U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.	70-7001
Observation Report No.	70-7001/96005 (DNMS)
Facility Operator:	United States Enrichment Corporation
Facility Name:	Paducah Gaseous Diffusion Plant
Location:	5600 Hobbs Road P. O. Box 1410 Paducah, KY 42001
Dates:	August 20 through September 30, 1996
Inspectors:	K. G. O'Brien, Senior Resident Inspector J. M. Jacobson, Resident Inspector
Approved By:	Gary L. Shear, Chief Fuel Cycle Branch

EXECUTIVE SUMMARY

United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
NRC Observation Report 70-7001/96005 (DNMS)

Authority Statement: The Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) have agreed to cooperate to facilitate the NRC obtaining information and knowledge regarding the gaseous diffusion plants and the United States Enrichment Corporation's (USEC) operation thereof through observation/inspection activities during the interim period before the NRC assumes regulatory responsibility. This report is a summary of NRC observations for the period stated. Each of the observations was communicated to the DOE Site Safety Representatives during and at the end of the observation period.

All items were discussed and reviewed with the DOE Site Safety Representatives to allow for their future followup and evaluation, as they deem appropriate. The inspectors determined that the facility continued to operate in a safe manner. An Executive Summary follows:

Plant Operations

- Weaknesses in the plant operation's control of some surveillance and maintenance activities and during the response to an off-normal condition contributed to: 1) rework on safety equipment; 2) an increased potential for personnel exposure to UF_6, and; 3) a short term loss of normal product withdrawal and cascade enrichment control (Section O1.2).

- One apparent Operational Safety Requirement violation and two Technical Safety Requirement violations occurred because of weaknesses in the management and staff's understanding of and appreciation for safety and regulatory requirements (Section O1.3).

Maintenance and Surveillance

- Improved autoclave testing, implemented as a part of transition to the Technical Safety Requirements, identified previously missed performance issues (Section M1.2).

- The plant staff's resolution of ongoing problems with the building 310 crane appeared narrowly focused on returning the crane to service as quickly as possible after each upset. Management did not identify or address other factors which could affect crane operations, such as informal operator training (Section M1.3).

- The current plant designation of the crane controller and software as non-safety components was inconsistent with the Safety Analysis Report. This designation was also contrary to the handling of similar systems on other safety related cranes performing the same function (Section M1.3).

- Current plant post maintenance testing requirements, used to ensure cascade integrity, following a system boundary breach, were not consistent with either the Technical Safety Requirements, the Bases Statements, the Quality Assurance Plan, or ASME NQA-1-1989 (Section M1.4).

Engineering

- System engineering and plant staff were proactive in their identification and resolution of an operability issue (Section E1.2).

Plant Support

- Continued ineffective communications and oversight of shipping activities resulted in an apparent repeat violation of Department of Transportation shipping requirements (Section R1.1).

- Weaknesses in management's oversight of routine fire protection system surveillance and an ongoing overhaul project contributed to a degraded fire protection system and the potential for future system performance problems (Section F2.1).

DETAILS

I. Operations

O1. Conduct of Operations[1]

O1.1 General Comments

The inspectors observed selected activities to confirm that the facility was operated safely and in conformance with guiding programs and procedures. These activities were confirmed by direct observations, facility tours, interviews, discussions with management and staff, and reviews of facility records.

O1.2 Control of Operations

a. Inspection Scope

During the observation period, the inspectors reviewed several conduct of operation issues.

b. Observations and Findings

1. Incorrect Autoclave Containment Valve Replacement

On August 21, 1996, plant staff identified excessive autoclave (A/C) leakage during routine pressure decay testing of the building 333A 3-south (3S) A/C. Subsequent to the testing, operations maintained the 3S A/C out of service and initiated trouble-shooting in order to identify the leakage source. The product of these efforts was a work package (WP) directing replacement of valve XV-532, an inner containment valve on the steam sampling line.

