UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

May 5, 2004

Mr. J. Morris Brown
Vice President - Operations
United States Enrichment Corporation
Two Democracy Center
6903 Rockledge Drive
Bethesda, MD 20817

SUBJECT: NRC INSPECTION REPORT 07007002/2004-002 - PORTSMOUTH

Dear Mr. Brown:

On March 17-18 and April 15-16, 2004, the NRC observed portions of the preparation and processing of cylinders received from DOE containing uranium hexafluoride at the Portsmouth Gaseous Diffusion Plant. The purpose of the inspection was to determine whether activities authorized by the certificate were conducted safely and in accordance with NRC requirements. The NRC inspector discussed the findings with members of your staff on April 28, 2004.

This inspection consisted of an examination of activities conducted under your certificate as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your certificate. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities in progress, and interviews with personnel.

Based on the results of this inspection, the NRC did not identify any violations.

This also refers to your April 7, 2004, response to the Notice of Violation transmitted to you by our letter dated March 8, 2004, with Inspection Report 07007002/2004-001. We have reviewed your corrective actions for the violation and have no further questions at this time. Your corrective actions will be examined during future inspections.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Jay L. Henson, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

Docket No. 07007002
Certificate No. GDP-2

Enclosure: Inspection Report 07007002/2004-002

cc w/encl: P.D. Musser, General Manager
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R.B. Starkey, Paducah General Manager
S.A. Toelle, Director, Nuclear Regulatory Affairs, USEC
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R.J. Vranicar, Portsmouth Contracting Officer's Representative, DOE
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	07007002
Certificate No.:	GDP-2
Report No.:	07007002/2004-002
Facility Operator:	United States Enrichment Corporation
Facility Name:	Portsmouth Gaseous Diffusion Plant
Location:	Piketon, OH
Dates:	March 17-18 and April 15-16, 2004
Inspector:	Mary L. Thomas, Paducah Resident Inspector
Approved by:	Jay Henson, Chief Fuel Facility Inspection Branch 2 Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

United States Enrichment Corporation
Portsmouth Gaseous Diffusion Plant
NRC Inspection Report 07007002/2004-002

On March 17-18 and April 15-16, 2004, the NRC observed portions of the preparation and processing of cylinders received from DOE containing uranium hexafluoride.

Operations

The inspector observed portions of the preparation and processing of uranium hexafluoride from cylinders received from DOE in the Laboratory, Building X-710, and Building X-344. Transfer operation activities were conducted in accordance with written procedures. The appropriate nuclear criticality safety requirements were implemented for the activities observed. The laboratory and operations staff were alert and generally knowledgeable of the current status of equipment associated with their assigned facilities.

When questions arose regarding procedure adherence, the laboratory staff stopped, evaluated the situation, and revised their procedures as necessary. When a question arose regarding the sample withdrawn from an over-sized 30B cylinder in Building X-344, the operations and production support staff discussed revisions to their respective procedures to accommodate a longer sample time to ensure a large enough sample was obtained. One minor violation was identified regarding the presence of non-job related reading material at a watch station in Building X-344. (Paragraph 1)

Engineering

The inspector reviewed the recommendations of the engineering evaluations regarding the inspection and processing of the cylinders and identified no issues. Engineering provided appropriate measures to safely process the material using gas transfer and controlled feed techniques. (Paragraph 2)

Attachment:
Partial List of Persons Contacted
Inspection Procedures Used
List of Acronyms

REPORT DETAILS

1. Plant Operations

a. Conduct of Operations - Cylinder Transfer Activities

(1) Inspection Scope (88100)

The inspector observed portions of the preparation and processing of cylinders received from DOE containing uranium hexafluoride. In addition, the inspector reviewed the following documents:

