



**Global Nuclear Fuel**

**Global Nuclear Fuel**

**Scott P. Murray**  
Manager, Facility Licensing

3901 Castle Hayne Road  
P.O. Box 780  
Wilmington, NC 28402  
USA

T(910) 819-5950  
scott.murray@ge.com

M210109

September 16, 2021

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

Subject: 10 CFR 71.95- 60 Day Report – DN30 Certificate Condition Not Followed

References: 1) DOT Certificate USA/9362/AF-96, Revision 0, 1/17/2020  
2) NRC Certificate of Compliance (CoC) USA/9362/AF-96, Revision 2, Docket 71-9362, 12/19/2019

Dear Sir or Madam:

Pursuant to 10 CFR 71.95(a)(3), Global Nuclear Fuel – Americas, LLC (GNF-A) submits this report for discovery of a uranium hexafluoride (UF<sub>6</sub>) transportation package that did not conform with the conditions of approval in the NRC Certificate of Compliance (CoC) (Reference 2).

A Model 30B cylinder with a solid residual heel of enriched UF<sub>6</sub> was enclosed and shipped by GNF-A in a DN30 transportation package. Condition 7(a) of the DN30 Certificate of Compliance requires in part that the protective structural packaging (PSP) be prepared for shipment in accordance with operating procedures of Chapter 1.7 of the application. It was subsequently reported by the consignee that upon receipt, one of the thermal plugs was missing on PSP serial number EB-2020-0099.

This nonconformance is associated with a package design feature. An evaluation involving consultation with the certificate holder has determined that this deficiency was of low safety significance and there was no reduction in effectiveness of the DN30 package. All other requirements of the CoC were met.

The attachment to this letter provides the required details of this report.

I am the individual knowledgeable about this event and can provide additional information as needed. If you have any questions regarding this matter, please contact me at (910) 819-5950.

Sincerely,

  
Scott Murray, Manager  
Facility Licensing

US NRC  
September 16, 2021  
M210109  
Page 2

Attachment: 10 CFR 71.95- Type A Transportation Package Report (USA/9362/AF-96)

cc: NRC Region II Administrator, Atlanta, GA  
M. Ruffin, USNRC, RII  
J. Rowley, USNRC, NMSS  
Daher Nuclear Technologies GmbH (DN30 Certificate Holder)  
SPM 21-025

**Attachment**  
**10 CFR 71.95- Type A Transportation Package Report (USA/9362/AF-96)**

**(1) Brief abstract describing the major occurrences - (71.95(c)(1)**

The DN30 package is used to transport unirradiated commercial grade uranium, in the form of UF<sub>6</sub>, with a U-235 mass percentage not to exceed 5 weight percent – as defined in NRC Certificate of Compliance (CoC) USA/9362/AF-96, Revision 2 contents (b)(1).

NRC CoC USA/9362/AF-96, Revision 2 (and previous revisions), specifies in condition 7(a) that:

7 (a) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Chapter 1.7 of the application.

Handling instruction 0023-HA-2015-001, Rev 5 “Use and Handling of the DN30 Package”, Section 5.3 “Visual Inspection” includes a check for missing or damaged thermal plugs.

**(2) Narrative description of the event – (71.95(c)(2)**

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

The affected DN30 protective structural packaging (PSP) was properly prepared by GNF-A in accordance with applicable procedures and regulations before being shipped. There were no inoperable components or systems.

*ii) Dates and approximate times of occurrences;*

On June 9, 2021, URENCO Netherlands (UNL) received a shipment of four DN30 PSPs from GNF-A, each with an empty 30B cylinder containing a solid residual heel of enriched UF<sub>6</sub>. Subsequently, UNL discovered that one of the 18 thermal plugs on DN30 PSP serial number EB-2020-0099 (Owner serial number UREJ870219) was not present as required.

On August 12, 2021, GNF-A was informed by URENCO of this discovery. There were no other PSPs in the shipment that had this nonconformance.

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

There were no known system or component failures. On May 18, 2021, prior to shipment, a GNF-A operator completed visual inspection log sheet which included verification signoff that all 18 thermal plugs on this PSP were present.

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

The 21 mm polyamide plastic thermal plug is part of the package thermal protection system. It is designed to melt in a large fire event and allow foam decomposition gases to escape and prevent pressure buildup within the package. The thermal plug also provides a secondary sealing function to prevent the ingress of water into the shell foam.

*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 missing thermal plug.

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

The missing thermal plug was discovered and reported by URENCO.

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

Investigation of the GNF-A inspection and loading procedural requirements for this PSP found that the requirement to check the state and presence of the thermal plugs (18 in total) was completed and found acceptable as documented by the qualified operator in the visual inspection checklist dated May 18, 2021. There is no suspected human performance related apparent cause.

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

There were no component failures.

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

The enclosed cylinder had been emptied to the extent practical and contained a solid heel quantity of UF<sub>6</sub>. The proper shipping name was UN2977, Radioactive Material, Uranium Hexafluoride, Fissile, Class 7 (8) (Enriched to 20% or less). The cylinder was shipped in a USA/9362/AF-96, DN30 protective structural package (PSP).

**(3) Assessment of Safety Consequences and Implications of the Event – (71.95(c)(3))**

According to the CoC holder, the condition did not present a significant safety hazard and there was no reduction in effectiveness of the package. The integrity of the package was not compromised. The enclosed cylinder contained only solid heel quantities of UF<sub>6</sub>, the valve was fully functional, and the cylinder was leak checked prior to being shipped.

There were no issues reported during transport. As a result, GNF-A has not been able to determine why URENCO subsequently discovered one of the 18 thermal plugs in PSP serial number EB-2020-0099 was missing upon receipt.

**(4) Corrective actions taken – (71.95(c)(4)**

GNF-A is not authorized and does not remove or replace DN30 thermal plugs. There were no other issues reported with DN30 thermal plugs. This is the first known instance of a missing DN30 thermal plug discovered upon receipt.

**(5) Reference to any previous similar events – (71.95(c)(5)**

- None

**(6) Contact – (71.95(c)(6)**

Please contact Scott Murray at (910) 819-5950 for any additional information about this report.

**(7) Extent of Exposure to Radiation – (71.95(c)(7)**

No individuals were exposed to radiation or radioactive material due to this issue. There was no leakage of contents due to the nonconformance.