

March 12, 2001

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

SUBJECT: NRC INSPECTION REPORT NO. 70-7001/2001-003(DNMS) (PADUCAH)  
AND NOTICE OF VIOLATION

Dear Mr. Brown:

On February 20, 2001, the NRC completed a routine resident inspection at your Paducah 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. At the conclusion of the inspection, the inspectors discussed the findings with members of your staff.

Areas examined during the six week inspection period are identified in the report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with personnel, and observations of activities in progress.

Based on the results of the inspection, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding the violation are described in detail in the enclosed report. The violation is of concern because your staff showed a lack of sensitivity for maintaining a nuclear criticality safety requirement applicable to surge drums.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, the enclosures, and your response to 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 (ADAMS)*. *ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html>* (the Public Electronic Reading Room).

J. Brown

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

Sincerely,  
*/RA/*

Monte P. Phillips, Acting Chief  
Fuel Cycle Branch

Docket No. 70-7001  
Certificate No. GDP-1

- Enclosures:
1. Notice of Violation
  2. Inspection Report No. 70-7001/2001-003(DNMS)

cc w/encl:

- H. Pulley, Paducah General Manager
- L. L. Jackson, Paducah Regulatory Affairs Manager
- P. D. Musser, Portsmouth General Manager
- S. A. Toelle, Director, Nuclear Regulatory Affairs, USEC
- Paducah Resident Inspector Office
- Portsmouth Resident Inspector Office
- R. M. DeVault, Regulatory Oversight Manager, DOE
- W. D. Seaborg, Paducah Site Manager, DOE
- J. Volpe, State Liaison Officer

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- J. L. Caldwell, RIII w/encl
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## NOTICE OF VIOLATION

United States Enrichment Corporation  
Paducah Gaseous Diffusion Plant

Docket No. 70-07001  
Certificate No. GDP-1

During an NRC routine inspection conducted from January 9 through February 20, 2001, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," Revision 1, the violation is listed below:

Technical Safety Requirement 3.9.1 requires, in part, that written procedures shall be prepared, reviewed, approved, and implemented and maintained to cover the activities described in Safety Analysis Report Section 6.11.4.1 and as listed in Appendix A to Safety Analysis Report Section 6.11.

Appendix A to Safety Analysis Report Section 6.11 identifies operations and nuclear criticality safety as activities requiring an administrative procedure.

Procedure CP4-CO-CN2007, "Operation of Surge Drums," Revision 7, dated October 6, 2000, governed operations of the surge drums and implemented the associated nuclear criticality safety requirements. Step 8.2.1.B of this procedure required the operator to maintain a minimum temperature of 116° F while the drum was in service. Step 8.2.1.E of the procedure required the operator to take action to transfer the surge drum material before reaching the limit if at any time it is determined that the minimum 116° F temperature limit is not or will not be maintained.

Contrary to the above on December 20, 2000, plant staff did not maintain a minimum temperature of 116° F while the E and F surge drums were in service nor did the staff take action to transfer the surge drum material before reaching the limit when for several days prior to the temperature falling below 116° F, abnormally low operating temperature in the E and F surge drum rooms in Building C-331 were observed.

This is a Severity Level IV violation (Supplement VI). **(VIO 70-7001/2001003-01)**

Pursuant to the provisions of 10 CFR 76.70, United States Enrichment Corporation is hereby required to submit a written statement or explanation in reply to the violation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator, Region III, and a copy to the NRC Resident Inspector at Paducah, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). Your reply to the violation should be clearly marked as a "Reply to a Notice of Violation" and should include for the violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an Order or a Demand for Information may be issued as to why the Certificate should not be modified, suspended, or revoked, or why such other action, as may be proper, should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (for example, explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 12<sup>th</sup> day of March 2001

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 70-7001  
Certificate No: GDP-1

Report No: 70-7001/2001-003(DNMS)

Licensee: United States Enrichment Corporation

Facilities: Paducah Gaseous Diffusion Plant

Location: 5600 Hobbs Road  
P.O. Box 1410  
Paducah, KY 42001

Dates: January 9, through February 20, 2001

Inspectors: C. A. Blanchard, Senior Resident Inspector  
D. C. Morey, Nuclear Criticality Inspector  
M. L. Thomas, Fuel Cycle Inspector

