

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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License Nos:- DPR-2; DPR-19; DPR-25

Report No: 50-010/96014; 50-237/96014; 50-249/96014

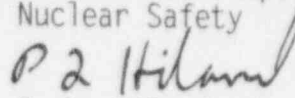
Licensee: Commonwealth Edison Company

Facility: Dresden Nuclear Station Units 1, 2 and 3

Location: Opus West III  
1400 Opus Place - Suite 300  
Downers Grove, IL 60515

Dates: October 21, through December 6, 1996

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Nuclear Safety

Approved By:   
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Reactor Projects Branch 1

## EXECUTIVE SUMMARY

Dresden Nuclear Station Units 1, 2 and 3  
NRC Inspection Report 50-10/96014; 50-237/96014; 50-249/96014

This routine resident inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covered a 7-week period of resident inspection.

### Operations

- The facility was operated in a safe manner and previously identified minor deficiencies were corrected (Section 01.1).
- The Unit 3 low pressure heater bay had improved accessibility and housekeeping; however, minor material deficiencies were identified by the inspectors (Section 01.2).
- A manual reactor trip was initiated in response to a loss of the 3B reactor recirculation motor generator set. Plant and safety equipment functioned as expected (Section 02.1).
- Unit 3 emergency diesel generator (EDG) ejected a cylinder test valve after a surveillance run. No personnel injuries or significant damage resulted and after minor repairs the EDG was returned to service (Section 02.2).

### Maintenance

- In general, maintenance activities were well controlled; however, two work stoppages were issued due to non-safety related parts control and contractor work practices (Section M1.1).
- Significant repair work on the 3B reactor recirculation pump motor was well executed and managed. Root cause for the motor failure was foreign material intrusion into the stator windings (Section M2.1).
- Construction era rag was found inside the Unit 3 high pressure coolant injection (HPCI) lube oil cooler waterbox. Tube leaks were repaired and the system was restored to service (Section M2.2).

### Engineering

- The licensee failed to perform post-modification testing on the Unit 2/3 main control room heating, ventilation and air conditioning (HVAC) system. This was an apparent violation (Section E2.1).
- An engineer failed to enter vendor technical information into the vendor equipment technical information program (VETIP) as required by plant procedures (Section E4.1).

- Inspector review of two temporary alterations identified some problems with implementation and technical evaluation (Section E4.2).

#### Plant Support

- Computer accounting system failed at the beginning of the plant assembly drill causing confusion. A thorough drill critique identified deficiencies and corrective actions (Section P4.1).
- Problems were identified with the level indication and switch calibration on the Unit 1 diesel-driven fire pump (Section F2.1).

## REPORT DETAILS

### Summary of Plant Status

Unit 2 began the period at a reduced load of about 300 MWe as some maintenance activities were concluded. The unit was returned to full power on October 22. On October 27 a 2% power derate was initiated due to feedwater flow instrument uncertainty. On November 23 a load drop was made to facilitate a drywell entry to add oil to the 2A reactor recirculation pump motor. The unit was returned to near full power the following day. On November 26 the 2% derate was lifted and the unit returned to full power. On November 28, power was reduced for changing condensate demineralizes and exercising control rod drives. The unit began a slow power increase on December 2 and returned to full power on December 3.

Unit 3 commenced this inspection period in coastdown in preparation for refueling outage D3R14. On October 26, the 3B motor generator (MG) set tripped and after a short period of single loop operations the reactor was manually tripped on October 27, and a forced outage commenced.

## I. OPERATIONS

### 01 Conduct of Operations

#### 01.1 General Comments (71707)

Routine day-to-day facility operations were observed by inspectors both in the control room and in the field. Main control board walkdowns and reviews of various operating logs were also performed. Previous observations discussed in Inspection Report 50-237/249-96013, dated December 31, 1996, regarding minor breakdowns in control room decorum, 3-way communications, and responsiveness to annunciators were not observed during this inspection period. Generally, operator performance inside the control room continued to be crisp and professional. A weakness was noted with operations personnel outside the control room, specifically, operator knowledge of the Unit 1 diesel-driven fire pump day tank level switches (paragraph F2.1).

#### 01.2 Tour of Low Pressure Heater Bay (Unit 3)

##### a. Inspection Scope (71707)

The inspectors toured Unit 3 low pressure heater bay and observed the general material condition, housekeeping, and temporary alterations installed on heater drain valves.

##### b. Observations and Findings

Overall, the inspectors noted significantly improved housekeeping over the past nine months; however, numerous undocumented material discrepancies were identified. These discrepancies included valves

missing packing gland fasteners, open junction and electrical cable pull boxes, and misadjusted piping hangers. After a discussion about general conditions, several items were identified to the licensee for correction.

