not acceptable by staff for the following reasons: (i) GEH submitted a new analysis (ANSYS Workbench FEA Model) of the lead liner without the lid for HAC and NCT respectively; (ii) Workbench has not been accepted as a FEA code for structural review by staff; (iii) staff notes that the original licensing basis is LIBRA and scale model testing, not Workbench; (iv) GEH did not provide any file to allow staff to perform an in-depth review of such an analysis; (v) GEH states that ISG-21 was used, but GEH did not provide any documentation pertaining to modeling techniques, computer model validation, justification of bounding conditions/scenarios, description of

boundary conditions and assumptions, documentation of material properties, description of model assembly, discussion and justification of selected loads and time steps, and sensitivity studies consistent with ISG-21; (vi) GEH did not specify the package lead liner performance against ASME Subsection NB Stress Intensities (Membrane, Membrane plus Bending, Peak) which is consistent with NEDO-31581 (SAR) Section 2.1.2. GEH RAI response only compares to yield; and (vii) a buckling evaluation consistent with ASME Code Case N-284 needs to be applied for the evaluation of the liner during the HAC end drop.

This information is needed to ensure compliance with 10 CFR 71.47, 71.71, 71.73.

Chapter 5 – Shielding Evaluation

- 5-1 Clarify the use of the lead liner (if any) for Certificate of Compliance contents 5(b)(1)(iii), 5(b)(1)(iv), and 5(b)(1)(v).

Additional analytical information may be required to support the shielding basis of those contents in such a configuration.

This information is needed to ensure compliance with requirements in 10 CFR 71.47 and 10 CFR 71.51(a)(2).