



SEM-09-007

July 1, 2009

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

**Subject: 10 CFR 71.95 Report of Non-Compliance with Certificate of Compliance USA/9319/B(U)F-96, Revision 1, Model Nos. MAP-12/MAP-13 Packages**

Ref. 1: S.E. Miller (AREVA NP, Inc.) to Document Control Desk (NRC), "10 CFR 71.95 Report of Non-Compliance with Certificate USA/9319/B(U)F-96, Revision 1, Model Nos. MAP-12/MAP-13 Packages

AREVA NP Inc. (AREVA NP) submitted Reference 1 pursuant to 10 CFR 71.95(a)(3) for discovery of instances in which the conditions of approval in Certificate of Compliance USA/9319/B(U)F-96, Revision 1, Model Nos. MAP-12/MAP-13 Packages, were not observed in making shipments. On May 27, 2009, AREVA NP discovered certain fabrication drawings were revised to incorporate changes to the package without additionally revising the NRC-approved licensing drawings. In each instance, technical evaluations were performed to determine the safety significance of each change. These evaluations resulted in the incorrect determination that since the changes did not reduce the effectiveness or safety of the package that the licensing drawings did not have to be submitted for review and approval prior to the change.

AREVA NP is submitting this report to update Section (2) of Attachment 1. Attachment 1 provides details of the non-compliance. The Safety Analysis Report stated that the BORAL<sup>®</sup> neutron absorber plate minimum <sup>10</sup>B areal density for the thickness of 0.125 +/- 0.006" (3.02 mm to 3.33 mm) is 0.024 g/cm<sup>2</sup>. This specification of the thickness is inconsistent with the material specification which serves as the basis for plate procurement for the container. The BORAL<sup>®</sup> plates that are in service have been reviewed and meet an areal density specification of 0.024 g/cm<sup>2</sup>. Thus, the procured plates provide sufficient <sup>10</sup>B content to satisfy the bases for the criticality safety evaluation. However, from a license compliance standpoint, the BORAL<sup>®</sup> thickness should have been listed under Section (2) of the 71.95 report. The updated portion of the attachment is shown with a revision bar in the right margin.

If you or your staff have any questions, require additional information, or wish to discuss the matter further, please contact me at 434-832-5205.

Sincerely,

S. E. Miller  
Manager, Environmental, Health Safety, and Licensing

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N15501

## **10 CFR 71.95 Report**

***(1) A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence.***

On May 27, 2009, AREVA NP discovered certain fabrication drawings for the MAP-12/MAP-13 package were revised to incorporate changes to the package without additionally revising the NRC-approved licensing drawings. In each instance, per internal change control procedures, technical evaluations were performed to determine the safety significance of each change. These evaluations resulted in the determination that since the changes did not reduce the effectiveness or safety of the package that the licensing drawings did not have to be submitted for review and approval prior to the change. This error in interpretation of licensing conditions and 10 CFR 71 resulted in the non-compliance.

There were no component or system failures that contributed to this event.

Following this discovery, AREVA NP chartered multiple teams, including outside consultants and independent assessors, to review the extent of condition for the MAP-12/MAP-13 containers. This resulted in the submittal of two license amendments for the MAP-12/MAP-13 package. Additionally, no changes are authorized to be conducted on NRC-licensed shipping containers at the Mount Athos Road facility until full completion of the causal analysis and implementation of the resulting corrective/preventive actions. A causal analysis is in-progress. Thus far, the investigation has revealed weaknesses in our container change control process as well as the training of personnel conducting changes on NRC-licensed containers. At a minimum, formal training will be provided on 10 CFR 71 to all applicable personnel and changes will be made to our change control process. This includes the Design Change Request (DCR) process, the Design Review Board (DRB) process and peer reviews conducted as part of the overall change process.

***(2) A clear, specific, narrative description of the event that occurred so that knowledgeable readers conversant with the requirements of part 71, but not familiar with the design of the packaging, can understand the complete event. The narrative description must include the following specific information as appropriate for the particular event.***

During the preparation of a Purchase Order for fasteners (nuts) to be used on the MAP-12 fuel shipping containers, an employee reviewed the container licensing drawings to assure that the correct fasteners were being ordered. A discrepancy was found between the fasteners currently being used and the fastener specified on the container licensing drawing. A review of the complete set of licensing drawings was then conducted and several additional discrepancies were found. These discrepancies included the fasteners which had been changed to address a foreign material control concern, redesign of the door hinges and latches to improve the adjustability for different fuel designs, and changing the thickness of the rubber sheet used to cover the fuel assembly support surfaces. These changes were not reflected on the container licensing drawings. Also, weld configurations, container labeling and several other drawing errors not related to the container configuration were discovered. Additionally, the thickness of the BORAL<sup>®</sup> plate as noted in Chapters 6 and 8 of the Safety Analysis Report was inconsistent with the material specification. The BORAL<sup>®</sup> plates that are in service have been reviewed and meet an areal density specification of 0.024 g/cm<sup>2</sup>. Thus, the procured plates provide sufficient <sup>10</sup>B content to satisfy the bases for the criticality safety evaluation.