During the following shift, maintenance staff replaced valve XV-532. Operations then initiated repeat pressure decay testing on the 3S A/C. The A/C again failed to meet the leakage acceptance criteria. Operations trouble-shooting of this second failure identified valve CV-533 as the leakage source. CV-533 was the outer containment valve on the same steam sample line as valve XV-532. An operations personnel review of the situation determined that maintenance staff had replace the XV-532 valve as requested in the WP. However, the VX-532 valve did not cause the earlier testing failure.

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[1]Topical headings such as O1, M8, etc., are used in accordance with the NRC standardized inspection report outline contained in NRC Manual Chapter 0610. Individual reports are not expected to address all outline topics, and the topical headings are therefore not always sequential.

The inspectors discussed the issue with the facility manager and other operations staff. The inspectors determined that following the first test failure, operations staff did not rigorously document the initial trouble-shooting efforts, either in facility logs or on the original pressure decay testing data sheet. As a result, the test methodology and results were not available for review by noninvolved staff, such as the maintenance planner and subsequent operations crews. This approach to the conduct of operations, that is, non-rigorous documentation of trouble-shooting efforts, prevented identification of the errant selection of valve XV-532 as the leakage source, prior to its replacement. In addition, this approach would also appear to limit the staff's opportunity to develop a more questioning attitude as a result of an increased understanding of the basis for ongoing operations and maintenance activities.

2. Incorrect Cascade Pipe Cut

On August 31, 1996, during activities initiated in response to a compressor deblade, maintenance staff cut an inspection port into a cascade section which contained uranium hexafluoride (UF_6). At the time of the cut, the piping was subatmospheric but had not been swept of UF_6. As an immediate response, the maintenance staff sealed the port with tape and evacuated the area. No uptakes of radioactive material nor significant process upsets occurred as a direct consequence of the evolution.

Following the event, the inspectors reviewed the WP, the associated procedures, and the piping run. The inspectors noted that operations authorized work under the WP. However, the WP did not include or reference either the relevant operations or maintenance procedures. The WP also did not include the procedural requirements: (1) to mark cut locations, or (2) to ensure that operations staff were present during the evolution. The inspectors noted that the relevant maintenance procedure was beyond its required review date.

During a walkdown of the system piping and through followup discussions, the inspectors determined that operations staff did not distinctly mark the cut areas as required by procedure. In fact, the piping included many other markings from previous activities. These older markings could easily be confused as the current pipe markings. Many of the markings did not reference the associated WP number or the date for the work. In addition, although operations personnel informed the maintenance supervisor of the

location of the cuts, they were not immediately present at all areas approved for work. In fact, the inappropriate cut was made on the backside of the equipment, out of the line of sight of any operations supervision.

3. Large Freon Leak Into Cascade

On August 21, 1996, the plant experienced a major inleakage of freon into the cascade. Indications of the inleakage include elevated and rising cascade freon levels as measured in buildings 335, 337 and 310. Consequences of the inleakage included a major interruption of withdrawal activities in building 310 and the rerouting of the product withdrawal stream to storage drums. The latter action was taken in order to limit the overall increase in product stream enrichment.

The inspectors reviewed the sequence of events which followed identification of the inleakage and those actions undertaken to ensure continued safe plant operations. The inspectors also reviewed building operating logs and held discussions with staff.

The building 335 and 337 online monitoring systems indicated that a freon inleakage occurred in building 335 sometime prior to 11:30 p.m. This observation was recorded in building logs. Elevated freon levels were also noted on building 310 monitoring systems at approximately 1:30 a.m. These results were consistent with normal cascade flow which went from building 335 to 337, back to building 335, and then to building 310.

The logs and discussions with plant staff indicated that, following the inleakage, building 335 staff took action to identify the freon inleakage source. However, operations staff took no other immediate actions to capture the freon, as it progressed up the cascade, or to assess its potential impact at the top of the cascade. The inspectors noted that this absence of action was inconsistent with the requirements of cascade operations procedure, "Major R-114 Inleakage to the Cascade," Revision 0, dated March 14, 1996.

