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EXECUTIVE SUMMARY

Dresden Nuclear Station Units 2 and 3
NRC Inspection Report 50-237/97007; 50-249/97007

This special safety maintenance team inspection included aspects of licensee maintenance, engineering, and plant support. The report covered a 2-week onsite period of inspection by the full team, and some onsite followup inspections conducted by individual team members up to the date of the exit meeting held on May 12, 1997.

Maintenance Program

Work Control

The outage control center (OCC) functioned adequately and was providing the services expected from it. Personnel staffing the OCC understood their positions and objectives, and were generally supporting the outage adequately. With one unit in a refuel outage and a second unit in a forced outage, coordination problems between the Unit 2 and Unit 3 outage organizations were initially observed early in the inspection; however, corrective actions by the licensee significantly reduced the coordination problems over the 2-week onsite inspection period.

The work execution center (WEC), located just outside the main control room, was functioning effectively in reviewing and approving work packages and meeting the objective of reducing control room operator distractions. However; uncontrolled documents (desk top instructions) were being used in the WEC and elsewhere to enhance existing approved procedures. The team considered the licensee's approach to resolution of this issue acceptable.

The performance of work analysts was adequate, and work packages reviewed were generally of good quality. The work package rejection rate, while not precisely fixed, was not excessive. However, the work analysts were called upon to perform tasks which would normally be considered engineering. Examples included parts evaluation and system interaction analysis.

The original Unit 2 forced outage schedule was prepared to address three major problems: the switch block cracks in Merlin-Gerin 4kV breakers, leaking "X-area" coolers, and a condenser tube leak. Each of these activities exhibited elements of inadequate planning or coordination problems.

The licensee's existing and future scheduling systems appeared to be well thought out and structured. With Unit 2 in a forced outage and the new program in the early stages of implementation, an historical review was not conducted and no assessment was made with regard to the effectiveness of either the 12-week or 5-week programs (rolling schedules).

Performance of Maintenance Activities

Instrument Maintenance Performance

Instrument maintenance department (IMD) technicians were observed to be generally following procedures. However, some improvement in procedural adherence can be made. For the activities observed, the IMD technicians performed the maintenance and surveillance adequately, and when problems were encountered, IMD supervisors provided necessary assistance to the technicians to complete the jobs. The job preparation for the activities observed was appropriate.

Two violations, with two examples each, were identified regarding the failure to follow station administrative and surveillance test procedures. In the first example (M3.1), station administrative procedures were not followed to obtain a controlled key, and in the second example (M3.2), the station's approved method for independent verification was not translated into the implementing instructions. In addition, the training of contract Instrument Maintenance Department (IMD) technicians regarding the requirements of independent verification was not consistent with other maintenance departments.

The third and fourth examples (M4.1) of a violation in this area involved failure to follow test instructions. In one example, a power supply was left energized following testing contrary to procedural direction, and the other example involved using a wrong procedure revision to perform testing.

Mechanical Maintenance Performance

Mechanical maintenance activities were generally well performed. However, a violation with three examples of failure to follow station administrative requirements to assure proper foreign material exclusion were identified (M4.2). A separate violation (M4.2) with two examples was identified for failure to follow specific mechanical maintenance work instructions. The first example was a failure to monitor weld interpass temperature, and the second example involved performance of work without a sufficient work package at the job site. In addition, some poor work practices were identified with regard to minimum protective clothing requirements and unapproved rigging of components to piping systems.

Electrical Maintenance Performance

In general, electrical maintenance was properly planned, performed, and documented. Workers were knowledgeable and capable of performing the assigned work activities. Work observed in the switchyard was appropriately controlled and conducted in a manner to minimize the possibility of an offsite power interruption. Field work was effective at installing an emergent 4kV breaker modification, and assigned personnel appropriately halted work when discrepancies were noted in the work package instructions.

Two violations (M4.3) regarding the conduct of a Unit 3 "modified performance discharge test" for the 250 VDC battery were identified. First, test personnel failed to comply with a Technical Specification surveillance requirement to test in the "as found" condition. Second, a corporate engineering memorandum, recommending testing the 250 VDC battery in other than the "as found" condition, was not evaluated in accordance with the station's processes for procedural changes. The battery surveillance test problems appeared isolated, but the identified problems were significant with respect to test procedural control, quality, and performance.

Maintenance Backlog

The action request (AR) backlog was relatively low and only contained tasks that would not require a station work request to accomplish. The non-outage work request backlog contained tasks that were appropriate to be worked while the units were operating. The outage work request tasks were appropriately assigned to work during a unit outage. In addition, reasonable explanations were provided for work tasks deferred to future outages.

Knowledge of the current maintenance backlog was good. In general, the maintenance backlog was appropriately coded so individuals responsible for work prioritization had a sound data base. Some confusion existed in the data base due to incorrectly coded work requests and work tasks that were included in the data base, but actual field work was no longer required. The backlog of non-outage work request tasks was skewed in a direction indicating positive progress was being made at reducing the oldest backlog items and focusing attention on more recent equipment deficiencies.

Plant Support

Radiological Protection Performance

Some corrective actions to improve the control of licensed radioactive material within the site's radiological protected areas (RPAs) have been adequately implemented. Actions scheduled for implementation after the current Unit 3 outage appeared sufficient to improve licensee performance in this area. However, some training and repair issues remained incomplete. In addition, the action to have the greeters address HRA issues was not communicated to the greeters, and was not being conducted.

In general, radiological controls, ALARA initiatives, and job planning were effectively implemented which contributed to the lower than projected dose for the outage to date. Although some poor radiological work practices were observed, overall, there was good effort to prevent loitering and unnecessary crew size.

One example (R1.4) of a procedural violation regarding radiation worker practices was identified for failure to wear personal dosimetry in accordance with station administrative requirements. In addition, weaknesses were identified concerning poor housekeeping practices.

REPORT DETAILS

Summary of Plant Status

Unit 3 was in the third week of a scheduled refueling outage. On April 11, 1997, three days prior to the start of the inspection, Unit 2 entered a forced outage to repair cracked switch blocks on safety-related 4kV Merlin-Gerin circuit breakers. Both units remained in outages throughout the inspection period.

I. MAINTENANCE

M1 Conduct of Maintenance

M1.1 Work Control

a. Inspection Scope

The team examined the procedures and processes associated with outage work control. The team also monitored activities in specially designated outage management work spaces.

b.1 Observations and Findings on Work Execution Center

The team reviewed the work execution center (WEC) instructions, interviewed WEC staff, and monitored WEC activities. The WEC was responsible for authorizing the conduct of work after assuring work package completeness, out-of-service placement, and schedule adherence. The intent of the WEC was to reduce the amount of traffic in the control room, thereby reducing control room operator distractions. The WEC staff consisted of a supervisor, window coordinator, Unit 2 and 3 field supervisors, and an out-of-service (OOS) supervisor. The WEC staff were knowledgeable regarding the electronic work control system (EWCS), OOS procedures, plant conditions, and outage schedules. The team observed the processing and approval of work packages for replacement of brushes on both of the Unit 2 recirculation pump motor-generators. The window coordinator reviewed the packages and concluded that the contents were acceptable and met the requirements of Dresden Administrative Procedure (DAP) 15-06, "Preparation, Approval, and Control of Work Packages and Work Requests." The coordinator also verified that the OOS had been placed and that the work group supervisor was signed on to the OOS.

The team reviewed the WEC instruction binder. The instruction binder consisted of 16 instructions and 2 notes which provided guidance on a variety of topics such as valve and electrical lineup control, OOS package control, procedure revision review, pre-authorization of work packages, and electrical bus outage generic guidelines.

The team noted that most of these instructions dealt with operation of the WEC. However, in several cases, the instructions served as clarifications or detailed guidance for implementation of approved procedures. Of note were instructions concerning lineup and OOS package control, pre-authorization of work packages, and electrical bus and motor control center outage generic guidelines. WEC instructions were not reviewed, approved, or controlled. Use of uncontrolled guidance for the implementation of approved procedures was also noted in the work package preparation area and is discussed in Paragraph M1.2.b.1.

c.1 Conclusions on Work Execution Center

The team concluded that the WEC was functioning effectively in reviewing and approving work packages and meeting the objective of reducing control room operator distractions.

b.2 Observations and Findings on Outage Control Center

The licensee elected to establish independent outage management organizations to handle the Unit 2 forced outage concurrently with the Unit 3 refueling outage. The licensee also elected to keep maintenance resources separated between the outage organizations. The team monitored the operation of the Unit 2 forced outage "mini-outage control center (OCC)," and the Unit 3 refueling outage OCC. During this monitoring the team examined the functions of the positions established in the OCC: the shift outage manager, the maintenance outage manager, the plant support manager, and the outage risk manager. Members of the licensee's staff filling these positions were interviewed to assess their understanding of outage management and the processes involved. The team also consistently attended regularly scheduled outage management meetings to evaluate coordination between station departments and between Unit 2 and 3 outage management organizations.

While the licensee's decision to establish separate outage organizations was fundamentally sound, problems were encountered in implementing this approach early in the Unit 2 forced outage. The problems appeared to emerge from the rigid approach to keeping maintenance resources separated. Most of the station's maintenance resources were designated for the Unit 3 refueling outage with the expectation that Unit 2 would remain in operation. A short outage schedule was in place as required by DAP 18-02, "Unscheduled Forced or Maintenance Outage Planning." However, there were no indications of any planning to provide resources to implement that schedule in the event of a Unit 2 forced outage. Consequently, when Unit 2 was shut down, adequate resources were not available to deal with the scheduled work activities. Shortages were immediately evident in all disciplines, most notably carpenters for scaffolding construction and radiation protection (RP) technicians for area surveys. To immediately address the problem RP technicians were pulled from Dresden Unit 1 and the craft assigned to the fix it now (FIN) team were reassigned to Unit 2. Difficulties obtaining carpenters for scaffold erection continued through Tuesday, April 15, until the two outage managers met and developed a policy for sharing carpenters and other resources. This was one example where outage coordination was initially ineffective.

Early in the Unit 2 forced outage, it was recognized that two new "X-area" [outboard main steam isolation valve room] coolers would not be onsite in time to support the Unit 2 scheduled startup date. A decision was made to transfer a cooler from the Unit 3 X-area. During a subsequent meeting on April 17, the topic of which Unit 3 cooler was to be put in Unit 2 was discussed and outage staff present at the meeting were unaware that the decision had been made, nor was the outage staff aware of which cooler had been selected. That was another example of ineffective coordination.

A major activity during the Unit 2 forced outage was to identify and repair a condenser tube leak in the north water box. Coordination problems were evident early on with problems in obtaining qualified individuals to erect scaffold, conduct radiation and contamination surveys, and conduct confined space surveys. These problems, along with the planning problems discussed in Section M1.2.b.2, impeded the job until a designated team with a project manager was established. After this team was established and a detailed schedule was prepared, condenser repair activities proceeded more effectively. This was an additional example of ineffective coordination.

Initial coordination problems between the two outage management organizations were due, in part, to a lack of participation by the respective staffs in meetings held by the other outage staff. The first day of the inspection the team noted that no staff from the Unit 2 outage organization was present at the 6:30 a.m. Unit 3 outage status meeting, nor were staff from the Unit 3 outage organization present at the 7:30 a.m. Unit 2 outage status meeting. The situation was identical at the 1:30 p.m. and 2:00 p.m. outage schedule review meetings. This was corrected the next day and although some lapses occurred over the next few days, cross-participation became routine and effective in identifying issues with potential overlap.

During the review of the outage organizations, the team found that the positions established for the Unit 3 refueling outage were appropriate for dealing with the major areas of outage management. For example, the plant support manager was responsible for engineering and other plant support departments. The maintenance outage manager was responsible for overseeing job status and resolving problems identified by the work groups. The outage risk manager was responsible for monitoring shutdown risk status and ensuring that shutdown risk assessments were performed periodically and when required for changes in plant configuration. This activity was especially important during the electrical lineup changes that were necessary to support the 4kV breaker repairs. The shift outage manager was responsible to the station manager for overall outage performance and monitored schedule and budget performance, coordinated the efforts of the other outage managers, responded to emergent issues, and coordinated resources and activities with the Unit 2 outage manager. The Unit 2 forced outage organization was similar in concept, but was not staffed as comprehensively. The team noted that the individuals staffing these positions in both outage organizations understood the assignments and the station's outage management program.

