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Our ref: LTR-LCPT-22-24

January 6, 2023

SUBJECT: Event Report - Docket 71-9291, Certificate of Compliance USA/9291/B(U)F-96, Liqui-Rad (LR) Transport Unit Package

Dear Director:

A written report is hereby submitted pursuant to 10 CFR 71.95(a)(3). The event was identified on November 14, 2022, and this report is submitted in accordance with the reporting requirements in 10 CFR 71.95(c).

The written report is for identification in which a leak test port bolt was found not installed upon receipt of heeled packages at the customer site, thus not-compliant with the maintenance requirements of Chapter 8 in Condition 6.(b) of the Certificate of Compliance (CoC) for Liqui-Rad (LR) Transport Unit Package (USA/9291/B(U)F-96) Revision 11.

(1) Abstract / Background

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

The Liqui-Rad package is used to transport low enriched Uranyl Nitrate solutions for repurposing.

The CoC USA/9291/B(U)F-96 Rev. 11,

- condition 6.(a) requires “the package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7”,
- condition 6.(b) requires “Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the application.”

Westinghouse performed the maintenance specified in Safety Analysis Report (SAR) Rev. 9 Section 8.2(h), for the periodic leak test of the primary lid in accordance with ANSI N14.5-1997. Upon a test passing acceptance, all steps of Section 8.2(h) were completed.

The package was then prepared with the heel content quantity for transport to the supplier to be reloaded with contents. Westinghouse followed, SAR Section 7.3 for preparation of empty packaging for transport, which specifies:

all-applicable steps set forth in Section 7.1.2 are required for transportation of the empty packaging, with the exception that the leak test required by 7.1.2 (d) can be waived if the heel contains less than an A2 quantity

Following the steps of SAR Section 7.1.2(a) through (i), except for (d), the package was prepared for transport and delivered to the supplier on November 9, 2022.

The supplier, following the procedure for loading the package specified in SAR Section 7.1, opened the outer lid and found the primary lid port plug bolt uninstalled, sitting inside the boundary of the outer lid and outside containment. The supplier reported to Westinghouse on November 14, 2022.

The primary lid and secondary lid port plug bolts installation and torque are only specified in pre-shipment leak test step of SAR Section 7.1.2(d), which was not required to be performed for transport of heeled, empty packages. Therefore, the error likely occurred as a result of imprecise operation and maintenance requirements that led to the primary lid port plug bolt installation and tightening check not being documented prior to transport from Westinghouse to the supplier.

Upon discovery on November 14, 2022 it was confirmed the next scheduled periodic leak test is set for May 2023, and the LR-230 annual maintenance and inspection procedure was updated prior to next maintenance per Corrective Actions, Section (4) below.

(2) Narrative of the Event

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

On November 2, 2022, Westinghouse performed the maintenance specified in SAR Rev. 9 Section 8.2(h), for the periodic leak test of the primary lid on nine packages defined in a single consignment. Upon a leak test passing acceptance, all steps of Section 8.2(h) were completed. There is no action associated with the primary lid port plug in the SAR Chapter 8 maintenance operations.

The nine packages of the consignment were then prepared with the heel content quantity for transport to the supplier to be reloaded with contents. Westinghouse followed, SAR Section 7.3 for preparation of empty packaging for transport, which specifies:

all-applicable steps set forth in Section 7.1.2 are required for transportation of the empty packaging, with the exception that the leak test required by 7.1.2 (d) can be waived if the heel contains less than an A2 quantity

Following the steps of SAR Section 7.1.2(a) through (i), excluding for (d), the packages were prepared for transport with <1A2 heel contents in accordance with the NRC CoC USA/9291/B(U)F-96 Rev. 11 and DOT 49CFR regulations and identification UN3328, Radioactive Material, Type B(U) Package, Fissile. The consignment was delivered to the supplier on November 9, 2022.

