

September 16, 2008

Mr. T. E. Angerhofer
Division of Naval Reactors
U.S. Department of Energy
Washington, DC 20585

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9788, REV. 14, FOR THE S5W AND
SSN 688 CLASS REACTOR COMPARTMENT PACKAGES

Dear Mr. Angerhofer:

As requested by your applications dated September 19, 2007, and September 11, 2008, enclosed is Certificate of Compliance No. 9788, Revision No. 14, for the Model Nos. S5W Reactor Compartment package and the SSN 688 Class Reactor Compartment package. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The staff's Safety Evaluation Report is also enclosed.

Department of Energy, Division of Naval Reactors, has been registered as a user of the package under the provisions of 49 CFR 173.471. The 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. Note that the Safety Evaluation Report describes our review of the request for the "-96" designation for the S5W Reactor Compartment package and the SSN 688 Class Reactor Compartment package. We are continuing our review of the S5G Reactor Compartment package, and will provide the results of that review separately.

If you have any questions regarding this certificate, please contact me or Nancy Osgood of my staff at (301) 492-3300.

Sincerely,

/RA/

Eric J. Benner, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9788
TAC Nos. L24173 and L24249

Enclosures: 1. Certificate of Compliance
No. 9788, Rev. No. 14
2. Safety Evaluation Report

cc w/encls: R. Boyle, Department of Transportation
J. Shuler, Department of Energy

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DATE	09/12/08	09/16/08	09/16/08	

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SAFETY EVALUATION REPORT
Docket No. 71-9788
Model Nos. S5W Reactor Compartment Package
and SSN 688 Class Reactor Compartment Package
Certificate of Compliance No. 9788
Revision No. 14

SUMMARY

By applications dated January 3 and September 11, 2008, the Department of Energy, Division of Naval Reactors, requested an amendment to Certificate of Compliance No. 9788, for the Model Nos. S5W Reactor Compartment package and the SSN 688 Class Reactor Compartment package. Naval Reactors requested that the Package Identification Number be revised to include the "-96" designation and that the S5G Reactor Compartment package be added to the certificate. Naval Reactors also requested renewal of the Certificate of Compliance.

Based on the statements and representations in the applications, the Certificate has been amended to include the "-96" designation and has been renewed for a five year term that expires on September 30, 2013. The review of the S5G Reactor Compartment package will be addressed separately.

EVALUATION

Background

On January 26, 2004, the NRC published its final rule revising 10 CFR Part 71 to address compatibility with the 1996 Edition of the International Atomic Energy Agency's (IAEA) transportation safety standards, "Regulation of the Safe Transport of Radioactive Material" (TS-R-1) and other transportation safety amendments. The revised 10 CFR Part 71 final rule became effective on October 1, 2004 (69 FR 3698). By application dated January 3, 2008, Naval Reactors requested that Certificate of Compliance No. 9788, for the Model Nos. S5W Reactor Compartment package and the SSN 688 Class Reactor Compartment package, be revised to include the "-96" designation in the package identification number. As described in 10 CFR 71.19(e), the applicant submitted an application that addressed the updated requirements in 10 CFR Part 71.

Evaluation

The staff evaluated the applicant's request for a "-96" designation. The changes in the regulations that became effective on October 1, 2004, addressed 19 issues, as described below. The applicant addressed each of the nineteen issues that was applicable to this package design, as described below.

- Issue 1, Changing Part 71 to the International Systems of Units (SI) Only. This proposed change was not adopted in the final rule.
- Issue 2, Radionuclide Exemption Values. This change does not affect the evaluation of a Type B package.