During the early part of the inspection, the team noted that regularly scheduled meetings intended to either review outage status or examine the schedule were generally unstructured, informal, unfocused, and did not address specific accountability for assigned tasks. As the first week of the dual unit outage progressed, the team noted changes in these meetings. The meetings became more business-like and formal, discussions focused on specific tasks, individuals were assigned to specific tasks, and accountability for completion was exacted. This transition began with the Unit 2 outage meetings and by the beginning of the second week, was occurring with the Unit 3 outage meetings.

c.2 Conclusions on Outage Control Center

The team concluded that the OCC was functioning adequately and that it provided the services that licensee management expected of it. Personnel staffing the OCC understood the assigned positions, the objectives, and were generally supporting the outage adequately. Coordination problems between the two outage organizations were identified early in the first week of the inspection; licensee corrective actions subsequently reduced the occurrence of these problems. The team also concluded that there was a need to sharpen the focus of regularly scheduled meetings.

M1.2 Planning and Scheduling

a. Inspection Scope

The team reviewed the procedures and processes associated with planning and scheduling, including work package preparation, individual task plans, and scheduling systems used by the licensee. The team also assessed the licensee's ability to maintain the established schedule. The team interviewed members of the licensee's staff involved in the planning and scheduling processes. The team also reviewed the new corporate-wide non-outage scheduling system which Dresden was just beginning to implement.

b.1 Observations and Findings on Work Package Preparation

The team reviewed DAP 15-06, "Preparation, Approval, and Control of Work Packages and Work Requests," Work Analyst Guide to Work Package Preparation, EWCS Desk Top Instructions, and Maintenance Department Memo No. 100.14, Dated August 30, 1996. In addition, the team reviewed the following work request (WR) packages:

WR 960105540-01	U2 HPCI [high pressure coolant injection] Pump Suction from Condensate Storage Tank Check Valve Disassembly and Inspection
WR 970041990-01	U2/3 Air Filtration Unit 4-Inch Charcoal Filter Halide Testing

WR 950060862-01	Bus 34 - Clean, Inspect Bus Bars, Wiring, Supports, Insulation
WR 950065566-01	U3 Main Steam Line C High Flow Isolation Non-TS Surveillances
WR 960099060-01	Install Terminal Screws to ATWS [anticipated transient without scram] Analog Trip System Cabinet A
WR 970044365-01	Reinforce U2 Flued Head Anchor X-116B

No deficiencies were identified with any of the six packages

The team interviewed a work analyst and observed the preparation of a work package for replacement of a solenoid valve on the Unit 2 high pressure turbine. The team noted that the analyst was responsible for parts research, detailed work instructions, radiation work permit (RWP) preparation, and evaluation of system or component interactions and impacts. The analyst indicated that the majority of time spent in package preparation was related to parts research, selection, and justification. Considerable time was also expended in the research and development of detailed work instructions. The station did not maintain a comprehensive set of approved maintenance work instructions, consequently the analysts were frequently required to provide detailed work instructions. The analyst was also required to perform an impact analysis which examined the system interfaces and interactions to identify possible alarms, actuations and interferences. The analyst was familiar with the EWCS and the various data bases available and consequently did not need to use the work analyst guide nor the desk top instructions (DTI). The analyst indicated that these guidelines were available and were used extensively by recently assigned analysts still gaining familiarity with the process.

The team reviewed both the work analyst guide and the DTIs and noted that neither of these documents were reviewed, approved, or officially controlled. A pseudo control (tracking copies) had been applied to the work analyst guide but was unsuccessful. Three copies of the DTIs were reviewed in the WEC; one was noted to have hand-written revisions entered into it. This copy was immediately removed by the WEC supervisor. The licensee had recognized the potential problems intrinsic in allowing uncontrolled guidelines to be used to support implementation of approved procedures. A nuclear tracking system item had been previously opened by the licensee to track resolution of this problem. The licensee reviewed the WEC instructions, work analyst guide, and DTIs and concluded that these guidelines had not been used in the implementation of safety-related processes but recognized the potential. The licensee committed to revise DAP 09-01, "Station Procedures," to provide a clear definition for desktop instructions. The licensee also committed to have working departments review the desktop instructions and initiate changes to proceduralize the instructions as necessary.

Given the lack of comprehensive maintenance work instructions and the consequent need for generating detailed work instructions, the team was concerned with the potential for incorrect work instructions reaching the field. The team met with work analyst supervision and reviewed statistics on packages returned to the analyst. It was noted that packages were returned to the analyst for a variety of reasons, most having nothing to do with errors in package preparation by the analyst. Further discussions with work analyst supervision revealed that there was no method for discriminating between reasons, no way to directly identify trends from this data, and no way to determine what percentage of returned packages were due to preparation errors. There was trending of parts problems, OOS problems, and RWP problems from other data, but there was no direct correlation between the two measurements.

The team noted that the work analyst organization had implemented a work package quality control form in a effort to solicit feedback on the quality of work packages. The form was not a station requirement; however, the intent was to provide feedback from the shops after work packages were walked down. The team noted that for the majority of work packages completed, the form had not been completed nor was there any feedback on the quality of the package. As such little or no benefit was being derived from the effort.

c.1 Conclusions on Work Package Preparation

The team concluded that work analysts were performing adequately; work packages were generally of good quality and that the rejection rate, while not precisely fixed, was not excessive. The team noted that during package preparation, the work analysts were called upon to perform tasks which would normally be considered engineering. Examples included parts evaluation and system interaction analysis. The team also identified that a system of uncontrolled documents was being used to enhance existing approved procedures. The team concluded the licensee's existing approach to resolution of the uncontrolled document to be reasonable.

b.2 Observations and Findings on Work Planning

The team reviewed plans for the three major work activities scheduled for the Unit 2 forced outage and compared them to the actual performance of the work. These comparisons revealed lapses in the licensee's planning process for each of these tasks.

The licensee shut down Dresden Unit 2 after identifying that safety-related Merlin-Gerin 4kV circuit breakers in both units had auxiliary switch blocks that were cracked. A temporary modification was developed by engineering to correct the problem. Planning to install this temporary modification included development of a detailed "fragnet" to sequence the repairs to each breaker. It become apparent early in the job that the plan had not properly considered all of the changes to the electrical configurations of both units necessary to support the work. Major bus outages were considered but other electrical lineup changes were not identified.

This resulted in frequent adhoc meetings between outage management and operations to identify needed configurations, when, and how to get the plant into those conditions. One example of the impact of this lapse was observed when a bus drop would have deenergized the power for a diver's air compressor. This was recognized just before the bus drop was to have taken place. The licensee subsequently stopped work activities on this job and wrote a problem identification form (PIF) to evaluate the problem. At the close of the inspection, the PIF was still in process.

Planning for the Unit 2 condenser tube leak repair was also deficient. A specifically responsible individual had not been designated, a detailed fragnet to identify the sequence of activities had not been prepared, maintenance technicians had not been trained on the use of the sonic "gun," the foam needed to confirm the leaking tubes identified by the sonic gun had not been obtained, and the placing of OOS and drawing a vacuum by operations were not well coordinated. The job faltered until a dedicated team with a responsible project manager was selected. At that point, a detailed fragnet was developed and the job began to move forward. Within two days after the team was formed, the job was progressing efficiently.

Planning for the "X-area" cooler replacements did not consider the impacts on Unit 3 nor did it establish which coolers should be transferred between the units. This lapse was recognized by the Unit 2 outage staff and was resolved before it impacted the job.

c.2 Conclusions on Work Planning

Initially, the forced outage schedule was prepared to address three major problems: the switch block cracks in Merlin-Gerin 4kV breakers, leaking "X-area" coolers, and a condenser tube leak. Each of these activities exhibited elements of inadequate planning or coordination problems.

b.3 Observations and Findings on Non-outage Scheduling

The team reviewed DAP 15-01, "Initiating and Processing a Work Request," DAP 04-02, "Dresden Preventive Maintenance Program Control," Nuclear Station Work Procedure (NSWP)-WM-08, "Action Request Screening Process," and NSWP-WM-09, "Maintenance Work Scheduling Process Week E-5 to E+1." The team also reviewed schedules and reports associated with the non-outage scheduling process. At the time of the inspection, the Dresden scheduling process was a 12-week, system window program. System windows were scheduled in advance and as work activities were identified they were assigned to the appropriate window. The process began 12 weeks in advance of the date of work execution and contained established milestones for preparation throughout the period. Reports and schedules were published periodically throughout the process to track progress. The process was comprehensive and well-structured; however, the team was not able to assess its effectiveness because Unit 2 entered a forced outage on April 11, 1997, three days before the inspection began.

The team also met with cognizant licensee staff to review and discuss a new scheduling system commonly known as the "Braidwood initiative." This process was defined in NSWP-WM-09 and focused on a period encompassing the five weeks prior to the scheduled work execution to one week after scheduled execution. As with the 12-week plan, there were established milestones for work preparation. The licensee planned to integrate this new program into the current 12-week cycle and then phase out tracking the actions which took place between weeks 12 and 5. Those actions would not be eliminated, but work preparation would be expected to be at the same status when it entered the five-week schedule as if it had tracked through the process from week 12 to week 5. Because the program was in the early stages of implementation, the team had no opportunity to evaluate the system's effectiveness.

c.3 Conclusions on Non-outage Scheduling

The licensee's present and future scheduling systems appeared to be well thought-out and structured. With Unit 2 in a forced outage and a new program in the early stages of implementation, the team chose to forego a historical review and focus on activities in process. Consequently the team drew no conclusions with regard to the effectiveness of either the 12-week or five-week programs.

b.4 Observations on Outage Scheduling

The team reviewed DAP 18-02, "Unscheduled Forced or Maintenance Outage Planning," and DAP 18-04, "Management of Planned Outages." Both procedures were comprehensive and appeared to properly address the significant aspects of outage planning. The team reviewed the licensee's outage scheduling program and noted that it was essentially a standard P2 process, similar to that used by many other utilities. The team reviewed several different versions of the licensee's outage schedules and noted that durations and resource allocation were generally appropriate. The team noted that the licensee's ability to execute the schedule was hampered by several factors. Emergent work was the primary factor, as evidenced by the need to respond to flued head anchor repairs on Unit 2 penetrations X-116B, X-109B, X-115A, and X-111A, excessive vibration problems with a Unit 3 core spray pump motor, and failure of a special control rod handling tool, which occurred during blade swaps. In the latter case, the failure of the control rod tool led to a licensee investigation and directly caused an hour-for-hour critical path loss. Other factors which impacted the station's ability to work the schedule could be collectively described as coordination issues. These included out-of-service placement problems, parts availability, and overlap between jobs in the same physical location. Finally, resources appeared to impact schedule adherence. This problem was the direct result of the Unit 2 forced shutdown. Because the station had not planned how to staff a Unit 2 work force in the event of a possible dual-unit shutdown, maintenance and plant support personnel were assigned Unit 3 tasks, and sufficient personnel were not readily available to perform Unit 2 tasks. Where Unit 2 tasks had clear priority, resources were diverted from Unit 3 activities, which slowed down the Unit 3 activities. The situation was not expected to be resolved until Unit 2 returned to power operation.

c.4 Conclusions on Outage Scheduling

The team concluded that the station's outage scheduling process was adequate but that emergent work, coordination problems, and resource problems caused by not planning how to staff a Unit 2 outage work force impacted schedule adherence.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 General Plant Conditions

a. Inspection Scope (71707)

The team toured both Units 2 and 3 and observed maintenance and material condition of plant facilities and equipment. Some of the areas observed were:

- Unit 3 drywell
- Unit 2 and 3 turbine deck
- Unit 3 refueling deck
- Unit 2 and 3 HPCI/LPCI/Core Spray rooms
- Unit 3 MSIV X-room
- Unit 3 Steam Air Ejector room "A"
- Unit 2 and 3 Reactor Building (portions)
- Unit 2 and 3 torus area (El 512 ft.)

b. Observations and Findings

In general, the observed material condition of most plant equipment was adequate; however, some areas could substantially benefit from additional licensee attention. In contrast some areas had received significant attention such as the emergency service water vaults and adjoining corridors, the Unit 2 heater bay, and the reactor building equipment drain tank room. Housekeeping was adequate even though the ongoing outages posed a daily challenge.

b.1 Unit 3 Main Steam Isolation Valve Room

The team identified minor deficiencies such as rust on bolts, piping and pipe flange connections. There were also some minor structural deficiencies identified such as: (1) A gland packing nut did meet the minimum thread engagement, and (2) the team identified a large nut welded to feedwater flued head anchor support that was not identified on the design drawing. The system engineer initiated Action Requests (AR) 970037071 and 970037380 to correct the identified deficiencies.

b.2 Steam Jet Air Ejector Room-A

The team observed electrical duct tape wrapped around most piping and valve flange connections in the Unit 3 steam jet air ejector (SJAE) Room-A. Discussions with cognizant licensee personnel indicated that the electrical duct tape prevented in-leakage into the system. The team was informed that this issue was previously identified by the licensee. Work Request 960100762 had been generated to remove the tape and repair any leaking flanges. The team noted that the material condition of the nonsafety-related components in the Unit 3 SJAE Room-A was not adequate to support efficient plant operations.

