April 24, 2015

Mr. Christopher Dane
Chief Operating Officer
Robatel Technologies
5115 Bernard Drive
Suite 304
Roanoke, Va. 24018

SUBJECT: APPLICATION FOR CERTIFICATE OF COMPLIANCE NO. 9365 FOR THE MODEL NO. RT-100 PACKAGE – REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Dane:

By letter dated January 30, 2015, as supplemented March 5, 2015, Robatel Technologies submitted an application for amendment of Certificate of Compliance No. 9365 for the Model No. RT-100 package. To assist with our review, the U.S. Nuclear Regulatory Commission staff needs the information identified in the enclosure to this letter.

We request that you provide this information by May 15, 2015. Inform us at your earliest convenience, but no later than May 8, 2015 if you are not able to provide the information by that date. If you are unable to provide a response by May 15, 2015, please propose a new submittal date with the reasons for the delay.

Please reference Docket No. 71-9365 and TAC No. L24992 in future correspondence related to this amendment request. The staff is available to discuss these questions as well as your proposed responses. If you have any questions regarding this matter, feel free to contact me at (301) 415-6877.

Sincerely,

/RA/

Chris Allen, Project Manager
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9365
TAC No. L24992

Enclosure: Request for Additional Information

April 24, 2015

Mr. Christopher Dane
Chief Operating Officer
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5115 Bernard Drive
Suite 304
Roanoke, Va. 24018

SUBJECT: APPLICATION FOR CERTIFICATE OF COMPLIANCE NO. 9365 FOR THE MODEL NO. RT-100 PACKAGE – REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Dane:

By letter dated January 30, 2015, as supplemented March 5, 2015, Robatel Technologies submitted an application for amendment of Certificate of Compliance No. 9365 for the Model No. RT-100 package. To assist with our review, the U.S. Nuclear Regulatory Commission staff needs the information identified in the enclosure to this letter.

We request that you provide this information by May 15, 2015. Inform us at your earliest convenience, but no later than May 8, 2015 if you are not able to provide the information by that date. If you are unable to provide a response by May 15, 2015, please propose a new submittal date with the reasons for the delay.

Please reference Docket No. 71-9365 and TAC No. L24992 in future correspondence related to this amendment request. The staff is available to discuss these questions as well as your proposed responses. If you have any questions regarding this matter, feel free to contact me at (301) 415-6877.

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Docket No. 71-9365
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Request for Additional Information
Docket No. 71-9365
Model No. RT-100 Package

By letter, dated January 30, 2015, as supplemented March 5, 2015, Robatel Technologies submitted an amendment request for the Model No. RT-100 package. This request for additional information (RAI) identifies information needed by the NRC staff in connection with its review of the application.

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

Structural Evaluation

1. Update Tables 2.6.7-1, 2.6.7-2, 2.7.1-2, 2.7.1-3, and 2.7.1-5 to reflect lead shrinkage after the lead pour as well as updating the hypothetical accident conditions (HAC) and normal conditions of transport (NCT) analyses as applicable.

   With regards to shrinkage forces due to the pouring of lead (referred to here as lead shrinkage), page 2-70 of the application states:

   > *"During fabrication of the RT-100, thermal stresses can be introduced in the inner and outer shells as a result of pouring molten lead between them. Residual stresses may be induced in the inner shell (containment boundary) and the outer shell due to shrinkage of the lead shielding subsequent to lead pouring operations; however, these stresses are relieved early in the life of the cask because of the low creep strength of lead"*

   However, as stated during the March 3, 2015 phone conversation, an RT-100 transportation package could be put into service immediately after its construction, indicating stresses due to lead shrinkage have not yet relaxed due to creep. Specifically, a value of 149.4 MPa is calculated on page 2-213 of the application due to lead shrinkage. Superimposing this value onto those tabulated in Table 2.6.7-1 (column S3) implies that the inner shell P_m value (primary stress) exceeds the allowable stress for the following scenarios:

   - NCT side drop
   - NCT end drop

   In addition, as lead creep starts to occur, the stresses in the lead will relax, however the inner steel canister shell will want to expand outwards imparting stresses at the inner canister shell to bolt ring weld area and potentially to the bolts in the flange. In this scenario, the flange P_m would be exceeded in the following scenarios:

   - NCT side drop
   - NCT end drop

   P_m values tabulated for both NCT and HAC should be updated using the lead shrinkage stress value of 149.4 Mpa.

   This information is required to determine compliance with 10 CFR 71.41(a), 71.71, and 71.73.

Containment Review

1. Justify the use of personnel without ASNT or COFREND certification to perform the leak testing, considering that industry standards indicate that leak testing should be performed by a NDT Level I/Level II.