Followup tours of the Unit 3 LP heater bay found that the specific items had been addressed and a few additional items had been identified by the licensee. One of the additional items identified by the licensee was an open lighting junction box above one of the room exits. The tag for this item was attached to a cable tray protective cover through a hole where the cover bolt and stud had broken off. Additionally, the cover had several loose or broken nuts, however, none of these deficiencies were identified by the licensee.

c. Conclusions

The significant improvement in the housekeeping of the LP heater bay allowed a greater portion of the room to be more easily accessible. The reduction in contaminated areas further improved accessibility to the room. However, the identification of material condition problems in less traveled areas of the plant continued to be a challenge.

02 **Operational Status of Facilities and Equipment**

02.1 Recirculation Motor-Generator (MG) Set "B" Trip (Unit 3)

a. Inspection Scope (71707)

On October 26, at 1758 the 3B Recirculation pump tripped due to tripping of the 3B MG set. Onsite response to this event was performed by the inspectors, and observation of control room personnel performance during the power reduction and manual reactor scram was accomplished. The following operational procedures were reviewed:

- Dresden Annunciator Procedure (DAN) 903-4 A6, 3B RECIRC M-G SET GEN LOCKOUT.
- DAN 903-4 A7, 3B RECIRC PP DP LO.
- DAN 903-4 D8, 3B RECIRC PP LOWER LUBE OIL LVL LO.
- Dresden Operating Abnormal (DOA) 0202-01, Recirculation Pump Trip One or Both Pumps.
- Dresden General Procedure (DGP) 02-01, Unit 2 (3) NORMAL UNIT SHUTDOWN
- DGP 02-03, REACTOR SCRAM
- DGP 03-03, SINGLE RECIRCULATION LOOP OPERATION

b. Observations and Findings

The root cause of the MG set trip was not immediately known and single loop operation commenced. The inspectors responded to the site and monitored the reactor down power and the subsequent manual reactor trip at 0201 on October 27. After the 3B MG set tripped, the 3A MG set was reduced to 60 percent power in accordance with approved procedures and

the unit was stabilized at about 34 percent power. Power was further decreased to 25 percent using recirculation flow and a manual reactor trip signal initiated. Systems responded as expected with the exception of rod position indication failures for two rods and two intermediate range monitor failures. For the evolutions observed, plant operators followed all appropriate procedures during the course of the shutdown. Control room decorum and 3-way communications were maintained throughout the event.

c. Conclusion

The plant response to the loss of a single reactor recirculation pump was in accordance with expectations and plant design. The control room operators followed procedures and conducted an orderly shutdown.

02.2 Emergency Diesel Generator (EDG) Ejected a Cylinder Test Valve During Troubleshooting Run (Unit 3)

a. Inspection Scope (71707)

The inspectors observed a test of the Unit 3 EDG and observed the licensee's response to the observed test failure. Field observations, system and equipment inspection walkdowns were performed before and after the valve ejection occurred. Additionally, the inspectors reviewed the following documentation:

- Vendor Equipment Technical Information Program (VETIP) Manual 1163, Electro-Motive Diesel Engine.
- Dresden Electrical Surveillance (DTS) 6600-01, Diesel Generator Governor Oil Change and Compensation Adjustment
- Dresden Operations Surveillance (DOS) 6600-01, "Diesel Generator Surveillance Test."

b. Observations and Findings

On November 24, the inspectors observed performance of Dresden Electrical Surveillance (DTS) 6600-01 for the Unit 3 EDG. No abnormalities were noted during the initial performance of the test. Subsequent to test performance, the Shift Manager informed the inspectors that the EDG had ejected a cylinder test valve from Cylinder 20. The High Voltage Operator (HVO) had entered the room to secure the EDG and reported that the test valve had blown out. The inspectors returned to the Unit 3 EDG room shortly after the EDG was secured.

The test valve had blown out of Cylinder 20 on the EDG generator end. The valve appeared to have impacted the wall directly adjacent to the valve and fallen to the floor. No damage was evident from the valve ejection, other than carbon buildup on piping near the cylinder test valve port. Inspection of the test valve showed no damage or unusual wear. No personnel injuries were reported and the licensee immediately initiated a prompt investigation into the event.

During additional inspection on November 25, the inspectors noted that the Unit 3 EDG cylinder test valves did not appear to be threaded into the cylinder block as far as the test valves on the Unit 2 or 2/3 EDGs. This information was conveyed to the licensee's team performing the prompt event investigation.

The prompt investigation determined that the test valves had been replaced in December 1995, and that the ejected valve must have had a relaxed torque that was further loosened due to normal EDG vibrations. Additionally, Cylinder 20 on the Unit 3 EDG was the cylinder with the highest compression pressure on the engine. The licensee did not perform a formal root cause evaluation of this event although several corrective actions were performed. The EDG was repaired and was returned to service on November 27.

c. Conclusions

Operations personnel performed the surveillance testing in accordance with the appropriate procedures and were observed closely monitoring EDG performance.