- Issue 3, Revision of A_1 and A_2 . The final rule, in general, adopted changes in the A_1 and A_2 values from TS-R-1. The A_1 and A_2 values were modified in TS-R-1 based on refined modeling of possible doses from radionuclides, and the NRC agreed that incorporating the latest in dosimetric modeling would improve transportation regulations. The applicant provided an updated containment analysis in Chapter 4 of the application for the S5W and the 688 Class Reactor Compartment packages, incorporating the revised A_2 values, which are for radioactive material in normal form. The applicant recalculated the radioactive inventory of the crud activity which could be released from the package under accident conditions. Using the revised A_2 values, the applicant showed that the total release of radioactive material is less than an A_2 value, and therefore meets 10 CFR 71.51(a)(2).
- Issue 4, Uranium Hexafluoride (UF_6) Package Requirements. This package does not contain UF_6 , therefore this change is not applicable.
- Issue 5, Criticality Safety Index (CSI). This package does not contain fissile material, therefore this change is not applicable.
- Issue 6, Type C Packages and Low Dispersible Material. This proposal was not adopted in the final rule.
- Issue 7, Deep Immersion Test. This package does not contain a quantity of radioactivity greater than $10^5 A_2$, therefore this change is not applicable.
- Issue 8, Grandfathering Previously Approved Packages. The applicant requested that the package be evaluated to the standards of the current regulation, as specified in 10 CFR 71.19(e).
- Issue 9, Changes to Various Definitions. These changes do not affect this package design.
- Issue 10, Crush Test for Fissile Material Packages. This package does not contain fissile material, therefore this change is not applicable.
- Issue 11, Fissile Material Package Designed for Transport by Aircraft. This package does not contain fissile material, therefore this change is not applicable.
- Issue 12, Special Package Authorizations. This change is not applicable to this package design.
- Issue 13, Expansion of Part 71 Quality Assurance (QA) Requirements to Certificate Holders. This change does not affect this package design.
- Issue 14, Adoption of the American Society of Mechanical Engineers (ASME) code. This proposal was not adopted in the final rule.
- Issue 15, Change Authority for Dual-Purpose Package Certificate Holders. This proposal was not adopted for the final rule.

- Issue 16, Fissile Material Exemptions and General License Provisions. This package does not contain fissile material, therefore this change is not applicable.
- Issue 17, Double Containment of Plutonium. This package does not contain plutonium in excess of 0.74 terabecquerel (20 curies), therefore this change is not applicable.
- Issue 18, Contamination Limits as Applied to Spent Fuel and High Level Waste Packages. This proposal was not adopted for the final rule.
- Issue 19, Modification of Events Reporting Requirements. No change is needed to conform to the change in regulations.

In addition, the applicant provided an updated evaluation for hydrogen accumulation in the package. The review of the updated evaluation by staff will be completed with the review of the S5G reactor compartment package. The supplement dated September 11, 2008, stated that for the upcoming shipments, the SSN 688 Class reactor compartment package has been sealed less than one year before the projected shipment date and would therefore remain below the lower flammable limit of 5 volume percent based on the previous, conservative analysis, and the S5W reactor compartment package has been tested and shown to have no detectable hydrogen. Therefore the certificate has been conditioned to clarify that the hydrogen concentration must be less than 5 volume percent during the shipment period, as determined by analysis or test.

Based on the statements and representations in the application, the staff concludes that the design has been adequately described and meets the requirements of the revised 10 CFR Part 71. Thus, the staff agrees that including the designation "-96" in the package identification number is warranted.

By letter dated September 11, 2008, Naval Reactors requested that the Certificate of Compliance be renewed. The certificate has been renewed for a 5-year term that expires September 30, 2013.

CONCLUSIONS

The Certificate of Compliance has been revised as requested by the applicant. The changes are:

- The Package Identification Number in item 1(d) of the certificate has been revised to include the "-96" designation.
- Condition No. 14 has been added that specifies that the hydrogen concentration within the package must be less than 5 percent by volume during the shipment period, as demonstrated by test or analysis.
- The Certificate has been renewed for a 5-year term that expires September 30, 2013.

These changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9788,
Revision No. 14, on September 16, 2008.