U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-237/88023(DRP); 50-249/88024(DRP)

Docket Nos. 50-237; 50-249 License Nos. DPR-19; DPR-25

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Dresden Nuclear Power Station, Units 2 and 3

Inspection At: Dresden Site, Morris, IL

Inspection Conducted: December 5, 1988, thru January 6, 1989

Inspector: S. G. Du Pont

Approved By: M. A. Ring, Chief Mark A Ring 1/20/89
Reactor Projects Section 1B Date


Inspection Summary

Inspection during the period of December 5, 1988 thru January 6, 1989 (Report Nos. 50-237/88023(DRP); 50-249/88024(DRP))

Areas Inspected: Special unannounced resident inspection of the licensee's corrective actions associated with the NRC Diagnostic Evaluation Team's (DET) findings of August 1987. The inspection was the second biannual review by the NRC on the licensee's progress and was primarily directed towards the findings contained in Section 3 of the DET report associated with operations, maintenance, testing, operator training, quality programs and management overview.

Results:

- No violations or deviations were identified.
- The inspection found that all of the DET concerns related to operations have been successfully resolved and that further review during the next biannual inspection is no longer needed.
- The inspection also found that, although progress has been made to resolve the findings associated with maintenance, not all of the licensee's improvements in maintenance had been completed. Final resolution of the DET findings associated with maintenance will require inspection and verification during the next biannual review.

- Many of the improvements associated with maintenance have produced positive trends but have not been fully implemented. Examples of these are the licensee's trending program and maintenance procedure upgrade efforts.

- Management and quality assurance efforts in resolving DET findings and concerns have been very good as demonstrated by adherence to the 1987 established resolution schedule and the development and implementation of the integrated Dresden Station Improvement Plan (DSIP).

- The improvements in the IST program have resulted in improved unit availability, component availability and a decrease in forced outages related to equipment failures.

- Management involvement has resulted in an improved awareness of station goals by non-supervisory personnel.

## DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

*E. Eenigenburg, Station Manager
*L. Gerner, Production Superintendent
*C. Schroeder, Services Superintendent
*C. Allen, Performance Improvement Supervisor
T. Ciesla, Assistant Superintendent - Planning
D. Van Pelt, Assistant Superintendent - Maintenance
J. Brunner, Assistant Superintendent - Technical Services
J. Kotowski, Assistant Superintendent - Operations
R. Christensen, Unit 1 Operating Engineer
G. Smith, Unit 2 Operating Engineer
*K. Peterman, Regulatory Assurance Supervisor
W. Pietryga, Unit 3 Operating Engineer
J. Achterberg, Technical Staff Supervisor
R. Geier, Q.C. Supervisor
D. Sharper, Waste Systems Engineer
D. Adam, Assistant to the Assistant Superintendent - Technical Services
J. Mayer, Station Security Administrator
D. Morey, Chemistry Services Supervisor
D. Saccomando, Health Physics Services Supervisor
*E. Netzel, Q.A. Superintendent
*T. Lewis, Regulatory Assurance Staff
*G. Bergan, Onsite Nuclear Safety

The inspector also talked with and interviewed several other licensee employees, including members of the technical and engineering staffs, reactor and auxiliary operators, shift engineers and foremen, electrical, mechanical and instrument personnel, and contract security personnel.

*Denotes those attending one or more exit interviews conducted informally at various times throughout the inspection period and on January 6, 1989.

2. Followup of Previously Identified Items (92701)

(Closed) Unresolved Items (237/88017-17 and 249/88018-17): (DET Item 2.2.2.2) Unit 2 Licensee Event Report (LER) 87018-00 documented that the High Pressure Coolant Injection (HPCI) room cooler fan belts failed and the DET found that there were no preventive maintenance procedures for HPCI fan belts similar to procedure DMP 5700-3 on LPCI. Paragraph 5.c. of this report discusses the addition of the HPCI room cooler fan belts to the preventive maintenance schedule to receive the same preventive inspection and surveillance activities as the LPCI room cooler fan belts. These items are considered to be closed.

(Closed) Unresolved Items (237/88017-19 and 249/88018-19): (DET Item 2.2.2.3) verify that maintenance procedures contain safety-related dc power motors for motor operated valves (MOV). Paragraph 5.d. of this

report discusses the licensee's corrective actions of developing a new maintenance procedure to include required maintenance activities associated with dc MOV motors. These items are considered closed.

(Closed) Open Items (237/88017-25 and 249/88018-25): (DET Item 2.2.2.5) verify that maintenance staffing is adequate for procedure writers and work analysts. During the review of the licensee's progress associated with the maintenance procedure upgrade efforts, the inspector's conclusion, based upon the adherence to the accepted procedure rewrite schedule, is that the licensee's staffing efforts of late 1987 are effective and satisfactory. These items are considered to be closed.

(Closed) Unresolved Items (237/88017-27 and 249/88018-27): (DET Item 2.2.3.3) verify that the licensee's Inservice Testing (IST) program is adequate. An IST team inspection, documented in inspection reports 237/88026 and 249/88026, found that the Dresden IST program (submitted on April 5, 1988) is adequate. These items are considered closed.