Approved By: Patrick L. Hiland, Chief  
Fuel Cycle Branch  
Division of Nuclear Materials Safety

## EXECUTIVE SUMMARY

### United States Enrichment Corporation Paducah Gaseous Diffusion Plant NRC Inspection Report 70-7001/2001-003(DNMS)

#### Plant Operations

- The inspectors reviewed the Nuclear Criticality Safety Analysis/Evaluations (NCSA/Es) NCSA/Es for Buildings C-310, C-331, C-400, C-710, and C-720 associated with High Assay Upgrade Project (HAUP). The inspectors did not identify any safety concerns during the review. The facilities and equipment reviewed can be safely operated at enrichments to 5.5 weight percent uranium-235. (Section O1.1)
- The inspectors identified that plant staff failed to prevent temperatures in the E and F surge drum rooms of Building C-331 from falling below the NCSA limit in violation of procedure CP4-CO-CN2007. Since the violation could have been prevented had adequate corrective actions been taken for the June 28 identical event, this certificatee-identified violation is being cited. (Section O4.1)

#### Maintenance

- The inspectors concluded that plant staff performed required maintenance and surveillance testing activities in accordance with the appropriate procedures. (Section M1.1)

#### Engineering

- The inspectors concluded that engineering was implementing a program that had the potential to systematically improve the material condition of plant systems. (Section E2.1)

#### Plant Support

- The inspectors concluded that plant staff effectively implemented the radioactive materials transportation program during the preparation for shipment of low-level waste. (Section A1.1)
- The inspectors noted that plant staff actions were effective and consistent with the guidance provided in the alarm response, off-normal, and emergency procedures for a chlorine tri-fluoride release. (Section P1.1)

## Report Details

### I. Operations

#### **O1 Conduct of Operations**

##### **O1.1 Review of High-Assay Upgrade Project (HAUP)**

###### **a. Inspection Scope (88015 and 88100)**

The inspectors reviewed plant staff's preparations for the HAUP. The inspectors also reviewed readiness in the following areas for which license review had been completed:

- NCSE 3971-28, Operation and Maintenance of the Datum Systems and Associated Pressure Instrumentation;
- NCSE 1493-33, Sample Characterization in C-710;
- NCSE 331-001, Operation and Maintenance of the C-331 Instrument Shop Facility;
- NCSE GPS-11, General Machining;
- NCSE 3973-10-14, Relocation and Storage of Two 16" Sodium Fluoride Traps found in the C-400 Receiving Booth;
- NCSE CAS-005, Cascade Surge Drums;
- NCSE 310-004, Product Withdrawal System
- NCSE 3971-07, Operation and Maintenance of the C-310 Tops Purge Trapping System; and
- NCSE 710-005, C-710 Drain and C-712 Neutralization Pit

###### **b. Observations and Findings**

#### **Building C-331**

The inspectors observed the surge drum rooms in Building C-331 and determined that Nuclear Criticality Safety Analysis (NCSA) controls for these operations were adequate to assure criticality safety at operations with 5.5 weight percent (wt%) uranium-235 (<sup>235</sup>U). The inspectors noted that two events occurred (one in June 2000 and the other in December 2000) involving failure to implement the NCSA controls for the surge drums. The recurrence of the event revealed a weakness in addressing the issues that had resulted in the first event. Specifically, the plant failed to adequately flow down action limits for room temperature into procedures and failed to adequately train operators to understand their immediate actions to address falling room temperatures. The surge drum rooms were a dominant risk in cascade operations and maintaining room temperature was a dominant control.

The inspectors examined the instrument shop facilities in Building C-331 that were used to clean and refurbish pumps, valves, instruments, and instrument carts. The inspectors reviewed the dominant NCSA controls, which consist of administrative controls on handling fissile material, contaminated waste, and waste oil in the instrument shop, and determined that NCSA controls in place for these operations were adequate to assure criticality safety at operations with 5.5 wt% <sup>235</sup>U. The inspectors observed operation and reviewed maintenance records for the datum system pumps in Building C-331. The dominant controls on the datum system pumps were administrative controls on handling

fissile material, contaminated waste, and waste oil, along with batch limits on associated instruments during maintenance. The inspectors determined that NCSA controls in place for datum pump operation and maintenance were adequate to assure criticality safety at operations with 5.5 wt% <sup>235</sup>U.