**08 Miscellaneous Operations Issues (92700)**

08.1 (Closed) Violation (50-237;249/95010-03): Control of Overtime Not Implemented In Accordance With Generic Letter (GL) 82-12. Revision 1 to Dresden Operating Procedure 01-09, Control of Overtime, authorized November 14, 1995, incorporated the guidance established in GL 82-12. This action appeared adequate to prevent recurrence; however, the recently completed independent safety inspection (ref. IR 50-237;249/96-201, dated December 24, 1996, Section 6.3.3) identified continuing problems with corrective action for control of overtime. This item is closed and further followup will be documented against Independent Safety Inspection (ISI) Deficiency 50-237;249/96-201-29.

08.2 (Closed) Inspector Followup Item (IFI) 50-237;249/96002-04: Atmospheric Containment Atmosphere Dilution (ACAD) Operating and Surveillance Procedures' Bands Differ. The inspectors noted that the ACAD system air receiver operating pressure band was being maintained at 44 to 57 psig, which was above the band in Dresden Operating Procedure (DOP) 2500-01, "ACAD Dilution Subsystem Operation" (41 to 52 psig). Dresden Operating Surveillance (DOS) 2500-01, "ACAD Compressor Surveillance," and Dresden Administrative Technical Requirements (DATR) both listed a pressure band of 44 to 57 psig. To resolve this issue, the licensee planned to revise the appropriate ACAD procedures. The inspector reviewed the revised ACAD procedure (DOP 2500-01) and the changes to the UFSAR and had no further concerns. This item is closed.



## II. Maintenance

### **M1 Conduct of Maintenance**

#### **M1.1 General Comments (62707)**

In general, maintenance activities at the facility were well controlled and performed in accordance with approved work packages and procedures. Numerous tasks were observed in the field and minor observations were discussed with the appropriate licensee staff. Scheduling and work planning continued to be difficult problems. This was evident when a stop work order was issued during the conduct of maintenance which left an oil pump for both the 2A and 2B MG set oil skids out of service, thereby leaving both MG sets in a more vulnerable condition.

Significant work activities that were performed during this inspection period not receiving specific comment included the following:

- 3D Electromatic Relief Valve Flange Leak Repair
- Unit 3 EDG Power Pack Replacement

Additionally, during this report period the licensee issued two stop work orders. The first, issued November 21, regarded the retraining of contractor personnel in the use of nuclear standard work procedures. This was in response to a failure of contract worker personnel to comply with facility safe work practices. The second, issued November 24, regarded the procurement and use of non-safety related parts. This was partially in response to the 3A control rod drive pump discharge isolation valve that was installed with a through wall pinhole leak. Both work stoppages were of short duration and were appropriate responses to address specific maintenance problems.

### **M2 Maintenance Material Condition of Facility and Equipment**

#### **M2.1 "B" Reactor Recirculation (RR) Pump Motor Repair (Unit 3)**

##### **a. Inspection Scope (62707)**

During the report period, the inspectors observed licensee actions to troubleshoot and repair the 3B reactor recirculation (RR) motor trip. Portions of the field preparation and actual repair were observed by the inspectors. In addition, work package preparation and special rigging and load testing documentation were reviewed including the following:

- Vendor Manual GEK-26132, "Boiling Water Nuclear Reactor Recirculating Water Pump Motors for the Dresden II and III nuclear power station of the Commonwealth Edison Company by the General Electric Atomic Power Equipment Department."
- Special Procedure (SP) 96-11-019, "3B RR Pump Motor In-place Repair."



- Dresden Engineering Document 5254777. "Reactor Recirculation Pump Motor Refurbishment - Details for the Engineered Impact Mat - Unit 3."
- Dresden Engineering Document 5257492. "Reactor Recirculation Pump Motor Refurbishment - Details for Pump Bowl Shimming, Engineered Impact Mat and Rigging."
- Dresden Engineering Document 5253222. "Rigging of the 3B Recir. Pump Motor End Bell, Rotor and Stator to Repair the Motor in Place."

b. Observations and Findings

After the October 26, 3B RR pump MG set trip, the licensee's troubleshooting effort located a ground in the pump motor. Two approaches to resolve the problem were developed; repair the motor in-place, or replacement with a rebuilt motor. A rebuilt motor was obtained and brought to the site, but work to repair in-place continued.

The repair work included load-testing the drywell monorail; design, testing, and installation of an engineered impact mat; development of a rigging plan for the motor endbell, rotor and stator; and identifying possible repair techniques. The plan called for the removal of the motor endbell and rotor and the lifting of the stator. The stator needed to be lifted high enough to allow access for inspection and repair. Once the package was finally prepared, a special plant operations review committee (PORC) reviewed and approved the plan.

