January 30, 2008

James M. Shuler
Manager, Packaging Certification Program
Safety Management and Operations
Office of Environmental Management
Department of Energy
Washington, DC 20585

SUBJECT: REVISION 7 OF CERTIFICATE OF COMPLIANCE NO. 9315 FOR THE MODEL NO. ES-3100

Dear Dr. Shuler:

As requested by your letter dated October 11, 2007, as supplemented November 5, 2007, enclosed is Certificate of Compliance No. 9315, Revision No. 7, for the Model No. ES-3100 package. You requested a revision of the manufacturing specification for the neutron absorbing material and an administrative drawing change. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The staff's Safety Evaluation Report is also enclosed.

Those on the attached list have been registered as users of the package under the general license provisions of 10 CFR 71.17 or 49 CFR 173.471. This approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of 49 CFR 173.471. Registered users may request, by letter, to remove their names from the Registered Users List.

If you have any questions regarding this certificate, please contact me or Kim Hardin of my staff at (301) 492-3294.

Sincerely,

/RA/
Robert A. Nelson, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9315
TAC No. L24146
Enclosures: 1. Certificate of Compliance No. 9315, Rev. No. 7
2. Safety Evaluation Report
3. Registered Users

cc w/encls 1 and 2: R. Boyle, Department of Transportation
Registered Users
J. Arbital, BWXT Y-12

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SAFETY EVALUATION REPORT
Docket No. 71-9315
Model No. ES-3100 Package
Certificate of Compliance No. 9315
Revision No. 7

SUMMARY

By application dated October 11, 2007, as supplemented November 5, 2007, the Department of Energy (DOE or the applicant) requested Revision No. 7 to Certificate of Compliance (CoC) No. 9315, for the Model No. ES-3100 package. This revision modifies the manufacturing specification for the neutron absorbing material and an administrative drawing change.

The submittal was evaluated against the regulatory standards in 10 CFR Part 71, including the general standards for all packages, standards for fissile material packages, and performance standards under normal conditions of transport (NCT) and hypothetical accident conditions (HAC). Staff reviewed the application using the guidance in NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material."

Based on the statements and representations in the application, as supplemented, and the conditions listed in the CoC, the staff concludes that the design has been adequately described and evaluated and meets the requirements of 10 CFR Part 71.

GENERAL INFORMATION

By application dated October 11, 2007, as supplemented November 5, 2007, DOE requested a revision to the manufacturing specification for the neutron absorbing material and an administrative drawing change.

The equipment specification for the neutron absorber (JS-YMN3-801580) was updated and is now Revision F. The details of the evaluation are further discussed below.

The administrative change was made to Drawing No. M2E801580A037, Sheets 1 through 6. The drawing has been updated and is now Revision B. The specific change was to the format of the Trefoil data plate. The format had been Y-12-XXXXX; and was changed to XXXXXXXXX. This change allows more flexibility in assigning serial numbers.

MATERIALS EVALUATION

The applicant requested to change the method for evaluating the pour of the neutron absorber (277-4) in the equipment specification JS-YMN3-801580. The acceptable loss on drying percentage (LOD) is correlated to the specific density of the acceptance pour rather than to an average density. The LOD is a measure of the amount of water that is lost from the neutron absorbing material when the product is normally cured or heated during an accident event (HAC). During testing, the applicant found that the LOD varied with the density of the poured neutron absorber. This amendment reflects the fact that the LOD can vary with the range of acceptable densities of the final product.

In order for the neutron absorber to be effective, the fast neutrons must be thermalized by a minimum water content of the absorber material. The acceptable range of densities was set by neutron transmission tests to confirm that the as-manufactured material met the 75% credit criteria. These tests are described in Appendix 1.6.9.4 of the SAR. Knowing the density of the absorber, the LOD is a measure of the absorber water content. Each pour is 100% acceptance tested by pouring a test can concurrently with the ES-3100. The LOD for the test can is measured. The requested change relates the acceptable LOD to the specific density of the acceptance pour rather than to an average density. This improves the measurement of the water content. The staff reviewed the data and information associated with this revision.

Based on the statements and representations in the application, as supplemented, and the conditions listed in the CoC, the staff concludes that the design has been adequately described and evaluated and meets the requirements of 10 CFR Part 71.

CONDITIONS

The CoC has been revised as follows:

Condition No. 5.(a)(3)(i):

Changes the revision of Drawing No. M2E801580A037 from A to B.

Condition No. 5.(a)(3)(vi):

Changes the revision of Equipment Specification JS-YMN3-801580-A005 from E to F.

Condition No. 14:

Allows the use of Revision 5 of this certificate for one year.

CONCLUSION

The Certificate of Compliance is revised to change the Drawing and the Equipment Specification for the neutron absorber for the ES-3100 transportation package.

This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9315, Revision No. 7 on
January 30, 2008.