### **Building C-400**

The inspectors examined the storage of two 16" sodium fluoride traps during a walkdown of Building C-400. The two traps were not expected to be exposed to the higher assay at their current location. The inspectors determined that no change to the NCSA was required as a result of HAUP and that the NCSA controls in place for these operations were adequate to assure criticality safety at operations with 5.5 wt% <sup>235</sup>U.

### **Building C-720**

The inspectors observed activities in Building C-720, including general machining operations. The inspectors determined that no changes to NCSA controls were required for these operations. The inspectors identified the dominant controls for general machining operations, which were administrative controls on fissile waste and waste oil generation. The inspectors determined that NCSA controls in place for these operations were adequate to ensure criticality safety at operations with 5.5 wt% <sup>235</sup>U.

### **Building C-310**

The inspectors observed the top purge trapping system during a walkdown of Building C-310 and determined that no changes to NCSA controls were required for these operations. The inspectors identified that the dominant Nuclear Criticality Safety (NCS) controls for top purge trapping operations consisted of administrative requirements for the controlled area around the traps, and administrative controls on fissile waste generation for maintenance. The inspectors determined that NCSA controls in place for these operations were adequate to ensure criticality safety at operations with 5.5 wt% <sup>235</sup>U. The inspectors observed product withdrawal operations during a walkdown at Building C-310 and determined that only a minor change in the control of containers was required for HAUP operations. The inspectors reviewed the dominant controls on withdrawal operations. These consisted of a series of engineered and administrative controls on liquid uranium hexafluoride (UF<sub>6</sub>) transfer and on maintenance. In the latter case, the controls were administrative to constrain fissile waste generation. The inspectors determined that NCSA controls in place for these operations were adequate to assure criticality safety at operations with 5.5 wt% <sup>235</sup>U.

### **Building C-710**

The inspectors observed activities being performed in Building C-710, including sample characterization activities. The inspectors identified that sample characterization activities were actually an NCS control on cascade operations designed to guarantee sample independence. The inspectors determined that the characterization activities were not affected by changes in assay. The inspectors determined that sample characterization operations were adequate to assure criticality safety for cascade operations at 5.5 wt% <sup>235</sup>U. The inspectors observed the C-710 Drain and C-712 Neutralization Pit operations during a walkdown of Building C-710 and noted that the NCSA had been recently revised to correct weak analysis of the process. The NCSA

also included new controls consisting of material logs and credit for the use of newly-installed flowmeters. The inspectors determined that the new NCSA controls in place for the drain and neutralization activities were adequate to ensure criticality safety at operations with 5.5 wt% <sup>235</sup>U.

### Conclusions

No safety concerns were identified by the inspectors during review of select NCSA/Es for Buildings C-310, C-331, C-400, C-710, and C-720 associated with HAUP. The facilities and equipment reviewed can be safely operated at enrichments to 5.5 wt% <sup>235</sup>U.

## **04 Operator Knowledge and Performance**

### 04.1 Review of Surge Drum Room Operations

#### a. Scope of Inspection (88100 and 88102)

The inspectors reviewed conditions that lead to the recurrence of an event involving the reduction of temperature in a surge drum room in Building C-331 to less than the NCSA required safety limit.

#### b. Observations and Findings

On December 20, 2000, operators in Building C-331 discovered that the temperature in the E and F surge drum room had dropped to 115 degrees Fahrenheit (°F) which is less than the NCSA required safety limit of 116° F. The NCSA requirement was based on the prevention of formation of liquid HF in the drums, which could moderate the fissile material in the drums. The drums have a volume of approximately 2000 cubic feet (ft<sup>3</sup>) and were, therefore, considered unsafe geometry. Plant staff used the surge drums to accommodate inventory increases that might otherwise create an abnormal movement of process gas through the cascade. Dominant NCS controls for the surge drums consisted of limiting the temperature and pressure inside the drums. The NCSA credited operator action to maintain the temperature and pressure within the surge drums. These actions were incorporated into procedure CP4-CO-CN2007, "Operation of Surge Drums." Step 8.2.1.B.2 of the procedure required the operator to maintain temperature equal to or greater than 116° F while the drum was in service. Similarly, Step 8.2.1.E of the procedure required the operator to take action to transfer the surge drum material before reaching the limit if at any time it is determined that the minimum 116° F temperature limit is not or will not be maintained.