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**(i) Status of components or systems that were inoperable at the start of the event and that contributed to the event;**

There was no inoperable component or system at the start of the event that contributed to this event.

**(ii) Dates and approximate times of occurrences;**

The dates and times of occurrences are outlined in the table below:

Utility	Number of Shipments	Ship Dates
Sequoyah Unit 2	7	February 27, 2008 to March 19, 2008
Oconee Unit 2	6	September 23, 2008 to October 12, 2008
Braidwood Unit 1	1	January 14, 2009
North Anna Unit 1	6	January 26, 2009 to February 4, 2009
Sequoyah Unit 1	7	February 4, 2009 to February 25, 2009
Oconee Unit 3	6	March 23, 2009 to April 8, 2009

**(iii) The cause of each component or system failure or personnel error, if known;**

There were no component or system failures. Personnel errors occurred regarding the interpretation of licensing conditions and 10 CFR 71 requirements.

**(iv) The failure mode, mechanism, and effect of each failed component, if known;**

There were no failed components.

**(v) A list of systems or secondary functions that were also affected for failures of components with multiple functions;**

There were no systems or secondary functions that were affected.

**(vi) The method of discovery of each component or system failure or procedural error;**

The discovery that certain fabrication drawings for the MAP-12/MAP-13 package were revised to incorporate changes to the package without additionally revising the NRC-approved licensing drawings was initially identified internally by an AREVA NP employee. Upon the initial discovery, teams were established to perform an extensive review of the as-built container condition versus the licensing drawings.

**(vii) For each human performance-related root cause, a discussion of the cause(s) and circumstances;**

Technical evaluations were performed to determine the safety significance of each change prior to the actual change. These evaluations resulted in the incorrect determination that since the changes did not reduce the effectiveness or safety of the package that the licensing drawings did not have to be submitted for review and approval prior to the change.

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***(viii) The manufacturer and model number (or other identification) of each component that failed during the event; and***

There were no component failures during the event.

***(ix) For events occurring during use of a packaging, the quantities and chemical and physical form(s) of the package contents.***

The shipments involved MAP-12 packages each containing either one or two fuel assemblies. Each unirradiated nuclear fuel assembly consists of sintered uranium dioxide fuel pellets enriched up to 5.0 weight percent <sup>235</sup>U.

***(3) An assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event.***

There was no impact to the safety basis of the package or increased risk to the public. The package continued to meet the as-tested conditions described in the Safety Analysis Report.

***(4) A description of any corrective actions planned as a result of the event, including the means employed to repair any defects, and actions taken to reduce the probability of similar events occurring in the future Corrective Actions.***

To prevent a recurrence of this error, a causal analysis is in-progress. Thus far, the investigation has revealed weaknesses in our container change control process as well as the training of personnel conducting changes on NRC-licensed containers. At a minimum, formal training will be provided on 10 CFR 71 to all applicable personnel and changes will be made to our change control process. This includes the Design Change Request (DCR) process, the Design Review Board (DRB) process and peer reviews conducted as part of the overall change process. Additionally, no changes are authorized to be conducted on NRC-licensed shipping containers at the Mount Athos Road facility until full completion of the causal analysis and implementation of the resulting corrective/preventive actions.

***(5) Reference to any previous similar events involving the same packaging that are known to the licensee or certificate holder.***

AREVA NP submitted a 10 CFR 71.95 report to the NRC on March 26, 2009 regarding an instance in which the conditions of approval in the Certificate of Compliance were not observed in making a shipment. Specifically, installation of a shorter ball lock pin on the package rail may not have allowed the pin the fully engage resulting in the pin to become dislodged during transit.

***(6) The name and telephone number of a person within the licensee's organization who is knowledgeable about the event and can provide additional information.***

Contact S.E. Miller, Manager, Environmental, Health Safety, and Licensing, at (434) 832-5205 or by email at [samuel.miller@areva.com](mailto:samuel.miller@areva.com) if additional information is required.

***(7) The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.***

There was no exposure of individuals to radiation or to radioactive materials during this event.

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