During the preparation of the work, the inspectors reviewed selected portions of the packages and observed monorail and impact mat testing. The use of a computer-generated animation of the lifting process greatly aided all personnel in understanding the job. Also, the assignment of the Operations Manager as a dedicated project manager ensured continuity on the project.

During the stator inspection a small piece of banding material was discovered shorting one motor phase. The foreign material was removed and the damaged area of the windings repaired. After successfully testing the windings, the motor was reassembled. The piece of banding material most likely entered the motor in late 1990 to early 1991 time frame when the endbell had been removed for maintenance. The banding material was similar to material used to secure component identification label plates inside the drywell. The licensee suspected that some of this material was dropped into the motor and eventually shorted the stator. Additional foreign material found inside the motor was removed.

The intrusion of foreign material into various components at the facility has been a longstanding problem. However, the inspectors' recent observations of foreign material exclusion (ME) practices indicated that significant improvements have been made over past practices.

The inspectors observed various activities as the work progressed and noted that the job was well managed and skillfully performed. Disassembly, repair, and reassembly progressed as expected and no major problems with the work plans were encountered. Radiation protection controls and practices were followed and the use of a video monitor for the viewing of the work was a good "as low as reasonably achievable" (ALARA) practice.

c. Conclusions

The 3B RR pump motor repair was well coordinated. Management and Site Quality Verification oversight were maintained and no significant unanticipated problems occurred. The finding of several pieces of foreign material inside a major component was not a new issue at the facility and efforts to improve FME continued to receive appropriate management attention.

M2.2 Rag Found in High Pressure Coolant Injection (HPCI) Lube Oil Cooler. (Unit 2)

a. Inspection Scope (62707)

The inspectors inspected the Unit 2 HPCI lube oil cooler and observed the rag found by the licensee during emergent maintenance work. A review of the licensee's efforts to identify when the rag entered the system was also performed.

b. Observations and Findings

The HPCI system was declared inoperable on November 27, due to excessive water contamination in the turbine lubricating oil. While performing maintenance to repair the water leaks in the lube oil cooler, maintenance personnel discovered a rag in the cooler water box. The rag covered a significant portion of the cooler tube openings and appeared to have been acting as a filter for the cooling medium.

The licensee suspects that the rag had been used as an FME cover during facility construction and was never removed. The assumption was substantiated due to the lack of finding any previous maintenance items that required removal of the HPCI lube oil cooler endbells in the maintenance database. Further database searches showed that no recorded maintenance work had been performed on the cooler or cooling system that would have allowed visual identification of the rag since the system was originally placed in service. The licensee also reviewed surveillance test data and did not identify any instance of the HPCI system being inoperable or degraded due to inadequate lube oil cooler performance.

Repair efforts were completed and the cooler was reassembled and satisfactorily tested. Unit 2 HPCI was returned to service on December 1, with no further problems.

c. Conclusions

All observed maintenance activities were performed in a skilled manner, however, the discovery of the rag in the cooler further emphasized the need to continue monitoring FME controls.

**M8 Miscellaneous Maintenance Issues (92902)**

- M8.1 (Closed) Inspector Followup Item 50-237/249-95008-01: Failure to Follow Procedure Resulted in Two Inoperable Core Spray Systems. On April 24, 1995, the licensee reused o-rings on environmentally qualified equipment and only hand tightened the transmitter covers in violation of the procedure. The inspectors reviewed information on reused o-rings and hand tightened covers in CHRON # 0308805 and a referenced letter from Rosemount. The information appeared adequate to support the licensee's operability determination. This item is closed.

III. Engineering

**E2 Engineering Support of Facilities and Equipment**

- E2.1 Failure to Perform Adequate Post-Modification Testing of the Control Room Heating and Air Conditioning (HVAC) System (Units 1, 2 and 3)

a. Inspection Scope (37551)

The inspectors continued to observe and monitor the licensee's progress in correcting control room HVAC design and testing deficiencies. The following documentation was reviewed:

- Modifications M12-2/3-82-1, M12-0-87-005 and M12-0-86-006; Unit 1 Control Room Modifications.
- DTS 5750-06, "Control Room Standby HVAC Air Filtration Unit, and Refrigeration Condensing Unit Performance Requirements," dated August 24, 1996.

b. Observations and Findings

The licensee continued work on sealing penetrations into the Unit 2/3 control room, auxiliary computer room, and train "B" HVAC room. At the close of this report period, efforts to remove a temporary alteration and return the auxiliary computer room into the control room envelope were unsuccessful. The licensee continued testing and achieved and maintained positive pressure requirements with the exception of the auxiliary computer room. Further work was planned to correct problems in the computer room and return the room to the control room envelope.