As documented in Inspection Report (IR) 2001-001, the inspectors determined that the operators did not clearly understand the action limit in the operating procedure and did not take immediate actions to empty the surge drums until the room temperature had fallen below the NCSA safety limit. Additionally, the inspectors determined that a contributing factor to the event was that three of the four electric heaters in the room were degraded, making it difficult to maintain the required temperature in the surge drum room against a reduced ambient building temperature. Plant staff's immediate action to the December event included emptying the surge drums, repairing the electric heaters, and installing temporary heaters.

The inspectors determined that this was a recurrence of a previous unplanned reduction in the surge drum room temperature that had occurred on June 28, 2000. The previous surge drum temperature event was discussed in Inspection Report No. 2000-202 and was characterized as a Non-Cited Violation (NCV 2000-202-01). As a result of the June 2000 event, the certificatee committed to perform a human factors evaluation. The corrective actions implemented by the certificatee as a result of that evaluation were as follows:

- installed a safety related item door closures system to surge drum room doors;
- added a requirement to the NCS posting for the surge drum room door to remain closed; and
- placed a posting on the surge drum room door requiring the door to remain closed;

The inspectors determined that while the above three actions were implemented, the evaluation failed to address whether the NCSA controls were adequately understood and implemented by operational staff to preclude the reoccurrence of a surge drum room temperature violation. Operators apparently did not understand their role in implementing the NCSA controls based on the fact that for several days prior to the December 20, 2000 NCS violation, operational staff failed to take action to address the abnormally low operating temperature in the E and F surge drum room in Building C-331. The failure of operators to implement the requirements of Procedure CP4-CO-CN2007 is a violation **Violation (VIO) 2001003-01**.

In discussion with the inspectors, plant management explained that the appropriate actions to address this abnormally low operating temperature should have included efforts to re-prioritize the repair of the inoperable surge room heaters, installing additional temporary heaters, increasing operational surveillance frequencies, or transferring the product in the E and F surge drums to another surge drum. The inspectors determined that the December 20, 2000, event should not have occurred if corrective actions had been sufficiently comprehensive for the June 28, 2000, event. Since the violation could reasonably have been prevented had adequate corrective actions been taken for the June 28 event, it does not meet the criteria for a non-cited violation.

c. Conclusions

The inspectors identified that plant staff failed to prevent temperatures in the E and F surge drum rooms of Building C-331 from falling below the NCSA limit in violation of procedure CP4-CO-CN2007. Since the violation could have been prevented had adequate corrective actions been taken for the June 28 identical event, the violation is being cited.

## **O8 Miscellaneous Operations Issues**

### **O8.01 Certificatee Event Reports**

The certificatee made the following operations-related event reports during the inspection period. The inspectors reviewed any immediate safety concerns indicated at

the time of the initial verbal notification. In the case of retracted notifications, the inspectors reviewed the basis for the certificatee's retraction of the notification at the time of the retraction. The inspectors will evaluate the associated written report for each of the events following submittal.

<u>Number</u>	<u>Status</u>	<u>Title</u>
37711	Open	Two Criticality Accident Alarm System pneumatic horns for Building C-337-A failed to sound properly during testing. The two horns were replaced and satisfactorily tested.
37758	Open	Safety system failure in Building C-315. While closing the cylinder valve on a full liquid cylinder, the valve failed to close completely when a shear pin broke on the emergency cylinder valve closure mechanism.

O8.02 Bulletin 91-01 Reports

No reports this period.

O8.03 (Closed) IFI 2000009-01: This item tracked completion of cutting and capping the Cold Trapping System at C-360. The inspectors observed the activities at Building C-360 and evaluated one of the capped transfer lines. The inspector determined that all cutting and capping of the Cold Trapping System was complete. This item is closed.