The team also identified unapproved rigging attached to a piping system (U3 MS to 3A Relief to Main Condenser) in SJAE Room-A used to lift Valve 3-5406-A-501. Use of the specific piping as an attachment point for rigging had not been evaluated. The team found that rigging calculations had been performed on some piping systems in the room; however, the observed pipe had not been included. Subsequent calculations performed by the rigging engineer after the team's observations indicated that the rigging of the valve to the pipe was acceptable.

c. Conclusions of General Plant Conditions

The team concluded that the general material condition of the plant was adequate considering a dual unit outage was in progress. Some areas of the plant had received significant attention in the recent past as part of the licensee's overall material condition improvement program. Some areas in the "balance-of-plant," or nonsafety systems, were observed to be in poor condition. Corrective maintenance documents were initiated, or already existed, to correct the noted deficiencies.

M2.2 Instrument Maintenance Facilities

a. Inspection Scope (62704)

The team inspected the Instrument Maintenance hot shop material condition and general housekeeping of the facility.

b. Observations and Findings on Instrument Maintenance Facilities

Housekeeping in the Instrument Maintenance hot shop area appeared to be adequate. Separation existed between contaminated and non-contaminated tools. A barrier was erected between contaminated and non-contaminated areas with survey instruments readily available. The team observed adequate radiological practices.

c. Conclusions on Instrument Maintenance Facilities

The maintenance and housekeeping of the Instrument Maintenance hot shop was adequate.

M3 Maintenance Procedures and Documentation

M3.1 Safety Key Control

a. Inspection Scope

The team observed an Instrument Maintenance Department (IMD) Control Systems Technician (CST) perform a surveillance at a test cabinet containing safety-related instrumentation.

b. Observations and Findings

On April 14 the team observed performance of Dresden Instrument Surveillance (DIS) 1600-03, "Torus to Reactor Building Vacuum Relief Valve Trip Unit Calibrations," Revision 7. The team observed an IMD technician at local analog trip system (ATS) Panels 2202 (3) -73A and-73B, located in the turbine building. Step D.2 of DIS 1600-03 required the IMD technician to obtain Safety Key CB-1 from the operation shift supervisor. Step I.8.a. of DIS 1600-03 required the IMD technician to "Unlock AND remove trip rack card file locking bar associated with MTU (Master Trip Unit) AND STU (Slave Trip Unit) . . . " A review of the Operations Department key control log identified that the IMD technician had not checked out Safety Key CB-1 from the Operations Department; rather, the technician used an unauthorized key stored in an IMD key locker. At the time of this inspection, no IMD key control procedures existed.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Administrative and maintenance procedures were referenced in RG 1.33.

Dresden Administrative Procedure (DAP) 7-14, Revision 8, "Control and Criteria For Locked Equipment and Valves," described the criteria and controls needed for issuing keys and operating locked valves and equipment.

Procedure DAP 9-13, Revision 6, "Procedural Adherence," described the expectations regarding the use of and adherence to station procedures.

Contrary to the above, on April 14, 1997, an IMD technician obtained an unauthorized safety key from an IMD key locker and not from the shift supervisor, as required by procedure. Failure to properly implement DIS 1600-03, Revision 7, Step D.2,is an example of a **Violation** of Technical Specification 6.8.A (50-237;249/97007-01a)

c. Conclusions

The IMD technician did not follow station procedures to obtain Safety Key CB-1. The IMD shop had an uncontrolled, unauthorized safety key accessible for general use. The IMD shop did not have a key control procedure for either safety-related or nonsafety-related keys.

M3.2 Independent Verification

a. Inspection Scope

The team observed an IMD technician perform a surveillance on the reactor building ventilation stack flow monitor.

b. Observations and Findings

On April 18 the team observed the performance of DIS 5700-14, "Reactor Building Vent Stack Flow Monitor Functional Test," Revision 1. The team observed two contract IMD personnel performing the test. Step I.8.c required an independent verifier to "witness" the lifting of an electrical lead from a terminal block. The team requested records to verify that the contract personnel were trained to perform independent verification. The IMD superintendent responded that independent verification training for the twelve IMD contract personnel had been performed verbally in the shop and that no records existed to document the training. In contrast, the station provided information that showed twenty Electrical Maintenance Department (EMD) contract personnel received formal, documented training regarding independent verification. A review of DAP 07-27, "Independent Verification," Revision 13, identified a difference between the station's administrative procedure requirements for independent verification, and what was implemented in the Instrument Maintenance Department procedures. The concept of "witnessing" an event was not defined in either the departmental or station procedures. Conversations with station management identified that IMD procedural requirements to "witness" were actually a "second check" as defined in the station's administrative procedures. Specifically, DAP 07-27, "Independent Verifications," Step F.1, required that independent verifications be performed on all lifted leads involving Technical Specification or safety-related equipment. In addition, the team noted that an "apart in time" independent verification was not performed as defined by station procedure DAP 07-27.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Administrative and maintenance procedures were referenced in RG 1.33.

Dresden Administrative Procedure (DAP) 07-27, "Independent Verifications," Revision 13, Section F.1, required that independent verification be performed on all lifted leads involving Technical Specification or safety-related equipment.

Contrary to the above, on April 18, 1997, a "second check" was performed in accordance with DIS 5700-14, "Reactor Building Vent Stack Flow Monitor Functional Test," Revision 1, Step I.8.c. That surveillance instruction required an independent verifier to "witness" the lifting of a safety-related electrical lead from a terminal block versus the independent verification required by DAP 07-27. Failure to properly implement DAP 07-27 is an example of a **Violation** of Technical Specification 6.8.A (50-237;249/97007-01b).

c. Conclusions

A "second check," not an "independent verification" was performed during DIS 5700-14. IMD and station administrative procedures were not in agreement regarding the requirements for independent verification. The training of contractors on the requirements for independent verification was inconsistent.

M4 Maintenance Staff Knowledge and Performance

M4.1 Instrument Maintenance Performance

a. Inspection Scope (62704)

The team observed 24 field maintenance activities performed in the Instrument and Controls areas. Team observations included various maintenance activities such as remounting of components, calibration of pressure switches, Technical Specification surveillances, functional tests of level switches, a vent stack flow monitor functional test, trouble-shooting and repair of the Unit 2 drywell continuous air monitor (CAM), post-LOCA containment hydrogen and oxygen analyzer calibration, turbine trip functional tests, calibration of a resistance temperature detector, source range monitor rod block calibration, reactor feedwater loop temperature calibration, and local power range monitor (LPRM) pre-installation insulation resistance and breakdown voltage acceptance checks.

The team observed all or part of the following work request (WR), dresden instrument surveillance (DIS) or Dresden instrument procedure (DIP) activities:

DIS 1600-03	Torus to Reactor Building Vacuum Relief Valves Trip Unit Calibration
WR 940097988-08	Replace Tripping Function Yarway Reactor Water Valve Switch
DIS 2400-02	Post-LOCA Containment Hydrogen and Oxygen Analyzer 18 Month Calibration and Maintenance Inspection
DIS 5700-04	Reactor Building Vent Stack Flow Monitor Functional Test
DIS 0263-07	ATWS RPT/ARI [recirc pump trip/alternate rod insertion] and ECCS Level Transmitters Channel Calibration Test and EQ Maintenance Inspection
WR 950060521-01	3A LPCI PMP MOTOR SURVEILLANCE

DIS 0250-01	Main Steam Line High Flow Isolation Switch Calibration
WR 960087265-01	Correct Switch Vertical Mounting Position and Calibration
DIS 9900-01	Computer Controlled Analysis Input Instrument Calibration
DIS 0700-10	Source Range Monitor (SRM) Rod Block Calibration
DIS 5600-05	Turbine Trips Functional Test
DIS 2300-08	Units 2/3 Contaminated Condensate Storage Tank and Unit 2 Torus Level Switches Functional Test
WR 950062900-02	Send Out for Refurbishment and Calibrate
WR 970001564-01	2A Off Gas Condenser Normal Level Control
DIS 0202-04	Recirculation Pump MG Set Scoop Tube Control Rod Actuator Assembly Upper Mechanical and Electrical Stop
WR 960096144-01	Clamp MG Set Scoop Tube and Perform DIS 0202-04
WR 970043047-01	Troubleshoot and Repair Unit 2 DW [drywell] CAM Pegged Low
DIS 1700-17	NMC Drywell Continuous Air Monitor Preventive Maintenance and Calibration
DIS 1400-04	Emergency Core Cooling System Fill System Alarm Pressure Switches
DIS 0287-01	Automatic Depressurization System CS and LPCI Pumps Discharge Pressure - High (Permissive) Channel Calibration and Channel Functional Test
WR 970005193-01	River Temp Recorder Calibration
DIS 1600-04	ECCS Drywell Pressure Switches Channel Calibration and Channel Functional Test
DIP 0700-06	LPRM Pre-Installation Insulation Resistance and Breakdown Voltage Acceptance Checks
DIS 1600-10	Drywell and Torus Pressure Instrumentation Channel Calibration and EQ Surveillance for Age Related Degradation

b.1 Observations and Findings regarding Instrument Maintenance Technicians Adherence to Procedures

The team observed two instances where IMD technicians did not follow approved procedures during the conduct of maintenance:

- During performance of DIS 1600-03, "Torus to Reactor Building Vacuum Relief Valves Trip Unit Calibration," Revision 07, the surveillance performer did not turn off the power supply to the test modules as directed by the procedure to secure the equipment in a safe state. (The team identified the condition to the cognizant supervisor.) The technical concern was if the equipment remained energized, then a false trip might occur when the equipment was returned to service.

- During performance of DIP 0700-06, "LPRM Pre-Installation Insulation Resistance and Breakdown Voltage Acceptance Checks," the surveillance performer used Revision 2 of DIP 0700-06; however, that procedure had been revised and the current "Revision 3" version should have been utilized. DAP 09-13, "Procedural Adherence," Revision 06, required the user to verify that the procedure was the current revision or a temporary change. The licensee generated a problem identification form (PIF) to document that the maintenance activity was not performed with the current revision and to document the corrective actions.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Administrative and maintenance procedures were referenced in RG 1.33.

Failure to turn off the power supply to a test module during performance of DIS 1600-03, "Torus to Reactor Building Vacuum Relief Valves Trip Unit Calibration," Revision 07, and failure to verify the proper revision level of DIP 0700-06, "LPRM Pre-Installation Insulation Resistance and Breakdown Voltage Acceptance Checks," during performance of surveillance testing are examples of a of a **Violation** of Technical Specification 6.8.A (50-247/249-97007-02a&b).

c.1 Conclusions on Instrument Maintenance Adherence to Procedures

With the exception of the instances noted above, the IMD staff was generally following procedures. The team observed that the IMD had the resources and capability to improve procedural adherence.

b.2 Observations and Findings on Instrument Maintenance Surveillance Performance

During performance of Unit 2 DIS 0202-04, Revision 01, "Setting Recirculation Pump MG Set Scoop Tube Control Rod Actuator Assembly Upper Mechanical and Electrical Stop," Step I.11.j.3 through 7, the indicated switch contact states were reversed in the procedural steps. The closed state was indicated as open, and the open contact state was indicated as closed. After consultation with the IMD supervisor, the technician proceeded with the maintenance with the supervisor's approval.

During the performance of Unit 2 DIS 1600-04, Revision 14, "ECCS [emergency core cooling system] Drywell Pressure Switches Channel Calibration and Channel Functional Test," on page 72 of 81, the procedure erroneously referred to PS 3-1632-B, when it should have been PS 2-1632-B. After consultation with the IMD supervisor, the technician continued the surveillance with the supervisor's approval. The table on the page 72 was appropriately marked as not-applicable.

During the performance of Unit 3 DIS 5600-05, Revision 10, "Turbine Trips Functional Test (Not Tested in Another Procedure)," the technician found that the temperature switches were out-of-calibration. The technician appropriately generated two PIFs to identify the out-of-calibration.

