**UNITED STATES**
**NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

February 11, 2011

Mr. Robert Van Namen
Senior Vice President
USEC
Uranium Enrichment
Two Democracy Center
6903 Rockledge Drive
Bethesda, MD 20817

SUBJECT: NOTICE OF VIOLATION AND NRC INTEGRATED INSPECTION REPORTS NO. 70-7001/2010-004 AND 70-7001/2010-005

Dear Mr. Van Namen:

This letter refers to the results of the above-referenced Nuclear Regulatory Commission (NRC) inspection conducted at your Paducah facility from October 1 – December 31, 2010. The purpose of the inspection was to determine whether activities authorized by the certificate were conducted safely and in accordance with NRC requirements. At a meeting held on January 14, 2011, the NRC inspectors discussed the findings of the enclosed report with members of your staff.

This letter also documents the administrative closure of Inspection Report (IR) 70-7001/2010-005. Inspection hours were linked to this report, but the results of the inspection were actually documented in IR 70-7001/2010-003.

The inspection documented in IR 70-7001/2010-004 was an examination of activities conducted under your certificate of compliance as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

The NRC has determined that one Severity Level IV violation of NRC requirements occurred based on the results of this inspection. This violation was evaluated in accordance with the NRC Enforcement Policy on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are in the subject inspection report.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html http://www.nrc.gov/reading-rm/adams.html.

Should you have any questions concerning this inspection, please contact us.

Sincerely,

***/RA/***

Joselito O. Calle, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

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

Enclosures:
1. Notice of Violation
2. NRC Inspection Report No. 70-7001/2010-004

cc w/encls:
Steve Penrod, Vice President & General Manager
Paducah Gaseous Diffusion Plant
United States Enrichment Corporation
Electronic Mail Distribution

Jim Lewis, Plant Manager
Paducah Gaseous Diffusion Plant
United States Enrichment Corporation
Electronic Mail Distribution

cc w/encls: (Cont'd on page 3)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: X Yes ACCESSION NUMBER:__ML110420336 X SUNSI REVIEW COMPLETE

| OFFICE | RII:DFFI | RII:DFFI | RII:DFFI | RII:DFFI | RII:DFFI | RII:DFFI | RII:DFFI |
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| SIGNATURE | Via e-mail | /RA by RR via email/ | /RA by OL/ | /RA by RG/ | /RA by JP/ | /RA by DH for LP/ | /RA by DH for RP/ |
| NAME | MMiller | RRussell | OLopez | RGibson | JPelchat | LPitts | RPrince |
| DATE | 2/ /2011 | 2/10/2011 | 2/10/2011 | 2/10/2011 | 2/10/2011 | 2/10/2011 | 2/10/2011 |
| E-MAIL COPY? | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO |

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| SIGNATURE | /RA by PS/ | | | | | | |
| NAME | PStartz | | | | | | |
| DATE | 2/10/2011 | | 2/ /2011 | 2/ /2011 | 2/ /2011 | 2/ /2011 | 2/ /2011 |
| E-MAIL COPY? | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO |

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DNMSII\FFBII\REPORTS\DRAFT INSPECTION REPORT FOLDER\PADUCAH\IR 2010-004 AND 2010-005 LETTER.DOCX

(cc w/encls: cont'd)
Vernon Shanks, Manager, Nuclear Regulatory Affairs
Paducah Gaseous Diffusion Plant
United States Enrichment Corporation
Electronic Mail Distribution

Mark Keef, General Manager
Portsmouth Gaseous Diffusion Plant
United States Enrichment Corporation
Electronic Mail Distribution

Steve A. Toelle, Director Regulatory Affairs
United States Enrichment Corporation
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R. M. DeVault, Manager Regulatory Oversight
Department of Energy
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G. A. Newtown
Paducah Site Office
Department of Energy
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Dewey Crawford, Manager Radiation Health Branch
Cabinet for Health and Family Services
275 East Main Street
Mail Stop HS-1CA
Frankfort, KY 40601-0001

Letter to Mr. Robert Van Namen from Joselito Calle dated February 11, 2011.