O8.04 (Discussed) IFI 2000009-03: This item tracked completion of modifications to the seal exhaust and wet air station in Building C-333. The inspectors determined that the plant will not be making the complete seal exhaust and wet air modification in Building C-333 due to the low assay that the building will see subsequent to the assay upgrade. Some minor NCS related modifications are underway which will need to be completed prior to HAUP operations. This item remains open.

O8.05 (Discussed) IFI 2000009-04: This item tracked completion of equipment installation in Building C-409. The inspectors determined that all equipment was installed with the exception of transfer piping between Building C-409 and C-400. This item remains open.

O8.06 (Closed) VIO 97014-01: Failure to maintain moderation control when deposits of uranyl oxyfluoride exceeded the safe mass in the process gas cooler. Plant staff incorporated into the appropriate procedures the requirements to perform an independent review of calculations associated with quantification of deposit mass related to technical safety requirements (TSR) 2.4.4.4, "Cascade Wet Air Inleakage." In addition, the inspectors noted that Procedure CP4-CO-ON3045, "Handling and Tracking Uranium Deposits," was developed and implemented to provide clear guidance to address potential deposits of uranyl oxyfluoride. This violation is closed.

## II. Maintenance

### **M1 Conduct of Maintenance**

#### M1.1 Maintenance and Testing

##### a. Inspection Scope (88025)

The inspectors evaluated the maintenance staff's performance of the following activities: TSR criticality accident alarm system (CAAS) cluster tests in Building C-331; a seal replacement on Cell 2 Unit 2 in Building C-331; and surveillance of the Process Gas Leak Detection (PGLD) system in Building C-333.

##### b. Observations and Findings

The inspectors observed the CAAS cluster testing in Building C-331. This testing is required to be performed quarterly per TSR 2.4.4.2b-2. Instrument mechanics had the correct procedure in hand, CP4-GP-IM6511, "C-331 CAAS Maintenance and Testing," Revision 0. The instrument mechanics were in constant radio contact with the cascade coordinator in Building C-300. With one exception, the test was performed as specified in the procedure. The exception involved one example where the mechanic performing the test held down the left and right test buttons, rather than the right and center test buttons. The inspectors discussed this with the mechanics' supervisor who requested the mechanics to repeat the steps in the order described in the procedure. There were no consequences to this procedural sequence error.

The inspectors observed the seal change out on Cell 2 Unit 2 in Building C-331. No deficiencies were noted. The mechanics properly replaced the monorail that they had originally brought to the job site when they realized that it did not have safety chains attached to it. The seal was adequately controlled during this maintenance activity.

The inspectors observed the performance of the PGLD leak detection surveillance in Building C-333. This surveillance was performed in accordance with procedure CP4-CO-CN6020t, Revision 7, "TSR Surveillance - Test firing of PYR-A-LARM Type 1, High Voltage UF<sub>6</sub> Detection System in C-331/333/335/337." The operators followed each step of the procedure, and took appropriate actions (made a notation in the log, initiated an Assessment and Tracking Report and notified the appropriate individuals) when a leak detector failed to meet the test requirements. Additionally, the inspectors noted that the communications between the local control center and area control room were in accordance with the site's ongoing human performance enhancement program. The inspector did not identify any communication errors.

##### c. Conclusions

The inspectors concluded that plant staff performed required maintenance and surveillance testing activities in accordance with the appropriate procedures.

### III. Engineering

#### **E2 Engineering Support of Facilities and Equipment**

##### **E2.1 Review of System Health Report Program**

###### **a. Inspection Scope (88100 and 88103)**

The inspectors reviewed plant staff's methods to identify, develop trends, and impose action to improve plant safety through improvements in system reliability.

###### **b. Observation and Findings**

The inspectors reviewed the recently-initiated "System Health Report Program." In discussions with the inspectors, the System Engineering Manager stated that the purpose of the program was to focus management's attention on maintaining and improving the performance of plant systems, equipment, and components in the areas of safety, reliability, and availability. The inspectors observed several system engineers communicate their cognizant systems health report during the daily communication and teamwork (DC & T) meeting. Plant managers from every functional area of the plant attend the meeting to gain insight on the status of the safety, productivity, and maintenance (including projects being implemented) for each system. In compliance with the draft guidance for the System Health Report Program, the inspectors observed system engineers address the following issues during the DC & T meetings during the inspection period:

- system functional summary that briefly described the primary function of the system and what changes to the system had been made since the last report;
- the material condition of the system to meet operability requirements (capacity and reliability); and
- performance indicators that address if the system's performance is improving, neutral, or degrading.