At approximately 1:30 a.m., building 310 staff observed increasing levels of freon at the top end of the cascade. These values continued to increase and were approximately 25 percent at 4:00 a.m. As a result of the increasing cascade freon concentrations, normal withdrawal and cascade enrichment control activities were negatively affected. In an attempt to maintain normal withdrawal capabilities, operations staff moved the product withdrawal point further down the cascade. However, the increasing quantity of freon

accumulating in the building 310 cascade eventually precluded normal withdrawal activities. Following loss of normal product withdrawal, cascade uranium enrichment levels, which were maintained at 1.90 weight percent uranium-235 ("/$_o$ U-235) prior to the inleakage, increased to approximately 2.05 "/$_o$ U-235. The current plant administrative level for enrichment was 2.00 "/$_o$ U-235. However, the Department of Energy (DOE) has authorized withdrawal enrichments up to 2.75 "/$_o$ U-235.

In their effort to regain normal withdrawal and cascade enrichment control, operations rerouted the output of the building 310 cascade through the 331 building to storage drums in building 335. This action allowed the freon inleakage and subsequent buildup to be transferred off the cascade and for the movement of UF_6 back into building 310. The inspectors noted that, because of the current criticality accident alarm system design, this action may not be an available alternative following transition to NRC oversight. Closure of this issue will be tracked as an Inspector Followup Item (IFI 70-7001/96005-01).

Finally, the inspectors noted that neither the cascade coordinator or plant shift superintendent logs included any significant entries during this time frame. Discussions with operations management and staff indicated that the cascade coordinator did not fully appreciate the significance of the leak until its full effect on building 310 was evident. This absence of specific direction, to the building staff, on the appropriate cascade response actions and the scarceness of log entries by the cascade coordinator was inconsistent with his overall role as "supervisor" of cascade operations.

c. Conclusions

Weaknesses in operation's control of some surveillance and maintenance activities and during the response to an off-normal condition contributed to: (1) rework on safety equipment; (2) an increased potential for personnel exposure to UF_6; and (3) a short term loss of normal product withdrawal and cascade enrichment control.

O1.3 Operating and Technical Safety Requirement Adherence

a. Inspection Scope

The inspectors reviewed several activities which resulted in either apparent Operational Safety Requirement (OSR) or Technical Safety Requirement (TSR) violations.

b. Observations and Findings

1. Replacement of Autoclave (A/C) Vacuum Relief Valves

During the week of August 12, 1996, plant staff determined that vacuum relief valves, designed for installation between the inner and outer A/C containment valves, were not designated as safety system components. As a result, inspection testing of the valves was not performed and post maintenance testing requirements were not included in work packages. This finding was documented in a problem report (PR) which indicated: (1) that an operability determination was not required; (2) that the finding did not result in any systems being inoperable; and (3) that the issue was not reportable. The PR was reviewed at the routine plant morning meeting and no significant issues were raised.

Following the meeting the NRC and DOE inspectors questioned the conclusions of the PR. Specifically, the inspectors noted: (1) that an operability determination appeared necessary; (2) that some systems may become inoperable if proper post maintenance testing was not performed; and (3) that the issue may be reportable under DOE requirements. In addition, the inspectors questioned the operations staff's basis for not doing post maintenance testing for the component, irrespective of its status as a safety system component.

Later that week, a second PR was issued which indicated that operations staff had replaced some A/C vacuum relief valves without performing post maintenance testing. In response to this finding, operations declared the involved A/Cs inoperable. Work packages were developed to perform the appropriate containment pressure decay testing prior to returning the A/Cs to service. During the morning meeting at which this issue was discussed, engineering indicated that the failure to perform the testing was not an OSR violation. The inspectors noted that the PR indicated that the issue was not reportable.

The inspectors questioned the OSR violation and reportability determinations. Following additional reviews, the plant staff concurred: (1) that the failure to perform a proper post maintenance test was an OSR violation and (2) that the issue was reportable.

The plant performed a root cause analysis of the event. The analysis concluded that inadequate flow down of component designations was a primary contributor to the occurrence. Corrective actions, consistent with this designation, were

proposed. The inspectors noted that the same root cause and the corrective actions were previously developed in response to a similar earlier event.