Background information on this issue can be found in Inspection Report 96013 (paragraph E2.4) and Independent Safety Inspection (ISI) Report 96-201 (paragraph 4.6.4.1). The significance of this event was previously considered an Unresolved Item (50-237;249/95013-02).

c. ISI Report 96-201, dated December 24, 1997, paragraph 4.6.4.1

Sections 6.4.2 and 9.4-3 of the UFSAR described the design basis for the control room HVAC system. Section 6.4.2.4 stated that potential adverse interactions between the control room emergency zone and adjacent zones that may allow the transfer of toxic or radioactive gases into the control room were minimized by maintaining the control room at a positive pressure of 1/8-inch water gauge (iwg) during emergency pressurization modes, and with respect to adjacent areas.

On October 8, 1996, the licensee declared the control room HVAC system inoperable because of the inability to maintain the control room at a positive pressure during normal operations and at 1/8 iwg with respect to the surrounding areas in the emergency mode. The control room ventilation system had not been maintained or properly tested to ensure that the system operated within its design basis. Modifications had been implemented, or partially implemented, which resulted in negative pressure within the control room and the inability to pressurize the control room to 1/8 iwg in the emergency mode. In addition, instrumentation that was used to verify the control room pressure was positive in the emergency mode had not been calibrated, and had not been installed in accordance with the piping and instrumentation diagram.

In September 1996, the licensee began reviewing open modifications for the control room ventilation system, and subsequently determined that several control room modifications, which had not been completed, contributed to the inability to pressurize the control room as stated in the UFSAR. These incomplete modifications were identified as a result of the licensee's efforts to close all modifications or approve the as-built configuration. The specific modifications affecting the control room included:

- M12-0-87-005-D provided for the installation of security equipment such as bullet resistant plating for walls and ceilings, new east-west kitchen and locker room area, fire and non-fire rated doors, and the sealing of new and unused wall and floor penetrations. Field work was initiated in August 1991 and completed in January 1992. Post-modification testing was not performed.
- M12-0-87-005-E provided supply and exhaust ventilation systems for the new locker room and kitchen areas, new fire dampers in duct work penetrating fire walls, control logic for operation of the isolation dampers, and an interlock for the exhaust fans from the isolation dampers. Field work was started in September 1991 and completed by June 1993. The post-modification testing, including logic testing and emergency pressurization testing to verify 1/8 iwg was not performed.
- M12-0-86-006-C provided supply and return side duct silencers, thermally insulated duct work, and manual volume dampers in the

shared return duct works. The field work was started in March 1989 and the documentation closure was completed in September 1993. Post-modification testing was not completed.

- M12-0-86-006-D provided for the removal of existing HVAC duct work supports inside the Unit 2 and 3 control room, installed acoustical tile, installed new duct work including hangers and safety chains, reworked existing ductwork inside the control room, and removed existing butterfly dampers inside the control room. The field work was initiated in June 1989 and the work was determined to be completed in May 1993. Post-modification testing was not completed.
- M12-2/3-82-1 added the HVAC Train B in 1982; however, the NRC's ISI team concluded the modification was not adequately tested.

Surveillance Procedure (DTS) 5750-06, Revision 3, "Control Room Standby HVAC Air Filtration Unit, and Refrigeration Condensing Unit Performance Requirements," dated August 24, 1996, only required 1/8 iwg positive pressure in the control room and did not ensure that pressure was greater than 1/8 iwg for the surrounding areas. In addition, the instrumentation used to verify the control room differential pressure (dp) was not calibrated nor verified to be appropriate for the parameters being measured. Specifically, dp Instruments DPI-2-5740-31/32 and 36 for the control room and east turbine building had not been calibrated. The licensee also identified that the control room instrumentation was mislabeled with respect to the areas being sensed and, according to the drawings, other sensing lines were misrouted or were broken.

d. Conclusions

The licensee's failure to perform testing of modifications performed to Unit 2/3 control room HVAC system, as discussed above and detailed in the ISI Inspection Report 96-201, section 4.6.4.1, dated December 24, 1996, is an Apparent Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Controls," (50-237/249-96014-01).

The apparent violation is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. Accordingly, no Notice of Violation is presently being issued for this inspection finding. The significance of the issue, and short term corrective actions were discussed with the licensee in the exit meeting for this inspection period on December 19, 1996.

Before the NRC makes an enforcement decision, the licensee will be provided an opportunity to respond to the apparent violation at a pre-decisional enforcement conference, as described in the cover letter to this report.



### E3 Engineering Procedures and Documentation

#### E3.1 Additional Updated Final Safety Analysis Report (UFSAR) Discrepancies

##### a. Inspection Scope (71707)

The inspectors used the UFSAR as a technical reference during a review of findings from a routine drywell tour. A comparison of actual plant configuration was made to the descriptions contained in the UFSAR. Note that other UFSAR discrepancies regarding the control room HVAC system were documented in Section E2.1.