The system material condition and performance was communicated by a visual chart that relayed the system's material condition and performance as either green, yellow, white, or red. The color coded indicators were based on an established criteria for material condition and performance. The inspectors noted that following each system health report, management would take the appropriate action to address substandard system conditions or declining performance.

The inspectors reviewed the method used by system engineers to assess the material condition and performance of cognizant systems. In discussion with the inspectors, engineering staff stated that the information used to characterize a system's performance included the following: 1) adherence to the preventive maintenance and TSR surveillance programs; 2) availability of the system; 3) number of ATR identifying system issues; and 4) insights gained through the review of operational logbooks and discussion with cognizant operational staff. In accordance with the draft system health report program, the system engineers compiled system information and used the established criteria to rate the system's performance and material condition.

c. Conclusions

The inspectors concluded that engineering was implementing a program that had the potential to systematically improve the material condition of plant systems.

**E8. Miscellaneous Engineering**

- E8.1 (Closed) Violation 97007-06: Failure to evaluate the safety impact of decreasing the procedural test requirements as specified in the engineering specifications. Plant staff reviewed the revised test criteria and documented an evaluation of the engineering basis for changes to the acceptance criteria in accordance with 10 CFR 76.68. The Plant Operations Review Committee reviewed and approved the revised test procedures and review documentation. The requirements for handling changes to test plans and lessons learned from this event were communicated to the design engineering personnel. The inspectors have noted that engineering personnel were performing the required evaluations to assess the safety impact of test procedural changes. This violation is closed.
- E8.2 (Closed) Violation 97007-07: Failure to properly review and control modification work instructions for autoclave modifications. Plant staff revised the procedures for developing maintenance work packages to clearly define requirements of 10 CFR 76.68. The inspectors have noted that select maintenance work packages reviewed were developed in accordance with procedural requirements. This violation is closed.

**IV. Plant Support**

**A1 Conduct of Transportation Activities**

A1.1 Observation of Radioactive Material Shipments

a. Inspection Scope (86740)

The inspectors observed the receipt and shipment of 10-ton UF<sub>6</sub> cylinders in Type AF protective packages and reviewed associated records.

b. Observations and Findings

On January 10, the inspectors observed the receipt and shipment of 10-ton cylinders in Type AF protective packages. The inspectors determined that the Type AF protective packages were inspected and that the results were documented as required by 10 CFR Part 71 and Department of Transportation (DOT) regulations. The inspectors also observed that the 10-ton cylinders were appropriately surveyed for radioactivity, labeled, and secured for shipment in the Type AF protective packages as required by 10 CFR Part 71 and DOT regulations. The inspectors verified that the shipping papers contained the bill of lading with the correct identification of container contents, shipper certification, and emergency response information as required by DOT regulations. One problem was noted with the net weights of the cylinders on the bills of lading. At the time the bills were prepared only the pre-sample weight data was available in the computer versus the post sample weight data, which is necessary for shipment. This

problem was resolved as part of the routine process before shipping the cylinders offsite. Plant staff receiving the incoming shipment and preparing the outgoing shipment were knowledgeable of the transportation requirements.

c. Conclusions

The inspectors concluded that plant staff effectively implemented the radioactive materials transportation program during receipt and shipment of 10-ton cylinders in Type AF protective packages.

**P1 Conduct of Emergency Preparedness Activities**

P1.1 Conduct of Emergency Preparedness Activities

a. Inspection Scope (88050)

Inspectors observed plant staff's response to a minor chlorine tri-fluoride (ClF<sub>3</sub>) alarm in Building C-350.

b. Observations and Findings

The inspectors observed plant staff's response to a ClF<sub>3</sub> alarm at Building C-350. Fire department personnel were promptly dispatched, and appropriate precautions (SCBA usage, working from upwind locations, etc.) were taken by personnel dispatched to enter the building and sample for ClF<sub>3</sub>. The all clear was sounded after samples were taken that showed that the alarm was spurious.

c. Conclusions

The inspectors noted that plant staff actions were effective and consistent with the guidance provided in the alarm response, off-normal, and emergency procedures for a ClF<sub>3</sub> release.