- Laboratory Results of Cylinder Contents;
- PR-PTS-04-00793, NRC Inspector found Info Only procedure in lab area;
- PR-PTS-04-00801, Procedure compliance concern;
- PR-PTS-04-01116, Opportunity for improvement;
- PR-PTS-04-01123, Unauthorized reading material in X-344;
- PR-PTS-04-01125, Incorrect form used to document inspection and installation of sample cylinder;
- PR-PTS-04-01134, Control room activities;
- OMH02.01.15, "Controlled Transfer of UF_6 From Cylinders in X-344 [NSU] Nuclear Safety Upgrade Autoclaves," Revision 0;
- XP2-TS-TS5000, "Guidance for Handling Special Off-Specification U.S. Government Cylinders," Revisions 0 and 1;
- XP2-US-FO1201, "Control Room Activities," Revision 1;
- XP4-TE-UH2739, "Controlled Feeding, Transfer, and Sampling of 2.5 Ton U.S. Government Cylinder in X-344," Revision 0;
- XP4-TS-CY7648, "UF_6 Sampling and Transfer," Revision 2;
- XP4-TS-XU4400, "UF_6 Transfer from 1S, 2S, 990, and Miscellaneous Cylinders into a 5 inch Cylinder," Revision 3; and
- XP4-TS-XU4402, "Disposition of Overfilled UF_6 Cylinders," Revision 2.

(2) Observations and Findings

While observing laboratory personnel perform a cold pressure check of a 5A cylinder in the Laboratory, Building X-710, the inspectors noted that they were unable to obtain a

pressure that complied with the requirements of Procedure XP4-TS-XU4400 (between 28 and 30 inches Hg). Work was stopped and the procedure was revised to permit a cold pressure of less than or equal to 20 inches Hg. A second cold pressure reading was obtained to verify that the value met the revised acceptance criteria.

As the laboratory staff were weighing the cylinder, the inspector noted that the acceptance criteria for the net weight of a 5A cylinder, as given in the procedure, was less than 24,947 grams. The weight provided in documents provided by DOE indicated that it was overfilled by 53 grams. Because the tare weight of the cylinder was unknown, the inspector noted that the net weight could have exceeded the acceptance criteria and, therefore, required that the weight be reduced by gas phase evacuation using Procedure XP4–TS-XU4402, "Disposition of Overfilled and Damaged UF_6 Cylinders."

After some discussion with the inspector, the laboratory staff ensured that their procedural requirements were followed. The excess material from the cylinder was transferred to a cold trap and sampled for analysis. This cylinder was then moved to another area in the lab, and the remainder of the contents was transferred to an approved 5A cylinder. The transfer took several days to complete, and around-the-clock coverage was provided by laboratory personnel to monitor the operation.

On April 15, 2004, an over-sized 30B cylinder was connected for heat-up and controlled feeding inside Autoclave No. 1 in Building X-344. The contents were being transferred to ten-ton cylinder(s) to provide a better vacuum source and enhance the transfer rate. The estimated transfer time was at least two weeks.

The inspector determined that training module OMH02.01.15 was adequate to cover the requirements in Procedure XP4-TE-UH2739 and the radiation work permit requirements associated with this evolution. The operators were attentive during the crew briefing, were knowledgeable of the requirements of Procedure XP4-TE-UH2739, and were wearing the appropriate personal protective equipment for their assigned tasks.

The first sample was withdrawn into a 2S cylinder on the afternoon of April 16, 2004. Procedure XP4-TE-UH2739 allowed for a 20 minute sampling period, which resulted in a very small sample (52 grams) obtained. Since a 300 gram sample was needed, the certificatee staff appropriately stopped work to determine what revisions were necessary to Procedures XP4-TE-UH2739 and XP2-TS-TS5000 to ensure that the an adequate sample could be obtained.

The inspector identified a non-job related book at the desk used to monitor the autoclaves from outside of the contamination area using binoculars. The inspector discussed it with the Facility Operations Manager for the Building X-344, who believed that it was acceptable to allow operators to read non-job related materials at that station. However, during followup, the inspector reviewed Procedure XP2-US-FA1201 and determined that this activity met the requirement of a watch station and that non-job related materials were prohibited.