Subject: NOTICE OF VIOLATION AND NRC INTEGRATED INSPECTION REPORTS NO. 70-7001/2010-004 and 70-7001/2010-005

Distribution w/encls:
T. Hiltz, NMSS
J. Calle, RII
T. Liu, NMSS
D. Hartland, RII
M. Miller, RII
R. Russell, RII

NOTICE OF VIOLATION

USEC-PGDP
Paducah, Kentucky

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

During an NRC inspection conducted from October 1 – December 31, 2010, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> Technical Safety Requirement 3.19, "Operations," states, in part, that an Operations Program shall be established, implemented, and maintained as described in Safety Analysis Report (SAR) Section 6.5 and shall address operator aids and system labeling.
>
> Safety Analysis Report Section 6.5.5, "Operations Procedures and Operator Aids and System Labeling," states, in part, "Major equipment and piping systems are labeled. These labels aid personnel in identifying specific equipment and systems in the field."
>
> Operations Procedure CP2-PO-PO1036, "Equipment and Pipe Labeling for Human Error Reduction," Revision 0, "Note" on page 6 states, in part, "if a component meets the definition of critical equipment it should be labeled." Paragraph 3.1.B defines critical equipment, in part, as "equipment that if misoperated can create a significant safety hazard."
>
> Contrary to the above, as of January 13, 2010, the licensee failed to correctly label critical equipment, specifically Circuit Breaker 8 in Lighting Panel 6-LN-B, which created a significant safety hazard with the inadvertent de-energization of the B-booster Process Leak Detection System.

This was a Severity Level IV violation. (Supplement VI)

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken to correct the violation and identify the extent of condition and the date when full compliance was achieved was already adequately addressed on the docket in your final written event report dated March 11, 2010, for Event Number 45629. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation, VIO-07007001/2010-004-01" and send it to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S., Nuclear Regulatory Commission, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

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

Dated this 11th day of February, 2011

U.S. NUCLEAR REGULATORY COMMISSION
REGION II

| | |
|---|---|
| Docket No.: | 70-7001 |
| Certificate No.: | GDP-1 |
| Report No.: | 70-7001/2010-004 |
| Certificate Holder: | USEC-PGDP |
| Facility: | Paducah Gaseous Diffusion Plant |
| Location: | Kevil, KY 42053 |
| Dates: | October 1 – December 31, 2010 |
| Inspectors: | M. Miller, Senior Resident Inspector<br>R. Russell, Resident Inspector<br>G. Goff, Fuel Facility Inspector Trainee<br>R. Gibson, Senior Fuel Facility Inspector<br>O. López, Senior Fuel Facility Inspector<br>J. Pelchat, Senior Fuel Facility Inspector<br>L. Pitts, Fuel Facility Inspector<br>R. Prince, Fuel Facility Inspector<br>P. Startz, Fuel Facility Inspector |
| Approved by: | J. Calle, Chief<br>Fuel Facility Inspection Branch 2<br>Division of Fuel Facility Inspection |

Enclosure 2

# EXECUTIVE SUMMARY

United States Enrichment Corporation
Paducah NRC 2010 4th Quarter Integrated Inspection Report 70-7001/2010-004
October 1 – December 31, 2010

U.S. Nuclear Regulatory Commission (NRC) resident and regional inspectors conducted inspections at the Paducah Gaseous Diffusion Plant during normal and off normal shifts in the areas of operational safety, maintenance and surveillance of safety controls, effluent control and environmental protection, emergency preparedness, fire protection (annual), permanent plant modifications, plant operations, and configuration control. The inspectors performed a selective examination of licensee activities which was accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and Limiting Condition for Operations (LCO), corrective actions, and a review of facility records. The inspectors identified one violation of regulatory requirements. The NRC's program for overseeing the safe operation of uranium enrichment facilities is described in Manual Chapter 2600, "Fuel Cycle Facility Operational Safety and Safeguards Inspection Program," dated March 21, 2008.

The inspectors identified a self revealing cited violation for failure to label a safety system breaker as required by Technical Surveillance Requirement (TSR) 3.19, "Operations." which resulted in the denergization and rendering of a safety system inoperable. (Section 8)

Attachment
Key Points of Contact
List of Items Opened, Closed, and Discussed
List of Inspection Procedures Used

# REPORT DETAILS

## Summary of Plant Status

The facility was operated continuously during this inspection period, and the licensee performed routine operations and maintenance activities safely throughout the inspection period. The operators controlled power levels and product assay according to the production schedule.