**S8 Miscellaneous Security Issues**

S8.1 Certificatee Security Reports (90712)

The certificatee made the following security-related 24 hour loggable reports pursuant to 10 CFR 95 during the inspection period. The inspectors reviewed any immediate security concerns associated with the reports at the time of the initial verbal notification.

<u>Date</u>	<u>Title</u>
2/2/01	Classified material was left unprotected in a process building for several days. Material was not readily apparent as being classified.
2/2/01	Classified information had been generated in electronic form on a stand-alone computer. The computer was subsequently secured and will be sanitized.

## **X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of the certificatee's staff and management at the conclusion of the inspection on February 20, 2001. The certificatee staff present for the exit meeting acknowledged the findings. The inspectors asked the certificatee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

### **PARTIAL LIST OF PERSONS CONTACTED**

#### United States Enrichment Corporation

- \*H. Pulley, General Manager
- \*M. A. Buckner, Operations Manager
- \*L. L. Jackson, Nuclear Regulatory Affairs Manager
- \*J. A. Labarraque, Safety, Safeguards and Quality Manager
- \*S. R. Penrod, Enrichment Plant Manager
- \*R. Helme, Director of Engineering
- \*K. Ahern, Engineering Manager
- \*R. Starkey, Training Manager
- \*J. Whittman, Work Control Manager
- \*T. Canterbury, Maintenance Manager
- \*P. Jenny, Plant Services Manager
- \*M. Mack, Cascade Operations Manager

#### United States Department of Energy

W. D. Seaborg, Paducah Site Manager

#### U.S. Nuclear Regulatory Commission

- \*C. A. Blanchard, Senior Resident Inspector
- \*D. C. Morey, Nuclear Criticality Inspector, NMSS

\*Denotes those present at the exit meeting on February 20, 2001.

Other members of the plant staff were also contacted during the inspection period.

### **INSPECTION PROCEDURES USED**

- IP 86740: Transportation of Radiological Materials
- IP 88015: Criticality Control
- IP 88050: Emergency Preparedness
- IP 88100: Plant Operations
- IP 88102: Surveillance Observations
- IP 88103: Maintenance Observations
- IP 90712: In-office Review of Events

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

70-7001/2001003-01	NOV	Failure to ensure temperatures maintained to prevent violation of NCSA requirement in a surge drum room in Building C-331.
37711	CER	Two Criticality Accident Alarm System pneumatic horns for Building C-337-A failed to sound properly during testing.
37758	CER	Safety System failure in Building C-315.

### Closed

70-7001/2000009-01	IFI	Cutting and capping the Cold Trapping System at Building C-360.
70-7001/97007-06	NOV	Changed test acceptance criteria without evaluation.
70-7001/97007-07	NOV	Failure to properly review and control modification work instruction.
70-7001/97014-01	NOV	Failure to perform shiftly surveillances of recirculating cooling water pressure for planned expeditious handling deposits.

### Discussed

70-7001/2000009-03	IFI	Modification to the seal exhaust and wet air station in Building C-333.
70-7001/2000009-04	IFI	Equipment installation in Building C-409.

## LIST OF ACRONYMS USED

<sup>235</sup> U	uranium-235
AQ	Augmented Quality
ATR	Assessment and Tracking Report
CAAS	Criticality Accident Alarm System
CFR	Code of Federal Regulations
ClF <sub>3</sub>	Chlorine Tri-Fluoride
DC & T	Daily Communication & Teamwork
DOT	Department of Transportation
F/S	Freezer/Sublimers
ft <sup>3</sup>	Cubic Feet
HAUP	High Assay Upgrade Project
IR	Inspection Report
LCC	Local Control Center
NCS	Nuclear Criticality Safety
NCSA/E	Nuclear Criticality Safety Analysis/Evaluation
NCV	Non-cited Violation
NMSS	Nuclear Materials Safety and Safeguards
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
° F	Degrees Fahrenheit
PGLD	Process Gas Leak Detection
TSR	Technical Safety Requirement
UF <sub>6</sub>	Uranium Hexafluoride
USEC	United States Enrichment Corporation