##### b. Observations and Findings

Prior to performing a Unit 3 drywell routine tour the inspectors reviewed various UFSAR sections including section 6.1.1.1, "Materials Selection and Fabrication." This section stated, "All piping inside containment is covered with metallic mirror-type insulation." During the drywell tour the inspectors found this not to be the case as several other types of insulation were used on piping. The licensee confirmed that the other types of insulation identified by the inspectors were acceptable for use in the drywell. This discrepancy was discussed with the licensee and a change to the UFSAR and a performance improvement form (PIF) were initiated.

##### c. Conclusion

The above example showed that discrepancies between plant configuration and the UFSAR still exist. However, the licensee was taking prompt actions to resolve identified discrepancies.

### E4 Engineering Staff Knowledge and Performance

#### E4.1 Failure to Update Emergency Diesel Generator (EDG) Vendor Technical Information Manual (Units 2 and 3)

##### a. Inspection Scope (37551)

While inspecting the licensee's response to a Unit 3 EDG test valve failure (Section 02.2 of this report), the inspectors reviewed the approved vendor technical manual. The inspectors compared the approved vendor manual to the conditions that existed in the field and conducted discussions with the system engineer and engineering management. The following administrative procedures were also reviewed;

- Dresden Administrative Procedure (DAP) 02-10, "Control of Vendor Equipment Technical Information," Revision 5.
- Nuclear Engineering Procedure (NEP) 07-04, "VETIP Process Control," Revision 0.

b. Observations and Findings

The inspectors noted that the test valves depicted in the manual were different from those installed on the EDGs. During discussion with the licensee, the correct information was found in the system engineer's desk. Maintaining vendor supplied technical information in an uncontrolled manner was contrary to the licensee's vendor equipment technical information program (VETIP). Dresden Administrative Procedure 02-10, Revision 5, Section E.5 required that "Existing, uncontrolled, and incoming ETI (Equipment Technical Information) shall be reviewed and added to VETIP so that the latest/most applicable information is available for station use."

In addition, NEP 07-04, Section 5.2.1.2, required that "The person receiving new vendor manual revision data shall forward the information to the VETIP Coordinator attached to the VETIP Authorization Form (Exhibit A) or suitable equivalent."

The licensee initiated a PIF documenting the misplaced vendor data and forwarded the information to the VETIP coordinator for inclusion into the EDG VETIP manual.

c. Conclusions

Past weaknesses in the VETIP program were previously documented in Inspection Report 96006, section M2.1, dated August 22, 1996. The licensee was not successful in assuring the VETIP was properly implemented. Not entering the EDG test valve technical information change into the VETIP program as required by approved procedures was a Violation of Technical Specification 6.2, Procedures and Programs (50-237/249-96014-02).

E4.2 Review of Temporary Alterations Related to the Control Room HVAC Repair and the 125Vdc and 250Vdc Batteries (Units 2 and 3)

a. Inspection Scope (37551)

The inspectors reviewed two installed temporary alterations. The review included a field walkdown of the alterations and a review of the associated documentation and procedures including:

- DAP 05-08, "Control of Temporary System Alterations."
- Temporary Alteration No. III-53-96, "Isolate HVAC Supply/Return To and From the Aux Computer Room."
- Temporary Alteration No. III-33-96, "Supply Temporary Heat to U2 125V and 250V DC Battery Rooms."

b. Observations and Findings

The auxiliary computer room temporary alteration was installed to isolate the room from the control room while the control room walls were sealed. The temporary alteration called for three portable air



conditioning (AC) units to be placed in the room and vented out the auxiliary computer room door. During the walkdown, the inspectors noted that the door to the room was left open to accommodate the three exhaust trunks used to expel heated exhausts from the portable AC units. This arrangement essentially countered any benefit received from the AC units because of the free exchange of warmer auxiliary electrical room air into the auxiliary computer room.

The Unit 2 battery rooms temporary alteration was installed to ensure that the proper temperature was maintained in the battery rooms while work was in progress on the normal ventilation system. During the walkdown, the inspectors observed that the alteration had been installed as intended and that a firewatch was present. Both doors to both battery rooms were also open which, although allowed by the temporary alteration, seemed unnecessary and even counterproductive to the intended design.

Additionally, the inspectors noted that the battery rooms were about 81°F, well above the required temperature of 68°F. This observation was conveyed to the licensee and the battery rooms were returned to normal and the firewatch secured. Subsequently, room temperature was monitored by hourly operator rounds.

A documentation review showed that the technical evaluation had been identified as not safety related. The documented explanation stated that the batteries were safety-related, but the room HVAC system was not.

