

November 21, 2005

Mr. Charles M. Vaughan, Manager
Facility Licensing
Global Nuclear Fuel-Americas, LLC
3901 Castle Hayne Road
Mail Code K-84
Wilmington, NC 28401

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9294 FOR THE MODEL NO. NPC
PACKAGE

Dear Mr. Vaughan:

As requested by your applications, dated June 30 and October 3, 2005, enclosed is Certificate of Compliance No. 9294, Revision No. 4, for the Model No. NPC package. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The staff's Safety Evaluation Report is also enclosed.

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. Global Nuclear Fuel - Americas, LLC, has been registered as the user of the package under the general license provision of 10 CFR 71.17 or 49 CFR 173.471.

If you have any questions regarding this certificate, please contact me or Jessica Umana of my staff at (301) 415-8500.

Sincerely,

/RA/

Robert A. Nelson, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9294
TAC Nos. L23867 and L23908

Enclosures: 1. Certificate of Compliance
No. 9294, Revision No. 4
2. Safety Evaluation Report

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

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DISTRIBUTION: Closes TACs L23867 and L23908

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SAFETY EVALUATION REPORT
Docket No. 71-9294
Model No. NPC Package
Certificate of Compliance No. 9294
Revision No. 4

SUMMARY

By applications dated June 30, and October 3, 2005, Global Nuclear Fuel (GNF or the applicant) requested amendment and renewal of Certificate of Compliance No. 9294, for the Model No. NPC package. GNF did not request any changes to the package design or authorized contents.

EVALUATION

By application dated June 30, 2005, GNF submitted additional criticality analyses for the package. The applicant did not request a change in the authorized contents; the analysis was provided to support previously approved transport of heterogeneous uranium compounds, i.e., uranium oxide pellets. The analysis was performed for the most limiting heterogeneous loading with an unrestricted pellet size, which is 40.54 kg uranium per inner containment vessel (ICCA) and 364.8 kg uranium per package. The maximum uranium enrichment of 5 weight percent U-235 was assumed in the analysis.

Previous analyses had been performed that demonstrated that the single package and array of damaged packages would remain subcritical, assuming that the uranium was in the form of a uniformly spaced lattice of optimum-sized rods that were optimally moderated within the ICCA. For this analysis, the uranium compounds were modeled as optimum-sized particles in an optimally moderated and spaced three dimensional lattice. The analysis was performed for a single package, to determine the effect of changing the fissile material form from optimally spaced rods to optimally spaced particles. For a single flooded package, previous analyses showed a maximum k-eff of 0.8761, including uncertainty and bias. The new analyses for a single flooded package showed a reactivity increase of approximately one percent, resulting in a maximum k-eff of 0.8861, well below the upper safety limit. The staff agrees that the new analyses confirms that the package meets the fissile material package standards in 10 CFR Part 71.

By application dated October 3, 2005, GNF requested renewal of Certificate of Compliance No. 9294. The applicant did not request any changes to the package design or authorized contents. The staff reviewed the documents referenced in the certificate and determined that the documentation was available and complete. The certificate has been renewed for a five year period that expires on November 30, 2010.

Condition No. 5(c) of the certificate was changed to replace the wording "Transport Index for Criticality Control" with "Criticality Safety Index" as defined in 10 CFR 71.4.

Condition No. 7 of the certificate was revised to clarify that the package is approved for use under the general license provisions of 10 CFR 71.17. This change is due to a revision in the numbering of the sections in 10 CFR Part 71, that became effective on October 1, 2004 (69 FR 3698).

Condition No. 8 of the certificate was included to authorize use of the previous revision of the certificate for a period of approximately one year from the date of issue of the certificate.

CONCLUSION

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. 9294, Revision No. 4 on November 21, 2005.