## 1. Operational Safety (IP 88020)

a. Inspection Scope and Observations

The inspectors observed routine operations during this inspection period in the enrichment cascade facilities, product and tails withdrawal facilities, and the uranium hexafluoride ($UF_6$) feed vaporization facilities. The inspectors assessed operations personnel alertness and general knowledge of equipment status associated with their assigned facilities. The inspectors conducted interviews with operators regarding procedures for reporting safety issues to management. While conducting plant tours, the inspectors noted that housekeeping, storage of transient combustible material, and the readability of posted radiological signs were adequate.

The inspectors walked down the $UF_6$ feed (vaporization) facilities, enrichment cascade facilities, and the product and tails withdrawal facilities. At the C-333A building, the inspectors observed the operators as they aligned and manipulated valves and disconnected pigtails to prepare the autoclaves for the manual isolation system test.

b. Conclusions

The inspectors identified no findings of significance.

## 2. Maintenance & Surveillance of Safety Controls (IP 88025)

a. Inspection Scope and Observations

The inspectors reviewed procedures associated with the preventive maintenance, surveillance testing, and work control programs. Based upon a review of these procedures and interviews with responsible personnel, the inspectors concluded that the programs were adequately implemented and personnel were knowledgeable of their responsibilities and program requirements.

The inspectors reviewed work orders to verify that the systems, structures, and components involved in maintenance work satisfied the requirements described in the Technical Safety Requirements (TSRs), the Safety Analysis Report (SAR), and applicable licensee procedures. The inspectors also attended pre-job briefings and safety meetings related to maintenance in order to evaluate the effectiveness of the licensee's ability in identifying, resolving and preventing problems.

The inspectors observed selected surveillance and corrective/preventive maintenance activities in the production areas including the replacement of a hydraulic ram for a C-333 Freezer/Sublimer weighing system and the change out of large C-333 and C-335 system components. The inspectors also observed the operators performing the annual Manual Isolation System test of the autoclaves in the C-333A building, the TSR Surveillance – Freezer/Sublimer Safety System high-high weight trip test, and the freezer/sublimer datum calibration in the C-333 enrichment building.

The inspectors noted that maintenance and surveillance activities were completed in accordance with approved work documents. The inspectors determined that technicians were knowledgeable of the requirements contained in work packages and observed strict procedural compliance on the part of individuals performing maintenance activities in the field. Individuals demonstrated effective communication and self-verification techniques in the field to minimize human performance related errors. The inspectors noted that acceptance criteria were provided in work packages where appropriate

The inspectors reviewed the licensee's program for tracking and trending maintenance activities and maintaining equipment and component reliability. Based on a review of associated documentation and discussions with responsible personnel, the inspectors noted that the licensee's program incorporated various performance indicators to track system status. Licensee personnel described the processes detailing how the various maintenance indicators were tracked and utilized to ensure the availability of equipment important to maintaining safe plant operations. The inspectors determined that personnel were knowledgeable of their responsibilities and the importance of monitoring the performance of plant equipment and components that were important to plant safety.

b. Conclusions

The inspectors identified no findings of significance.

## 3. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors reviewed procedures relating to the conduct and administration of the effluent and environmental control programs. The inspectors interviewed personnel regarding processes utilized by the licensee to evaluate, review, and track and trend data associated with effluent and environmental monitoring programs. The inspectors found that adequate controls were in place to identify adverse trends and that appropriate action levels were established to provide early indication of these trends. The inspectors reviewed and discussed issues associated with the most recent National Emissions Standards for Hazardous Air Pollutants Annual Report for USEC, dated June 7, 2010. Effluent releases were noted to be well below regulatory limits.

The inspectors toured the analytical laboratory facility and noted that equipment utilized for the analysis of effluent and environmental samples and laboratory areas was adequately maintained. The inspectors reviewed procedures and associated data sheets to determine if appropriate controls had been established to maintain analytical equipment within established operating and calibration parameters. The inspectors noted that the licensee's program utilized spiked and blank samples as a quality control measure when analyzing samples. Based on discussions with responsible personnel, the inspectors found that personnel were knowledgeable of the importance of maintaining analytical equipment within prescribed operating limits.

The inspectors observed the performance of personnel while collecting liquid effluent samples at various outfall stations. The personnel demonstrated and described various aspects of their functions associated with the maintenance and operation of liquid outfall composite sampling and collection equipment. The personnel where knowledgeable of their responsibilities and the activities were performed in accordance with approved procedures.