The 125V and 250V batteries were the most risk significant system at the facility and were clearly safety-related. The temporary alteration was only concerned with maintaining the room temperatures above 68°F to assure the batteries were not in a degraded condition. Therefore, the installation of the temporary alteration directly affected the two station batteries, not just the room HVAC.

c. Conclusions

Although the alterations were installed as written, the design effectiveness was flawed. This appeared to be the result of an ineffective field walkdown of the alteration and a weak review of the design implementation. Additionally, the licensee maintained that the battery room alteration only affected the battery room HVAC system and was not safety-related. Further discussions will be needed to resolve this issue; therefore, this issue will remain an Unresolved Item (50-237/249-96014-03).

## E6 Engineering Organization and Administration

### E6.1 Engineering Department Management Changes (37551)

A new Site Engineering Manager, Mr. Russell Freeman, was appointed during the report period. Previously, Mr. Freeman was the Dresden Plant Engineering Superintendent.

## E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) Unresolved Item (50-237/249-95015-05): Corner Room Steel. This issue regarded the corrective action for inadequate corner room structural steel design margins, and was the subject of escalated enforcement and a civil penalty (EA 96-115) on June 13, 1996. This item is closed.

E8.2 (Closed) Unresolved Item (50-237/249-96013-02): Control Room Ventilation System Operability. This issue regarded the licensee's corrective actions to resolve inadequate post-modification testing of the control room HVAC system. This issue was reviewed and is an example of an apparent violation discussed in Section E2.1 of this report. Additional followup of this item will be documented against this reports assigned tracking number. This item is closed.

## IV. Plant Support

### P4 Staff Knowledge and Performance in EP

#### P4.1 Performance during Assembly Drill (Units 1, 2 and 3)

##### a. Inspection Scope (82701)

On November 26, the inspectors observed licensee response to an unannounced site assembly drill. Documents reviewed included Emergency Plant Implementing Procedures (EPIP) 0400-01, "Plant Assembly and Accountability."

##### b. Observations and Findings

The station alarm was sounded at 1230 and the site assembly drill was announced on the station public address system. The inspectors responded to assigned assembly points and noted that the computerized assembly card reading system was not operating. After being manually accounted, the inspectors went to other assembly areas to observe activities.

In the Administrative Building the accounting process was in disarray. The lunchroom and main hallway were filled with personnel waiting to be counted. Twenty minutes into the drill the licensee initiated a manual accounting of personnel in the Administration Building. This was accomplished by handing out sheets of paper to management personnel and

requiring managers to count assigned personnel. At one point a station supervisor directed assigned personnel to leave the Administration Building and go to a work area. This was followed by similar direction from another supervisor. The individual in charge of the accountability activities in the Administration Building halted the exodus and stated that the accounting for all groups would be completed in the Administration Building.

The licensee was able to gain control of the accounting process; however, the licensee was not able to complete the accounting within the allotted time. Station management determined that performance during the drill was unsuccessful and another drill was scheduled. The licensee's critique was thorough and independently addressed all of the inspectors' concerns.

c. Conclusions

The difficulty the licensee experienced in accounting for the station staff manually demonstrated there had been an over-reliance on the computer counting. The licensee's thorough post-drill critique correctly assessed the weakness in performance and established appropriate corrective actions.

**F2 Status of Fire Protection Facilities and Equipment**

**F2.1 Problems Identified with Diesel-Driven Fire Pump (Units 1, 2 and 3)**

a. Inspection Scope (64704)

The inspectors performed walkdowns of the Unit 1 diesel-driven fire pump and all associated equipment and held several discussions with licensee staff. The following documentation was also reviewed:

- DAN 901-2 E-8, "U1 Fire PP Day Tank Leveling."
- Dresden Fire Protection Surveillance (DFPS) 4123-01, "Unit 1 Diesel Fire Pump Operability."
- Schematic Diagram 12E-6580F, "Fire Protection System Diesel Driven Fire Pump Intake Structure."
- Wiring Diagram 12E-6580G, "Diesel Driven Fire Pump."

b. Observations and Findings

On November 15, the Unit 1 diesel-driven fire pump failed a surveillance run. The cause for the failure was the closing of the fuel supply solenoid valve that occurred when a power lead to the valve vibrated off a terminal. During subsequent walkdowns of the pump and associated components, the inspectors questioned if the local fuel oil storage tank level float was operating properly. The work execution center (WEC) supervisor was contacted about the level indicator and stated that the indicator was working properly. Upon further investigation, the licensee determined that the level float was not operating properly.

The installed level float indicated the tank was between 3/4 and 7/8 full, when the tank was only a little more than half full.

The inspectors also questioned the low level alarm switch calibrations and requested the latest calibration records. The same WEC supervisor was contacted and stated that there was a high level alarm but no low level alarm on the tank. The inspectors reverified that there was a low level switch, a high and a high-high level switch. The licensee then determined that the level switches were not in the calibration program and could not find any documentation of the switches being calibrated.