During the performance of Unit 3 reactor low level ECCS initiation, Work Request 940097988-08, the technician found that the work task did not specify the correct machine screw size. The technician appropriately generated an engineering change notice to identify the correct size screw.

c.2 Conclusions on Instrument Maintenance Surveillance Performance

The IMD maintenance and surveillance activities observed were adequately performed. When problems were encountered by IMD technicians, supervisors were there to render assistance to the technicians to complete the jobs.

b.3 Observations and Findings on Instrument Maintenance Preparation

The team observed pre-job briefings for IMD maintenance activities and the coordination with the Operations Department on specific maintenance tasks. The team also observed the pre-job walkdown of the job, review of the work package, review of the radiological conditions for the job location, and verification of the revision of the procedures used.

The pre-job briefings were performed per DAP 15-06, Revision 17. The supervisors conducted a step-by-step briefing of the procedures for the crews performing the maintenance tasks. The supervisors reviewed the out-of-service requirements of the job with the crews. The team noted that, for the activities observed, the pre-job briefings were well conducted.

c.3 Conclusions on Instrument Maintenance Preparation

The team concluded that the job preparation for the activities observed were appropriate.

M4.2 Mechanical Maintenance Performance

a. Inspection Scope (62703)

The team observed all or portions of the following 23 Mechanical Maintenance Department work activities:

WR 960100729-01	Trouble shoot and Repair Standby Liquid Control Pump 3-1102B
WR 950065976-01	Replace HPCI Turbine Flexible Oil Lines in Oil Reservoir
WR 960049153-01	Repair Stem for Feedwater Heater Normal Level Control Valve
WR 940096369-01	Replace Extraction Steam Nozzles for Feedwater Heater
WR 950093031-03	Determ and Reterm Limitorque and Limit Switches and Perform Signature Trace
WR 960099129-01	Disassemble Outboard Turbine Bearing for Unit 3 HPCI Turbine
WR 960034237-01	Unit 3 HPCI Drain Pot Line Replacement
WR 950064442-12	Replace Valve Trim and Actuator for 3-0642-B
WR 950064442-11	Modification, Replace 3-0642 Valve Trim Assembly
WR 950063630-01	Disassemble Low Flow Feedwater Regulator Valve (3-0643), Inspect/Repair Valve Seat
WR 950046326-01	Disassemble/Reassemble MSIV for Installing New Liner Design
WR 950064530-01/02	Replace Air Diaphragm on Scram Valve 34-31
WR 950061535-01	Replace Accumulator Scram-Water Cylinders with Stainless Steel Accumulator
WR 950061535-02	Repair Body to Bonnet Leak and Inspect Valve HCU 42-31 Cooling Water Inlet Valve
WR 950061535-03	Replace Air Diaphragm on Scram Valves 42-31 Inlet Valves
WR 950061535-04	Replace Air Diaphragm on Scram Valves 42-31 Outlet Valves

WR 890062254-02	Install Gas Saver Lance on Pipe to Condensate Booster Pump "3B"
WR 960118148-02	Repair Existing Monel Stub Plate for 3B LPCI/Containment Cooling Heat Exchanger
WR 960118198-03	Repair Existing Monel Stub Plate for 3A LPCI/Containment Cooling Heat Exchanger
WR 970044365-01	Reinforce Flued Head Anchor Support for Penetration X-116B
WR 950107745-02	Repair Steam Leak thru the Seat of 3A Off Gas Preheater PCV 3-5424-A Bypass Valve
WR 950107745-01	Repair Steam Leak thru the Seat of 3A Off Gas Preheater PCV 3-3099-46 Outlet SV
WR 940097084-03	Repair of Guide Rails for Unit 3 LPCI II Full Flow Bypass Test Inboard MOV No. 0120B

b. Observations and Findings on Mechanical Maintenance Performance

In general, the team found work performed under the above activities to be conducted in a professional and thorough manner. Maintenance personnel observed were experienced and knowledgeable of the assigned tasks. The team frequently observed supervisory and system engineering oversight of the job activities. Quality control personnel were also present when required by the work package and procedure. When applicable, appropriate radiation control measures were established or in place.

b.1 Observations and Findings on Reactor Feedwater Regulating Valves

The team observed work activities for the Unit 3 reactor feedwater regulating valves. The work being performed was a modification initiated by the licensee as corrective actions implemented to improve the reliability of the feedwater system.

The team noted that the licensee was in the process of purchasing a software package "Valve Packing Optimization Program (VPOP). This software could reduce manhours, and eliminate the possibility of incorrectly selecting the proper size packing for any particular size valve at the Dresden site. This program could also eliminate extra burden from work analyst. The team noted the use of VPOP was an excellent tool for valve maintenance.

The team observed various portions of work being performed on the reactor feedwater regulating valves. The team observed maintenance technicians install an actuator on Valve 3A, and take measurements for the installation of Valve 3B internals. The work being conducted was a modification to improve feedwater regulating valve reliability which was also a long term corrective action fix. The work was being conducted by a contracted valve maintenance group. For the activities observed, workers were knowledgeable of the work being conducted, and work was performed in accordance with procedures. Supervisory oversight was good.

b.2 Observation and Findings on Main Steam Isolation Valve Repair

The team observed repairs to Main Steam Isolation Valve (MSIV) 3-0203-2B. The team observed removal of the internals from the valve and noted that the radiological controls were good during breach of the system. The team observed good supervisory oversight. Maintenance technicians were knowledgeable and experienced.

In addition, during the above activity observation, the team noted the following:

- Poor radiological practices by a maintenance worker (carpenter) in the MSIV X-room was observed by the team. The maintenance worker did not have the appropriate minimum protective clothing (scrubs) as required by DAP 12-35, "Donning And Removal Of Routinely Required Radiological Protective Clothing And Protective Clothing Guidelines," Revision 4. The team questioned the maintenance worker about the proper protective clothing. The maintenance worker wore blue jeans instead of scrubs while placing tags on a scaffold. Procedure DAP 12-35 required minimal protective clothing to be worn when conducting work activities, and the team believed that crawling over pipe to hang tags on scaffold was work. Discussions with various radiation protection technicians indicated inconsistencies in how the procedure was being implemented. It was also not clear what management expectations were with regards to the minimum protective clothing requirements. The team informed licensee management of this issue.

During observation of maintenance activities in the MSIV X-room, the team observed the following:

- On April 17, 1997, foreign material exclusion (FME) controls were not adequate in the MSIV X-area as evidenced by protective clothing, rubber shoe covers, plastic protective clothing, rags and rubber gloves laying in disarray throughout the area.

- On April 17, 1997, electrical maintenance personnel were observed not to replace a valve cover for MOV 3-220-3 for about 2 1/2 hours after leaving the area, which left the limit switches and electrical connections unprotected.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Administrative and maintenance procedures were referenced in RG 1.33.

Dresden Administrative Procedure (DAP) 03-23, "Foreign Material Exclusion Program," Revision 8, required in part: (1) FME controls are required for any work activity, modification, test, inspection or sampling that involved opening a system or component; (2) extra protective clothing, equipment, tools and parts not immediately used that are brought into an FME area will be properly contained while no work was in progress, and (3) Covers must be placed on all systems breached when the opening was left unattended.

Failure to maintain adequate FME controls in the Unit 2 main steam isolation valve room on April 17, 1997, as discussed in the two instances above is an example of a **Violation** of Technical Specification 6.8.A (50-237;249/97007-03a&b).

The team also identified several valves that did not appear to be in accordance with the HPCI system valve checklist or the inaccessible locked valve checklist. The HPCI system checklist indicated that Valve 3-2399-87 and 3-2301-97C should have been closed and locked. Actual field configuration indicated that Valve 3-2399-87 was not locked. The revised inaccessible locked valve checklist deleted these valves from being locked; however, Valve 3-2301-97C was closed and locked in the field configuration. The team discussed this issue with the cognizant licensee engineer, and discussions indicated that the noted problem had been identified previously and corrective action was in the progress of being implemented. The team was informed that the inaccessible locked valve checklist had been revised as part of the completed corrective action. Further, the team was informed that all corrective actions were required to be completed prior to the completion of the current outage (D3R14). The team noted however, that no plan had been implemented at the time of the inspection to complete the proposed corrective actions. Corrective action began in March 1995 and were scheduled to be complete this outage (D3R14).

b.3 Observations and Findings on Control Rod Drive Scram Discharge Valve Repair

The team observed General Electric technicians remove old air diaphragms and install new diaphragms in Scram Discharge Valves 126 and 127. The team questioned the technicians on various portions of the work package and instructions. The technicians were knowledgeable and professional, and there was good supervisory oversight of the work activities.

During a plant tour, the team observed old and new control rod drive scram solenoid pilot valves in an unspecified FME Zone area in Unit 2. The new valves were to be installed in Unit 3. The new valves were not fully protected at the pipe ends to prevent dirt and debris from entering and degrading the valves. Failure to follow the foreign material exclusion (FME) requirements of DAP 03-23 for the CRD scram solenoid pilot valves is another example of a **Violation** of Technical Specification 6.8.A (50-237;249/97007-03c).

b.4 Observations and Findings on Condensate Booster Pump Piping Repair

The team observed maintenance technicians perform a hydrostatic test on the gas saver lance on pipeline B. The technicians followed procedures; however, the technicians indicated that during a previous hydrostatic test, the post calibration of the pressure gage indicated the gage was well out of tolerance. The team questioned whether a PIF was written because the gage could have been used on safety-related equipment. The PIF was not written by the individual technicians until prompted by the team, which indicated some reluctance or lack of knowledge of the involved technicians on when to initiate a PIF.

b.5 Observations and Findings on Low Pressure Coolant Injection/Containment Cooling Heat Exchanger Repair

The team observed maintenance personnel perform welding activities on Unit 3 low pressure coolant injection (LPCI) and/or containment cooling heat exchanger "A" and "B." Maintenance technicians were repairing the divider plate in both heat exchangers due to degradation. The team observed welding of the monel stub plate on both heat exchangers. On April 22 the team identified two instances where procedural requirements were not fully adhered to:

- During welding of FW 1 and FW 2 for "3B" heat exchanger, the welder did not verify interpass temperature as required by the weld data sheet and Weld Procedure NSWP-W-01, "ASME and ASME B31.1 Welding," Revision 3. Discussions with maintenance engineering personnel performing the work indicated that interpass temperature was verified based on welder experience. The weld data sheet to the work package specified a maximum interpass temperature of 700°F. The maintenance technicians at the work location did not verify the interpass temperature. Also, the technicians did not have a temperature stick or pyrometer at the work location to verify interpass temperature.

  Through discussions with the cognizant welding engineer, the team learned that the expectation for how to determine interpass temperature was at the discretion of the welder. Upon completion of this discussion, the cognizant welding engineer initiated a memorandum dated April 23 to all Dresden welders indicating when interpass temperature was specified, interpass temperature must be verified upon completion of a weld pass.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Maintenance procedures were referenced in RG 1.33.

Failure to verify interpass temperature as required by the weld data sheet and Weld Procedure NSWP-W-01, is an example of a Violation of Technical Specification 6.8.A (50-237;249/9707-04a).

- During the second shift, maintenance technicians were observed performing welding activities on the "3B" heat exchanger monel stud plate without the proper work package. The work package had been retrieved from the area for revision by the work analyst; however, a minimal work document was left for the maintenance personnel to continue work. Procedure DAP 15-06, "Preparation, Approval, and Control Of Work Packages and Work Requests," Revision 17, required at a minimum, a copy of the work request for portions of work being performed that day. The minimal work document was not sufficient for the work activities being performed on the heat exchanger 3B monel stud plate. The maintenance superintendent immediately stopped work and initiated a PIF.

Failure to have the appropriate work document as required by DAP 15-06 is another example of a **Violation** of Technical Specification 6.8.A (50-237;249/97007-04b).

b.6 Observations and Findings on Unit 2 Flued Head Anchor Support

The team observed welding activities performed on Unit 2 flued head anchor support 2-1600-X-116B. The licensee had identified that several welds on this containment penetration anchor frame were outside FSAR stress limits. Therefore, Design Change E12-2-97-206 was implemented to reinforce the welds on the support. The team found that maintenance personnel did an excellent job in surveying the proposed work activities prior to performing any welds. Welders were qualified to perform the welds made in accordance with the welder qualification matrix. Overall, the maintenance technicians did a good job. However, the team noted that Design Change Drawing B-2088, Revision A, was very difficult to understand.