The inspectors reviewed records associated with the calibration and operation of selected liquid effluent monitors. The inspectors found that calibration records were current and that effluent monitors had been calibrated in accordance with approved procedures. The inspectors observed the physical condition and operational status of selected liquid effluent monitors in the field.

b. Conclusions

No adverse trends in the program and equipment performance were identified. The inspectors identified no findings of significance.

## 4. Emergency Preparedness (IP 88050)

a. Inspection Scope and Observations

The inspectors reviewed changes to the licensee's emergency preparedness manual and the emergency response organization, reviewed changes to emergency implementing procedures, reviewed an internal audit related to emergency preparedness training, and reviewed a representative sample of corrective actions related to the licensee's emergency preparedness program. Modifications to the plans and implementing procedures were made and documented in accordance with the licensee's management of change process.

The inspectors interviewed representatives from four off-site support agencies that would support the licensee during an event. Specifically, inspectors met with representatives from each of the following agencies: the West McCracken County Fire Department, the McCracken County Office of Emergency Management, the McCracken County Sheriff's Office, and Lourdes Hospital. Representatives of the off-site response agencies interviewed reported that their respective agencies maintained good

communication with the licensee and that the licensee provided opportunities to become familiar with the Paducah Gaseous Diffusion Plant on a regular basis. The licensee provided updates of the facility's emergency plan on a regular basis.

The inspectors interviewed several individuals involved with the on-site emergency response team and found that these individuals demonstrated a good working knowledge of their responsibilities during simulated and actual events. The inspectors reviewed training records and verified that members of the on-site emergency response team had successfully completed required initial and refresher training.

The inspectors inspected the licensee's Emergency Operations Center (EOC) and interviewed licensee staff members that were assigned to fill positions in the EOC during an event response. The response personnel demonstrated a good working knowledge of the processes used to classify an emergency and determine the appropriate protective action recommendations. In addition, the inspectors inspected emergency equipment on emergency vehicles and in other storage locations and verified that they were properly calibrated and in a state of readiness.

The inspectors reviewed the licensee response to two post-drill critiques; reviewed training and qualification of the emergency response team; reviewed staffing of the emergency response team; and, walked down a pre-fire plan.

b. Conclusions

The inspectors identified no findings of significance.

## 5. Fire Protection (Annual) (IP 88055)

a. Inspection Scope and Observations

The inspectors walked down process buildings and liquid $UF_6$ handling areas to assess the implementation of active and administrative fire protection controls and to verify systems' operational lineup and readiness. The inspectors also reviewed the inspection, testing, and maintenance of fire protection systems to verify that they were conducted in accordance with the SAR requirements. The fire protection systems reviewed included sprinkler systems, fire pumps and water distribution systems, fire alarm and detection devices, and fire extinguishers.

The inspectors walked down buildings C-335, C-337, C-360, C-310, and C-337A to verify that transient and permanent combustible loading was controlled in accordance with height and separation requirements as specified in the SAR. The inspectors also verified that building surveys were performed annually for these buildings as required by the SAR. The building surveys ensured that safety analyses assumptions were maintained.

The inspectors verified implementation of the hot work program. The inspectors also verified that Fire Services was notified of hot work activities and that they conducted field surveillance of activities.

The inspectors walked down the fire detection system and noted that detection devices were not obstructed. The inspectors verified that water flow, pull stations, and smoke and heat detectors alarms were received and could be acknowledged in the C-300, C-200, and C-303 facilities.

The inspectors verified that portable fire extinguishers were provided and access to the fire extinguishers was unobstructed by plant equipment or other work related activities. The inspectors noted that the general condition of fire extinguishers was satisfactory. The inspectors also verified that standpipe systems and fire hoses were installed at their designated locations in accordance with the SAR requirements.

The inspectors walked down the following buildings C-335, C-337, C-360, C-310, and C-337A, as well as fire pump houses. The inspectors verified that the high pressure water sprinklers were not obstructed and that the water supply to the system was readily available with correct valve positioning and pumping capability. The inspectors also verified that there was not visual confirmation of significant physical degradation of the system that could impact system performance. The inspectors also verified that compensatory measures, as described in the technical specifications, were implemented when sections of the high pressure water system were out of service.

