



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

SPM 13-036

July 16, 2013

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

Subject: Addendum to GNF-A10 CFR 71.95 Report Dated 6/15/12 – UX-30 Certificate Condition Not Followed

References: 1) NRC Certificate of Compliance (CoC) USA/9196/B(U)F-96, Docket 71-9196
2) GNF-A 10CFR71.95 Report – UX-30 Certificate Condition Not Followed, 6/15/12

Dear Sir or Madam:

Pursuant to 10 CFR 71.95(a)(3), Global Nuclear Fuel – Americas, LLC (GNF-A) submits an addendum to a previous report for a discovery where GNF-A made shipments of a Type B uranium hexafluoride transportation package that may not have conformed with the Certificate of Compliance (CoC) for a NRC-approved Type B package.

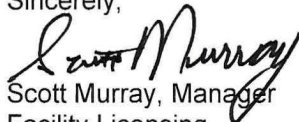
An additional Model 30B cylinder, number GEW357 was enclosed and shipped several times by GNF-A in UX-30 transportation package (ID Number USA/9196/B(U)F-96) contrary to Condition 6 of the UX-30 Certificate of Compliance and ANSI N14.1-2001. GNF-A had certification records from the cylinder recertification services supplier and performs a thread count inspection that did not indicate any issues. However, it was subsequently reported by the cylinder recertification vendor that the cylinder plug on this cylinder did not appear to conform to the minimum thread engagement criterion of Section 6.10.6 of the ANSI in that the plug visually had six threads exposed and was determined on a receipt inspection to have less than a minimum of five threads engaged.

This nonconformance is associated with the cylinder and not the overpack. The nonconformance is not an element attributed to a package design issue; therefore, GNF-A determined discussions are not necessary with the UX-30 Certificate of Compliance holder.

Attachment 1 provides the required details of this addendum to the previous report.

If you have any questions regarding this matter, please contact me at (910) 819-5950.

Sincerely,



Scott Murray, Manager
Facility Licensing

Commitments: None

Attachments: 1) Report Addendum Details
2) Photograph of removed plug from cylinder GEW357

cc: NRC Region II Administrator, Atlanta, GA
M.L. Thomas, USNRC, RII
T. D. Naquin, USNRC, NMSS
Columbiana Hi Tech (UX-30 Certificate Holder)

Global Nuclear Fuel

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Attachment 1
10 CFR 71.95- Type B Transportation Package Report (USA/9196/B(U)F-96)

ABSTRACT

GNF-A ships cylinders based on information provided by a cylinder recertification services supplier. In addition, GNF-A performs a visual inspection of the inserted plug on each cylinder prior to shipment. While this visual inspection does not have sufficient precision to determine the difference between 4 ½ and 5 threads engaged, it would detect an issue that could be considered safety significant.

On May 17, 2013, AREVA NP notified GNF-A that uranium hexafluoride heel cylinder numbered GEW357 did not appear to have adequate cylinder plug thread engagement. The discovery was made during the cylinder re-certification process following plug removal by AREVA NP.

A minimum of five engaged plug threads is a requirement of ANSI N14.1-2001, "Uranium Hexafluoride Packaging for Transport," Section 6.10.6. Conformance to this standard is required by Condition 6 of the Certificate of Compliance for the cylinder's UX-30 transportation package.

A nonconformance with a condition of the Certificate of Compliance in making a shipment is reportable to the NRC under 10 CFR 71.95(a)(3).

CYLINDER PLUG INSTALLATION/INSPECTION REQUIREMENTS

The Certificate of Compliance for the UX-30 transportation package, Package Identification Number USA/9196/B(U)F-96, requires in Condition 6 that the 30B, 30-inch diameter cylinder must be fabricated, inspected, tested and maintained in accordance with ANSI N14.1-2001, "Uranium Hexafluoride Packaging for Transport."

