

February 24, 2006

Mr. Russell Starkey, Vice President, Operations
United States Enrichment Corporation
2 Democracy Center
6903 Rockledge Drive
Bethesda, MD 20817

SUBJECT: AMENDMENT 06 - PADUCAH GASEOUS DIFFUSION PLANT - CHANGE TO
TECHNICAL SAFETY REQUIREMENT 2.2, APPENDIX A (TAC NO. L52570)

Dear Mr. Starkey:

In accordance with your application dated December 13, 2005, and pursuant to Part 76, Title 10 of the Code of Federal Regulations, Certificate of Compliance GDP-1 is hereby amended. Specifically, Technical Safety Requirement (TSR) 2.2, Appendix A, is modified to allow heating two cylinders of natural uranium hexafluoride (UF₆) not otherwise authorized to be heated.

Accordingly, Condition 9 is revised to include the date December 13, 2005.

All other conditions of Certificate of Compliance GDP-1 shall remain the same.

This amendment is effective 30 days from the date of this letter.

Enclosed are copies of the revised Certificate of Compliance and the staff's Compliance Evaluation Report that describes the basis for the staff's review and conclusion.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

R. Starkey

2

If there are any questions regarding this action, please contact the Project Manager, Dan E. Martin, by telephone at (301) 415-7254, or by email at dem1@nrc.gov.

Sincerely,

/RA/

Gary S. Janosko, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No.: 70-7001
Certificate: GDP-1
Amendment 06

Enclosures:

1. Compliance Evaluation Report
2. Certificate of Compliance GDP-1

cc: Steven A. Toelle, USEC-Headquarters
Randall M. DeVault, DOE-Oak Ridge
Steve Penrod, Paducah

R. Starkey

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Closes TAC NO. L52570

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DOCKET NUMBER: 70-7001

CERTIFICATE HOLDER: United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
Paducah, KY

SUBJECT: COMPLIANCE EVALUATION REPORT: CERTIFICATE
AMENDMENT REQUEST DATED DECEMBER 13, 2005,
REVISION OF TECHNICAL SAFETY REQUIREMENTS 2.2,
APPENDIX A, AT THE PADUCAH GASEOUS DIFFUSION
PLANT (TAC NO. L52570)

PROPOSED CHANGES

This certificate amendment request (CAR) was submitted by letter dated December 13, 2005, to the U.S. Nuclear Regulatory Commission (NRC). The principal purpose of this request is to change Technical Safety Requirement (TSR) 2.2, Appendix A, "Maximum Weight Limit for UF6 Cylinders," to clarify that the Paducah Gaseous Diffusion Plant, operated by the United States Enrichment Corporation (USEC), is permitted to heat two cylinders of natural uranium not otherwise authorized to be heated. This would be accomplished by making changes to Appendix A. These changes include the addition of a new line item, specifically for cylinder UK0481, and a new footnote No. 4, to accommodate cylinder UK0690. The changes to Appendix A appear as underlined text below:

**TSR 2.2 Appendix A
Maximum Weight limit for UF6 Cylinders**

Model No.	Cylinder Nos. Or Type	Max. Fill Limit for Shipment (lbs UF6)	Max. Fill Limit for In-Plant tails Storage (lbs UF6)
<u>48F</u>	<u>UK0481</u>	<u>27030</u>	---
48Y	All4	27560	28000

4. Cylinder number UK0690 has an actual volume of 142.06 ft³ which is less than the minimum volume required by ANSI N14.1. To Maintain 5% free volume at a temperature of 250°F, the maximum weight limit for this cylinder is reduced to 27,436 lbs UF6. This cylinder will not be re-filled after it is emptied.

DISCUSSION

The proposed change would modify TSR 2.2, Appendix A, to add cylinder number UK0481, and add a new footnote 4 that will apply to 48Y cylinders. USEC states that these two cylinders of natural UF6 were not designed and fabricated to meet all American National Standards Institute (ANSI) N14.1 requirements. As a result, the cylinders do not meet current TSR requirements for heating and feeding to the cascade. USEC states that it has performed an evaluation of the cylinder deficiencies and has determined that they can be safely heated. The proposed changes would allow USEC to heat the cylinders and recover the contained UF6.