The inspectors verified that the inspection, testing, and maintenance of the high pressure sprinkler systems, fire alarm, and manual firefighting equipment complied with the requirements specified in the SAR.

As part of the NRC's evaluation of the certificate holder's biennial emergency preparedness exercise conducted September 1, 2010, the inspectors observed the certificate holder's fire brigade personnel. Additionally, the inspectors observed the coordination of firefighting activities between the Fire Brigade Incident Commander and the mutual aid responders. The drill scenario was followed and the drill objectives were met. The inspectors determined that the certificate holder's response to the simulated fire was adequate and demonstrated an appropriate level of readiness to fight fires.

b. Conclusions

The inspectors identified no findings of significance.

## 6. Permanent Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors reviewed modification package ZB5620 that added a valve with test ports to the C-310 product vent system, and modifcation ZB3990 that involved a structural analysis and modifications to strengthen the legs on a gantry crane that handled cylinders of $UF_6$ to address recurring cracks. The inspectors verified that the design information and structured safety analyses were completed in accordance with requirements specified in the internal programmatic implementation Procedure CP2-EG-EG1056, "Design Change Process," and in compliance with the SAR.

The inspectors verified that the documentation of the components installed were consistent with design specifications, the certifications of the personnel who performed welding on the system were valid, and follow-up physical inspections were properly completed and documented. Leak checking of the modified systems were completed and the systems were properly brought back online. The inspectors reviewed system drawings and confirmed the drawings had been properly revised to reflect the current configuration. The inspectors team concluded that that the modifications implemented were reviewed and resulting system conditions were consistent with the design basis, that post-modification testing assured implementation of design and safety system functionality, and that the performance capabilities of quality related items were not degraded.

The inspectors reviewed the performance of the licensee's corrective action program associated with the plant modifications described above. Repetitive correction program submissions were noted prior to the initiation of the projects. Submissions to the correction action program appeared to have contributed to the initiation of the projects. Follow up submissions to the program were noted to have indicated success.

The inspectors verified that design documents and operating procedures were updated to reflect the modifications and that plant personnel were properly trained prior to implementation. The inspectors interviewed engineers and reviewed Plant Change Reviews and determined that the engineering review process included steps to determine if NRC approval was required prior to implementing modifications. The modifications reviewed by inspectors did not require changes to licensing documents. The inspectors determined that none of the changes reviewed involved un-reviewed safety questions. The licensee also entered issues identified during the modification review process in their corrective action system at the appropriate threshold for resolution.

b. Conclusions

The inspectors identified no findings of significance.

## 7. Plant Operations (IP 88100)

a. Inspection Scope and Observations

The inspectors determined that all required notices to workers were appropriately and conspicuously posted in accordance with 10 CFR 19.11 and 10 CFR 21.6. The inspectors confirmed that the licensee met the requirement to conspicuously post copies of NRC Form-3, "Notice to Employees," in sufficient quantities and locations to permit workers engaged in licensed activities to observe them on the way to or from any activity location to which the document was applicable. The inspectors walked down the postings at Posts 1, 15, 18, 29, 43, 48, and 229.

The inspectors reviewed shift staffing work sheets and observed control room personnel and determined that proper control room staffing was maintained, access to the control room was properly controlled, and operator behavior was commensurate with the plant configuration and plant activities in progress.

The inspectors reviewed control room and Plant Shift Superintendent (PSS) log books, daily operating instructions, and corrective action program entries to obtain information concerning operating trends and activities and to note any out-of-service safety system. The inspectors toured portions of the upper cascade, lower cascade, and $UF_6$ handling areas on a daily basis ensuring that the entire plant was toured each month.

The inspectors checked general plant areas for unauthorized storage of flammable material or excessive fire load. The inspectors assessed operability of selected safety equipment by reviewing the lockout-tagout sheets for selected systems to determine if there was an impact on the system's operability status. For recent lockout-tagouts, the inspectors looked to verify that the system was properly returned to the normal configuration.

The inspectors selected two safety-related lockout-tagouts in effect and independently ensured they were properly prepared and implemented by verifying proper selection and placement of tags on breakers, switches, and valves. Additionally, the inspectors looked to verify that tagged components were in the required positions.