The team also noted through subsequent discussions with the cognizant welding engineer that the licensee had identified that incorrect preheat was specified in the work instructions by the work analyst. Preheat should have been 150°F instead of the noted 50°F. For this task, the team observed that: (1) work analyst may have been tasked with responsibilities that engineering could more appropriately perform, such as specifying preheat requirements, and (2) expediting emergent work activities without adequate review appeared to have resulted in some poor work documents.

b.7 Observations and Findings on Unit 3 Off Gas Preheater Pressure Control Valve Replacement

The team observed maintenance technicians perform Weld 5 and Weld 1 on the 3A Off Gas system Pressure Control Valves 3-3099-46 and 3-3099-48 and associated pipe attachments. Fitup was performed properly, and the welders were knowledgeable of the work requirements and the procedure used. The team also verified the welders were qualified in accordance with the welder qualification matrix. The work activity was conducted in an excellent manner.

b.8 Observations and Findings on Unit 3 LPCI Valve Repair

The team observed maintenance technicians install valve internals to Motor Operated Valve (MOV) 0120B. This valve was apparently having problems with the guide rails. Maintenance technicians performed an excellent job installing the valve internals. Procedures and instructions were followed. The team found that the maintenance technicians performing the work were both ComEd and contractor technicians. For the work observed, the assigned craft worked well together. The team also observed quality control perform FME verification. Discussions with the technicians indicated that quality control had written a PIF on the valve disk because of deficiencies identified during a dye penetrant exam. The team was informed by the licensee that engineering conducted an evaluation, and determined the disk to be acceptable.

c. General Conclusions on Mechanical Maintenance Performance

Mechanical Maintenance activities were generally conducted in a thorough and professional manner. The team identified two specific violations with multiple examples of each. The violations involved poor FME controls; inadequate welding processes; and performance of safety-related work without a sufficient work package at the work site. In addition, some poor work practices were identified with regard to minimum protective clothing requirements and unanalized rigging of components to nonsafety piping systems.

M4.3 Electrical Maintenance Performance

a. Inspection Scope (62703)(62705)

The team observed or reviewed all or portions of the following 14 Electrical Maintenance Department work activities:

WR 970042480-01	Addition of Restraining Straps on GGS 4 KV Circuit Breakers Using Design Change (DCN) 001086E
WR 970042481-01	Addition of Restraining Straps on GGS 4 KV Circuit Breakers Using DCN 001086E
WR 950018438-01	250V DC Station Battery Cell Maintenance Unit 3
WR 960027460-01	Unit 3 250V Station Battery Modified Performance Test
WR 960066023-01	125 V Molded Circuit Breaker Inspections and Testing Using Procedure SMP-E-01
WR 970020861-01	Seal Various Penetrations in Technical Support Center HVAC
WR 950068428	Unit 3 Six Year Exciter and Generator Inspections

WR 960098283-01	Replace Limit Switches on 1A and 1C Main Steam Isolation Valves and Perform Surveillance Check Afterwards
WR 960097439-01	Inspect Ground Device #10 and Shim if Required
WR 960110681-01	Repair Motor Oil Leaks to the 2A Reactor Recirculation Pump
WR 950060779-02	Perform Preventive Maintenance and Inspect the Unit 3, "B" Channel, Reactor Protection SCRAM Contacts
WR 950060659-01	Perform Preventive Maintenance on the Contactor to a DC Motor for the HPCI Condensate Storage Tank Return Valve
WR 970046098-01	Troubleshoot and Repair a Full Negative Ground in the Unit 3 125 V DC System
Temp Alt II-07-97	345 KV Bus 6 Bypass for New Line 2311

b.1 Observations and Findings on Switchyard Work on 345 KV Lines (All Units)

The licensee initiated a modification to install a 345 KV tie line between the Dresden and Collins (fossil plant) station switchyards. To support work on the modification, the licensee prepared a temporary wood pole structure to bypass 345 KV Bus 6 and keep the Dresden station blue bus ring intact. The team observed work in the switchyard, reviewed associated documentation, and discussed the job with licensee personnel.

While watching modification activities in the field, the team observed that the licensee had installed a temporary security fence (within the main switchyard boundaries) to direct vehicle and heavy equipment traffic away from vulnerable switchyard structures. Discussions with the licensee personnel revealed that, prior to the teams' arrival on site, the crew performing the task was required to perform five practice setups and removals of the 85-foot long wooden poles prior to commencing actual work in the switchyard. The team observed portions of the actual switchyard work and identified no concerns. Through discussions with cognizant licensee personnel and review of the associated documentation, the team noted that the plant onsite review committee (PORC) had twice rejected the modification package plans prior to recommending approval of the project.

c.1 Conclusions on Switchyard Work on 345 KV Lines (All Units)

The team concluded that the work performed in the switchyard was appropriately controlled and conducted in a manner to minimize the possibility of an offsite power interruption. The team considered the PORC's rejection of the initial package to be a positive indication of a strong and independent review process.

b.2 Observations and Findings on Modifications to 4KV Circuit Breakers Auxiliary Switches (Unit 2 and 3)

On April 10, 1997, the licensee shut down Unit 2 after declaring some Merlin-Gerin 4KV circuit breakers inoperable. Licensee personnel had discovered cracks in the offsite power supply breaker to the diesel emergency bus and declared all offsite power supply busses inoperable. The team observed in-plant temporary repairs to the breakers and reviewed the associated documentation.

The team observed in-plant repair activities to address cracks that were discovered in some of the auxiliary switches of the 4KV Merlin-Gerin breakers. The team observed electrical maintenance, quality control, and engineering personnel at the job site; all appeared knowledgeable of the issue, and the team observed effective communication and coordination between the groups when the work activities took place. However, the work was suspended on the breakers due to licensee identified concerns with the work instructions. Discrepancies were noted between engineering documents and work package instructions in the field. Specifically, not all PORC comments were incorporated into the work package and inconsistencies existed in the inspection criteria used to accept the work. The licensee initiated a problem identification form (PIF) to document the work package deficiencies. The work package instructions were subsequently clarified and the team identified no further concerns with the work.

c.2 Conclusions on Modifications to 4KV Circuit Breakers

The team concluded that personnel in the field worked effectively to install the breaker repair modification and that licensee personnel appropriately halted work when discrepancies were noted in the work package instructions. However, the team also concluded that the initial work package was poorly planned.

b.3 Observations and Findings on Unit 3 Station 250 VDC Battery Modified Performance Discharge Test

The licensee conducted a modified performance test (MPT) of the Unit 3 250 VDC battery. The test was intended to satisfy the requirements of both a service test and a performance test. The team observed portions of the MPT, reviewed the procedures, and followed up on questions developed during the reviews.

The team observed test preparations and portions of the testing activities. The performance of the test was delayed because the required test equipment was not initially available to support testing. The delay was due to the failure to have appropriate cable connectors for the load banks available onsite when the licensee initially was scheduled to conduct the modified performance test.

Test performance and results:

At the start of the inspection, the team developed concerns regarding the licensee's testing methodology of the Unit 3 250 VDC battery. The concerns centered around the testing of the battery in the "as found" condition. The licensee performed a MPT as allowed by Technical Specifications (TS); however, the TS stated that the modified performance discharge test satisfied the requirements of both a service test and the performance test [defined in IEEE 450-1995].

Prior to testing the battery using the service test methodology, the licensee was restricted from testing the battery in any condition other than the "as found" condition. The MPT was required to meet the initial conditions of the service test, and performance of maintenance prior to the test would invalidate the "as found" condition of the battery.

Substantial maintenance was performed on the station battery prior to the MPT. The maintenance included:

- Replacement of cell Number 48

- Replacement of inter-tier cables

- Replacement of a large number of battery post seals

- Cleaning of the battery connection posts

The team's review of battery data showed that replacement of cell Number 48 was due to the identification of a small crack in the battery housing and not due to a low voltage of the cell. In addition, cleaning of the battery posts improved the inter-cell resistance values, but only by about 20 percent. The team, assisted by a Region III specialist inspector, concluded that the above maintenance pre-conditioning of the station battery did not make a significant difference to the results of the test; however, pre-conditioning did occur.

The licensee's performance of the pre-test maintenance was contrary to the TS requirement to perform the MPT in the "as found" condition, i.e., a MPT was intended to meet the requirements of a service test. Initially, cognizant licensee personnel believed that performance of the pre-test maintenance activities did not make a significant difference in the battery's ability to perform its function; therefore, the licensee believed the pre-test maintenance did not violate the "as found" requirement.

In addition to the pre-test maintenance, the Unit 3 250 VDC battery was given a 222-hour equalize charge starting on April 3, 1997, in anticipation of the scheduled MPT. The equalize charge on the battery just prior to the test discharge was performed in accordance with Work Request 950018438-04, "Perform Equalize Charge." The equalize charge work request was apparently initiated to satisfy Dresden Electrical Surveillance (DES) 8300-20, "Unit 3 250 Volt Station Battery

Modified Performance Test," Revision 02, Step G.3, which stated: "Equalize charge is recommended within 30 days prior to the test, but NOT within three days prior to this test."

Step G.3 of DES 8300-20 was essentially a verbatim translation of the Institute of Electronic and Electrical Engineers (IEEE) 450-1995, Section 6.1 "Initial Conditions," Requirement a), which stated "Equalize the battery if recommended by the manufacturer and then return it to float for a minimum of 72 h, but less than 30 days, prior to the test." Further, Requirement b) of IEEE 450-1995, Section 6.1, stated to "Check all battery connections and ensure that all resistance readings are correct for the system."

However, IEEE 450-1995, Section 6.6, "Service Test," stated, in part, "The initial conditions shall be as identified in 6.1 [omit requirement a), perform requirement b) but take no corrective action unless there is a possibility of permanent damage to the battery and perform requirements c) through f)]." Therefore, DES 8300-20, Revision 02, Step G.3, was in error and should have cautioned the test performers not to perform an equalize charge. The error in DES 8300-20 was apparently made when the MPT procedure was originally written in response to the licensee's endorsement of the 1995 IEEE standard, and a similar step in the old "performance test" procedure was carried over to the MPT procedure.

Technical Specification 4.9.C.5 stated, in part, that at least once per 60 months, verify that the battery capacity is at least 80 percent of the manufacturer's rating when subjected to either a performance test or a modified performance test discharge. The modified performance discharge test satisfies both the service test and performance test and therefore, may be performed in lieu of a service test. Since the MPT was subject to the same criteria as a service test, the test was required to be performed in the "as-found" condition as discussed in the Technical Specification Bases 3/4.9.C. Failure to perform a MPT in the "as found" condition is a **Violation** of Technical Specification 4.9.C.5 (50-237;249/97007-05).

The team reviewed, with the assistance of a Region III specialist inspector, the licensee's operability determination (Document ID 97-69) initiated on May 3, 1997, to document the licensee's technical evaluation of the Unit 3, 250 VDC battery with regard to the as-left condition following the MPT. The team concluded that the Unit 3, 250 VDC battery was operable based on the minimum effect the actual pre-test maintenance had on the battery's performance, as demonstrated and measured during the actual test. In addition, the team concluded the equalizing charge, by chance, did not elevate the battery voltage above what would be an acceptable float voltage prior to test performance. Subsequent to the inspection, Dresden Licensee Event Report 97-005, dated May 16, 1997, was submitted to the NRC, which documented the licensee's evaluation and corrective action for the failure to properly perform the MPT.

On April 10, 1997, a scheduled pre-maintenance work package review identified that DES 8300-20, Step E.3, required the MPT to be conducted in the "as found" condition. The system engineer (test director and cognizant supervisor for the

MPT) was contacted and informed that the planned maintenance activities could prevent meeting the "as found" prerequisite of DES 8300-20, Step E.3. Believing the "as found" condition was not a "requirement," the system engineer contacted corporate engineering for an assessment of the "as found" requirement. Corporate engineering memorandum DOC No. DG-97-000513, dated April 14, 1997, recommended that the "as found" requirement be waived. On April 17, 1997, the system engineer (test director) attached the corporate memorandum to the test procedure and noted on Attachment G that: "Battery is not being tested in the "as found" condition as required in prerequisite E.3."

The system engineer, with the concurrence of corporate engineering, revised the procedure to delete the as found requirement. That procedural revision was made outside the Dresden station procedural controls and/or processes.

Dresden Station Technical Specification 6.8.A required that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, referenced administrative procedures, procedure adherence and temporary change method, and procedural review and approval.

Dresden Administrative Procedure (DAP) 09-13, "Procedure Adherence," Revision 6, Step F.9.a & .c required the cognizant supervisor to ensure: a) "If the Procedural Intent will be affected, <u>THEN</u> perform step F.2.a of this procedure," and c) "Applicable prerequisites are met." Step F.2.a required that the cognizant supervisor terminate use of the procedure <u>OR</u> perform a permanent change in accordance with station procedure and revision processing.

