

February 10, 2012  
REL:12:009



U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Director, Division of Spent Fuel Storage  
and Transportation  
Office of Nuclear Material Safety and Safeguards  
Washington, D.C. 20555-0001

Gentlemen:

**Subject: Report of Non-Compliance with Conditions in Certificate of Compliance 9319, Revision 4 for the Model MAP-12 Licensed Shipping Container; AREVA NP Inc. Richland Facility**

Attached please find information as required by 10 CFR 71.95(c) pursuant to AREVA's discovery of shipments made from its Lynchburg and Richland fuel fabrication facilities that did not fully comply with the applicable revision of NRC Certificate of Compliance (COC) 9319 for the Model MAP-12 licensed shipping container. Specifically, AREVA discovered that a single fillet weld on one of its MAP-12 packagings did not extend the full length of the joint as called for in the supporting AWS weld standard referenced in the applicable license drawing. The condition has existed since the packaging's manufacture in January 2008. Since that time the packaging has been utilized for multiple fissile material shipments from AREVA's Lynchburg facility and for a single shipment from the Richland facility.

As detailed in the attachment, the welded item in question is classified as a Safety Category C item and has minor safety significance. Furthermore, the as-found length of the weld is approximately 97% of the design weld length, so the shortfall has very little effect on the strength of the weld. No other non-compliant welds have been noted on this container or on other MAP-12 containers inspected to-date. Provisions are in place to reaffirm compliance of this characteristic for all MAP-12 packagings prior to next use. This issue has been entered into, and addressed within, AREVA's corrective action program.

If you have questions, please feel free to contact me at 509-375-8409.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Robert E. Link'.

R. E. Link, Manager  
Environmental, Health, Safety, & Licensing

NM5501

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## Attachment

### Event Information Required by 10 CFR 71.95(c) Relative to Non-Compliant Weld on a MAP-12 Licensed Shipping Container (NRC COC 9319)

(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 December 14, 2011, during a visual inspection of MAP-12 packaging MP-008 at AREVA NP's Richland, Washington site, it was discovered that one continuous 3/16" fillet weld did not extend the full length of the joint but had been started 1/8" from the end of the joint. The joint in question is 3.75" long. AWS A2.4-98, Standard Symbols for Welding, Brazing, and Nondestructive Examination, Section 5.3.1.1 states: "When a fillet weld extends the full length of the joint, no length dimension need be specified on the welding symbol." The 3/16" fillet welds shown in Detail CJ on license drawing 9045402 Revision 4 do not specify a length; therefore the fillet welds should extend the full length of the joints. No provision could be found in AWS D1.6, Structural Welding Code - Stainless Steel, that would allow the weld to be less than the full length of the joint unless it was specifically stated on the drawing. No such statement exists on the license drawing; therefore AREVA concludes that the short 3/16" fillet weld on packaging MP-008 violates the AWS Standard and therefore does not meet the requirements of license drawing 9045402 Revision 4.*

*The condition has existed since the packaging was manufactured by NuWeld Incorporated in January 2008. Visual inspections performed by NuWeld and AREVA NP on packaging MP-008 before it was placed in service at the AREVA Lynchburg, VA Fuel Manufacturing Facility failed to identify the short fillet weld. To date, no other MAP-12 packaging has been found to have a similar short weld.*

*The welded item in question is classified as a Safety Category C item and has minor safety significance. The actual weld length for the 3/16" fillet weld is 96.7% of the design weld length so the deviation has very little effect on the strength of the weld. The short weld on MP-008 is strictly a matter of technical non-compliance with license drawing 9045402 Revision 4 and not an issue of any safety significance. Fourteen shipments were made using the packaging while it was in the non-compliant state, see (2)(ii) below.*

*For discussion of corrective actions resulting from this event, see discussion under (4), below.*

(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.