The inspectors looked to verify that the licensee's use of overtime for individuals engaged in safety-related activities was consistent with regulatory requirements. The inspectors reviewed the licensee's July 14, 2009 response to Notice of Violation (NOV) 07007001/2009001-01, "Routinely Exceeding TSR Hours of Work Limits."

The inspector found that the corrective actions the licensee implemented to restore compliance with TSR 3.2.2.b in response to NOV 07007001/2009001-01 significantly reduced the number of PSS approvals for individuals to exceed TSR 3.2.2.b guidelines in the security, maintenance, and operation departments in 2010 from the 2008 levels. The corrective actions included: 1) strengthened management challenges of overtime requests, 2) improved senior management reviews of overtime usages, 3) implementation of a fitness for duty evaluation for each request to exceed TSR 3.2.2.b guidelines and, 4) negotiation of a change to the bargaining unit contract to improve attendance. The result was that the PSS approval for allowing operators to exceed TSR 3.2.2.b was reduced from 1,652 times in 2008 to 523 in 2010. The inspectors found that 90 percent of the remaining approvals to exceed TSR 3.2.2.b guidelines stem from the arrangement of the four operating crew (Crews A-D) shift schedule which created a bottleneck and the need to exceed TSR 3.2.2.b recommendations every Thursday to meet shift manning needs.

b. Conclusions

In their response to NOV 07007001/2009001-01, the licensee significantly reduced the number of PSS's approvals for allowing individuals to exceed TSR 3.2.2.b guidelines in the security, maintenance, and operation departments in 2010 from the 2008 levels. The licensee intended to implement additional corrective actions that will address the

issue with existing bottleneck, and NOV 07007001/2009001-01 will remain open pending a review of the effectiveness of the licensee's additional actions that are planned to be taken.

## 8. Configuration Control (IP 88101)

a. Inspection Scope and Observations

The inspectors conducted a follow up inspection of Event Notification (EN) 45629, dated January 14, 2010, "Process Gas Detection System Inoperable." The licensee made the 24-hour EN because a safety system in Cascade Building C-333 was de-energized unexpectedly when an operator opened a breaker while preparing for maintenance activities on unrelated equipment. A portion of the $UF_6$ Process Gas Leak Detection System (PGLD) became inoperable when an operator opened a breaker, which unexpectedly interrupted power to the "B" booster pump PGLD system. This event met the reporting criteria of 10 CFR Part 76.120(c)(2), "Reporting Requirements," since this was an event in which safety-related equipment was disabled when the equipment was required to be operable by a TSR.

On January 13, 2010, planners made preparations to conduct maintenance on C-333 Unit 6 west lighting throw-over circuit (an automatic bus transfer switch). This lighting circuit was not safety related. The planners incorrectly believed that the "B" booster pump PGLD system was powered from the Unit 1 lighting panel instead of Unit 6 lighting Panel 6-LN-B.

Operators opened Breaker 8 in lighting Panel 6-LN-B to de-energize the lighting throw-over circuit. When the operator opened Breaker 8, the "General Instrument Buffer Flow" annunciator alarmed unexpectedly in the area control room. The operators went to the buffer panel and found that part of the buffer panel was de-energized, as expected. The operators also found that the "B" booster pump PGLD system was de-energized, and the operators did not expect that. The operators notified the PSS, and he declared the "B" booster pump PGLD system inoperable. The operators established a smoke watch as required by TSR 2.4.4.1, "$UF_6$ Release Detection System," Action A.1, before the TSR allowable outage time of one hour was exceeded.

As a result of their root cause investigation, the licensee concluded that a contributing cause to the inadvertent loss of power to the "B" booster pump PGLD panel was the lack of labeling of Breaker 8 in Unit 6 lighting Panel 6-LN-B. The labeling of the lighting panel breakers did not provide clear indication that the "B" booster pump PGLD system was powered from 6-LN-B.

The licensee's extent of condition review for the event included an evaluation of the "B" booster pump PGLD system in cascade Building C-337 and the associated panel wiring. The licensee found the same condition in C-337 and made the appropriate changes.

b. Conclusions

The inspectors identified one violation of NRC requirements.