In an attempt to independently assess the root cause for the events, the inspectors discussed the normal processing of plant work activities with some operations staff. The inspectors were informed that, historically, operations staff followed, as written, the information and instructions included in work directives or procedures. The staff indicated that often the requirements for performing some of the activities were neither included in their training nor included in the instructions. Therefore, at times, the acceptability of directed operations was not based upon an independent operations staff understanding of the system and its safety and regulatory performance requirements.

The inspectors determined that neither the plant developed root cause nor corrective actions addressed weaknesses in the operations staff's understanding of plant safety systems nor their absence of questioning proposed safety system work activities. As a result, the inspectors could not conclude that the proposed corrective actions would be effective.

2. Building 337A TSR Violation At OSR to TSR Switchover

On September 5, 1996, following DOE approval, the plant transitioned the two feed facilities, buildings 333A and 337A, from OSR to TSR requirements.

On September 8, 1996, a special onshift TSR adviser questioned the need for a "smoke watch" in building 337A given the current A/C operating mode and the inoperable status of one of two pipe trench UF_6 detectors. Operations staff informed the adviser that the issue had previously been evaluated. Results of this evaluation indicated that neither an operable detector nor "smoke watch" was required. However, the operations staff did not have documentation supporting these statements. As a result, the TSR adviser elevated his concerns to plant management. Management did not act on these concerns until September 11, 1996.

The inspectors became aware of the issue during the normal plant morning meeting held on September 11, 1996. Following this meeting, management determined that the system was operable, with only one of two functioning detectors. Therefore, a "smoke watch" was not required. This conclusion was based in part on a July, 1996, plant interpretation of a similar OSR. The inspectors noted that the OSR interpretation rationalized that the current nonoperating status of some A/Cs in the immediate vicinity of the UF_6 detector negated the need for an operable system.

The inspectors determined that this approach: (1) was not authorized in the OSRs; (2) did not agree with information in the Final Safety Analysis Report; and (3) did not consider all possible operating environments.

The inspectors discussed the issue with management, highlighting differences between the OSR and TSR wording and weaknesses in the logic used to support the previous assessment. Following further review of the TSR and the application Safety Analysis Report, management declared the system inoperable and initiated the required smoke watch.

During a followup evaluation of this issue, the inspectors noted that an Operational Readiness Review (ORR) was previously conducted to assess feed facility readiness for operations under the TSRs. The ORR did not elevate the out-of-service detector for further management review. Additionally, the inspectors determined that approximately 14 shift turnovers had occurred between the OSR to TSR transition date and when management resolved the issue. However, none of the feed facility operators questioned the difference between the current plant status and the TSR requirements. Finally, although the issue was initially raised by the special TSR adviser, several plant staff and management failed to fully appreciate the need for a timely resolution of questions relating to TSR operability and compensatory action requirements. As a result, the plant took approximately 72 hours to implement the 1 hour TSR Action Statement. This was a violation of TSR 2.2.4.1.A.1.

Once the issue was properly characterized, the TSR violation was reported to the DOE in accordance with current reporting requirements.

3. Failure to Continuously Implement a TSR Required "Smoke Watch"

On September 13, 1996, plant management observed the performance of an individual assigned to conduct a TSR required "smoke watch" in building 337A. Management determined that the individual was inattentive to his duties. Specifically, the individual was in an area and had a posture that would prevent him from immediately observing a UF_6 release. In response to the observations, management removed the individual from the area and reinitiated the "smoke watch" with another individual. Also, management reemphasized to the staff the need for "smoke watchers" to be fully alert and attentive to their duties.

The inspectors reviewed plant "smoke watch" requirements and managements followup actions. The inspectors determined that specific guidelines for the posting, monitoring, and

relief of "smoke watches" had not been developed. However, the inspector did not consider this to be a contributing cause to the event in that the involved individual was on station for less than thirty minutes at the time of the inattentiveness.