On April 17, 1997, the cognizant supervisor (test director) changed DES 8300-20, based on a corporate engineering recommendation that the "as found" requirement be waived. Deleting the "as found" prerequisite was an intent change. Failure of the cognizant supervisor to terminate use of DES 8300-20 <u>OR</u> to perform a permanent change in accordance with station procedure and revision processing is a **Violation** (50-237;249/97007-06).

c.3 <u>Conclusions Unit 3 250 VDC Battery Modified Performance Discharge Test</u>

The licensee's performance of the Unit 3 modified performance discharge test on the 250 V battery was inadequate in that it failed to comply with plant Technical Specifications concerning the requirement to be tested in the "as found" condition. In addition, changes were made to the battery test procedure which did not receive the required review by station administrative procedures.

b.4 <u>Observations and Findings on Molded Case Breaker Maintenance</u>

While observing breaker work in the electrical shop, the team discussed the planned work with electrical maintenance personnel. At the time of the observation, the maintenance personnel had stopped work on the task and contacted engineering personnel for assistance in correcting an inadequate work package. The work instructions directed electrical maintenance to reference a separate document to inspect and test the breaker. The referenced procedure was not correct for the specific breaker and did not provide correct inspection and testing criteria. The team observed the initial response to the work instruction error. The maintenance technician stopped work and contacted engineering for assistance, and the licensee initiated a PIF to document and resolve the problem.

c.4 Conclusions on Molded Case Breaker Maintenance

The team concluded that maintenance personnel responded appropriately to the procedural deficiency. However, the incorrect work package instruction represented an example of poor pre-job preparation.

b.5 Observations and Findings on Troubleshooting of a 125 VDC Ground (Unit 3)

The team performed routine inspection activities of the licensee's followup to a full negative ground on the Unit 3, 125 VDC system. Portions of the electrical field work activities were observed and a subsequent review of the work documentation was also performed.

The electricians involved in the identification of the source of the ground utilized DAP 15-07, "Electrical/Instrument Maintenance Troubleshooting Procedure (W-1)," Revision 05. The team observed electricians in the field attempting to re-land four wires that had been lifted by a previous work crew. The team observed that the assigned electricians failed to utilize adequate self check techniques and initially went to the wrong cabinets in search of the lifted leads. Subsequently, the licensee initiated a PIF on the inadequate self-check to document immediate and planned corrective actions.

c.5 Conclusions Troubleshooting of a Ground on the 125 V DC System (Unit 3)

The team's observations of the troubleshooting of the Unit 3, 125 VDC ground noted that the assigned electricians initially failed to perform an adequate self-check.

c. General Conclusions on Electrical Maintenance Performance

In general, the performance of electrical maintenance activities observed appeared to be properly planned, performed, and documented. Workers appeared to be knowledgeable and capable of performing the work activities. The TS battery surveillance problem appeared to be isolated, but the fundamental problem regarding procedural controls was significant.

M8 Miscellaneous Maintenance Issues

M8.1 Maintenance Backlog

a. Inspection Scope

The team reviewed the station's backlog of maintenance tasks to evaluate the licensee's understanding of the current status. For the purpose of this inspection, the team utilized the licensee's computerized station backlog data base for action requests, work requests non-outage, and work requests outage. In addition, a general review of all maintenance tasks was performed which included a review of the total station corrective, preventative, modifications, facility, other, and unknown categories. The computer data base was utilized by the team for selection of a sample of specific action requests and/or work requests based on significance, age, and planning status. The review of specific maintenance tasks was performed by review of station records, interviews of cognizant licensee personnel (e.g., system engineer), and in some cases through direct field observations of the maintenance task.

b. Observations and Findings

b.1 Action Request Backlog

The Powerblock Backlog for action requests (ARs) dated April 16, 1997, was utilized for review of the station's AR backlog. That report detailed the current AR backlog and categorized the 254 open ARs. The AR Powerblock Backlog contained four categories, which included origination (7), hold awaiting approval (223), approved (1), and minor (23).

The initiating document to perform all work at Dresden was the AR. In general, only minor maintenance activities in the powerblock could continue to be performed with only an AR (e.g., change light bulb, paint hand rail, etc.). If more than minor maintenance was required, a work request was necessary. The AR backlog was further divided into sub-categories based on outage and non-outage work. The team reviewed in detail the 220 ARs coded non-outage and on hold awaiting approval. The team noted that the majority of ARs in the "non-outage on hold awaiting approval" category (183) had an average age of 11 days. However, a sub-set of 37 ARs coded as corrective "non-outage on hold awaiting approval" had an average age of 72 days. Through discussions with cognizant station personnel, the team learned that the corrective ARs coded as non-outage on hold awaiting approval were actually approved for work by the station's fix-it-now (FIN) team and the intent was to capture work when completed, i.e., as the FIN team reported work complete, the status of the item would be changed to "completed." The team was able to directly observe the licensee's process through attendance at a daily action request screening meeting; however, the computer coding for all ComEd stations showed Dresden was the only ComEd station that was using the on-hold awaiting approval code to track ARs coded corrective to closure.

c.1 The team concluded that the AR backlog was relatively low and only contained tasks that would not require a station work request to accomplish.

b.2 Work Request Backlog

The Backlog Average Age report dated April 16, 1997, was utilized for a review of the station's maintenance work request (WR) task backlog. That report detailed the current WR task backlog and categorized the station's 11,805 maintenance tasks. The maintenance tasks were categorized into corrective (2743), preventative (6782), modifications (721), facility (516), other (1042), and unknown (1).

In order to evaluate the validity of the maintenance backlog, the team selected a representative sample of work request tasks, discussed the current status of each task with cognizant licensee personnel, and in some cases, performed direct field observations of the deficient condition. Of particular interest were WR tasks (outage and non-outage) that appeared to be significant, were more than one year in age, and had not yet been planned.

b.2.1 Non-outage Work Request Tasks

Non-outage WR tasks reviewed included the following:

Task Number	Status *	Description
EM		
WR 940099081-01	22	Torus spray electrical breaker trip
WR 950068772-01	22	Diesel generator control circuit
WR 950096403-01	22	Inboard MSIV solenoid lights panel
WR 950102600-01	22	Reactor control panel isolation barrier
WR 960013596-01	22	Replace Unit 2/3 DG frequency relay
IC		
WR 950105270-01	23	CRD charging water header gage ruptured
WR 960116869-01	22	Control room refrigeration pressure gage
WR 960119324-01	22	Crib house temperature gage broke
WR 970014631-01	22	Oxygen concentration meter broke
WR 970018642-01	22	Drywell radiation monitor trip
MM		
WR 940099406-01	22	CRD hanger rod tied off to station
WR 950121192-01	25	Inlet valve missing flange bolts
WR 960031482-01	22	CCSW [containment cooling service water] pipe support spring can adjustment
WR 960033231-01	22	SBLC [standby liquid control] outboard drain valve stuck open
WR 960077518-02	45	Control rod drive water pump

* Task status codes referenced in the above table were defined as:

Status 22 = Investigation not required (task originated);
Status 25 = planning complete; and
Status 45 = task ready.

b.2.2 Non-outage work request task specific observations:

Work Request Task 940099081-01 was initiated on December 2, 1994, to adjust breaker trip settings on Low Pressure Coolant Injection (LPCI) Valve 2-1501-18B. In response to concerns about spurious reverse-current tripping of motor operated valves, described in Licensee Event Report 50/237-94-030 dated December 23, 1994, a number of motor operated valves were initially identified as potentially having motor trip settings that were too low. Although initially prioritized as a "B1" (urgent-work start within 24 hours), the task had since been down-graded to a "C" priority (routine work). Through discussions with cognizant licensee personnel and review of historical inspection records, the team learned that the LPCI 2-1501-18B valve's motor had sufficient margin to preclude spurious trips and the urgent classification was no longer required. The as-left breaker trip values for MOV 2-1501-18B, when last tested on October 1, 1990, were adequate to eliminate this valve from the original suspect population and the current work task was no longer needed. The team identified that another open work task, not in the team's original inspection sample (WR Task 94009908201 for Reactor Water Cleanup Valve 2-1201-1), was similar in that the original task to adjust motor trip settings was no longer necessary. The team noted that these two work tasks were confusing the known backlog of non-outage work.

Work Request Task 950096403-01 was initiated on September 30, 1995, to address a foreign material entry point for an electrical panel for main steam isolation valve (MSIV) pilot indicating lights. After direct field observation, accompanied by cognizant licensee personnel, the team observed that the existing condition was not an immediate concern to the integrity of the electric panel and was properly coded for routine non-outage work.

Work Request Task 970014631-01 was initiated February 6, 1997, to address a broken Unit 2 Drywell local oxygen concentration meter. The team identified that the same meter was the subject of WR 930053045, written in 1993, but that WR was closed out, without repair, and the licensee was tracking the known deficiency against open Engineering Request 9503291. The 1997 WR was written since no immediate information was present in the field to identify that the engineering request already existed. The licensee annotated the existing 1997 WR to reflect it would remain open until the engineering request was worked, and a "two-part" tag was to be hung in the field on the oxygen meter to identify that the deficiency was a known problem.

Two non-outage WR tasks were identified by the team as being coded incorrectly. Specifically, WR Task 970037904-01 and 950118049-02 involved work in the Drywell, but both tasks were coded as non-outage. The Drywell was not normally accessible during plant operations and the tasks should have been coded to be performed during an outage.

Work Request Task 950102600-01 was initiated October 20, 1995, to repair an isolation barrier for a terminal block inside a reactor control panel. The team directly observed the deficient condition, and the licensee's classification of non-outage routine work was considered reasonable.

c.2 The team concluded that the non-outage work request backlog contained tasks that were appropriate to be completed while the units were either operating.

b.3 Outage Work Request Tasks

In addition to the non-outage tasks above, the team selected a representative sample of outage tasks scheduled to work in future refueling outages. The inspection sample included tasks scheduled for the next Unit 2 or Unit 3 refuel outage, i.e., D3R15 or D2R15. The non-outage work request tasks reviewed included the following:

Task Number	Status	Description
CE/CM/EM		
WR 950064036-01	25	Drywell fan blade adjustment to rated flow
thru		
WR 950064105-02		(note: the Drywell work involved 13 separate work request tasks that were initiated to resolve concerns with the Drywell ventilation system)
EM		
WR 950041246-01	22	Cracked end bell on HPCI aux oil pump
WR 950066503-01	45	Replace 3C drywell cooler motor and fan
WR 970019996-01	22	DC MOV has open shunt field
GE		
WR 950066654-01	45	Hydraulic Control Unit (HCU) leaks Note: there were a number (>100) of small (single drop) body to bonnet leaks on small manual valves in the HCU system. The known Unit 3 leaks were captured on 47-work request tasks.
MM		
WR 890063385-01	22	2A MG set oil cooler outlet valve leak
WR 910053212-01	25	Adjust oil pressure to main bearing
WR 930049144-01	25	Turbine building supply fan bearing
WR 930053086-01	22	Unit 3 HVAC inspection doors
WR 940098057-01	45	Adjust spring can on

b.3.1 Outage work request task specific observations:

The station's computer listing of all 11,805 station maintenance tasks included one item that was categorized as "unknown," and at the time of the inspection that item was 287 days old. The unknown item was identified to be a preventative maintenance task captured in WR Task 960023216-02. That task was intended to assure the proper O-rings were used as replacements during an EQ surveillance on a low pressure coolant injection (LPCI) motor oil sightglass inspection. The unknown classification was due to a coding error.

Work Request Task 950064036-01 and associated tasks were initiated in July 1995 to adjust fan blades and restore "rated flow" to the Unit 3 Drywell coolers. These tasks were not being worked during the current Unit 3 refuel outage (D3R14), but were deferred to the next Unit 3 refuel outage (D3R15). During the current refuel outage, additional ventilation flow information (e.g., cooler fan motor amperage and system flow rates) was being obtained to better assess the need for fan blade adjustments. Through discussions with the system engineer, the team learned that adequate Drywell flow existed to meet operating parameters, and the licensee's decision to defer any field work pending the results of further testing was reasonable.

Work Request Task 950066503-01 initiated in July 1995 was originally intended to replace Drywell cooler fan motor 3C during the current Unit 3 refuel outage (D3R14). However, due to a parts availability problem, the task was deferred until the next refuel outage (D3R15). Through discussions with the system engineer, the team learned that the subject task was part of a planned system predictive maintenance effort to replace all Drywell cooler fan motors. The team noted that during the current refuel outage (D3R14), Drywell cooler fan motor 3A was being replaced under WR Task 950066504-01. Since the existing 3C Drywell cooler fan motor was still performing well, the team concluded the licensee's decision to defer the subject work to the next refuel outage was reasonable.