No violations or deviations were identified.

3. Review of Licensee Corrective Actions Associated With the August 1987 Diagnostic Evaluation Team (DET) Report

The following sections pertain to the licensee's detailed response to the individual sections of the DET report dated November 6, 1987. The DET findings were contained in Sections 2.2, "Specific Findings and Conclusions" and 3.0, "Detailed Evaluation Results" of the DET report. Resolution of the findings noted in Section 2.2 of the DET report are addressed in Paragraph 2 of this report.

The items noted in Paragraphs 4 through 10 are primarily the responses to the individual details noted within Section 3.0 of the DET report. For tracking and traceability to the DET report, the numbering listed below, 3.1.1, 3.2.1, etc, corresponds to the listing as contained within the DET report.

Paragraph 4, 3.1 Operations
Paragraph 5, 3.2 Maintenance
Paragraph 6, 3.3 Testing
Paragraph 7, 3.4 Operator Training
Paragraph 8, 3.5 Quality Programs
Paragraph 9, 3.7 Management Overview

Note: Concerns associated with Radiation and Chemistry (DET Section 3.6) were resolved previously by Region initiated inspections.

4. DET Findings Related to Operations Section 3.1 (92720)

The DET report contains nine (3.1.1, 3.1.2 through 3.1.9) findings with several contributing examples pertaining to operation.

a. DET Finding 3.1.1, "Operator's Adherence to and Control of Procedures."

(1) Examples:

- The DET observed several instances where the control room operating staff used uncontrolled P&IDs and electrical schematics in the control room and the Shift Engineer's office.

- The DET observed one instance of an operator not following established procedures during activities to clear the accumulator high level alarm on a control rod drive (CRD) hydraulic control unit (HCU).

(2) Licensee's Corrective Actions:

The licensee removed all uncontrolled electrical schematics and P&IDs from the control room and the Shift Engineer's office. A review of administrative procedures revealed that all procedures, except DAP 3-5, "Out of Service," contained requirements to utilize only controlled copies of documentation for processes relating to operation at Dresden. DAP 3-5 was revised to require the use of only controlled drawings. Additionally, the Operations Department personnel received training on use of controlled prints only.

In addition, the licensee reviewed the instance where an operator failed to follow procedures during HCU operation. This review revealed that procedure DOP 300-6, "CRD Accumulator Charging," was inadequate in that procedure DOP 300-11, "CRD Accumulator Water Removal," was not referenced and the ability to go from one procedure to the other did not exist. Both DOP 300-6 and 300-11 were revised and a note concerning operation of valve 305-111 was added to DOP 300-6.

(3) Region or Resident Inspector Verification:

The resident inspectors verified that uncontrolled prints were removed from the control room and Shift Engineers office in December 1987. Additionally, the inspectors conducted a weekly random inspection during backshifts since January 1988 to verify compliance with the policy and procedures on using only controlled prints.

The inspectors also reviewed the revisions to DOP 300-6 and 300-11 and found them adequate.

This DET finding is considered to be resolved.

b. DET Finding 3.1.2, "Control Room Environment."

(1) Examples:

- The DET observed that the control room lighting was low and the noise level was high. The control room board mimics were designed with little attention to human factors engineering.

- Remodeling efforts to address the poor lighting, high noise and poor human factoring was in progress during the DET, but progress in correcting the physical appearance of the control room had been slow.

(2) Licensee Corrective Actions:

The activities associated with the remodeling efforts are continuing and are scheduled to be completed for Unit 2 during the current outage and during the fall 1989 outage for Unit 3.

(3) Region and Resident Inspector Verifications:

The resident inspectors monitor the progress of the control room remodeling daily, including the Unit 1 panel removal for the remodeling of the new Shift Engineer office to be attached to the Units 2 and 3 control room. This finding is ongoing and is not expected to be complete until early 1990.

c. DET Finding 3.1.3, "Management Control of Overtime."

(1) Examples:

- The DET found instances where the operators exceeded the DAP 7.1 working hours limits.

- The DET found that the typical shift rotation at Dresden was backwards in terms of circadian (biological) rhythm.

- The Operations Department seemed to be inadequately staffed at the Nuclear Station Operator (NSO) levels.

(2) Licensee's Corrective Actions:

The licensee issued a new administrative procedure DAP 7-21 to control operator working hours. DAP 7-21 requires evaluation and prior approval for all working hours beyond the scheduled shift. Additionally, extra operators were assigned to the day shift to eliminate the need to have operators perform double shift work during increased testing and operating activities associated with the day shift. Additionally, a fourth NSO will be added to each shift in 1989, satisfying the need for extra day shift NSOs while providing better coverage of activities. The licensee conducted an evaluation of circadian shift rotation and had conducted rotations in this manner for a one year period in the past. At the end of that year, the rotation was overwhelmingly rejected by shift personnel.

(3) Region and Resident Inspector Verification:

The resident inspector verified through direct observation and documentation review that the working hour limits contained in DAP 7-21 had not been exceeded to date and that DAP 7-21 adequately controlled operator overtime as recommended by NRC

policy. Additionally, the Region is pursuing similar administrative limits for Radiation Protection, Chemistry and Maintenance personnel. The example noted in the DET report resulted in a Notice of Violation.

