USEC
A Global Energy Company

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GDP 13-1031

ATTN: Document Control Desk
Mr. Mark D. Lombard, 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

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 six instances where USEC made a shipment 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. A Model 30B cylinder, number GEW357 enclosed in a Model UX-30 transportation package with transportation package identification number USA/9196/B(U)F-96, was discovered by a cylinder recertification services supplier for a customer to have a cylinder plug 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 plug in question did not conform to the thread engagement criterion of Section 6.10.6 in that only four threads were determined to be engaged for this ten thread plug.

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. There are no new commitments made in this letter.

United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
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Any questions regarding this report should be directed to Vernon J. Shanks, Regulatory Affairs Manager at (270) 441-6039.

Sincerely,

Michael A. Buckner

Michael A. Buckner, (Acting) 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

USEC was notified by a customer on June 24, 2013, that the customer owned Model 30B cylinder GEW357 was found to have a cylinder plug installed with only 4 plug threads engaged. This issue was discovered by the customer's recertification services supplier during recertification of GEW357. USEC determined that it had shipped this cylinder containing enriched uranium hexafluoride on six occasions to its customer with the cylinder plug in this configuration. The cylinder plug did not have a minimum of five threads engaged in the cylinder as required by 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 in accordance with 10 CFR 71.95(a)(3).

DETAILS

On June 24, 2013, USEC was notified by a customer that during recertification of its Model 30B cylinder GEW357 that the cylinder plug was found to have only four threads engaged. The recertification services supplier discovered the issue and determined from its records that the plug had been installed since September 25, 2001. A review of USEC's records for this cylinder indicated USEC had shipped this cylinder six times in its UX-30 overpack with the plug in this configuration. In each case the cylinder was filled with enriched uranium hexafluoride and shipped on the following dates: April 14, 2003; April 6, 2004; March 15, 2005; November 3, 2005; May 2, 2006; and October 5, 2010.

INVESTIGATION RESULTS

A review of the USEC Corrective Action System data could locate no references to the subject cylinder regarding any evidence of leakage from the plug or other issues in the identified time frame.

USEC had previously discovered discrepancies in its method of counting threads for cylinder valve and cylinder plug thread engagement. Following these discoveries USEC reevaluated its method of counting threads and modified its methods for thread count to assure consistent thread count results among personnel assigned this task. As summarized below, various shipping event reports were filed by USEC that addressed resolution of these thread counting discrepancies. Corrective actions instituted for cylinder valve and plug thread engagement were completed in 2011. The corrective actions taken were also shared with USEC's customers and cylinder recertification suppliers that included the owner of this cylinder and the owner's recertification services supplier.

Each shipment made by USEC of GEW357 occurred before these corrective actions were taken. Since the corrective actions were taken, a number of valve and plug thread engagement issues have been identified during processing and appropriate actions were taken before shipping from the plant.

USEC's current inspection procedures meet the ANSI N14.1-2001 standard requirements for inspection of thread engagement. Enhancements to the USEC inspection procedures that were implemented as committed in response to the cylinder valve thread engagement issues reported in Similar Event 1 below were found to also be applicable to and have enhanced USEC's plug thread count methods. USEC's current thread counting methods are sufficient to detect future valve or plug thread count issues.

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, "The plug thread engagement of 5 minimum and 8 maximum shall be obtained using a minimum of 150 and maximum of 650-ft-lb of torque." In the case of this customer's cylinder, the cylinder recertification data package indicated the plug had not been changed, but that the cylinder passed its recertification hydrostatic test that would have included the plug as part of the pressure boundary.

ASSESSMENT OF SAFETY CONSEQUENCES

In the case of this cylinder, there has been no indication of leakage of uranium hexafluoride during transport. Based on a review of the NRC's ADAMS database, USEC is not aware of any reports of cylinder plug leakage due to the thread engagement issue during transit for any domestic user of the UX-30 overpack. Even though plug thread engagement was not between five and eight threads for this cylinder, 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.

CORRECTIVE ACTIONS TAKEN

There are no additional corrective actions considered necessary in that the current inspection methods employed by USEC are recognizing apparent thread engagement deficiencies for both cylinder plugs and valves.

CORRECTIVE ACTIONS PLANNED

None.

SIMILAR EVENTS

The following events, items 1 – 5, reported to NRC by USEC addressed cylinder valve thread engagement issues that are deemed similar to this event. Items 6 – 10 are for cylinder plug thread engagement issues:

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
4. USEC letter number GDP 12-1003, dated January 13, 2012
5. USEC letter number GDP 12-1010, dated February 24, 2012
6. USEC letter number GDP 12-1021, dated June 7, 2012
7. GNF-A letter to NRC number SPM 12-026, dated June 15, 2012
8. USEC letter number GDP 12-1027, dated August 3, 2012
9. AREVA NP report to NRC (REL:12:038), dated August 17, 2012
10. GNF-A letter to NRC number SPM 13-086, dated July 16, 2013