During discussions with management, the inspectors were informed that this event was not consider a failure to implement the TSR requirements. Management indicated that this position was based upon their assessment that the individual was only demonstrated to be inattentive for a short period of time. The inspectors noted that the TSR required a continuous "smoke watch." Approximately a week after the event, management reassessed the issue and concluded that a failure to implement a continuous "smoke watch" had occurred. The failure to implement a continuous "smoke watch" was a violation of TSR 2.2.4.1.A.1.

Once the issue was properly characterized, the issue was reported to the DOE in accordance with current reporting requirements.

c. Conclusions

One apparent OSR violation and two TSR violations occurred as a result of weaknesses in the management and staff's understanding of and appreciation for safety and regulatory requirements.

II. Maintenance and Surveillance

M1. Conduct of Maintenance and Surveillance

M1.1 General Comments

During routine tours of plant facilities, the inspectors observed the general material condition of plant equipment and some in-progress maintenance activities. The inspectors also reviewed some maintenance records and maintenance-related nonconformance reports. The focus of the observations was to assess the overall performance of maintenance activities relative to approved procedures, guides, and industry codes or standards.

M1.2 Autoclave (A/C) Containment Testing

a. Inspection Scope

The inspectors reviewed the results of recent A/C containment testing.

b. Observations and Findings

Prior to and during the observation period, the plant instituted changes to their process for testing the A/C containment function. Previously, this testing was performed following scheduled annual maintenance activities and was conducted at a pressure significantly less than the FSAR described accident pressure. The current testing procedures: (1) precluded the conduct of prior maintenance activities which could obscure vital performance data; (2) required the acquisition of as-found data; and (3) required testing at pressures consistent with the FSAR assumptions.

The inspectors noted that several PRs were written during the period to document A/C performance failures found during testing. Most of these items appeared to have been discovered as a result of the revised testing process. Examples included: (1) as-found head-to-shell gaskets with excessive leaking at less than the FSAR pressures and (2) as-found containment valves with excessive leakage at FSAR specified accident pressures. The data also indicated that the previously assumed one year inservice life of the head-to-shell gasket may not have been appropriate. The plant resolved each of the identified deficiencies prior to returning the systems to service.

c. Conclusions

Improved A/C testing identified previously undisclosed performance issues.

M1.3 Building 310 Crane Location/Motion Control Problems

a. Inspection Scope

The inspectors reviewed the circumstances surrounding problems with the building 310 product withdrawal crane. A recent PR indicated that operators experienced unexpected changes in crane motion, from fast to slow mode, during cylinders movements to and from the storage yard.

b. Observations and Findings

The building 310 withdrawal crane was equipped with a controller and associated software to limit the speed and travel of the crane near the cylinder burp station. The controller used position information, relayed from proximity switches, to track hoist/cylinder location and to prevent collisions with cylinders positioned at the burp station.

Previously, plant staff had identified problems with the proximity switches. Specifically, operators observed that the controller inappropriately entered the slowed motion mode as it approached the withdrawal positions, an area adjacent to but outside of the

burp station. In addition, the crane would stop a short distance beyond the withdrawal stations but before the burp station. The controller was designed to and would stop motion if a collision

with the burp station or cylinders was imminent; however, these stops were prior to the expected location.

Discussions with operators and a review of the daily crane inspection reports indicated that unexplained changes in crane motion, from fast to slow mode, were a continuing problem for the past 2-3 years. Although the crane had not tripped while moving a liquid filled cylinder, such that the hoist would not move, the potential to suspend a liquid filled cylinder or to increase the risk of the cylinder swinging, thus placing undue stress on the hoist wires, appeared to exist.

During trouble-shooting of past events, maintenance staff determined that the controller would clear the slow motion mode and reset its position if the trolley was brought full east and the crane cycled north and south. The staff also informed the inspectors that the controller software was developed to allow entry into the withdrawal stations or burp station only in a specific controlled manner and only from the eastern limit of travel. The staff indicated that if operators did not approach the withdrawal or burp stations in the specified manner, the controller could lose track of the location, reduce the speed, and/or trip the emergency brake. The inspectors noted that building 310 operators may not be fully aware of these design features as their training on crane operations was informal and not documented.