This DET finding is considered to be resolved.

d. DET Finding 3.1.4, "Compliance With Technical Specifications."

(1) Examples:

- The Technical Specification Limiting Condition for Operation (LCO) for the reactor protection intermediate range monitor (IRM) and average power range monitor (APRM) downscale trip function was exceeded.

- The surveillance testing and operability requirements for the High Pressure Coolant Injection system (HPCI) did not verify and test HPCI at rated flow and reactor pressure as prescribed by the Technical Specification LCO.

(2) Licensee Actions:

The licensee initiated a control system using covers for the IRM and APRM bypassing joysticks to prevent bypassing more IRM/APRM channels than allowed by the Technical Specification LCO.

In addition, a Technical Specification change request to test HPCI at the rated flow of 5000 gpm and rated reactor pressure of 300 psig was submitted to NRR.

(3) Region and Resident Inspector Verification:

The resident inspectors issued two Notices of Violation, one for the instance noted by the DET and a second in December 1987 for a repeat instance. The licensee's corrective actions to prevent bypassing IRM/APRM channels in excess of the Technical Specifications were determined to be adequate in January 1988.

The Technical Specification change request is being tracked as items 237/88017-18 and 249/88018-18.

This concern remains open pending action on the change request.

e. DET Finding 3.1.5, "Operations and Maintenance Interface."

(1) Examples:

- The DET observed that coordination did not exist between the Operations and Maintenance Departments to ensure that the Standby Gas Treatment System (SBGT) was tested to verify operability of the SBGT charcoal filters if any areas from which the system takes suction are painted.

- The DET observed, through interviews with NSOs, that maintenance personnel were not instructed to place a high priority on returning equipment required by LCOs back to operable status by initiating around the clock coverage to complete repairs.

- The DET observed, through interviews with NSOs, that a long standing problem with spiking IRM channels had not received appropriate attention.

- The DET observed, through interviews with NSOs, that a long standing problem existed with a nuisance alarm annunciation associated with the scram pilot valve air header high pressure alarm during a half scram.

- The DET observed, through interviews with NSOs, that excessive oil leaks exist.

(2) Licensee's Corrective Actions:

The licensee took several generic corrective actions addressing communications between departments. One was to issue Dresden Policy Statement #16 requiring all departments to inform the shift and appropriate NSOs of activities within the plant. Another was to conduct maintenance schedule meetings with attendance by operations personnel. Additionally, long term schedules were developed to ensure correction of the IRM spiking, scram valve leakage and other long standing problems. To ensure that all equipment is repaired within the requirements of LCOs, the work request process was revised to require around the clock coverage of out of service equipment.

(3) Region and Resident Inspector Verification:

The resident inspectors verified through document review of the May and June, 1987 and May and June, 1988 LCO logs that the duration per LCO has been reduced from an average of 52 hours to about 48 hours. The inspectors also verified that the number of LCOs entered between July and August 1988, was reduced by an additional 10% compared to the June and July 1988 period.

This DET concern is considered to be resolved.

f. DET Finding 3.1.6, "Operations and Training Interface."

(1) Examples:

- The DET observed, through interviews with NSOs, that no effective mechanism existed for comments on received training.

- The DET observed, through interviews with NSOs, that training was not individualized and only marginally effective and that more performance based training on the Dresden simulator was needed.

(2) Licensee's Corrective Actions:

The licensee committed in the Fall of 1987, to the NRC that two of the continuing training cycles would be mandatory for all licensed individuals, both shift and administrative. Additionally, the licensee committed to ensure that all individuals would attend all training cycles through an administrative control process ensuring makeup of missed attendance. The simulator training was also increased from 3 days per year to 10 days. The Training Inquiry process has been enhanced to ensure that the inquiry is responded to in a timely manner by assigning a due date to all inquiries.

(3) Region and Resident Inspector Verification:

The Region has scheduled a training verification for late 1988 or early 1989, in addition to an operator requalification examination. This item is being tracked as items 237/88017-30 and 249/88018-30.

This DET concern is considered to be open.

g. DET Finding 3.1.7, "Operating Shift Control and Oversight."

(1) Examples:

- The DET observed, through interviews with Shift Engineers (SE), that SEs were not being informed of scheduled maintenance activities planned to occur during the shift.

(2) Licensee Corrective Actions:

The SE attends several meetings, including the daily morning meeting, weekly department meeting and the maintenance schedule meeting. In addition, changes noted in response to DET Finding 3.1.5 above have increased the communication to the shift and SEs pertaining to maintenance and testing activities scheduled during the shift.

This DET concern is considered to be resolved.

h. DET Finding 3.1.9, "Interviews."

(1) Examples:

The following were observed by the DET through interviews with the operators:

- The effect of overtime on the safe operation of the plant was cited by the operators as a major problem. (Several sought out DET members to express their concerns.) Operators commented on excessive demands that often included being held over for the next shift; being called in early; working, as a matter of course, two double shifts in 2 days; and, in one case, working six double shifts (each shift is 8 hours) in 7 days.

