



COLUMBIANA HI TECH LLC

Nuclear Manufacturing Excellence

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DWO-14-008

Division of Spent Fuel Storage and Transportation
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
M/S 14 A 44
Rockville, MD 28052

Attention: Michele Sampson
CC: Document Control Desk (without attachments)

Subject: Request for Additional Information, Docket No. 71-9291 and TAC No. L24787
for the Model No. Liqui-Rad Transport Unit Package
(Certificate of Compliance No. 9291)

Please find attached CHT's response to the request for additional information.

The revision level of the current SARP is Revision 7. Attached please find a revised package which incorporates the responses to the RAI.

- One copy of the Consolidated Safety Analysis Report for Packaging (SARP), Revision 8, for the CHT Liqui-Rad (LR) Transport Unit Package.
- Attachment "A" provides instructions for inserting the revised pages into Revision 7 of the SARP.
- Attachment "B" provides a listing of the changes made along with an explanation for the modification
- Attachment "C" provides the changed pages for the SARP

Structural Evaluation

RAI 1: *Provide the detailed information for the proposed design changes. The applicant stated that the draw pipe is optional in the proposed structural design, but did not provide any detailed information. The applicant needs to provide detailed information including structural systems and components that will be removed from the current design and be added for the proposed design.*

Response: as can be seen on drawing LR-SAR Rev.9, the proposed change is to allow the length of the draw pipe (which is a non-safety related component) that protrudes under the primary lid and into the containment vessel to vary, from a minimum of 1/8" min under the primary lid (see "FILL PORT DETAIL D" on sheet 3), up to 1/4" from the

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bottom of the containment vessel (see "CONTAINMENT VESSEL SECTION VIEW", also sheet 3).

The reason for this change is that the longer the draw pipe is, the more it is impacted by transport vibrations during normal transport conditions. Although the draw pipe is not a safety related component, any damage to it impacts loading and unloading operations, and therefore needs to be minimized.

Pages 2-7 and 2-12 of the SAR have been reworded to clarify the proposed design changes.

RAI 2: Provide technical justifications as to why the proposed structural system with the changes does not need to be analyzed to demonstrate the adequacy of the structural system for safety. The applicant stated on page 2-7 that vibration due to normal transport conditions has no measurable effect on the Liqui-Rad, excluding optional component, e.g. draw pipe. Also, it stated on 2-12 that the proposed design is still valid since the weight of the previously tested configuration is slightly higher than the proposed configuration. The applicant needs to provide technical information of how vibration affects the safety performance of draw pipe and other structural components, and provide information with respect to the performance of other structural components added in the proposed design under hypothetical accident conditions beyond the consideration of the weight change.

Response: Transport vibrations do not affect any safety related components of the package. They can only affect the draw pipe, with a magnitude that is proportional to the length of the draw pipe itself. Because the proposed changes result in a shorter draw pipe, the analyzed structural system is bounding. Since no other structural components are added, there is no need to analyze the proposed structural system with the changes.

Pages 2-7 and 2-12 of the SAR have been reworded to clarify the proposed design changes.

Containment

RAI 3: Provide a detailed drawing illustrating the containment boundary, including a detailed description of the secondary wall boundary. The certificate holder proposes a change of the containment boundary at the Glossary, Section 2 and 4 of the SAR, Revision 8. This description excludes the portion of the primary lid inside the secondary wall. A description of the secondary wall and a detailed drawing of the containment boundary were not provided. A detailed description and illustration of the packaging containment boundary are required for the safety evaluation.

Response: The glossary (page vi) and section 4 of the SAR (page 4-1) have been updated with an exhaustive definition of the containment boundary plus a detailed sketch which illustrates the containment boundary.

A description of the secondary wall can be found on Sheet 3 of drawing LR-SAR Rev. 9, "Primary Lid Detail L".

Even though a change to the definition of the containment boundary is proposed, because the portions excluded from the definition in the proposed changes are located within the containment boundary, this change to its definition has no actual impact on the containment boundary itself.

RAI 4: *Besides proposing removing the draw pipe and revising the definition of the containment boundary, provide information of any additional design changes to Revision 8 of the Liqui-Rad package. Also, provide information on why the draw pipe is optional. The certificate holder requests that the draw pipe is optional in the revised design, but does not specify if other items were modified as part of the revised design. Detailed information of the revised design is needed to evaluate the package.*

Response: There are no additional design changes to the package. See response to RAI #1: the draw pipe is not optional and is a non-safety related component.

Operating Procedures

RAI 5: *Describe changes to the operating procedures due to the proposed design changes. The certificate holder requests making the draw pipe optional in the revised design of the Liqui-Rad package but does not provide information about package unloading operating procedures in chapter 7 of the application. A description for any proposed special controls in case of an accident or delay are necessary to evaluate compliance with 10 CFR Part 71 regulations.*

Response: See RAIs #1 and #4: The draw pipe is not optional and is a non-safety related component. There are no changes required to the current operational requirements in Chapter 7 of the SAR, as it states to "unload the containment vessel in accordance with the Receiver's operating procedures" (see section 7.2(h)). The actual change in unloading practices for a shortened draw pipe is to install a removable draw pipe through the shortened 1" diameter draw pipe, to use that removable draw pipe to remove the contents, and to remove it once the contents have been unloaded.

Should you have any questions and/or need any additional information, please do not hesitate to call me at your convenience.

Sincerely,



Donald W. Olson
President
Columbiana Hi Tech, LLC