Cylinder UK0481

Cylinder UK0481 is a model 48F cylinder that was not certified to meet ANSI N14.1 requirements but was designed and fabricated as an American Society of Mechanical Engineers (ASME) pressure vessel. USEC has examined the cylinder's Data Book, including the Form U-1A Manufacturer's Data Report for Pressure Vessels, and other documents that provide evidence of the materials used, tests performed, and welding certification. Form U-1A indicates the cylinder was manufactured in accordance with ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1974 and summer 1977 addenda.

USEC analyzed differences between ANSI N14.1 requirements and the as-built information provided for cylinder UK0481. USEC's analysis determined that cylinder UK0481 meets or exceeds ANSI N14.1 requirements of a 48Y cylinder for all parameters except lifting lug material.

Since the cylinder documentation did not identify the lifting lug material type, USEC was unable to confirm that the lifting lugs meet ANSI N14.1 requirements. To compensate, USEC will use an alternate method of lifting the cylinder which uses bands that allow lifting without relying on the lifting lugs. USEC's procedures for overhead crane operation in the C-333A and C-337A buildings already provide for an alternate lifting method involving use of a special lifting fixture. The alternate lifting procedure was previously established for use in other cases where cylinder lifting lug reliability was uncertain.

USEC further states that cylinder UK0481 contains 25,046 lbs of UF6, which is less than the maximum fill limit of 27,030 lbs required by ANSI N14.1 to maintain a void volume of at least 5% at 250°F. Also, cylinder UK0481 has an as-built volume of 142.7 ft³, which exceeds the minimum volume of 140 ft³ required by ANSI N14.1. USEC calculated that the actual void volume of the cylinder will exceed 13% at 250°F and 15% at 235°F, which allows the cylinder to be heated as a Category A cylinder in accordance with TSR 2.2.4.4.

The staff finds USEC's analysis to be credible and acceptable, and, with the use of the compensatory alternate lifting method, concludes that cylinder UK0481 can be heated safely. The staff therefore considers USEC's proposal to heat cylinder UK0481 to be acceptable, provided USEC uses the alternate lifting procedure that does not rely on the cylinder's lifting lugs.

Cylinder UK0690

Cylinder UK0690 is a model 48Y cylinder that meets all ANSI N14.1 requirements except that the cylinder's volume is less than the minimum required for a 48Y cylinder, which is 142.7 ft³. Cylinder UK0690 has an as-built volume of 142.06 ft³. Based on the as-built volume, to maintain a 5% void space at a temperature of 250°F, the fill limit would be reduced from the normal limit of 27,560 lbs UF6 to a limit of 27,436 lbs UF6. USEC performed calculations using the as-built cylinder volume and actual weight of 26,792 lbs UF6 contained in the cylinder and determined that the actual void volumes would exceed 7% at 250°F and 8% at 235°F. Since the void volume would be greater than 5% at 235°F, USEC concludes that the cylinder could be safely heated as a Category A cylinder in accordance with TSR 2.2.4.4.

The staff finds USEC's analysis to be credible and acceptable, and, with the reduction in fill limit for the cylinder, concludes that cylinder UK0690 can be heated safely. The staff therefore considers USEC's proposal to heat cylinder UK0690 to be acceptable, and that the proposed changes to TSR 2.2, Appendix A, for both cylinders, are appropriate and consistent with the requirements of 10 CFR Part 76 and should be approved.

ENVIRONMENTAL REVIEW

Approval of this amendment is subject to the categorical exclusion provided in 10 CFR 51.22(c)(19) and will not have a significant impact on the human environment. Therefore, in accordance with 10 CFR 51.22(b), neither an environmental assessment nor an environmental impact statement is required for the proposed action.

CONCLUSION

Based on its review and evaluation of the information provided by USEC in its CAR, dated December 13, 2005, the NRC staff finds that the proposed revisions to Paducah TSR 2.2, Appendix A, are acceptable, are in compliance with the requirements of 10 CFR Part 76, and should be approved.

Principal Contributors:

Dan E. Martin
Billy Gleaves