*A narrative of the event was provided under (1), above. NRC Certificate of Compliance (COC) 9319 Revision 4 for the Model MAP-12 and MAP-13 lists license drawing 9045402 Rev. 4. The license drawing shows a continuous 3/16" fillet weld on Item 20 in Detail CJ. Since the top 3/16" fillet weld on Item 20 was short by 1/8" on MAP-12 packaging MP-008 when shipments of enriched fuel assemblies were made using it from*

*AREVA NP's Lynchburg, VA and Richland, WA sites, these shipments were made in violation of COC 9319.*

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

*As described in (1) above, the event involved shipping enriched Type A or B PWR fuel assemblies in Model MAP-12 packaging MP-008 with a 1/8" short non-compliant 3/16" fillet weld. MP-008 was fully operational during all of the shipments.*

- (ii) Dates and approximate times of occurrences;

*MAP-12 packaging MP-008 was used to ship PWR fuel assemblies from AREVA NP's Lynchburg, Virginia site a total of 13 times from March 3, 2008 to September 14, 2009 and from AREVA NP's Richland, Washington site one time on August 16, 2010 while in the non-compliant state.*

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

*The exact cause is unknown, but it appears to be that the fabricator's (NuWeld) welder made the wrong assumption that the short fillet weld met the requirements of the drawing. There also were failures by the fabricator's and AREVA inspection personnel to identify the short weld as being non-compliant.*

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

*No failed components were involved in this event.*

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

*There were no component failures associated with this event.*

- (vi) The method of discovery of each component failure or procedural error.

*The short 3/16" fillet weld was discovered by AREVA NP personnel during a visual inspection of packaging MP-008 at the Richland site after being returned from off-site for repair performed by CHT. The repair work at CHT did not involve the non-compliant weld.*

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

*Since the fabricator's welder started the weld 1/8" from the end of the joint, it appears that the welder assumed that this was acceptable and that the weld length being 1/8" shorter than the joint still met the requirements of the drawing. The visual inspection processes performed by both the fabricator and AREVA on packaging MP-008 appear to have been inadequate in that both inspections failed to identify the short weld. To date the condition has only been found on packaging MP-008, so it appears to be an isolated event.*

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

*There were no component failures associated with this event.*

(ix) For events during the use of a packaging, the quantities and chemical and physical forms(s) of the package contents;

*The contents of this package were one or two PWR fuel assemblies, with each assembly containing a maximum of 574 kg of  $\leq 5$  weight percent  $^{235}\text{U}$  solid uranium oxide pellets.*

(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 were no safety consequences as a result of this event. The component affected is a Safety Category C item and has very little safety significance. The small deviation in the weld length has an inconsequential effect on the overall strength of the weld.*

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

*The short 3/16" fillet weld on MP-008 will be completed to the full length of the joint. All of the other MAP-12 packagings have been or will be inspected to verify that the condition does not exist on any other MAP-12 packagings. This incident will be reviewed by all AREVA Richland packaging refurbishment personnel.*

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

*There have been five previous 10 CFR 71.95 reports submitted to the NRC on the MAP-12 package by AREVA NP; the previous reports were dated March 26, 2009; June 26, 2009; November 18, 2009; September 13, 2010, and January 2, 2012. The first report dealt with making a shipment using a non-compliant ball lock pin. The second report dealt with discrepancies between the MAP-12 fabrication drawings and the license drawings. The third report dealt with shipping a MAP-12 package with a missing ball lock pin. The fourth report dealt with some minor errors in the actual license drawings which had to be revised. The fifth report dealt with missing non-safety related washers on five MAP-12 packagings. The first four previously reported events are not considered to be similar to this event. The fifth report is somewhat similar to this event in that it involved non-compliances missed during inspections; but the packagings in this report and the fifth report were made by different vendors.*

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

*Robert E. Link, Manager  
Environmental, Health, Safety, & Licensing  
AREVA Richland Fuel Fabrication Plant  
(509) 375-8409*

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

*This event did not involve the exposure of individuals to radiation or radioactive materials.*