The inspector then discussed the issue with the Plant Manager, who agreed that the area was a watch station and that the non-job related material would be removed.

Problem Report PR-PTS-04-01134 was generated to document this issue, and a review of other areas was conducted. Since the incident was isolated and the operation was being adequately monitored, the violation of Procedure XP2-US-FA1201 was of minor safety significance and was not subject to formal enforcement action in accordance with Section IV of the NRC Enforcement Policy.

(3) Conclusions

The inspector observed portions of the preparation and processing of uranium hexafluoride from cylinders received from DOE in the Laboratory, Building X-710, and Building X-344. Transfer operation activities were conducted in accordance with written procedures. The appropriate nuclear criticality safety requirements were implemented for the activities observed. The laboratory and operations staff were alert and generally knowledgeable of the current status of equipment associated with their assigned facilities.

When questions arose regarding procedure adherence, the laboratory staff stopped, evaluated the situation, and revised their procedures as necessary. When a question arose regarding the sample withdrawn from an over-sized 30B cylinder in Building X-344, the operations and production support staff discussed revisions to their respective procedures to accommodate a longer sample time to ensure a large enough sample was obtained. One minor violation was identified regarding the presence of non-job related reading material at a watch station in Building X-344.

2. Engineering

a. Engineering Support of Facilities and Equipment

(1) Inspection Scope (88100)

The inspector reviewed engineering evaluations conducted to provide recommendations for inspecting and processing cylinders containing uranium hexafluoride received from DOE. The inspector reviewed the following documents:

- EVAL-MC-2004-0089, Engineering Evaluation for US Government 5A UF_6 Cylinders, Revision 0;
- EVAL-MC-2004-0092, Engineering Evaluation for US Government 8 Inch UF_6 Cylinder, Revision 0; and
- EVAL-MC-2004-0103, Engineering Evaluation for US Government 30B Cylinder, Revision 0.

(2) Observations and Findings

The cylinders were inspected by both engineering and quality control staff, who performed visual and dimensional inspections and ultrasonic testing of the cylinder walls. In addition, the cylinder contents were analyzed using non-destructive assay and

gas-over-solid sampling techniques. The inspection results were compared with the data available in American National Standards Institute N14.1, “Uranium Hexafluoride Packaging for Transport.” Because verifiable tare weights were not available for these cylinders, engineering recommended that the cylinders be considered “non-standard” and their contents removed using gas transfer or controlled feed techniques, as applicable.

(3) Conclusion

The inspector reviewed the recommendations of the engineering evaluations regarding the inspection and processing of the cylinders and identified no issues. Engineering provided appropriate measures to safely process the material using gas transfer and controlled feed techniques.

3. Exit Meeting Summary

The inspector presented the inspection results to members of the facility management on April 28, 2004. The inspector asked the certificatee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

(1) PARTIAL LIST OF PERSONS CONTACTED

United States Enrichment Corporation

P. Musser, General Manager
*S. Fout, Plant Manager
*T. Brooks, Nuclear Regulatory Affairs Manager
*R. Bouts, Training Manager
*R. Bussa, Uranium Material Handling Front Line Manager
*M. Conkel, Maintenance Manager
*D. Fogel, Nuclear Regulatory Affairs
*D. Fosson, Operations Manager
*G. Jones, X-340 Group Manager
*R. Lawton, Nuclear Safety and Quality Manager
*T. Taulbee, Radiation Protection Manager
*K. Whittle, X-344 Section Manager
*G. Workman, Production Support Manager

* Denotes those present at the exit meeting on April 28, 2004.

2. INSPECTION PROCEDURES USED

IP 88100	Plant Operations

3. LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
DOE	Department of Energy
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PDR	Public Document Room
PORTS	Portsmouth Gaseous Diffusion Plant
PR-PTS	Problem Report - Portsmouth
UF_6	Uranium Hexafluoride
USEC	United States Enrichment Corporation