The inspectors also determined that plant staff did not consider the controller to be part of the crane's safety system boundary (Q or AQ item). This position was inconsistent with the fact that the system performed a safety function, i.e., ensuring that a liquid filled cylinder was not damaged by inadvertently running into the burp station. The position was also inconsistent with the Safety Analysis Report and the classification of similar systems on other cranes involved in the movement of liquid filled cylinders.

Because the component was not on the "Q/AQ" list, plant staff had discussed and could have removed the controller motion limitations. For this same reason, plant staff maintained only informal control of the controller software. The possibility therefore existed for software revisions to occur during trouble-shooting without a formal review.

c. Conclusions

The plant staff's approach to the resolution of ongoing problems with the building 310 crane appeared narrowly focused on returning the crane to service after each upset. Management did not identify or address other factors which could effect crane operations, such as informal operator training.

The current designation of the crane controller and software as non-safety components was inconsistent with the Safety Analysis Report and the handling of similar systems on other safety related cranes performing the same function.

M1.4 Cascade Piping Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed WPs developed to direct piping cuts to building 335 unit 2, cells 5, 7, and 9 "A" lines. These reviews were conducted as a followup inspection for the event discussed in Section 01.2.b.2.

b. Observations and Findings

The WPs specified that following internal piping inspections, a patch was to be welded onto the pipe and a post maintenance test (PMT) performed. The WPs stated that the PMT was to ensure cascade pressure boundary integrity. The WPs specified PMT was a five pound-per-square-inch-gauge (5 psig), leak test. The WP specified acceptance criteria was no visible leaks.

The inspectors reviewed the soon to be implemented Technical Safety Requirement (TSR) 2.4.4.11, "Cascade Pressure Limitation," Bases Statement which indicated that the postulated rupture pressure for cascade piping was 40 pounds per square inch absolute (psia). In addition, the TSR required that cascade high side pressure be 25 psia or less, indicating expected abnormal operations could result in pressures as high as 25 psia. Plant engineering staff indicated that the 5-psig leak test was intended to bound normal cascade operating pressures which were typically less than 18-19 psia.

The inspectors noted that item 2.11.3.1.1 of the NRC approved quality assurance plan (QAP) and NQA-1-1989, Criterion 11, the basis for the item, required tests to verify conformance of an item to specified requirements and to verify satisfactory performance for service. Test requirements and acceptance criteria also shall be based upon specified requirements contained in applicable design or other pertinent technical documents. The

5-psig leak test (19.7 psia) did not appear to ensure that cascade piping was restored to its performance and design pressure specifications, as identified in the TSRs or associated Bases Statements.

At the end of the observation period, plant engineering staff were reviewing the issue and the inspector's findings. Pending additional information to clarify the plant's position, this issue will be tracked as an unresolved item (URI 70-7001/96005-01).

c. Conclusions

Post maintenance testing requirements, used to ensure cascade integrity following a breach of the system boundary, did not appear consistent with either the TSRs, the Bases Statements, the QAP, or NQA-1-1989.

III. Engineering

E1. Conduct of Engineering

E1.1 General Comments

Throughout the observation period, the inspectors observed facility engineering activities, particularly the engineering organization performance of routine and reactive site activities, including identification and resolution of technical issues and problems.

E1.2 Building 360 Crane Mechanical Continuity Monitoring System

a. Inspection Scope

The inspectors reviewed the circumstances surrounding a problem report (PR-EN-96-4362) which described sporadic tripping by a building 360 crane and an associated operability evaluation.

b. Observations and Findings

During trouble-shooting of the building 360 crane sporadic tripping, plant electricians and the system engineer identified that the control cabinet temperatures were above the design temperature of 130 °F. The cabinet housed the mechanical continuity monitoring (MCM) system. The MCM system controlled the hoist emergency brake. Failure (tripping) of the MCM system during movement of a liquid filled cylinder could cause the cylinder to be suspended in mid-air. Following identification of the issue, the system engineer recommended that the PSS declare the crane inoperable. The system engineer indicated that the recommendation was based on the potential for the MCM system to trip, during normal operations, absent control cabinet modifications.