- Many operators believed that they could not be promoted. Although the operators were pleased with their job security and were loyal to CECo, they discussed in detail the lack of promotion opportunity. At the management level, the lack of a 4-year degree was believed to be a contributing factor. Generally, only shift control room engineers (who are engineers with degrees) are promoted. The operators noted that the slow personnel turnover and the strict seniority rules hindered the promotion process.

- Operators were discouraged by the lack of formal response from management to changes they initiated. Because no response was routinely provided to the operations personnel after they had submitted inquiries and change requests regarding training and plant procedures, operators believed that the inquiries were "lost" or had been disregarded. The DET considered the inadequate response in these areas to be a major cause of low morale.

- Some operators believed that the control room improvements were being done primarily because of an INPO commitment and not to improve the work environment for operators. In particular, operators noted that the plans for control room improvement had been "on the drawing board" for 4 to 5 years, but were being continually delayed until the most recent INPO evaluation. This was an example of personnel skepticism about the plant improvement initiatives and management's commitment to them.

Of these four examples, only the first was deemed to be regulatory in nature and was addressed by issuance of a Notice of Violation, as noted in Paragraph 3.c. of this report. The remaining three were addressed by the licensee below.

(2) Licensee Corrective Actions:

Within 1987, one operator was promoted to Engineering Assistant, two operators to training instructors, and five operators to Shift Foreman, all of which are management positions. This trend in promotion has continued into 1988. The other findings pertaining to inquiries are addressed with Finding 3.1.6 and the control room with Finding 3.1.2.

(3) Region and Resident Inspector Verification:

As addressed above and pertaining to Findings 3.1.2 and 3.1.6, the Region and resident inspectors have initiated and scheduled followup and verification of the regulatory related issues.

The concern is resolved.

No violations or deviations were identified in this area.

5. DET Findings Related to Maintenance, Section 3.2 (92720)

The DET had several findings in the areas of preventive and corrective maintenance activities and maintenance trending.

a. DET Finding 3.2.1.1, "Lubrication Program for Motor Operated Valves."

(1) Examples:

- The DET noted that there had been no periodic program for inspection or relubrication of MOV actuators.
- The DET noted that 17 Limitorque MOVs inside the Unit 2 drywell were lubricated with an apparently unqualified grease, Mobilux EP-0.
- The DET expressed a concern that Mobilux EP-0 grease may migrate and accumulate in the Belleville spring packs in MOV actuators.
- The DET found procedure DMP 040-17, Revision 0, "Limitorque Environmental Qualification Surveillance," contained inadequate guidance regarding MOV lubrication in that the procedure requires lubrication of MOV main gear boxes whenever the MOVs require repairs instead of on a planned lubrication interval.
- The DET found that procedures DMP 040-17 and DMP 040-18, Revision 0, "Limitorque Environmental Qualification Maintenance," contained inadequate guidance regarding lubrication of MOV limit switch assemblies.

(2) Licensee's Corrective Actions:

The licensee extended their MOV surveillance and inspection program from the Environmental Qualified (EQ) safety related MOVs to all safety related MOVs. Additionally, a modified program was extended to all Balance of Plant (BOP) MOVs.

The Licensee has also submitted Mobilux EP-0 grease to an operability evaluation by the Bechtel Power Corporation (Bechtel). Bechtel completed the evaluation and issued a report of the conclusions on April 27, 1988. This report was forwarded by the licensee to the Office of Nuclear Reactor Regulation (NRR) for review and resolution. The Bechtel report also addressed the concern of possible grease migration and concluded that Mobilux EP grease was equal to Exxon Nebula EP grease. Additional evaluations were requested of Wyle Labs to test Mobilux EP under extreme conditions to supplement the Bechtel report and for Limitorque to evaluate hydraulic lock-up associated with possible grease migration.

- The licensee also revised procedures DMP 040-17 and DMP 040-18 to contain instructions for lubricating and inspecting MOV limit switch assemblies. Additionally, procedure DMP 040-36, "Limitorque EQ Lubrication Surveillance Mechanical Maintenance," was created to contain the MOV main gear case lubrication instruction.

(3) Region or Resident Inspector Verification:

The inspector verified that the MOV surveillance and inspection program had been expanded to include all safety related MOVs. Additionally, the BOP MOVs had been added to the licensee's MOV overhaul schedule. Currently, about half of the safety related MOVs have been overhauled with scheduled completion by May 1989. Some of the BOP MOVs have also been overhauled, but the remaining MOVs are not scheduled to be overhauled until after June 1989.

The inspector also verified the revised procedures. The final verification of the licensee's corrective actions will be accomplished by the Region III maintenance team inspection in January 1989.

NRR is evaluating the application of Mobilux EP grease per NRR tracking items M671582 and M671592.

This DET finding is considered to be open.

b. DET Finding 3.2.1.2, "MOV Torque Switch and Limit Switch Setpoints."

(1) Examples:

° The DET found the settings of torque switches for safety-related MOV operators did not appear to be based on expected design differential pressures. Additionally, the licensee's response to Bulletin 85-03, "Motor-Operated Valve Common-Mode Failure During Plant Transients Due to Improper Switch Settings," did not document a listing of the design differential pressures.