TSR 3.19, "Operations," stated, in part, that an Operations Program shall be established, implemented, and maintained as described in SAR Section 6.5 and shall address operator aids and system labeling. SAR Section 6.5.5, "Operations Procedures and 9 Operator Aids and System Labeling" stated, in part, "Major equipment and piping systems are labeled. These labels aid personnel in identifying specific equipment and systems in the field." Operations Procedure CP2-PO-PO1036, "Equipment and Pipe Labeling for Human Error Reduction," Revision 0, "Note" on page 6 stated, in part, "if a component meets the definition of critical equipment it should be labeled." Paragraph 3.1.B defined critical equipment, in part, as "equipment that if misoperated can create a significant safety hazard."

Contrary to the above, as of January 13, 2010, the licensee failed to correctly label critical equipment, specifically, Circuit Breaker 8 in Lighting Panel 6-LN-B, which created a significant safety hazard, the inadvertent de-energization of the B-booster Process Leak Detection System. This self-revealing Severity Level IV violation is a cited violation (NOV 07007001/2010004-01). The licensee implemented the appropriate corrective actions to address the issue, and this violation is closed.

## 9. Maintenance and Surveillance (IP 88102 and IP 88103)

a. Inspection Scope and Observations

The inspectors observed that maintenance and surveillance activities were performed in a safe manner; testing was performed in accordance with procedures; measuring and test equipment were within calibration; TSR Limiting Condition for Operations (LCOs) were entered, when appropriate; removal and restoration of the affected components were properly accomplished; test and acceptance criteria were clear and conformed with the TSR and the SAR; and any deficiencies or out-of-tolerance values identified during the testing were documented, reviewed, and resolved by appropriate management personnel.

b. Conclusions

The inspectors identified no findings of significance.

## 10. Exit Meeting

The inspection scope and results for Operational Safety (IP 88020) were summarized on November 11, 2010. with J. Lewis, and members of his staff. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

The inspection scope and results for Effluent Control and Environmental Protection (IP 88045), Maintenance & Surveillance of Safety Controls (IP 88025), Permanent Plant Modifications (IP 88070), were summarized on November 18, 2010, with Steve Penrod,

and members of his staff. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

The inspection scope and results for Fire Protection (Annual) (IP 88055) were summarized on December 2, 2010, with Steve Penrod, and members of his staff. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

The inspection scope and results for the Integrated Inspection Report, 4th Quarter 2010, were summarized on January 14, 2011, with Jim Lewis and members of his staff in an exit meeting. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

# ATTACHMENT

## 1. Key Points of Contact

| Name | Title |
|---|---|
| Mike Boren | Regulatory Compliance Manager |
| Sherrill Gunn | Operations Manager |
| Robert Helme | Engineering Manager |
| Jim Lewis | Plant Manager |
| Steve Penrod | Vice President and General Manager |
| Vernon Shanks | Regulatory Affairs Manager |
| Craig Willett | Maintenance Functional Manager |

## 2. List of Items Opened, Closed, and Discussed

Opened

None

Opened & Closed

| | | |
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| 07007001/2010-005 | LER | EN 46312: Licensee failed to conduct independent verification of required cooling time for eight cylinders containing liquid $UF_6$ prior to moving the cylinders.<br><br>The licensee's root cause investigation found that the $UF_6$ handling group did conduct the independent verification of the cool down time prior to moving the cylinder, but did not document the verifications The cylinder did meet its cool down time requirement prior to movement. The moderation process parameter was maintained. Therefore, the failure to independently verify the cylinder cooling time is considered of minor safety significance, and no formal enforcement action is being taken. This event notification is closed.<br><br>USEC CAP item: ATRC-10-2864; PAD-2010-11 |

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| 07007001/2010-006 | LER | EN 46487: Diesel Fuel Oil Spill Contained On Site - Federal And State Officials Notified<br><br>A diesel fuel oil leak occurred from a pressure indicating line connected to a storage tank located at Building C-600 (steam plant) on December 15, 2010. The licensee notified the Kentucky Emergency Response Team (Report Number 2321984), the Kentucky Department for Environmental Protection, and the National Response Center (Report Number 962502). USAR 6.9, "Event Investigation and Reporting," required notification of NRC when ever notification to other government agencies was made.<br><br>The licensee corrected this issue. The inspector found that there were no safety concerns under NRC jurisdiction.<br><br>USEC CAP item: ATRC-10-3628; PAD-2010-13 |
| 07007001/2010-004-01 | VIO | The licensee violated Technical Safety Requirement 3.19, "Operations," which required, in part, major equipment systems to be labeled. This resulted in the unexpected de-energization of "B" booster pump process gas leak detection while it was required to be operable by TSR 2.4.4.1, "$UF_6$ Release Detection System." |