Subsequent to the inoperability declaration, the engineering staff developed an operability evaluation which included compensatory measures for ensuring the MCM cabinet temperature remained below 130 °F. These measures included fixing the cabinet door open and the conduct of periodic temperature checks. Following implementation of the compensatory measures, the crane was then declared operable, but nonconforming. The inspectors reviewed the engineering staff proposal and noted its conformance to other NRC guidance for the resolution of similar events. The inspectors verified that the compensatory actions for ensuring a proper thermal environment were implemented prior to resumed crane operations.

c. Conclusions

Plant and system engineering staff were proactive in their identification and resolution of a crane operability issue.

IV. Plant Support

R1. Radiation Protection Controls

R1.1 Apparent Department of Transportation (DOT) Labeling Violation

a. Inspection Scope

On September 23, 1996, a problem report (PAD-96-5044) was filed which indicated that a RADIOACTIVE label with an improper transport index was applied to an empty cylinder. The cylinder was being shipped to Canada. The inspectors reviewed the circumstances surrounding the shipment, discussed the event with site transport personnel, and reviewed the associated shipping papers.

b. Observations and Findings

The inspectors noted that the shipment contract carrier identified an improper label after the shipment of cylinders left the plant. The bill of lading stated that the proper transport index (TI) was 3.0. However, the label indicated a TI of 2.0. The label was corrected at the carrier's yard in Paducah prior to final movement of the cylinder.

In followup discussions with Packaging and Transportation Department (PTD) staff, the inspectors were informed that plant personnel had identified the labeling requirement, for empty cylinders shipped to Canada, through discussions with Portsmouth personnel. The requirement took effect following changes to (DOT) regulations in April 1996. The labeling requirement change applied only to foreign shipments of low-specific activity materials.

For most plant shipments, PTD staff prepared both the labels and placards. However, in some cases such as foreign shipments, building 360 staff prepared the labels and placards. Therefore, following their understanding of the regulation change, PTD staff discussed the change with the building 360 personnel. However, the change was not incorporated into the controlling procedure, CP4-CO-CM6023, "SHIPMENT, RECEIPT, AND INSPECTION OF UF_6 CYLINDERS," Revision 1. The procedure properly addressed other overseas shipments.

During review of the process and paperwork for this shipment, the inspectors noted that the bill of lading shipper certification was signed by PTD staff. Discussions with PTD staff indicated that this occurred prior to completion of final packaging and vehicle preparations. Therefore, a true certification was not performed.

The inspectors also noted that the original PR indicated that the event was not classified as a DOT violation. However, 49 CFR 172.403(a), (b), and (g)(3) required that packages of radioactive material be labeled with the appropriate RADIOACTIVE label and include the correct TI. The inclusion of the wrong TI on the label was an apparent violation of the DOT requirements. Also, this apparent violation was a repeat of a violation identified in previous DOE Inspection and NRC Observation Reports.

c. Conclusions

Informal and ineffective communications between Packaging and Transportation and building 360 staff contributed to the inappropriate labeling of a cylinder intended for shipment to Canada. A plant practice of having PTD staff sign the bill of lading certification statement without having personally performed the function resulted in an apparent violation of DOT requirements. A previous similar apparent violation was documented in NRC Observation Report 70-7001/96003.

F2.1 Plant Fire Pumps Material Condition

a. Inspection Scope

The inspectors reviewed the material condition of the plant fire pumps and the general condition of the building 631-3 area during a scheduled major fire pump overhaul.

b. Observations and Findings

The inspectors noted that fire pumps 2 and 3 were out of service for a major overhaul and pumps 5 and 6 were identified as meeting the current plant operability requirements.

During tours of the number 5 and 6 fire pump area, the inspectors identified several anomalies with the routine logs for the number 5 pump, a diesel driven system. The logs included several entries which indicated that the starting system batteries were outside of the acceptance criteria. In addition, the inspectors observed that overall battery condition indicated that the routine monthly preventive maintenance was not performed. Active management oversight of this system and review of the routine log results was not evident. Subsequent plant staff investigation of these findings concluded that the system was operable but degraded. During the review, plant staff identified several additional

deficiencies in the current test methods which required correction to ensure continued system performance capability.