- The DET noted that setting MOV limit switches was often inconsistent with the procedural guidance per DMP 040-9, "Limitorque Valve Operator Maintenance."

- The DET's review of DMP 040-9 revealed that the procedure did not control torque switch settings for non-safety-related MOVs.

(2) Licensee's Corrective Actions:

The licensee is addressing these concerns with the concerns addressed by NRC inspection reports 237/87033 and 249/87032 which reviewed the DET findings in detail.

(3) Region or Resident Inspector Verification:

A region based inspector conducted an indepth review of the DET concerns and Bulletin 85-03. The inspection resulted in 10 detailed open and unresolved items (237/87033-01 through 10 and 249/87032-01 through 10). The review of the licensee's corrective actions will be addressed by a region based team inspection.

This DET finding remains open.

c. DET Finding 3.2.1.3, "Maintenance Corrective Actions".

(1) Examples:

- The DET noted that Licensee Event Report (LER) 87018-00 documented the inoperability of the Unit 2 HPCI system room cooler on June 6, 1987, because of the failure of the fan motor belts. The failure was attributed to wear and age of the belts. Additionally, no preventive maintenance procedure existed to perform periodic inspection and replacement of the fan belts.

- The DET noted that similar preventive maintenance deficiencies discovered by the licensee performed in-depth functional inspection of the Unit 3 emergency diesel generator existed with the High Pressure Coolant Injection (HPCI) system.

- The DET noted that the licensee preventive maintenance procedures for MOV motors did not contain pictorial instruction for removal and installation for the motor and motor pinion gear.

- The DET also expressed concerns with problems associated with the feedwater regulating valves (FRVs). This issue is not addressed in this report because of extensive documentation and resolution in inspection reports

237/87029, 249/87028, 237/87026, and 249/87025. This issue is considered to be closed.

(2) Licensee's Corrective Actions:

The licensee added the HPCI room cooler fans to the preventive maintenance task schedule for inspection of wear and replacement on a refueling outage basis. Additionally, the licensee performed an in-depth functional inspection of the Unit 2 HPCI in July 1988.

The licensee also revised DMP 040-09 to contain installation and removal instructions for MOV pinion gears.

This DET finding remains open.

d. DET Finding 3.2.1.4, "Maintenance Procedures"

(1) Examples:

- The DET found that procedure DMP 040-17 did not adequately contain instructions for maintenance on direct current (dc) motors.
- Procedure DMP 040-11 did not contain a caution statement to ensure that a valve is back seated at its normal operating temperature.
- No preventive maintenance procedure had been established to periodically inspect the brake rotating friction disc for excessive wear on the recirculation system pump suction valves' motor brakes.
- The DET found that many safety-related and balance-of-plant system components did not have maintenance procedures.

(2) Licensee's Corrective Actions:

The licensee developed a new electrical maintenance procedure DEP 040-9, which contained inspection and maintenance instructions on dc motors.

Procedure DEP 040-11 was developed to replace DMP 040-11. DEP 040-11 contained a caution statement ensuring that valves are backseated at normal system operating temperatures. Procedure DEP 040-09 was also developed to inspect motor brake pads for wear and proper adjustment.

During the DET evaluation, the licensee was in the progress of developing procedures to address maintenance of all components and had developed 25 new procedures. Currently, over 100 new procedures have been developed and 400 of the 450 existing maintenance procedures have been revised.

This finding is considered to be open.

e. DET Finding 3.2.2, "Maintenance Trending."

(1) Examples:

- The DET found the governing procedure for trending, DAP 4-10, did not trend by component type.

- The DET found that work requests did not always document the cause of failure or corrective actions taken because of the lack of information, machinery history was not complete.

- DAP 4-10 does not provide requirements for a periodic review to ensure that actions recorded on the trending worksheet log are being completed or for corrective actions oversight by maintenance management.

- The DET found that the lubrication and oil analysis trending program had been ineffective in improving station maintenance activities.

(2) Licensee's Corrective Actions:

The licensee initiated an improvement program for the Total Job Management (TJM) system data base. In late 1987, a self assessment was performed to evaluate station system performance and to determine the 15 systems with the least acceptable performance. The licensee also conducted training on the importance of documenting failure and corrective action information on work requests. In addition, Maintenance Memorandums 38 and 44 were written as interim corrective actions to resolve weaknesses in the trending program. Memorandum 38 implemented a failure analysis draft procedure to provide a consistent method of performing systematic analysis of maintenance problems to determine root cause of failure and establish appropriate corrective action. The memorandum also provided an attached article from Nuclear News, August 1987, discussing root cause determination as guidance and reference. Memorandum 44 addressed the post maintenance review of work requests, identifying the process in which work request history is to be entered in the TJM history file.