Closed

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| 07007001/2010003-01 | VIO | Violation of TSR 3.2.2.b, limits on working hours of staff that perform safety functions.<br><br>This violation was caused when QC inspectors conducted TSR surveillances near the end of a continuous 36 hour work period. The licensee had previously considered QC inspectors exempt from hours of work guidelines.<br><br>The corrective action the licensee took was to institute a policy that imposes hours of work guidelines identical to TSR 3.2.2.b hours of work guidelines. The inspectors have reviewed the licensee's corrective actions and have no further questions. This VIO is closed. |
| 07007001/2010-004 | LER | EN 45890: Tar found on overpressure rupture disks.<br><br>USEC requested that a Notice of Enforcement Discretion be granted pursuant to the NRC's policy regarding the exercise of discretion for an operating facility, described in Section VII.C of the NRC's Enforcement Policy. This NOED was effective for ten days to extend the allowable outage time for Action A.2 of LCO 2.4.3.4, "R-114 Coolant Overpressure Control System," to May 10, 2010, at 4:42 p.m.<br><br>TAC NO. L32752, GDP NOED NO.10-02-002 |

USEC CAP items: ATRC-10-1131, ATRC-10-1134, ATRC-10-1139, ATRC-10-1165, ATRC-10-1166, and PAD-2010-006

The licensee found roofing tar on the coolant system rupture disks which was from the last roofing job on the cascade buildings that was conducted in 1986. This was before NRC assumed regulatory responsibilities over Paducah Gaseous Diffusion Plant from the Department of Energy on March 3, 1997.

There were no surveillance inspection requirements that would have resulted in the identification of tar on the rupture disks at an earlier date. This condition was found when maintenance personnel removed a rupture disk during maintenance on a cooler and noticed the tar. The inspectors noted that controls to prevent exposure to plant personnel in the event of the rupture of coolant tubes into the primary system and subsequent process gas release included process building holdup and “sense and flee” training.

The licensee has implemented all of the corrective actions. Due to the legacy nature of the condition, a rupture disc had not been challenged in over 60 years of operation, and other controls were in place that would have prevented exposure to personnel, the violation is considered of minor significance and no formal enforcement action is being taken. This LER is closed.

07007001/2010-002 LER EN 45800: Safety Equipment Failure - Process Gas Detection System Found Inoperable

On March 29, 2010 at 0808 hours, operators performed a manual test firing of the Process Gas Leak Detection (PGLD) System as required by TSR SR 2.4.4.1-1 and found that C-333 Unit 5 Cell 6 PGLD “ready” light not illuminated. At the time of the discovery, the affected unit and section of the cell bypass piping were operating above atmospheric pressure which met the applicability statement of TSR 2.4.41.A.1 and 2.4.4.1.A.1. The PSS declared the PGLD system inoperable and established a continuous smoke watch, as required by the TSR. The licensee replaced the power supply module and successfully conducted the post maintenance test. The PSS declared the system operable on March 29, 2010 at 1030 hours. Engineers concluded that the root cause was an end of life failure of the reset button on the power supply.

The licensee has completed a root cause analysis and all planned corrective actions have been completed. The inspectors had no further questions. The LER is closed.

USEC CAP item: ATRC-10-0806 and PAD-2010-03.

LER EN 45629: Process gas leak detection system inoperable.

The inspectors concluded that the licensee failed to correctly label a circuit breaker, which resulted in inadvertent de-energization of the "B" booster pump process gas leak detection system when it was required to be operable by TSR 2.4.4.1, "$UF_6$ Release Detection System,".

This LER was closed to VIO NOV 07007001/2010-004-01 USEC CAP item: ATRC-10-0092 and PAD-2010-001.

## 3. List of Inspection Procedures Used

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| 88020 Operational Safety | | 88100 Plant Operations |
| 88025 Maintenance & Surveillance of Safety Controls | | 88101 Configuration Control |
| 88045 Effluent Control and Environmental Protection | | 88102 Surveillance Observations |
| 88055 Fire Protection (Annual) | | 88103 Maintenance Observations |
| 88070 Permanent Plant Modifications | | 88050 emergency Preparedness |