Work Request Task 950066654-01 and other associated tasks were initiated between August 1995 and October 1996 to repair leaks on small manual valves on the control rod drive system's hydraulic control units (HCUs). As discussed in licensee electronic memorandum, "Paul Chenell to Frank Spangenberg," dated April 24, 1997, the decision to defer a number of tasks on small HCU manual valves was based on a root cause investigation plan that was being implemented by station engineering. The licensee was in the process of inspecting and replacing 25 of the subject valves in an attempt to identify the root cause for continued problems with the subject manual valves. Initially, all leaking valves were proposed to be repaired; however, the licensee deferred a number of valve repairs pending the root cause determination. The licensee's decision to defer repair on some valves was based on the criteria that the valve was outside the system hydro boundary, and a catch basin or funnel was not required to capture the small amount of leakage.

c.3 The team concluded the outage work request tasks were appropriately assigned to work during a unit outage. In addition, the licensee provided reasonable explanations for work tasks that deferred to future outages.

b.4 Non-outage Corrective Tasks Backlog Assessment

Over the last several years, the licensee has focused attention on the backlog of "non-outage work request" as a measure of overall station performance in the area of corrective maintenance. At the time of this inspection, the non-outage WRs had been further refined to define the specific number of "tasks" for each WR. This definition was used at all six Comed stations as a way of standardizing station backlogs.

In addition to the sample inspection of specific non-outage work request tasks, the team reviewed the existing non-outage backlog to determine distribution of the backlog with respect to age and the station work group assigned responsibility for closure. The following table is representative of the non-outage work request task backlog for the powerblock that existed at the time of the inspection.

GROUP	1997	1996	1995	1994	1993*	TOTAL
IM	98	25	5	1	0	129
EM	204	114	35	23	14	390
MM	208	163	33	23	14	441
FN	70	7	2	N/A	N/A	79
CFM	4	1	1	N/A	N/A	6
HVA	33	6	3	4	2	48
VM	29	134	44	18	9	234
MISC	31	15	3	4	0	53
TOTAL	677	465	126	73	39	1380

TABLE NOTES

* = 1993 or earlier for this column;
IM = instrument mechanics;
EM = electrical maintenance;
MM = mechanical maintenance;
FN = fix it now team;
CFM = consolidated facility maintenance;
HVA = heating ventilation and air conditioning maintenance team;
VM = valve maintenance team;
MISC = miscellaneous category with ten different sub-groups; and
N/A = not applicable.

The team reviewed the above backlog to evaluate the licensee's awareness of the station's backlog of WR tasks and how those tasks were prioritized. The following observations were made:

- In general, the age of the existing backlog was skewed in a direction indicating progress was being made at working off older items. The majority (83 percent) of the non-outage backlog work request tasks were initiated in 1997 or 1996.
- The licensee was emphasizing the oldest work request tasks through a "Top 50" list that was intended to focus the responsible work group attention. In addition, the ten oldest corrective tickets were specifically highlighted during the Plan of the Day meeting which was chaired by senior station management.
- The Plan of the Day meeting conducted a detailed review of the powerblock backlog. The focus of that review, which included open WR and AR tasks, was the station's weekly progress in completing scheduled work.

c.4 The licensee's knowledge of the current maintenance backlog was good. In general, the maintenance backlog was appropriately coded so individuals responsible for work prioritization had a sound data base. Some confusion in the data base existed due to incorrectly coded work requests, and work tasks included in the data base but actual field work was no longer required. The backlog of non-outage work request tasks was skewed in a direction indicating positive progress was being made at reducing the oldest backlog items and focusing attention on more recent equipment deficiencies.

IV. Radiation Protection

R1 Radiological Protection and Chemistry Controls

R1.1 Actions to Control Licensed Radioactive Material within the Radiologically Protected Area

a. Inspection Scope (83750)

The team reviewed the corrective actions specified in licensee letter to the NRC dated February 26, 1997, to prevent recurrence of the loss of control of licensed radioactive material (RAM), in the form of contaminated articles, outside the radiologically protected area (RPA). The review consisted of interviews with plant staff, observations of work in progress, walkdowns of the site, and review of documentation.

b. Observations and Findings

The team reviewed the survey log for dumpsters leaving the protected area from January 24 through April 22, 1997, and noted that these surveys were conducted regularly with new meters designed to detect low levels of radioactivity. Radiation protection technicians (RPTs) stated that only properly trained individuals were allowed to conduct these surveys. The team observed that radworkers obtained authorization from a radiation protection supervisor (RPS) before entering the RPA with various work materials, and that the greeters quizzed the workers regarding the need and authorization for this material. In addition, a review of the radiation protection (RP) rover log revealed that rovers aided in the survey of items for clearance from the RPA and raised housekeeping issues that had the potential to result in the loss of control of contaminated materials.

The team reviewed the new stanchion control policy (Policy #71) which stated that only yellow stanchions shall be used in the RPAs and green stanchions shall be used in all others areas. The policy also stated that temporary satellite RPAs (SRPAs) with smearable contamination items shall be surrounded by yellow stanchions with a buffer zone of green stanchions surrounding the yellow stanchions. During site walkdowns, the team noted that the stanchion policy was well implemented. The team also observed the presence of a barrier on the second floor of the Unit 2 side of the turbine building erected to separate the RPA and non-RPA portions of the turbine building. Notes from the presentation given by the radiation protection manager (RPM) at a site-wide meeting held on January 17, 1997, regarding the past problems with control of RAMs and interviews with site personnel indicated that control of RAM was effectively communicated.

The team interviewed RPS staff regarding a benchmarking visit to another nuclear power plant. As a result of this visit, the RPS staff developed a satellite RPA reduction plan to eliminate and consolidate the current 88 SRPAs into 30 SRPAs after the Unit 3 outage. The team conducted an SRPA walkdown, interviewed the lead RPS, and reviewed the SRPA reduction plan and noted that these actions appeared adequate to address the recurrent problem of loss of control. The RP staff also planned to establish a hot tool facility for the storage, use, and decontamination of tools used in the RPA.

c. Conclusion

The team concluded that some of the corrective actions to control licensed radioactive material within site RPAs had been adequately implemented. Those actions scheduled for implementation after the current Unit 3 outage appeared sufficient to improve licensee performance in this area.

R1.2 Actions to Effectively Control Access to High Radiation Areas

a. Inspection Scope (83750)

The team reviewed the status of corrective actions specified in licensee letter to the NRC dated February 26, 1997, to prevent the recurrence of problems associated with high radiation area (HRA) access. The review consisted of interviews with plant staff, walkdowns within the RPA, and review of documentation.

b. Observation and Findings

The team observed that the HRA keys were controlled and inventoried by RP staff. Access to the HRA keys was limited to one RPT at the RP access control desk and the inventory log was updated daily. Swing gates with proper postings were located at the entrances to high radiation areas throughout the plant, although the alarms had not been installed. The team noted that greeters were not quizzing radworkers about HRA controls and radworker responsibility. RPS staff stated that greeter practice regarding HRA issues would be reviewed.

A RP staff survey of the HRA and locked HRA (LHRA) doors revealed 32 material deficiencies. The lead technical health physicist was given the responsibility to track and disposition the identified deficiencies. At the time of this inspection, six HRAs were surveyed and downgraded to radiation areas, four areas were downgraded from LHRAs to HRAs, and 26 of the 32 action requests written to repair LHRA and HRA access points were complete. The team verified that the 2/3 maximum recycle demineralizer room LHRA door was locked.

Interviews with staff and a review of training notes from a presentation given by the RPM to plant radworkers indicated that the workers were aware of responsibilities and management expectations regarding work in HRAs. Regulatory, TS, and procedural requirements were also communicated to the station radworkers. RP and training staff stated that lesson plans addressing HRA issues were being developed for integration into the operations, engineering, and maintenance continuing training cycle.

c. Conclusion

The team concluded that many of the corrective actions had been implemented. However, some training and repair issues remained incomplete. In addition, the action to have greeters address HRA issues was not communicated to the greeters, and was not being conducted.

R1.3 Review of Refueling Outage Performance

a. Inspection Scope

The team reviewed the licensee's radiological controls, dose and/or as low as reasonably achievable (ALARA) effort, and work practices for the D3R14 refueling outage. The inspection consisted primarily of in-plant observations, attendance at pre-job meetings, review of records (ALARA plans, radiation work permits (RWPs), work packages, etc.), and discussions with workers and members of the work control groups. The following radiologically significant jobs were inspected:

- Reactor Water Cleanup (RWCU) Pipe Replacement
- RWCU Removed Pipe and Heat Exchanger Shipping Activities
- Removal of Waste Activities Associated with the RWCU
- Refuel Floor Work Activities
- Aspects of the Control Rod Drive (CRD) Removal Activities
- Valve Work Activities
- Drywell Work Activities

b. Observations and Findings

As of May 2, 1997, the licensee had accrued about 118 rem (the projected goal for this period was 180 rem) with about fifty five percent of the scheduled work completed. At that point, the overall outage dose was expected to be lower than the original goal of about 300 rem (at the exit meeting on May 12, the licensee informed the team that the goal for the Unit 3 outage had been reduced to 245 rem). To date, considerable work which had been included in the dose goal did not need to be accomplished because many of the plant systems passed required local leak rate tests (LLRTs). Added work scope, rework, and emergent work accounted for about 40 rem, most of which was due to added scope. The outage work scope growth was primarily due to work that was found to be required after post shut down surveillances were performed.

ALARA controls such as mockup training, shielding, RWCU chemical decontamination efforts, (the average decontamination factor was about 15), and use of remote cameras and teledosimetry were implemented. Major outage activities were assigned persons to be responsible for developing and implementing the ALARA plans and ensuring radiological controls were used. Oversight by radiation protection personnel and sufficient coordination between working groups was observed. For those pre-job meetings attended, roles and responsibilities of individuals were clearly discussed, and special instructions were prepared for those jobs observed by the team. The team also observed the radiological controls established for several jobs including the Unit 3 drywell, RWCU, and refuel floor work activities. In addition, conservative radiological controls had been planned for and were implemented for all work where there were indications of alpha radioactivity.

Although the radiation protection staff was observed to be aggressive in challenging workers concerning loitering, knowledge of RWPs, general dose rates, and monitoring requirements, the team observed some poor radworker practices that could be prevented by closer oversight:

- During the handling and loading of removed RWCU piping into transportation bins, on two occasions, workers appeared to be loitering in general radiation fields of 10 to 20 mrem per hour. Other workers were noted to be loitering in radiation fields between the Unit 2 and Unit 3 door on the main floor in radiation fields of about 6 mrem/hr.

- Workers were instructed to perform a hand held frisk in a shielded booth close to the RWCU work exit area, and then perform a whole body frisk (PCM-1B) at a lower elevation. On one occasion, the team observed four workers exit the RWCU area, perform the hand held frisk, but only two of the four performed the expected whole body frisk. On another occasion, the team observed four workers exit the RWCU area, and neither a hand held frisk or whole body frisk was performed.

These observations were discussed with the licensee, and RWCU work was stopped until all persons associated with the project were instructed in licensee expectations of worker performance.

c. Conclusions

The team concluded that, in general, radiological controls, ALARA initiatives, and job planning were effectively implemented which contributed to the lower than projected dose for the outage. Although some poor practices were observed, overall, there was good effort to prevent loitering and unnecessary crew size.

R1.4. Radiation Worker Practices

a. Inspection Scope

The team observed general radiation work practices including personal monitoring, use of protective clothing, dosimetry placement (thermolumenescent dosimetry (TLDs) and electronic dosimeters (EDs)), working conditions, understanding general and specific area dose rates and RWP requirements, and station housekeeping.

b. Observations and Findings

The team observed that the normal station practice was to put both the electronic dosimeter (ED) and the theroluminescent dosimeter (TLD) in the same pocket with both covered by the fabric of the PC. The team observed, on at least six occasions, radiation workers placing their TLD or ED under protective clothing (PC), and on two occasions the workers were radiation protection technicians.

Dresden Technical Specification 6.8.A required, in part, that written procedures shall be implemented covering the activities referenced in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Administrative and maintenance procedures were referenced in RG 1.33.

Dresden Administrative Procedure (DAP) 12-35, "Donning and Removal of Routinely Required Radiological Protective Clothing and PC Guidelines," Revision 4, Step F.1.j required (unless otherwise directed by RWP OR Radiation Protection), that TLDs be clipped to the PC pocket with the beta window showing and not covered by fabric, and EDs were to be placed in the pocket. Failure to follow DAP 12-35 with regard to the use of TLDs and EDs is another example of a Violation of TS 6.8.A (50-237;249/97007-03d).

