

April 29, 2020

ATTN: Document Control Desk
Director, Division of Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission,
Washington, DC 20555-0001

NRC Docket No. 71-9196

Subject: 10 CFR 71.95 60-Day Report (TAM-2020-001-NRC)

On March 16, 2020, the marine surveyor (CSL North America) hired by TAM International LP (TAM) identified a noncompliance with the inbound shipment of uranium hexafluoride (UF₆) in a UX-30 overpack (USA/9196/B(U)F-96). In accordance with 10 CFR 71.95(a)(3), TAM is providing a written report within sixty days of the discovery of this event (Enclosure 1).

If you have any questions, please contact myself at (270) 816-2100 or via email steve.hansen@tamintlusa.com.

Respectfully,



Steven Hansen
Chief Compliance Officer
TAM International LP

Enclosure: 1) 10 CFR 71.95 Report – Ball Lock Pin (TAM-2020-001-NRC)

cc: TN Americas, LLC (Certificate Holder)
Framatome (Consignee)
JSC "NFC Logistics" (Consignor)



Enclosure 1
10 CFR 71.95 Report – Ball Lock Pin

As required by 10 CFR 71.95(a)(3), TAM is providing responses to the following requirements:

10 CFR 71.95(c)

(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.*

During the March 16, 2020, in-transit inspection at the Port of Philadelphia of a shipment of UX-30 overpacks containing enriched uranium hexafluoride (UF₆) of Russian origin, one UX-30 overpack [USA/9196/B(U)F-96] serial number TX-339 was found to have one of the ten 2" ball lock pins to not be fully engaged. The UX-30 overpack contained one full 30B cylinder of less than five percent assay of uranium. The cylinder was not affected by this condition and there was no release of radioactive material. However, since TAM was the forwarder of the package, and the pin failure most likely originated outside the United States, TAM has chosen to conservatively report this incident under 10 CFR 71.95(a)(3).

TAM assumes the pin may be been improperly installed and/or became dislodged during package handling operations prior to being inspected at the Port of Philadelphia. The pin was immediately reinstalled correctly after taking photos and the shipment continued to its destination without further incident.

(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.*

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

The UX-30 overpack is used for the transport of ANSI N14.1 30B cylinders containing UF₆ with a maximum uranium 235 enrichment of 5%. There are three main purposes of the UX-30 overpack:

- To provide overall thermal protection during accident conditions,
- To provide impact protection for the cylinder valve, plug, and body, and
- To provide minimum spacing for criticality control. The overpack relies on the 30B cylinder to provide containment for the UF₆ material.

The UX-30 overpack is a horizontal cylinder split horizontally in two stainless steel half shells with a stepped and gasket joint. The two half-shells are assembled by ten retractable ball locking pins made captive by steel cables. Upon noticing one of the ten ball locking pins was not in its installed position, the pin was fully inserted and returned to a normal conforming condition prior to any further transport.

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

The marine surveyor at 1:00pm EST on March 16, 2020 sent an email to TAM notifying of the ball lock pin issue.

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

The suspected cause may have been improperly installed and/or became dislodged during package handling operations prior to being inspected at the Port of Philadelphia.

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

The overpack design includes ten 2" ball lock pins in total. The two halves of the packaging remained secured together during the transport with the one pin not fully inserted. The overpack retained its proper function and integrity. No equipment mechanisms or components failed during this occurrence as the pin was properly inserted after inspection.

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

No systems or secondary functions were affected by the not fully engaged ball lock pin.

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

This was identified by the marine surveyor while inspecting the UX-30 overpacks at the port of entry into the United States. The ball lock pin criteria is an inspection point listed on the TAM QF 86 – UX-30 Flatrack Checklist.

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

The Data Sheet for the Procedure Regarding Inspection, Maintenance, and Operation of the Two-Inch Locking Pins for UX-30 was obtained from NFC Logistics (consignor) for the inspection that was performed on 2/22/2020 in St. Petersburg Russia. The data sheet shows the ball lock pins were "OK" but unfortunately, there are no photos for this procedure (step 7). All criteria in the data sheet was met and the cargo was prepared for shipment without comments. The responsible employee of IZOTOP involved in the organization of loading at the seaport said that the cargo was transferred to the ocean carrier without any comments, as indicated in the bill of lading issued.

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

2" Locking Pin
Avibank # BLC7BC20SL6C8
CHT Part Number X-20-238E-16/17

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

The cylinder contained 2212.9 Kg of enriched uranium hexafluoride.
UN2977, Radioactive Material, Uranium Hexafluoride, Fissile, Class 7 (6.1,8), Solid as UF₆, U (enriched to 20% or less)

(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.

The remaining nine 2" ball lock pins were in place at the time of this occurrence and served to sufficiently ensure the UX-30 overpack performed its intended functions listed in (2)(i) above. Although the one 2" pin not being in place do not conform to the *Safety Analysis Report for Model UX-30 Package*, there is no safety consequence or further implications due to the remaining pins being correctly inserted and functional.

(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.

TAM currently has actions in place to inspect the UX-30 overpacks at the Port of Entry into the United States before they are loaded onto a conveyance for shipment to ensure all ten ball lock pins are properly installed.

TAM is recommending through this report to have the owner of the UX-30 overpack (TX-339) measure the distance between the ball lock pin to ensure the pin currently meets the minimum dimension as stated in the *UX-30 OVERPACK Operations and Maintenance Manual*. TAM also recommends the owner measure the locking pin hole in the UX-30 overpack (TX-339) to confirm the maximum dimension.

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

Similar events involving the 2" ball lock pins of UX-30 overpacks have been reported to the NRC under the following:

- ML18267A066 – LES-18-119-NRC
- ML103120010 – GDP 10-1039
- ML12354A130 – GDP 12-1039
- There are several more previous 10 CFR 71.95 reports that include issues with disengaged and dangling 2" ball lock pins.

(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.

If you have any question, please contact Steve Hansen, Chief Compliance Officer at (270) 816-2100 or via email at steve.hansen@tamintlusa.com.

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

No unexpected exposure of individuals to radiation or to radioactive materials occurred.

- End of Enclosure 1