Section 6.10.6, "Valve and Plug Installation," of this standard requires, for new cylinders and plugs, "The plug thread engagement of 5 minimum and 8 maximum shall be obtained by using a minimum of 150 and maximum of 650 foot-pounds of torque." GNF-A relies on the cylinder manufacturer or recertification service provider that installs the plug to ensure thread engagement meets ANSI requirements.

In addition, visual inspections of the exposed threads of the installed plug are performed to detect significant deviations from requirements that could be considered safety significant.

DETAILS

After UF₆ removal, the cylinder contains approximately 2 kg or less of solid low enriched uranium hexafluoride "heel" material and was last shipped by GNF-A to USEC in 2010 for re-filling. There was no indication of any leakage of UF₆ from this cylinder on receipt. Photographs taken of the removed plug from cylinder GEW357 indicated between 4 and 5 threads had been engaged. The plug had been stamped to indicate it had 10 threads.

INVESTIGATION RESULTS

Cylinder GEW357 was recertified by AREVA NP with the plug installed on September 25, 2001. The cylinder passed the recertification hydrostatic test that included the plug as a part of the pressure boundary.

On August 4, 2007, AREVA NP recertified cylinder GEW357; the plug was not changed during the recertification process and the thread engagement of the plug was not verified per the standard practice at the time. (In 2007, if a new plug was not installed, the plug thread engagement did not have to be verified; this practice was changed after the valve thread engagement issue was first identified by USEC in April 2011.)

AREVA NP discovered the inadequate plug thread engagement in cylinder GEW357 during the May 2013 recertification of the cylinder.

CAUSE OF THE EVENT

According to AREVA NP, the cause has been determined to be a non-conservative plug thread marking process in that the technique used to mark the fifth thread on the plug did not guarantee that five full threads would actually be engaged when the plug was installed in the cylinder.

Following a cylinder certification in 2001, the cylinder was shipped by GNF-A on several occasions between 2003 and 2010 in a UX-30 overpack.

Date	Origination (From)	Destination (To)
9/15/2003	GNF-A	USEC - heel
7/29/2004	GNF-A	USEC - heel
8/4/2005	GNF-A	USEC - heel
2/6/2006	GNF-A	USEC - heel
12/4/2007	GNF-A	Eurodif - empty
9/23/2008	GNF-A	Eurodif- heel
7/28/2009	GNF-A	Eurodif - heel
7/7/2010	GNF-A	USEC - heel

ASSESSMENT OF SAFETY CONSEQUENCES

During these shipments, there were no indications of uranium hexafluoride leakage from the plug thread engagement area. Even though the plug thread engagement was slightly less than five threads, the plug installation performed its intended safety function and there were no safety consequences.

This event resulted in no exposures beyond normal exposures incident to routine cylinder handling and there were no failed components involved.

CORRECTIVE ACTIONS

1. Cylinder GEW357 was taken out of service and sent to AREVA NP on February 20, 2013 for re-certification.
2. GNF-A has opened a condition report (CR) to document further communications needed to the cylinder service provider (AREVA NP) and to document the re-certification of the cylinder.

3. GNF-A has been advised by its cylinder recertification services supplier of corrective actions that are designed to address the cylinder plug installation concerns. (According to AREVA NP, at the time when this cylinder was recertified a new plug was not installed and the plug thread engagement was not verified; this practice was changed after the valve thread engagement issue was first identified by USEC in April 2011.)

SIMILAR EVENTS

This report is an addendum to a GNF-A report to the NRC in June, 2012 for a similar condition on two cylinders that had installed plugs with less than the minimum thread engagement. (GNF-A letter number SPM 12-026, dated June 15, 2012)

In addition, GNF-A is aware of one other instance where a cylinder was identified as having inadequate plug thread engagement. This instance involved AREVA NP owned cylinder RSB307 which was discovered to have non-compliant plug thread engagement by USEC on June 26, 2012. AREVA reported this event to the NRC on August 17, 2012 (REL: 12:038).

LIST OF COMMITMENTS

None

Attachment 2

Removed Plug from GEW357