(3) Region or Resident Inspector Verification:

An inspector from NRR Special Inspection Branch conducted a review of the licensee's maintenance improvement efforts. This review is documented in inspection reports 237/88022 and 249/88023. The review found that improvements had been made to the TJM equipment history system, but final improvements were pending the 100% system walkdown effort being performed by the licensee. This effort is being done to provide accurate identification of actual as-built conditions of all component

model type and identification for the TJM. Although improvements have been found to be adequate, the licensee's efforts to accurately update the TJM is pending and will be reviewed by the NRC after completion.

This DET finding is considered to be open.

No violations or deviations were identified in this area.

6. DET Findings Related to Testing, Section 3.3 (92720)

In general, the DET found several deficiencies in the area of Inservice Testing (IST).

In response the licensee made extensive corrections and developed a new IST program, which was submitted to the Office of Nuclear Reactor Regulations (NRR) for review and approval on April 15, 1988.

a. DET Finding 3.3.1, "ASME Section XI Valve Testing."

(1) Examples:

- The licensee did not have administrative procedures to control IST activities and to ensure that all required tests were performed, evaluated, and trended.
- The DET found that several ASME Section XI valves listed in the IST program were not tested.
- The DET found that the HPCI injection isolation valves were stroked tested in the closed direction rather than open.
- The DET found inconsistencies between the requirements of the Technical Specifications, IST program and surveillance testing.
- The DET found that the IST program was not revised to reflect the current as-built system configuration.
- The DET found that the IST program contained incorrect information regarding critical valve parameters.
- The DET found that several relief requests from ASME Section XI contain inaccurate information.

(2) Licensee's Actions:

The licensee developed and implemented in March 1988, procedure DAP 11-21, "Inservice Inspection Testing Program for Pumps and Valves." The procedure provides for the administration of the IST program by specifying the various testing methods and

actions for pumps and valves. Additionally, DAP 11-21 defines the responsibilities of operating and testing personnel.

The licensee reviewed the deficiency noted by the DET on valves not tested. Several of these valves (1402-4A(B), 1402-38A(B), 1501-13A(B) and 2302-14) were found to have been tested and were consolidated in surveillance procedure DOS 1600-1, " Quarterly Valve Timing," to provide ease of auditing. All of the other valves except 2-301-94, were added to the reactor refueling procedure to ensure timing during refueling outages. Valve 2-301-94 is a manual valve and is not part of the IST program or required by ASME.

The testing requirement for the Core Spray injection valve (incorrectly identified as HPCI in the DET report) 2(3)-1402-24A(B) was revised in the April 15, 1988, issue of the IST program to require stroke testing in the correct direction (Open rather than Closed). The IST program and surveillance procedures were also revised to ensure that inconsistencies did not exist between the IST program, surveillance procedures and Technical Specifications.

The licensee upgraded the IST program to include the components installed by modifications. To ensure that all future modifications are included in the IST program, the administrative procedure (DAP) 5-1 controlling modifications was revised to ensure that the IST coordinator reviews modifications for IST program impacts, such as installation or removal of components.

The April 15, 1988, issue of the IST program also contained the corrections to the program pertaining to the DET identified valve parameters. Procedures DOS 1600-1, "Quarterly Valve Timing," and DOS 1600-18, "Cold Shutdown Valve Testing," were also revised to contain the correct valve parameters.

The licensee evaluated the pump and valve relief requests (VRs) noted in the DET report and revised VR-4, VR-5, VR-8, VR-13, VR-15 and VR-10. Additionally, relief requests VR-9 and VR-14 were deleted.

(3) Regional or Resident Inspection Verification:

In December 1988, Regional and Resident inspectors reviewed the licensee's IST program. This review included an evaluation of procedures DAP 11-12, DAP 11-22, DAP 14-5, DOS 1500-2, DOS 1500-10, DOS 1600-18 and DOS 1400-5. The review found the licensee's procedures to be adequate in controlling IST activities. Additionally, a review of the licensee's IST program revealed that the DET concerns with IST activities were adequately resolved.

b. DET Finding 3.3.2, "ASME Section XI Pump Testing."

(1) Examples:

- The licensee did not have any administrative procedures in place to control Section XI pump testing and to ensure that all required testing was performed.

- Several tests were accepted by the licensee even though test acceptance criteria were violated.

(2) Licensee's Actions:

Procedure DAP 11-21, "Inservice Inspection Testing Program for Pumps and Valves," was written and implemented to specify the various testing methods, actions and responsibilities of personnel involved with IST.

The licensee also ensured that specific test procedures, such as, DOS 1500-10, "LPCI Pump Operability Test," contained proper actions to be taken if test data fall outside the acceptance range. The procedures (including DAP 11-21) prescribe that, if data is in the alert range, the test frequency must be doubled. If the data is in the required action range, the Shift Engineer (operations) must declare the affected pump inoperable, enter the pump in the degraded equipment log and take all actions required by Technical Specifications.

(3) Regional or Resident Inspector Verification:

A regional review of the licensee's implementation of the IST program, documented in inspection reports 237/88026 and 249/88026, revealed that the IST program adequately resolved the DET concerns associated with IST activities.

c. DET Finding 3.3.3, "Plant Performance Monitoring/IST Section Staff (PPM/IST)."

(1) Examples:

- The DET considered the Dresden PPM/IST staff to be low in background experience with 19 staff years between 6 staff members.

