

March 9, 2016

Mr. Steven Sisley
Cask Licensing Manager
EnergySolutions
2105 South Bascom Ave., Suite 230
Campbell, CA 95008

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
MODEL NO. 8-120B PACKAGE

Dear Mr. Sisley:

By letter dated January 28, 2016, EnergySolutions (ES) submitted an application to amend the certificate of compliance (CoC) for the Model No. 8-120B package. The amendment request expands the description of “dewatered resins” to include “grossly dewatered resins” as authorized contents of the package.

In connection with the staff’s review of the application, we need the information identified in the enclosure to this letter. We request that you provide this information by April 18, 2016. If you are unable to meet this deadline, you must notify us in writing no later than March 31, 2016, 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. 71-9168 and TAC No. L25082 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) 415-7505.

Sincerely,

/RA/

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

Docket No. 71-9168
TAC No. L25082

Enclosure: Request for Additional Information

Mr. Steven Sisley
 Cask Licensing Manager
 EnergySolutions
 2105 South Bascom Ave., Suite 230
 Campbell, CA 95008

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE MODEL NO. 8-120B PACKAGE

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By letter dated January 28, 2016, EnergySolutions (ES) submitted an application to amend the certificate of compliance (CoC) for the Model No. 8-120B package. The amendment request expands the description of “dewatered resins” to include “grossly dewatered resins” as authorized contents of the package.

In connection with the staff’s review of the application, we need the information identified in the enclosure to this letter. We request that you provide this information by April 18, 2016. If you are unable to meet this deadline, you must notify us in writing no later than March 31, 2016, 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. 71-9168 and TAC No. L25082 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) 415-7505.

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 Pierre Saverot, Project Manager
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Enclosure: Request for Additional Information
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Request for Additional Information
for the
Model No. 8-120B Package
Docket No. 71-9168

By letter dated January 28, 2016, EnergySolutions (ES) submitted an application to amend the certificate of compliance (CoC) for the Model No. 8-120B package. The amendment request expands the description of “dewatered resins” to include now “grossly dewatered resins” as authorized contents of the package. The applicant evaluated the safety impacts of having a variable water content in the resin but did not submit any additional safety analysis.

This request for additional information (RAI) identifies information needed by the staff in connection with its review of the application. The staff reviewed the application using the guidance in NUREG 1609, “Standard Review Plan for Transportation Packages for Radioactive Material.”

Each individual RAI 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

- 1-1 Define the upper limit of the percentage of water for the grossly dewatered resin content in Section 1.2.2.1 of the application and ensure this limit is addressed and upheld in Chapter 7, “Operating Procedure,” of the application.

In Section 1.2.2.1 of the application, grossly dewatered resins are defined as an industry term applied to resins that have not been processed to reduce the water content further than that which can be obtained by pumping water out of the liner until the pump loses suction. The upper limit of the percentage of water of the contents has not been defined in Chapter 1 of the application or addressed in Chapter 7 of the application. This is necessary to allow for thermal expansion of the contents, and ensure the combustible gases generated in the package during the shipping period do not exceed 5%, by volume, of the free gas volume.

This information is required by the staff to determine compliance with 10 CFR 71.33(b)(3).

Chapter 3 THERMAL EVALUATION

- 3-1 Provide calculations in Chapter 3 of the application to demonstrate that there is adequate space for expansion of the grossly dewatered resin content and free water in the secondary container during normal conditions of transport and hypothetical accident conditions.

It has not been demonstrated in the application that there is adequate space for expansion of the grossly dewatered resin contents within the secondary container due to temperature increases during normal conditions of transport and hypothetical accident conditions, considering the grossly dewatered resin contents as well as the percentage of free water of the contents.

This information is required by the staff to determine compliance with 10 CFR 71.87(d).

Chapter 4 CONTAINMENT EVALUATION

- 4-1 Demonstrate that combustible gases generated in the package during the shipping period do not exceed 5%, by volume, of the free gas volume.

Grossly dewatered resins are defined in the application as an industry term applied to resins that have not been processed to reduce the water content further than that which can be obtained by pumping water out of the liner until the pump loses suction.

Section 1.2.2.3 of the application states that, for any package containing water and/or organic substances which could generate combustible gases by radiolysis, the hydrogen generated must be limited to a molar quantity that would be less than 5% by volume of the secondary container gas void, if present at standard temperature and pressure.

The applicant needs to perform a bounding calculation of the combustible gases that could form with grossly dewatered resins as authorized contents, and ensure that the hydrogen concentration within the container will be below 5%, by volume, of the free gas volume.

This information is required by the staff to determine compliance with 10 CFR 71.43(d).

- 4-2 Specify in Chapters 7 and 8 of the application that written leakage rate testing procedures are developed and approved by personnel certified by the American Society of Nondestructive Testing (ASNT) as a Level III examiner for leakage testing.

Chapters 7 and 8 of the application do not specify that the written leakage rate testing procedures are developed and approved by personnel certified by the ASNT as a Level III examiner for leakage testing as indicated by industry standards. The ANSI/ASNT CP-189-2006, "Standard for Qualification and Certification of Nondestructive Testing Personnel," provides the minimum training, education, and experience requirements for nondestructive testing personnel. This ANSI standard states that a nondestructive testing personnel Level III examiner has the qualifications to develop and approve written instruction for conducting the leak testing.

This information is required by the staff to determine compliance with 10 CFR 71.43(f), 71.51, and 71.87.

Chapter 7 OPERATING PROCEDURES

- 7-1 Justify the inclusion of water in evaluating source strength density ($\gamma/s\text{-g}$) or modify the language in Attachment 1 to Chapter 7, "Operating Procedure" to exclude the weight of water in calculations of the source strength density.

With grossly dewatered resins as authorized contents, there is some amount of water remaining that increases the mass of the package contents, thus allowing for higher radionuclide activity levels that would still meet the source strength density limits in Table 7-1 of Chapter 7, as long as the resins retain the water during transport.

Since resin shipments in the 8-120B are governed by the $\gamma/s \cdot g$ values in Table 7-1 of Chapter 7, there is a theoretical possibility that package dose rates could exceed regulatory limits, if a maximum resin load were to experience water migration (or leaching) to the extent that the top part of the payload locally exceeded the $\gamma/s \cdot g$ limit because the total payload weight is used to calculate $\gamma/s \cdot g$.

The staff requests that the applicant provides either a new language in Chapter 7 to account for this possibility or additional information explaining how any remaining water in the resins could be prevented from migrating or leaching during transport.

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