



**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

RDM-05-003

March 22, 2005

Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Robert Lewis,
Licensing Section

Subject: Request for Amendment of Certificate of Compliance No. 71-6581 for the Model
No. 51032 Package

Dear Mr. Lewis:

Framatome ANP, Inc., an AREVA and Siemens Company, requests an amendment of Certificate of Compliance No. 71-6581 for the Model No. 51032 package to increase the maximum pellet density for selected fuel designs. A revised certificate is needed to support planned shipments later this year.

FANP proposes to increase the maximum pellet density for the 15x15, 17x17 and GEN1 fuel designs from 95 to 97.5 (%TD) as described in section 5(b)(1)(i). FANP further proposes to reduce the maximum enrichment (%U-235) from 5.0 to 4.87 to compensate for increases in the maximum pellet density. Reducing the enrichment to offset increasing the pellet density preserves the U-235 density used in the criticality analysis. Therefore, the maximum k_{eff} values associated with the normal conditions of transport and the hypothetical accident conditions remain unchanged.

Attachment I is provided for review by the NRC which summarizes the proposed changes to the certificate of compliance. Two sections [5(b)(1)(iii) and 5(b)(2)(iii)] are proposed to identify the changes to the maximum pellet density and enrichments for the 15x15, 17x17 and GEN1 fuel designs.

A comparison calculation is provided (Attachment II) which demonstrates that the U-235 density used in the current criticality analysis remains unchanged with the proposed increase in the maximum pellet density coupled with the noted reduction in the maximum enrichment.

FANP requests approval by July 31, 2005 to support future shipments of fuel designs with increased pellet densities.

FRAMATOME ANP, Inc.

Klm5501

If you or your staff have any questions, require additional information, or wish to discuss this further, please contact me at 423-735-4018. Please reference our unique document identification number in any correspondence concerning this letter.

Sincerely,

Framatome ANP, Inc., an AREVA and Siemens Company

A handwritten signature in black ink, reading "Richard D. Montgomery". The signature is written in a cursive style with a large, stylized "M" and "G".

Richard D. Montgomery
Advisory Engineer

Attachment I

Proposed changes to the Certificate of Compliance
USA/6581/AF, Revision 33

5.(b)(1) Type and Form of material

- (iii) Unirradiated fuel rods consisting of uranium dioxide fuel pellets clad in zirconium alloy or stainless steel tubes. Fuel rods must be in one of the following configurations.

<u>Type</u>	<u>15x15</u>	<u>17x17¹</u>	<u>GEN1²</u>
Maximum Enrichment (%U-235)	4.87	4.87	4.87
Rods Per Assembly	204	264	any number
Nominal Rod Pitch (in.)	0.563	0.496	NA
Maximum Pellet Density (%TD)	97.5	97.5	97.5
Maximum Clad OD (in.)	0.430	0.380	0.500
Minimum Clad OD (in.)	0.410	0.355	0.260
Minimum sum of clad thickness and pellet-clad gap ³ (in.)	0.023	0.023	0.023
Assembly Cross Section (in.)	8.445	8.432	8.25
Active Fuel Length (in.)	196	196	196
Fuel Rod Arrangement (Figure Number in Application)	11.1	11.2	NA

Table Notes

- ¹ Fuel assemblies consisting of a maximum 264 fuel rods in a 17x17 square array with any number of edge rods missing.
- ² Fuel assemblies consisting of any number of fuel rods in a square array with a maximum assembly cross section of 8.25 inches square.
- ³ Minimum sum of the cladding wall thickness and the pellet-clad radial gap, ((Min Clad OD – Max Pellet OD)/2, in.

5.(b)(2) Maximum quantity of material per package

- (iii) For the contents described in 5.(b)(1)(iii):

Two fuel assemblies.

Attachment II

Comparison Calculations for the U-235 Enrichment used in the Criticality Calculations

Sample Calculation for Comparison

<u>Attribute</u>	<u>Current Designs</u>	<u>Proposed Designs</u>
Pellet Density (%TD)	95.0	97.5
Assumed Theoretical Pellet Density (g/cc)	10.96	10.96
Pellet Density (g/cc)	10.412	10.686
Pellet Enrichment (%U-235)	5.0	4.87

$$\text{Equivalent Enrichment} = 4.8717 = 5.0 \times (10.412/10.686)$$

For conservatism, an enrichment of 4.87 is used as the equivalent enrichment.