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Your ref: Docket No. 71-9239
Our ref: LTR-LCPT-15-12

November 16, 2015

SUBJECT: Event Report - Docket 71-9239, Certificate of Compliance USA/9239/AF

Dear Mr. Anthony Hsia:

A written report is hereby submitted pursuant to 10 CFR 71.95(a)(3). The written report is for instances in which conditions of approval in the Certificate of Compliance No. 9239 for the Model Nos. MCC-3, MCC-4, and MCC-5 Packages were not observed in making of shipments in 2005.

This report is being made outside of the 60 days of discovery of the event. The late reporting is captured as CAPAL (corrective action issue) 100342437 –see Appendix A for details.

(1) <u>Brief abstract describing the major occurrences</u>

The Modified Core Component (MCC) series of packagings are used to transport low-enriched uranium fuel assemblies (up to two assemblies per package) for light water power reactor cores.

The Certificate of Compliance, USA/9239/AF, Revision 18 (and previous revisions), specifies in condition 5 (a) (2) that:

> 5 (a) (2) The MCC packages are shipping containers for Unirradiated oxide fuel assemblies. …

According to current regulation, 10CFR71.4, unirradiated uranium is defined as:

> *Unirradiated uranium* means uranium containing not more than 2×10^3 Bq of plutonium per gram of uranium-235, not more than 9×10^6 Bq of fission products per gram of uranium-235, and not more than 5×10^{-3} g of uranium-236 per gram of uranium-235.

The regulatory definition of unirradiated uranium changed in the 2004 revision of 49CFR173.403, which implemented the U236/U235 limit (Ref. 69 FR 3632). The regulatory definition of unirradiated uranium was added to the 2004 revision of 10CFR71.4 (Ref. 69 FR 3698).

During investigations from late January to early March 2015, Westinghouse discovered and confirmed that it had shipped seven fuel assemblies that exceeded the U236 limit for unirradiated uranium during the year 2005.

Corrective action taken on February 12, 2015 included modification of the Westinghouse laboratory data system to set the maximum acceptable limit of 0.005 for U236/U235 for powder samples. The system will flag excursions beyond this limit and will prevent the material from moving forward without disposition.

This information is provided pursuant to 10 CFR 71.95 (c) (1).

(2) Narrative description of the event

As a part of investigating the feasibility of shipping material that is slightly above the ASTM C996 specification for commercial grade enriched uranium, Westinghouse reviewed the fuel specifications of previous shipments and examined the controls in place to limit the U236 and other radionuclides. While conducting this study, it was determined that seven fuel assemblies for two regions were shipped with an average U236/U235 content greater than 0.005. No other radionuclide limits of the unirradiated uranium definition were exceeded.

- These packages were shipped in 2005.
- The average U236/U235 fuel assembly ratios ranged from 0.0051 to 0.0078.
- There were no systems or components that were inoperable during the event that contributed to the event.
- The preliminary cause of the noncompliance was the absence of a UO2 pellet specification limit for U236/U235 to match the definition of unirradiated uranium as defined by regulations.
- As mentioned above, the failure was discovered while reviewing material specification of previous shipments.
- No human performance-related root causes have been identified so far. Procedures were followed and processes functioned as intended. A causal analysis is in process per the Westinghouse corrective action process.
- The seven fuel assemblies were (type 17x17 OFA or STD) with U235 enrichments of less than 5wt%.

This information is provided pursuant to 10 CFR 71.95 (c) (2).

(3) Assessment of Safety Consequences and Implications of the Event

The event did not present a safety hazard.

This information is provided pursuant to 10 CFR 71.95 (c) (3).

(4) Corrective actions planned and taken

- These increased ratio shipments were captured in the Westinghouse corrective action program as CAPAL 100342432.
- The lack of reporting within the 60-day discovery period is captured as CAPAL 100342437.
- The Westinghouse laboratory data system has been modified as of February 12, 2015 to set the maximum acceptable limit of 0.005 for U236/U235 for powder samples. The system will flag excursions beyond this limit and will prevent the material from moving forward without disposition. Prior to February 12, 2015, the system maximum limit was 0.05 wt% U236.
- The extent of condition was assessed in late January to early March 2015 by querying the powder sample data system and identifying the fuel assemblies containing an increased U236/U235 ratio above 0.005. The fuel assembly region, date and hence assigned transport package were then determined. These parameters defined the timeline and affected package certificate of compliance. By May 2015, the licensing and regulatory review was completed. The seven affected fuel assemblies had less than a 1A2 transport value (per 10 CFR 71 Appendix A), therefore not exceeding the Type A/F MCC certificate of compliance (USA/9239/AF).
- Upon laboratory data system changes, workplace trainings were implemented to ensure personnel awareness of the revised requirement to the U236 limit.

This information is provided pursuant to 10 CFR 71.95 (c) (4).

(5) Reference to any previous similar events

There are no other known instances of a previous occurrence.

This information is provided pursuant to 10 CFR 71.95 (c) (5).

(6) Contact

Please contact Wes Stilwell at (803) 647-3438 for any additional information about this event.

This information is provided pursuant to 10 CFR 71.95 (c) (6).

(7) Extent of Exposure to Radiation

No individuals were exposed to radiation due to this issue.

This information is provided pursuant to10 CFR 71.95 (c) (7).

Sincerely,
**** Electronically approved***
Wes Stilwell
Nuclear Fuel Transport Director
WESTINGHOUSE ELECTRIC COMPANY LLC

cc
Nancy Parr, Licensing Manager, Environment, Health, and Safety, Westinghouse
Dave Precht, Vice President, Columbia Fuel Operations, Westinghouse
Tony Grange, LCPT Manager, Westinghouse
Pierre Saverot, Project Manager, SFM, NRC

**** Electronically approved records are authenticated in the Electronic Document Management System.***

Appendix A – Supporting Detail for Delayed Reporting (CAPAL 100342437)

Description of Details for Delayed Reporting

- From late January to early March 2015, Westinghouse identified an issue where packages were shipped in 2005 where the U236 to U235 content was slightly higher than the definition of unirradiated uranium allows.

- While still under investigation, a corrective action was immediately implemented (on February 12, 2015) for the initial 71.95 noncompliance, changing the lab data system to prevent material that is outside the unirradiated uranium definition limit from being released.

- Upon completion of the licensing review on May 4 2015, Westinghouse prepared the 71.95 report detailed in the body of this letter. Subsequent reviews were to be performed by licensing organizations, and the delay in follow-up lapsed the 60-day notification required by 10CFR71.95 reporting. However, due to human error, this report was not sent to the NRC.

- While preparing for an audit, on November 6, 2015, Westinghouse realized this report had not been submitted to the NRC within the 60-day notification period. Upon identification of the delayed submittal, Westinghouse internal Regulatory Affairs department was contacted to assist in resolution.

- CAPAL 100342437 was created on November 10, 2015 for the delay in submittal of the 71.95 report. On November 16, 2015, the Issue Review Committee met and determined the significance level of the CAPAL. Investigation of data has begun and the causal analysis will be completed per the Westinghouse corrective action process.

- Westinghouse is submitting the 71.95 report to prevent further delay of notification.