The fuel tank local level indicator float was repaired and the level switches were calibrated. The solenoid power lead was reterminated and the Unit 1 diesel-driven fire pump successfully passed surveillance testing and was returned to service.

c. Conclusion

The fire protection system has had numerous problems over the last few months and did not appear to be receiving an adequate level of attention. The system operation was not fully understood by some members of the plant staff.

**F8 Miscellaneous Fire Protection Issues (92904)**

- F8.1 (Closed) IFI 50-237/249-95008-10: Emergency Lighting. During a fire protection inspection, the inspectors identified that several emergency lights were dirty, several lights were aimed improperly, and one light was blocked by a plant modification. The licensee permanently relocated the blocked emergency light to a new location. The affected emergency lights were correctly aimed. Also, a procedure change was completed to Dresden Electrical Surveillance (DES) 4153-02, Safe Shutdown Emergency Lighting Quarterly Inspection, to ensure that emergency lights' lamps would be inspected and cleaned as necessary. This item is closed.

VI. Management Meetings

**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on December 19, 1996. The licensee acknowledged the findings presented.

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

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

S. Perry, Vice President, BWR Operations  
E. Connell, Design Engineering Superintendent  
T. Foster, Work Control and Outage Manager  
R. Freeman, Plant Engineering Superintendent  
J. Heffley, Units 2 and 3 Station Manager  
C. Howland, Radiation Protection Manager  
R. Kundalkar, Site Engineering Manager  
T. Nauman, Unit 1 Station Manager  
T. O'Connor, Operations Manager  
F. Spangenburg, Regulatory Assurance Manager  
P. Swafford, Unit 2/3 Maintenance Superintendent  
P. Tzomes, Support Services Director  
D. Winchester, Safety Quality Verification Director

## INSPECTION PROCEDURES USED

IP 37551: On-site Engineering  
IP 62707: Maintenance Observations  
IP 64704: Fire Protection Program  
IP 71707: Plant Operations  
IP 82701: Operational Status of the Emergency Preparedness Program  
IP 92901: Followup - Plant Operations  
IP 92902: Followup - Maintenance  
IP 92903: Followup - Engineering  
IP 92904: Followup - Plant Support

## ITEMS OPENED AND CLOSED

### Opened

50-237/249-96014-01	APPARENT	Failure to Perform Post-Modification Testing for
	VIO	Control Room HVAC System (Apparent Violation).
50-237/249-96014-02	VIO	Failure to Follow VETIP Procedure for Incoming
		Vendor Technical Information.
50-237/249-96014-03	URI	Battery Room Temporary Alteration.

### Closed

50-237;249/95010-03	VIO	Control of Overtime Not Implemented In
		Accordance With Generic Letter (GL) 82-12.
50-237/249-95015-05	URI	Corner Room Steel.
50-237/249-96013-02	URI	Control Room Ventilation System Operability.
50-237/249-95008-01	IFI	Failure to Follow Procedure Resulted in Two
		Inoperable Core Spray Systems.
50-237/249-95008-10	IFI	Emergency Lighting.
50-237;249/96002-04	IFI	Atmospheric Containment Atmosphere Dilution
		(ACAD) Operating and Surveillance Procedures
		Bands Differ.



# LIST OF ACRONYMS USED

AC	Air Conditioning
ACAD	Atmospheric Containment Atmosphere Dilution
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
CRD	Control Rod Drive
DAN	Dresden Annunciator Procedure
DAP	Dresden Administrative Procedure
DATR	Dresden Administrative Technical Requirements
DES	Dresden Electrical Surveillance
DFPS	Dresden Fire Protection Surveillance
DGP	Dresden General Procedure
DOA	Dresden Operating Abnormal
DOP	Dresden Operating Procedure
DOS	Dresden Operations Surveillance
dP	Differential Procedure
DTS	Dresden Technical Surveillance
EA	Enforcement Action
EDG	Emergency Diesel Generator
EPIP	Emergency Plan Implementing Procedures
ETI	Equipment Technical Information
FME	Foreign Material Exclusion
GL	Generic Letter
HPCI	High Pressure Coolant Injection
HVAC	Heating, Ventilation, and Air Conditioning
HVO	High Voltage Operator
IFI	Inspector Followup Item
ISI	Independent Safety Inspection
IWG	Inches Water Gage
LP	Low Pressure
MG	Motor Generator
MMD	Mechanical Maintenance Department
MWe	Megawatts Electrical
NEP	Nuclear Engineering Procedure
NOV	Notice of Violation
PDR	Public Document Room
PIF	Performance Improvement Form
PORC	Plant Operations Review Committee
psig	Pounds Per Square Inch Gauge
RR	Reactor Recirculation
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VETIP	Vendor Equipment Technical Information Program
WEC	Work Execution Center