



January 13, 2012
GDP 12-1003

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

Paducah Gaseous Diffusion Plant (PGDP)
Docket No. 70-7001, Certificate No. GDP-1
10 CFR 71.95 - Type B Transportation Package Report (USA/9196/B(U)F-96)

Pursuant to 10 CFR 71.95(a)(3), the United States Enrichment Corporation (USEC) submits this report for discovery of one instance where USEC made shipments of a Type B uranium hexafluoride transportation package that did not conform with Condition 6 of the Certificate of Compliance for the NRC-approved Type B package. One Model 30B cylinder, number GEW080, enclosed in a Model UX-30 transportation package with transportation package identification number USA/9196/B(U)F-96, was discovered by USEC to have a cylinder valve installed whose thread engagement did not conform to the requirements of Condition 6. Condition 6 requires in part that the cylinder be inspected and maintained in accordance with ANSI N14.1-2001. The cylinder valve in question did not conform to the thread engagement criterion of Section 6.10.6 in that at least eight threads were exposed meaning that less than a minimum of seven threads were determined to be engaged.

This nonconformance by a user was associated with the cylinder and not the overpack. This nonconformance with a Certificate condition was not an element attributed to a package design issue; therefore, USEC determined discussions were not necessary with the UX-30 Certificate of Compliance holder.

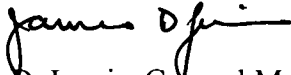
Enclosure 1 provides the required details of this report and Enclosure 2 provides a list of commitments.

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Any questions regarding this report should be directed to Vernon J. Shanks, Regulatory Affairs Manager at (270) 441-6039.

Sincerely,

A handwritten signature in black ink, appearing to read "James D. Lewis".

James D. Lewis, General Manager
Paducah Gaseous Diffusion Plant

Enclosures: As Stated

cc: NRC Region II
NRC Resident Inspector - PGDP
NRC Project Manager – PGDP

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ABSTRACT

On November 16, 2011, USEC identified a uranium hexafluoride cylinder, provided and owned by a fuel fabrication customer for filling, numbered GEW080, which did not appear to have adequate cylinder valve thread engagement. This cylinder was determined to have been previously filled and shipped by USEC three times with a cylinder valve that did not have a minimum of seven threads engaged in the cylinder. A minimum of seven threads engaged 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. In this case at least eight threads were exposed meaning that less than a minimum of seven threads were engaged. A nonconformance with a condition of the Certificate of Compliance in making a shipment is reportable under 10 CFR 71.95(a)(3).

DETAILS

On November 16, 2011, USEC identified one cylinder, provided and owned by a fuel fabrication customer for filling, whose cylinder valve did not appear to have a minimum of seven threads engaged in the cylinder because at least eight threads were found exposed. USEC notified the customer on December 13, 2011, and provided the inspection data sheet demonstrating unacceptable thread engagement. Based on the hydrostatic pressure test date displayed on the cylinder, USEC determined it had shipped GEW080 three times since its recertification in November 2007, with the valve in its current nonconforming configuration. These shipments contained solid enriched uranium hexafluoride.

INVESTIGATION RESULTS

There was no indication of any leakage of UF₆ from the cylinder on receipt. USEC notified its customer of its concerns on December 13, 2011. Photographs were taken of the as-found condition of the valve showing at least eight exposed threads demonstrating less than seven threads engaged. On January 9, 2012, USEC requested and received permission from the customer to replace this valve.

USEC's current inspection procedures meet the ANSI N14.1-2001 standard requirements for inspection of thread engagement. The recertification data sheets provided by the customer indicated the valve installation met the ANSI requirements. It also indicated the supplier of the customer's recertification service was the same as that used in part by USEC.

Following a previous report, identified below, regarding cylinder valve thread engagement, USEC pursued corrective actions with its recertification services supplier that were designed to

mitigate the cylinder valve installation concerns. Based on USEC's review of the current thread engagement issue, similar actions between our fuel fabricator customer and our mutual recertification services supplier should resolve the fabricator's thread engagement issue. On October 12, 2011, USEC provided its fabricator customer a summary of the corrective actions implemented by the recertification services supplier.

CYLINDER VALVE 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 valves, "A valve thread engagement of 7 minimum and 12 maximum shall be obtained by using a minimum of 200 and maximum of 400 foot-pounds of wrench torque applied to the valve body only." In the case of this customer's cylinder, the cylinder recertification data package indicated the valve passed the thread engagement, torque, and pressure tests required when installed.

Section 6.15.4, "Manufacturing Requirements" for the cylinder valve and referenced Figure 12, Note 7 require a cylinder valve to have "13 to 14 perfect threads."

Section 6.3.1, "Routine Operational Inspections," requires that "All UF₆ cylinders shall be routinely examined as received and prior to sampling, withdrawal, filling, or shipping to ensure that they remain in a safe, usable condition." USEC discovered this issue during the subject cylinder's receipt inspection.

ASSESSMENT OF SAFETY CONSEQUENCES

In the case of cylinder GEW080 there was no indication of uranium hexafluoride leakage from the valve thread engagement area. Even though valve thread engagement was not between seven and twelve threads, the valve 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.

CORRECTIVE ACTIONS

1. The owner of the subject cylinders was notified on December 13, 2011, of USEC's concerns.
2. USEC requested and received permission from the customer on January 9, 2012, to replace this cylinder's valve.
3. USEC provided its fabricator customer a summary of the corrective actions implemented by our mutual recertification services supplier on October 12, 2011.
4. There are no additional corrective actions considered necessary in that the current inspection methods employed by USEC are recognizing apparent thread engagement deficiencies where none had been previously identified.

SIMILAR EVENTS

USEC reported similar events to NRC in the following letters to Ms. Vonna L. Ordaz, Director, Division of Spent Fuel Storage and Transportation, Office of Nuclear Material Safety and Safeguards.

1. USEC letter number GDP 11-1017, dated June 3, 2011.
2. USEC letter number GDP 11-1031, dated September 29, 2011.
3. USEC letter number GDP 11-1035, dated October 20, 2011

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LIST OF COMMITMENTS

No new commitments.