During tours of the number 2 and 3 fire pump area, the inspectors observed that building 631-3 material condition was very poor. Items observed included: (1) unprotected, exposed electrical wires coming from a motor control center; (2) a safety system opening unprotected from foreign material intrusion; and (3) disassembled safety system components stored amidst debris developed as a part of the overhaul project. The inspectors discussed the current facility condition with management and each of the items was resolved.

Finally, management informed the inspectors that their initial issue assessment indicated that inadequate plant staff oversight of the project's subcontractor was a significant contributor to the observed conditions. The inspectors noted that this was a continuing site wide weakness.

c. Conclusions

Weaknesses in management's oversight of routine fire protection system surveillance and the ongoing overhaul of two fire pumps contributed to a degraded inservice system and created the potential for future system performance problems.

P1.1 Personnel Accountability

a. Inspection Scope

The inspectors reviewed implementation of the plant accountability system during routine activities.

b. Observations and Findings

Plant management scheduled and conducted briefings of all feed and associated operations personnel in preparation for transition of these facilities from the OSRs to TSRs. These briefings were held

in the feed facilities and included several staff not normally assigned to the facilities. The inspectors observed one of these briefings.

At the conclusion of the briefing, the inspectors became aware that one of the attendees, an individual not normally assigned to the facility, did not sign in or out on the "visitors" log. The inspectors also observed that the oversight was highlighted to the individual; however, the individual chose not to correct the apparent deficiency.

The inspectors reviewed the plant procedure directing use of the visitor logs, CP2-EP-EP5030, "Personnel Accountability," Revision 1, dated May 31, 1996. Review results indicated that the procedure was not applicable to the feed facilities or several other facilities that currently maintained visitor logs. The inspectors polled several plant staff to assess their understanding of the procedural requirements. Initially, all polled individuals indicated a belief that the system applied uniformly across the site. This discrepancy between plant procedures and processes was noted to management. This and previously identified differences (ref. Observation Report 70-7001/96004) between plant policy, building practices, and personnel performance indicated that successful implementation of the personnel accountability process may not be achievable.

c. Conclusions

Additional differences between plant policy, building practices, and personnel performance were identified relative to the personnel accountability process. These differences and previous information further indicated that the building-specific personnel accountability process may not be achievable.

V. Management Meetings

X1. Exit Meeting Summary

The inspectors met with facility management representatives and the DOE Site Safety Representatives throughout the observation period and on September 30, 1996. The likely informational content of the observation report with regard to documents or processes reviewed was discussed. Information highlighted during these meetings is contained in the Executive Summary. No classified or proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Lockheed Martin Utility Services (LMUS)

* S. A. Polston. General Manager
* H. Pulley, Enrichment Plant Manager
  J. M. Brown, Engineering Manager
* W. E. Sykes, Nuclear Regulatory Affairs Manager
* T. B. Hudson, Plant Shift Superintendent Manager

United States Enrichment Corporation

* J. A. Labarraque, Safety, Safeguards and Quality Manager
  J. H. Miller, Vice President - Production

United States Department of Energy (DOE)

* G. A. Bazzell, Site Safety Representative
* C. H. Booker, Site Safety Representative

Nuclear Regulatory Commission (NRC)

* K. G. O'Brien, Senior Resident Inspector
* J. M. Jacobson, Resident Inspector
* T. N. Pham, Material Control and Accountability Inspector

* Denotes those present at the routine resident exit meeting held on September 30, 1996.

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

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

70-7001/96005-01	IFI	Criticality Accident Alarm Requirements for the Transfer of Enriched Process Gas From Building 331 to Building 335
70-7001/96005-02	URI	Acceptability of Current Methods for Post Maintenance Testing of Cascade Piping

Closed

None

Discussed

None

Certification Issues

None