- The DET found the lack of a cohesive IST program had contributed to the previously noted DET findings (3.3.1 and 3.3.2).

(2) Licensee's Actions:

The licensee separated the PPM and IST staffs and increased the IST group by adding an IST engineer, a vibration technician,

a GE consultant and a staff member with Quality Assurance experience. Additionally, a comprehensive IST program was developed and submitted to NRR for review and approval on April 15, 1988.

(3) Regional or Resident Inspector Verification:

A regional review of the IST program implementation, documented in inspection reports 237/88026 and 249/88026, found the IST staff to be experienced and effective. Additionally, the IST program was found to be cohesive and effective.

No violations or deviations were identified in this area.

7. Operator Training, Section 3.4 (92720)

a. DET Finding 3.4.1 "Training Staff"

1. Examples:

° The DET found a general lack of plant experience of the training staff and inadequate staffing to support non-licensed operating personnel training.

° Both licensed and non-licensed operators were in the same retraining classes.

(2) Licensee Actions:

The licensee took several actions to increase the training staff and to provide an increase in the staff's plant experience. Several experienced licensed personnel have been added to the training staff. Additionally, both the CECo training and GE (simulator) instructor staffs have walked down plant systems and observed control room evolutions to acquire plant operations and system experience.

The licensee has also separated the licensed and non-licensed training to ensure that required training is conducted.

(3) Regional or Resident Inspector Verifications:

The inspector verified that the licensee had initiated the above changes. This DET finding is considered to be closed.

b. DET Finding 3.4.2, "Requalification Program for Licensed Operators"

(1) Examples:

° The DET found learning objectives did not indicate the standard of expected performance.

- The DET found that requalification instructions were exam orientated instead of a comprehensive requalification based program.

- The DET found that retraining quizzes relied heavily on design bases and placed little emphasis on job-required knowledge.

(2) Licensee's Actions:

The licensee has performed several actions to improve the overall conduct of training. Procedures have been initiated to require clear training objectives explaining the performance standard associated with the related training subjects, student feedback on the instruction material and to include job related subjects into the lesson plans.

(3) Regional or Resident Verification:

Because of the general overall weakness in the training program identified by the DET, an initial inspection by the Region was conducted in late 1987, with a scheduled team inspection in 1989.

This DET finding is considered to be open.

No violations or deviations were identified in this area.

8. Quality Programs, Section 3.5 (92720)

a. DET Finding 3.5.1, "Quality Assurance of Operations.

(1) Examples:

- The QA department seemed to suffer from high turnover and understaffing.

- Of twelve (12) personnel, only six (6) were available for regularly scheduled QA activities.

(2) Licensee Action:

CECo QA is structured such that QA inspectors are reassigned to other facilities on a routine basis to provide a "fresh" look.

Additionally, the QA department has shifted more effort from the routine surveillance to more progressive diagnostic type inspections, such as SSFIs and self assessments. This DET finding is considered to not be a regulatory concern and the licensee's actions appear to adequate, therefore, this finding is considered to be resolved.

b. DET Finding 3.5.2, "Licensee Improvement Initiatives."

(1) Examples:

- The DET found that QA personnel were not actively involved with the site ongoing improvement initiatives.

- The DET found that, although the individual improvement initiatives seemed to have been well conceived, there was no collective thrust or direction.

- All improvement initiatives were under the cognizance of the Station Manager; however, the corrective actions and followup were not centrally tracked.

(2) Licensee Actions:

The licensee developed a comprehensive and integrated improvement plan.

The Dresden Station Improvement Plan (DSIP). DSIP incorporated all previous improvement initiatives, DET findings, corporate goals and INPO initiatives into one plan. Trending tracking has also improved with the addition of Dresden specific performance indicators to the Monthly Plant Status report. The report trends 116 performance indicators in 13 functional areas. Each indicator is also identified based upon what type of performance, such as station, NRC, INPO or Corporate with goals, yearly and monthly trends.

The site QA department has increased their involvement in evaluating station performance by conducting a second SSFI on the Unit 2 HPCI and participating in several self assessments.

This DET finding is considered to be open.

c. DET Finding 3.5.5, "Audit and Surveillance Program.

(1) Examples:

- The DET found that the licensee QA department audits conducted during 1986 and 1987 in the maintenance and IST areas were program oriented rather than emphasizing correct work activities.

(2) Licensee Action:

The site QA conducted an audit of the IST program. This audit, with others, contained increased emphases on observation of in-process work activities. Additionally, this audit demonstrates QA's involvement in the DSIP by reviewing the second 10-year IST program against ASME Section XI and Technical Specifications to ensure that inconsistencies did not exist. These actions appear to be adequate and therefore, this finding is considered to be closed.

d. DET Finding 3.5.7, "Corrective Actions and Root Cause Analysis."

(1) Examples:

- The DET found that the Regulatory Assurance Department had several tracking systems for external commitments to INPO and the NRC, but did not track all internal actions, for example; the status and action required by discrepancy records (DRs) and deviation reports (DVRs).