Westinghouse having prepared the heeled quantity content as an empty package under SAR Section 7.3, was not required to perform a pre-shipment leak test and thus did not follow step of SAR Section 7.1.2(d), including the only specification for the port plug bolt check.

7.1.2(d)... *After testing, install the port plug at each leak test port and tighten to 60 [+10 -0] in-lbs.*

The supplier, following the procedure for loading the package specified in SAR Section 7.1, opening the outer lid of package serial number LR230-50 on November 14, 2022, found the port plug bolt uninstalled, sitting inside the boundary of the outer lid and outside containment. The secure tamper-indicating devices installed in the primary lid were present and unaltered. The supplier reported to Westinghouse on November 14, 2022.

As there is no required step to install the port plug bolt in the maintenance procedure of Section 8.2 and since Section 7.1.2(d) was not required per the operations of Section 7.3 for the heeled content, the primary port plug bolt installation and tightening check was not documented on all nine packages in the consignment, that underwent periodic leak test maintenance prior to transport from Westinghouse to the supplier on November 9, 2022.

Westinghouse did not effectively account for the verification of reinstallation and torquing of the test port plug post leak testing. The error likely occurred as a result of imprecise operation and maintenance requirements that led to a human error of missed installment and verification of the port plug bolt post periodic leak test maintenance.

While no other shipments are known to be out of compliance with the Section 7.1.2(d) of the SAR Rev. 9, investigation has shown that an added verification step can remove the human error for missed checks of the port plug component. The verification step shall ensure installation and torque tightness of the port plug bolt identified in 7.1.2(d) is performed for the SAR Section 8.2 maintenance operations of periodic leak test and SAR Section 7.3 loading procedure for heeled quantities.

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

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

No known release of contents was experienced. As described in SAR Section 2.10.9, *...Because the test port does not access the containment boundary, the un-sealed test port itself does not represent a loss of containment...* Therefore, there was no safety consequence to the routine/normal transport conditions observed during the transport delivery. Additionally, the secure tamper-indicating devices installed in the primary lid were present and unaltered.

As there are no prior reported findings of free port plug bolts within the packaging, it is concluded there were no other incidents of uninstalled port plug bolt for heeled quantities prepared for shipment under SAR Section 7.3. Therefore, Westinghouse's assessment is that there were no significant safety consequences or implications from this event.

(4) Corrective Actions

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

This event has been entered into the Westinghouse Corrective Action Program (CAP Issue Report-2022-11146), and an extent of condition analysis was conducted to identify corrective actions which are warranted. The following actions have been taken:

- LR-230 annual maintenance and inspection form (CF-83-225) and procedure (COP-836052) is being revised and issued prior to next maintenance cycle, updating steps to include an inspection and documentation for install and torque of the primary lid port plug bolt after maintenance periodic leak testing is completed.

- A review of Liqui-Rad the annual maintenance processes associated with leak testing was performed to ensure no other non-conforming issues or conditions existed.

(5) Extent of Condition

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

An inspection of all LR-230 packages that underwent periodic leak test maintenance under the same campaign in November 2022 were reinspected to ensure test port plug bolts were installed to the SAR requirements.

Of all 18 packages that underwent periodic leak testing maintenance and were then transported to the supplier, only one package was found in a non-compliant condition with the uninstalled primary lid port plug bolt.

As there are no prior reported findings of free, loose port plug bolts within the packaging, it is concluded there were no other incidents of uninstalled port plug bolt for heeled quantities prepared for shipment under SAR Section 7.3.

(6) Contact

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

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

(7) Extent of Exposure to Radiation

This information is provided pursuant to 10 CFR 71.95(c)(7).

There was no exposure to radiation due to this event.

Sincerely,

**Electronically approved*

Tanya Sloma-DeLosier
Westinghouse Electric Company, LLC
Package Licensing Program Manager, Nuclear Fuel Transport

cc
Wes Stilwell, Nuclear Fuel Transport Director
Patrick Donnelly, Licensing Manager, Columbia Fuel Operations
Pierre Saverot, US NRC Division of Fuel Management

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