During a tour of the sub-basement in the Unit 3 drywell, ladders and other debris were observed almost blocking the entrance into the under-vessel area. The Unit 3 drywell coordinator removed the debris during the tour.

The team identified that packages of new piping insulation were staged in the corner of the Unit 3 west LPCI corner room to support ongoing work. The packages were radioactively clean and roped off in a noncontaminated area. However a posted, radioactively contaminated trough ran along the base of the floor and some piping insulation packages were laying across the contamination boundary and in the contaminated trough. A radiation protection technician (RPT) subsequently posted and controlled the area and as contaminated.

c. Conclusions

The team concluded that most plant workers were adhering to acceptable radworker practices. However, the team concluded there were some instances of poor procedural adherence or poor radworker practices.

V. Management Meetings

X1 Exit Meeting Summary

The team discussed the progress of the inspection with licensee representatives on a daily basis and discussed inspection progress to members of licensee management on April 25, 1997. A public exit meeting was held on May 12, 1997. In all cases, the licensee acknowledged the findings presented.

PARTIAL LIST OF PERSONS CONTACTED

<u>Licensee</u>

*S. Perry, Vice President, BWR Operations
*J. Heffley, Units 2 and 3 Station Manager
*F. Spangenburg, Regulatory Assurance Manager
*P. Swafford, Unit 2/3 Maintenance Superintendent
*R. Freeman, Site Engineering Manager
*D. Winchester, Safety Quality Verification Director
*T. Foster, Work Control and Outage Manager
*C. Howland, Radiation Protection Manager
*D. Willis, EMD Superintendent
*M. Milly, EMD General Supervisor
*S. Stiles, IMD Superintendent
M. Pacilio, Outage Manager
S. Barrett, Operations Manager

<u>IDNS</u>

*R. Schultz,
*C. Settles, State of Illinois, Resident Inspector

<u>NRC</u>

*A. B. Beach, Regional Administrator, RIII
*R. J. Caniano, Acting Director, Division of Nuclear Material Safety, RIII
*G. E. Grant, Director, Division of Reactor Projects, RIII
*J. A. Grobe, Acting Director Division of Reactor Safety, RIII
*W. J. Kropp, Branch Chief, Division of Reactor Projects, RIII
*P. L. Hiland, Branch Chief, Division of Nuclear Material Safety, RIII
*K. R. Riemer, Senior Resident Inspector, RIII
*C. E. Brown, Resident Inspector, RIII
*D. E. Roth, Resident Inspector, RIII
*R. A. Capra, Project Director, Division of Reactor Projects, NRR

* Denotes those attending the May 12, 1997, exit meeting.

LIST OF INSPECTION PROCEDURES USED

IP 71707	Operational Safety Verification
IP 61726	Surveillance Testing
IP 62703	Maintenance Observations
IP 62704	Instrument Maintenance
IP 62705	Electrical Maintenance
P 62707	Monthly Maintenance Observation

LIST OF ITEMS OPENED

Opened

50-237;249/97007-01	VIO	Failure to Follow Administrative and Test Procedures During the Conduct of Instrument Maintenance
50-237;249/97007-02	VIO	Failure to Follow Instrument Surveillance Procedures
50-237;249/97007-03	VIO	Failure to Follow Administrative Procedures for FME
50-237;249/97007-04	VIO	Failure to Follow Mechanical Maintenance Procedures During Welding
50-237;249/97007-05	VIO	Failure to Test 250 VDC Battery in As Found Condition
50-237;249/97007-06	VIO	Failure to Follow Administrative Controls for Procedural Changes

LIST OF ACRONYMS USED

ALARA	As Low As is Reasonably Achievable
AR	Action Request
ASME	American Society of Mechanical Engineers
ATS	Analog Trip System
ATWS	Anticipated Transient Without Scram
CAM	Continuous Air Monitor
CCSW	Containment Cooling Service Water
CFR	Code of Federal Regulations
ComEd	Commonwealth Edison Company
CRD	Control Rod Drive
CS	Core Spray
CST	Control Systems Technician
D3R14	Dresden Unit 3 Refueling Outage 14
DAP	Dresden Administrative Procedure
DCN	Design Change Notice
DDS	Dresden Electrical Surveillance
DES	Dresden Electrical Surveillance
DIP	Dresden Instrument Procedure
DIS	Dresden Instrument Surveillance
DTI	Desk Top Instructions
DW	Drywell
ECCS	Emergency Core Cooling System
ED	Electronic Dosimeter
EM	Electrical Maintenance
EMD	Electrical Maintenance Department
EQ	Environmental Qualification
EWCS	Electronic Work Control System

FIN	Fix it Now Team
FME	Foreign Material Exclusion
FSAR	Final Safety Analysis Report
HCU	Hydraulic Control Unit
HPCI	High Pressure Coolant Injection
HRA	High Radiation Area
IC	Instrument Controls
IEEE	Institute of Electronic and Electrical Engineers
IM	Instrument Mechanic
IMD	Instrument Maintenance Department
kV	Kilovolts 4kV = 4160 volt
LHRA	Locked High Radiation Area
LLRT	Local Leak Rate Test
LPCI	Low Pressure Coolant Injection
LPRM	Local Power Range Monitor
MMD	Mechanical Maintenance Department
M&TE	Maintenance and Test Equipment
MOV	Motor Operated Valve
MPT	Modified Performance Test
MSIV	Main Steam Isolation Valve
MTU	Master Trip Unit
NRC	Nuclear Regulatory Commission
NSWP	Nuclear Station Work Procedure
OCC	Outage Control Center
OOS	Out-of-Service
PDR	Public Document Room
PIF	Problem Identification Form
PORC	Plant Onsite Review Committee
RG	Regulatory Guide
RP	Radiation Protection
RPA	Radiologically Protected Area
RPS	Radiation Protection Supervisor
RPT	Radiation Protection Technician
RPT/ARI	Recirculation Pump Trip/Alternate Rod Insertion
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permit
S&LP	Safety & Loss Prevention
SBLC	Standby Liquid Control
SJAE	Steam Jet Air Ejector
SRPA	Satellite Radiologically Protected Area
SRM	Source Range Monitor
STU	Slave Trip Unit
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
VDC	Volts Direct Current
VPOP	Valve Packing Optimization Program
WEC	Work Execution Center
WR	Work Request

LIST OF DOCUMENTS REVIEWED

DAP 01-04	Contractor Controls
DAP 02-31	Electronic Work Control System (EWCS) Administration
DAP 03-05	Out of Service Program
DAP 03-23	Foreign Material Exclusion Program
DAP 04-01	Maintenance Department Organization
DAP 04-02	Dresden Preventive Maintenance Program Control
DAP 04-20	Calibration Program for M & TE/Standards
DAP 07-14	Operations Key Control
DAP 07-27	Independent verifications
DAP 12-35	Donning and Removal of Routinely Required Radiological Protective Clothing and Protective Clothing Guidelines
DAP 15-01	Initiating and Processing a Work Request
DAP 15-06	Preparation, Approval, and Control of Work Packages and Work Requests
DAP 15-10	Post Maintenance Testing Program
DAP 18-04	Management of Planned Outages
DAP 18-05	Shutdown Risk Assessment and Management
DAP 18-06	Long Range Planning
DAP 18-07	Implementation of the Fix it Now (FIN) Process
DAP 18-09	Work Activity Screening
NSWP-WM-08	Action Request Screening Process
NSWP-WM-09	Maintenance Work Scheduling Process Week E-5 to E+1
DIP 0700-08	SRM, IRM, and TIP Detector Resistance & Breakdown Voltage Checks
DIS 0700-09	Preventative Maintenance and Calibration of IRM, SRM, RBM, LPRM and APRM power supplies

DIS 0700-30	SRM/IRM Cable Routing and Detector Acceptance Test
DIS 1500-14	LPCI System Discharge Header Flow Channel Calibration and Channel Functional Test and Transmitter EQ Maintenance Inspection
DIS 2400-01	Post LOCA Containment H2/O2 Analysis Functional/Calibration Test
DES 8300-20	Unit 3 250 vdc Station Battery Modified Performance Test
WR 950065509-01	Valve Flow Scans
WR 950070276-01	Main Condenser Expansion Boot Repair
WR 960096685-02	Welding in Torus
WR 960034393-01	H2/O2 Monitor Repairs
WR 970002945-01	LPCI Master Trip Unit Calibration
WR 970032719-01	Calibration of H2/O2 Monitors
WR 970042425-01	SRM Short Period Oscillations
WR 940097988-08	Unit 3 Replace Yarway Reactor Water Valve Switch
WR 950060521-01	D3 RFL EMD EQ GE 3A LPCI PMP MOTOR SURVEILLANCE
WR 960087265-01	2A MG Set Lube Oil Brg Oil Low Press Switch Vertical Mounting Position and Calibration
WR 950062900-02	3B LPCI Cnmt Clg HX SW Outlet MOV Refurbishment and Calibration
WR 970001564-01	2A Off Gas Condenser Normal Level Control Malfunction
WR 960096144-01	2A Reactor Recirc MG Set Clamp MG Set Scoop Tube and Perform DIS 0202-04
WR 970043047-01	Troubleshoot and Repair Unit 2 DW CAM Pegged Low
WR 970005193-01	D1, 2, 3, and 2/3 San PM River Temp Recorder Cal
WR 960105540-01	U2 HPCI Pump Suction from Condensate Storage Tank Check Valve Disassembly and Inspection
WR 970041990-01	U2/3 Air Filtration Unit 4 Inch Charcoal Filter Halide Testing
WR 950060862-01	Bus 34 - Clean, Inspect Bus Bars, Wiring, Supports, Insulation

WR 950065566-01 U3 Main Steam Line C High Flow Isolation Non-TS Surveillances

WR 960099060-01 Install Terminal Screws to ATWS Analog Trip System Cabinet A

WR 970044365-01 Reinforce U2 Flued Head Anchor X-116B

Instrument Maintenance Task to Training Matrix

Instrument Maintenance Qualification Card 102

Instrument Maintenance Qualification Card 103

Unit 2, DIS 1600-03, Revision 07, "Torus to Reactor Building Vacuum Relief Valves Trip Unit Calibration" dated April 4, 1997

Unit 2, DIS 2400-02, Revision 10, "Post-LOCA Containment Hydrogen and Oxygen Analyzer 18 Month Calibration and Maintenance Inspection" dated March 20, 1997

Unit 2/3, DIS 5700-04, Revision 0, "Reactor Building Vent Stack Flow Monitor Functional Test" dated Aug 08, 1995

Unit 2, DIS 0263-07, Revision 08, "Unit 2 ATWS RPT/ARI and ECCS Level Transmitters Channel Calibration Test and EQ Maintenance Inspection" dated April 15, 1997

Unit 2, DIS 0250-01, Revision 14, "Main Steam Line High Flow Isolation Switch Calibration" dated October 29, 1996

Unit 3, DIS 9900-01, Revision 07, "Computer Controlled Analysis Input Instrument Calibration" dated April 17, 1997

Unit 2, DIS 0700-10, Revision 06, "Source Range Monitor (SRM) Rod Block Calibration" dated January 31, 1997

Unit 3, DIS 5600-05, Revision 10, "Turbine Trips Functional Test (Not Tested in Another Procedure)" dated February 14, 1996

Unit 2, DIS 2300-08, Revision 13, "Units 2/3 Contaminated Condensate Storage Tank and Unit 2 Torus Level Switches Functional Test" dated March 6, 1997

Unit 2, DIS 0202-04, Revision 01, "Setting Recirculation Pump MG Set Scoop Tube Control Rod Actuator Assembly Upper Mechanical and Electrical Stop" dated July 12, 1996

Unit 2, DIS 1700-17, Revision 05, "NMC Drywell Continuous Air Monitor Preventive Maintenance and Calibration" dated December 18, 1996

Unit 2, DIS 1400-04, Revision 08, "Emergency Core Cooling System Fill System Alarm Pressure Switches" dated February 04, 1997

Unit 2, DIS 0287-01, Revision 07, "Automatic Depressurization System CS and LPCI Pumps Discharge Pressure - High (Permissive) Channel Calibration and Channel Functional Test" dated April 07, 1997

Unit 2, DIS 1600-04, Revision 14, "ECCS Drywell Pressure Switches Channel Calibration and Channel Functional Test" dated March 21, 1997

Unit 3, DIP 0700-06, Revision 03, "LPRM Pre-Installation Insulation Resistance and Breakdown Voltage Acceptance Checks" dated April 10, 1997

Unit 2, DIS 1600-10, Revision 16, "Drywell and Torus Pressure Instrumentation Channel Calibration and EQ Surveillance for Age Related Degradation" dated March 20, 1997