   The proposed change in safety analysis report (SAR) Section 8.2.2.2 and Section 8.2.2.3 would allow personnel who are not ASNT (or COFREND) certified to perform leak testing. However, the minimum training, education, and experience requirements for NDT personnel specified in both the "American Society for Nondestructive Testing Standard for Qualification and Certification of Nondestructive Testing Personnel (ANSI/ASNT CP-189-2006)" and the "Recommended Practice No. SNT-TC-1A," state that Level I/Level II NDT personnel have the qualifications to perform their respective aspects of leak testing.

   This information is needed to determine compliance with 10 CFR 71.43 (f), and 71.51.

2. Justify using the lid's "base metal temperature" versus the "ambient temperature" when determining the test duration in SAR Section 8.2.2.2 and 8.2.2.3.

   The test temperature is an important parameter to determine the pressure rise or pressure drop test duration. The reason for using a different test temperature needs to be understood in order to effectively evaluate the change.

   This information is needed to determine compliance with 10 CFR 71.43(f).

3. Explain how the control volume is determined in Sections 8.2.2.2 and 8.2.2.3 and identify how the user will obtain the methodology needed to determine the control volume during the test.

   SAR pages 8-23 and 8-25 instruct the users to "accurately determine and record the control volume." However, no guidance in determining this important parameter of the test duration calculation is provided.

   This information is needed to determine compliance with 10 CFR 71.43(f).

4. Provide the calculation that identified the need for a 1.01E-4 Pa-m^3/sec sensitivity for the gas pressure drop pre-shipment leak test option.

   SAR page 8-26 indicates the need for a 1.01E-4 Pa-m^3/sec pressure sensitivity if the test area is pressurized to 1.67 atm, based on input from Section 2.2.6 of NUREG/CR-6847. However, it is unclear how this important pressure sensitivity was determined from the available information.

   This information is needed to determine compliance with 10 CFR 71.33, and 71.87.

5. Specify in the SAR the bounding shoring volume associated with the EL-142 secondary container to ensure the minimized free gas volume in the RT-100 cavity.

   Page 4-27 in SAR Section 4.4.3 indicates that the assumptions that result in the minimized free gas volume of 30.1 ft^3 are achieved when using the EL-142 secondary container and shoring. The EL-142 secondary container has a 27.03 ft^3 volume. However, there is no condition in the SAR that limits the amount of shoring to 3.07 ft^3; shoring above that amount would reduce the free gas volume further and affect the acceptable decay heat and time transport limits.

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

6. Clarify if the G-values listed in SAR Table 4.4-5 are appropriate when calculating hydrogen generation for grossly dewatered resins.

   The G-values for resin in SAR Table 4.4-5 seem consistent with those presented in an earlier certificate of compliance application for “dewatered resin” as content. Since SAR page 4-18 indicates that the G-values for ionic resins are “primarily driven by moisture content,” NRC staff must determine if the G-values in Table 4.4-5 should be updated to reflect the grossly dewatered resin content.

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

7. Specify the reason for changing the minimum leakage test time period equation.

   An accurate leak test response is dependent on the test time period. SAR pages 8-24 and 8-26 include new time periods for the leakage test which result in a new equation being used to determine the minimum leak test time period. The reason for using a different equation needs to be understood in order to effectively evaluate the change.

   This information is needed to determine compliance with 10 CFR 71.43(f).

8. Clarify whether shipments can be made if the conditions in Table 7.5.2-1 are not met.

   SAR page 7-23 indicates that Equation 4.8 and Equation 4.9 are valid if the conditions in Tables 4.4.5-1 and 7.5.2-1 are met. It also should be clarified that shipments are allowed only if the conditions in Tables 4.4.5-1 and 7.5.2-1 are met.

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

Shielding Review

1. Explain how a uniformly distributed source bounds a non-homogeneous source.

   In the NCT and HAC models, the contents are homogeneously distributed. In reality, the media is not uniformly distributed. Clarify how a homogenous source bounds a non-homogenous source.

   This information is required to determine compliance with 10 CFR 71.47 and 71.51.

2. Identify the branching ratios and where they are used in the analyses.

   Provide either the radionuclide branching ratio, or a reference that provides these ratios. Also, identify where the branching ratio values were used; i.e., an MCNP file or a post-processing Excel file.

   This information is required to determine compliance with 10 CFR 71.47 and 71.51.

3. Justify that the 17 tally segment bins having a fractional standard deviation larger than the MCNP6 requirement provide reliable results.

   Section 5.4.4.1 identifies 17 tally segment bins have a fractional standard deviation greater than 0.1 which is greater than MCNP allows for converged results. Provide justification for use of both the tally segment bins and the response functions calculated from these tally segment bins. Although the SAR states that they are less than the regulatory limits, the validity of these results cannot be confirmed.

   This information is required to determine compliance with 10 CFR 71.47 and 71.51.