- The DET determined that root cause analysis and followup were not accomplished as one coordinated, cohesive activity and did not constitute a separate, plant-wide program.

(2) Licensee Actions:

The licensee evaluated the use of the Nuclear Tracking System (NTS) for daily tracking of DVRs and DRs. However, the responsibility of tracking DVRs and DRs was shifted from the Office Supervisor to the Quality Control Supervisor as a result of a QA audit. Additionally, the DVR/DR process was improved to provide a 45 day turn-around on issuance of the reports. These actions increased the ability of the licensee to find and verify DVR/DRs in the process. In addition, internal commitments between departments and committees have been added, including DVRs and DRs, to a computer based information system as the Daily Regulatory Activities List. The list provides the ability to review commitments in a short listing of items.

The station's personnel error reduction program was incorporated into an administrative procedure, DAP 2-8, and the Scram/ESF reduction program was included in procedure DAP 7-15. Additionally, over 17 Dresden personnel received root cause investigation training from EG&G Services. This effort included personnel from various station departments; maintenance, operations, technical staff and engineering.

(3) Resident Verification:

The inspector verified, through observations and record reviews, that the internal tracking system has been effective. Additionally, root cause evaluations improvement efforts have contributed significantly to the increased performance of the Dresden station during 1988. Several performance indicators demonstrate the improved performance as follows:

| Performance Indicator | 1987 | 1988 |
|---|---|---|
| Total Scrams at Power | 10 | 1 |
| Percentage of Personnel Errors vs LERs | 24% | 10% |
| Forced Outage Rate (U2) | 8.0% | .8% |
| Forced Outage Rate (U3) | 22.0% | 0% |

Also, several other performance records, such as a dual unit operating run of 156 days (second best BWR record) and no reactor scrams for 403 days on either unit (world BWR record), indicate the effectiveness of the licensee's improvement and root cause evaluation programs.

This DET finding is considered to be closed.

No violations or deviations were identified in this area.

9. Management Overview, Section 3.7 (92720)

a. DET Finding 3.7.1, "Strategic Plan (5-Year) and Station Goals."

(1) Examples:

- The DET found discrepancies between the Station Goals and the Strategic Plan. This included the goals not addressing all of the improvement initiatives.

- The Station Manager did not have a staff dedicated to the various improvement initiatives.

(2) Licensee Actions:

The licensee incorporated the Strategic Plan, NRC and INPO initiatives, and the station improvement initiatives into one integrated plan, DSIP. Additionally, a new superintendent position, Superintendent of Plant Improvements (SPI), was created and filed in late 1987, to direct and track the actions required by the DSIP. The SPI was assisted by the Regulatory Assurance Department and reported to the Station Manager. In late 1988, the position was down graded to Performance Improvement Supervisor (PIS) with reporting to the Services Superintendent (direct) and Plant Manager (indirect).

(3) Regional or resident Verification:

The resident staff followed the progress of the DSIP as part of the routine assignments and Regional management met monthly, throughout 1988, with Dresden to discuss progress of the actions contained in the DSIP. These meetings also reviewed and addressed the trends and performance indicators contained in the Dresden Station Monthly Status Report. This DET finding is considered to be closed.

b. DET Finding 3.7.2, "Improvement Initiatives."

(1) Examples:

- The DET found that many of the improvement initiatives in place in 1987 were based upon an INPO evaluation in 1985 and did not reflect recent indications of program weakness.

- The purpose and objectives of the initiatives were not defined or communicated to non-supervisory personnel.

- The initiatives did not address all areas requiring improvements.

(2) Licensee Actions:

During the development of the DSIP, the licensee included the results of several self-assessments and INPO and consultant assisted assessments in most of the functional areas as part of the initiatives contained within the DSIP.

The DSIP was developed to be a "living" document with the ability to assess each of the initiatives, goals and actions contained within the DSIP against effectiveness and current program weaknesses. After the NRC issued SALP 7, the DSIP was revised to reflect the needed improvements in maintenance.

The licensee also initiated several methods of communicating the goals of the DSIP to all station personnel. An appraisal and standard process was initiated to provide a periodic assessment of personnel performance and a forum for communication between supervision and station personnel. Also, the "Daily Update," a daily memorandum to all station personnel containing the expected daily tasks, was expanded to contain Station, regulator and industry information. This information includes Station goals and progress, industrial events and NRC Information Notices. Another station-wide information, a monthly newsletter, was initiated in late 1987. The newsletter provides information on the progress of all departments and a general monthly progress of the Station goals by the Station Manager.

(3) Regional or Resident Inspector Verification:

The NRC has noticed an increased awareness by station personnel, in the goals of the Station. The inspector has noticed an increased participation of non-supervisory personnel in the monthly status meetings and in initiating recommendations that have resulted in improved conditions at the facility. Additionally, team work between departments has been evident as demonstrated by interdepartment efforts associated with complex Station improvements, such as, the service water maintenance outage and the Unit 2 control room human factor modifications. This DET finding is considered to be closed.

10. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) informally throughout the inspection period and on January 6, 1989, and summarized the scope and findings of the inspection activities.

The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary. The licensee acknowledged the findings of the inspection.