January 31, 2007

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

SUBJECT: REVISION 2 OF CERTIFICATE OF COMPLIANCE NO. 9315 FOR THE MODEL NO. ES-3100

Dear Dr. Shuler:

As requested by your letter dated August 24, 2006, and supporting documentation dated August 21, 2006, as supplemented October 26, 2006, and January 19, 2007, enclosed is Certificate of Compliance No. 9315, Revision No. 2, for the Model No. ES-3100 package. You requested the revision of two equipment specifications for this shipping container. 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) 415-8500.

Sincerely,

/RA/

Meraj Rahimi, Acting Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9315
TAC No. L24006
Enclosures: 1. Certificate of Compliance No. 9315, Rev. No. 2
2. Safety Evaluation Report
3. Registered Users

cc w/encls 1 and 2: R. Boyle, Department of Transportation
RAMCERTS
Registered Users
G. Singleton, BWXT Y12
J. Arbital, BWXT Y12

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SAFETY EVALUATION REPORT
Docket No. 71-9315
Model No. ES-3100 Package
Certificate of Compliance No. 9315
Revision No. 2

SUMMARY

By application dated August 24, 2006, supporting documentation dated August 21, 2006, as supplemented October 26, 2006 and January 19, 2007, the Department of Energy (DOE or the applicant) requested amendment No. 2 to Certificate of Compliance (CoC) No. 9315, for the Model No. ES-3100 package. This revision will support continued safe shipment of highly enriched uranium (HEU) to support the Naval Reactor Program.

GENERAL INFORMATION

By application dated August 24, 2006, DOE requested the revision of two equipment specifications for this shipping container for HEU contents. The specifications being revised are YMN3-801850-A003, Kaolite 1600™ and YMN3-801580-A005, 277-4 neutron absorber casting.

The drum assembly for the ES-3100 consists of an internally flanged Type 304L stainless-steel 30-gallon modified drum with two Type 304L stainless-steel inner liners, one filled with noncombustible cast refractory insulation and impact limiter (Kaolite 1600) and one filled with noncombustible cast neutron poison (277-4 neutron absorber). The equipment specifications which are being revised describe the manufacturing process for casting the Kaolite 1600 and the 277-4 neutron absorber. These revisions do not change the material properties of these castings or the safety performance of the ES-3100 package.

MATERIALS EVALUATION

The staff reviewed the requested changes to the equipment specifications which included tightening the tolerance on the density of the Kaolite 1600 used to provide thermal insulation in the cask. The new density range would be within the density range already approved. In order to do this, they requested that the water added in preparation of the Kaolite slurry be increased by 10% to aid in processing. After reviewing the procedure, staff reviewed the submitted micrographs of a typical pour taken at three elevations and two azimuthal angles 90 degrees apart at each location. These micrographs were provided to demonstrate that the additional water will not result in an inhomogeneous void distribution in the material. Staff agrees that the pore distribution and porosity in each location look similar.

The density of the Kaolite material produced by the new process is within the tolerance that was previously approved, and there does not appear to be any significant density variations within the pour. Other changes were made to make the manufacturing processes more efficient, and minor formatting changes were made. The staff agrees that the proposed process changes in the revisions to the specifications do not change the material properties of the finished product and do not affect the safe performance of the ES-3100 as reported in the Safety Analysis Report.

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 Nos. 5(a)(3)(v) and 5(a)(3)(vi):

The new revision letters of the equipment specification replaced the old letters.

Condition No. 14:

Allows the use of Revision 2 of this certificate for one year.

CONCLUSION

The Certificate of Compliance is revised to show the revision of two equipment specifications for this shipping container for HEU contents.

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. 2 on
January 31, 2007.