



Department of Energy
National Nuclear Security Administration
Washington, DC 20585



October 20, 2011

ATTN: Document Control Desk

Ms. Vonna Ordaz, Director
Spent Fuel Storage and Transportation Division
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Mail Stop EBB-3D-02M

SUBJECT: RENEWAL OF CERTIFICATE OF COMPLIANCE No. 9329 FOR THE MODEL No. S300 PACKAGE (TAC No. L24431), DOCKET No. 71-9329

Dear Ms. Ordaz:

As discussed in October 17, 2011, letter from Dr. Shuler, the National Nuclear Security Administration's (NNSA) Office of Packaging and Transportation hereby accepts certificate holder responsibilities for Certificate of compliance (CoC) Number 9329, requests renewal of the CoC, and changes to the CoC as identified below.

No changes have been made to the package, or the Safety Analysis Report (SAR) (i.e., SAR remains Revision 5). However, the following changes to CoC, supported by SAR Revision 5, are requested:

1. Change certificate holder from DOE to NNSA: The certificate holder responsibility for the S300 package was recently transitioned from the DOE Packaging Certification Program to the NNSA Office of Packaging and Transportation. This change will more accurately reflect the actual primary user of this certificate. Please issue the renewed certificate to the National Nuclear Security Administration, P.O. Box 5400, Albuquerque, NM 87185. The NNSA acknowledges responsibility for container use and maintenance records as required by Title 10 Code of Federal Regulations part 71.91.
2. Revision of CoC 9329 Section 5.b, *Contents*:
 - a. At the time, CoC Revision 3 was issued; target materials other than beryllium had not yet been incorporated into the special form certificates (USA/0696/S-96 for the Model II and USA/0695/S-96 for the Model III). The latest revision of these certificates (Revision 6 in both cases) incorporates the target materials Be, Li, F, C, and B. NNSA requests that the target materials listed in the special form capsule certificates be added to Revision 4 of the CoC. Specifically, change item 5.b.(1) Content No.1 one to read: "Plutonium-based (α , η) neutron sources (not to exceed $1.519E+5$ neutrons/second per gram of plutonium)." Additional information can be found in Section 5.0 of the current NRC SER.
 - b. Add Los Alamos National Laboratory (LANL) drawing numbers of the special form capsules to CoC Section 5.b: The special form capsule certificates (Revision 6) now also show that the Model II and Model III capsules may be fabricated using either LANL drawings or AEA

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Technology QSA, Inc. drawings, which are equivalent to each other. Therefore, NNSA requests that CoC Revision 4 of the S300 package CoC, Section 5.b.(1)(a), include both LANL drawing no. 90Y-219998, Rev. H and AEA Technology QSA, Inc. drawing no. R20047, Rev. B for the Model II capsule; and that Section 5.b.(1)(b) include both LANL drawing no. 90Y-220045, Rev. A and AEA Technology QSA, Inc. drawing no. R20048, Rev. B for the Model III capsule.

3. Revise CoC Section 5 to include a CSI of 0.3 and a mass limit of 350g for PuBe sources. The second-to-last paragraph of Section 6.0 of the current NRC SER states, "Staff identified that the application did not provide a minimum limit for beryllium in the PuBe source. All analysis was performed assuming PuBe₁₃. Staff has limited the maximum grams of plutonium to 300 grams, and assigned the CSI of 4.0 to the PuBe contents."

As described briefly in the paper by Tate and Coffinberry (provided in Section 6.9.1 of the SAR), these neutron sources were carefully prepared and significant variations in the composition were not produced. The most useful neutron sources to be obtained from plutonium and beryllium have the composition PuBe₁₃. Neutron sources with plutonium and beryllium in a different ratio would not be commercially viable. Therefore, analysis assuming PuBe₁₃ is appropriate.

These neutron sources were prepared in extremely scientifically-controlled environments. Similarly, the measurements of the plutonium and beryllium constituents, as well as the capsule loading process, are performed in a very controlled and precise manner by the manufacturers. Since the neutron sources were manufactured to the exact requirements of 13 beryllium atoms to one plutonium atom in the alloy, a 'minimum limit for beryllium' is not really applicable in this case since the amount of beryllium present depends on the amount of plutonium present.

Therefore, NNSA requests that CoC Section 5 be revised as follows:

- a. Revise table in Subsection 5.b(2) by replacing "300 grams fissile plutonium" for the Exclusive Use Shipment, Model II, Contents 1 and 2 with "350 grams fissile plutonium."
- b. Revise Section 5.c by replacing "Content No. 1 4.0" with "Content No. 1 0.3."

Please provide a draft copy of the revised CoC to my office prior to its issuance. If there are any questions or comments please contact David Blake, of my staff, at (505) 845-4454.

Sincerely,



Ahmad M. Al-Daouk, Director
Office of Transportation and Packaging

cc:
Justin M. Griffin, LANL OSRP
Pierre Saverot, NRC