

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-010/85009(DRP); 50-237/85023(DRP); 50-249/85019(DRP)

Docket Nos. 50-010; 50-237; 50-249 Licenses No. DPR-02; DPR-19; DPR-25

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

Facility Name: Dresden Nuclear Power Station, Units 1, 2, and 3

Inspection At: Dresden Site, Morris, IL

Inspection Conducted: June 8 through August 19, 1985

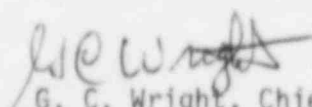
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Reactor Projects Section 2C

6/23/85
Date

Inspection Summary

Inspection during the period of June 8 through August 19, 1985

(Reports No. 50-10/85009(DRP); 50-237/85023(DRP); 50-249/85019(DRP))

Areas Inspected: Routine unannounced resident inspection of previous findings, headquarters requests, events, operational safety, licensee event reports, maintenance, surveillance, and report review. The inspection involved a total of 201 inspector-hours onsite by five NRC inspectors including 42 inspector-hours onsite during off-shifts.

Results: Of the eight areas inspected, no violations were identified. One weakness was identified and corrected (verification of control rod movements with an inoperable rod worth minimizer - Section 5).

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DETAILS

1. Persons Contacted

Commonwealth Edison Company

*D. Scott, Station Manager
*J. Wujciga, Production Superintendent
*R. Flessner, Services Superintendent
*T. Ciesla, Assistant Superintendent - Operations
*R. Zentner, Assistant Superintendent - Maintenance
*J. Brunner, Assistant Superintendent - Technical Services
R. Christensen, Unit 1 Operating Engineer
J. Almer, Unit 2 Operating Engineer
J. Kotowski, Unit 3 Operating Engineer
W. Pietryga, Unit 3 Operating Engineer for Recirc. Piping Replacement
*J. Achterberg, Technical Staff Supervisor
*D. Adam, Compliance Administrator
J. Doyle, Q.C. Supervisor
D. Sharper, Waste Systems Engineer
S. McDonald, Radiation Chemistry Supervisor
J. Mayer, Station Security Administrator
W. Johnson, Chemistry Supervisor
J. Schrage, Radiation Protection Supervisor
M. Luoma, Q.A. Supervisor
*R. Stobert, Q.A. Inspector
*J. Williams, Q.A. Inspector
W. Aherns, Q.A. Inspector
*H. Cobbs, Q.A. Inspector

The inspectors 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 on June 28, August 13 and 19, 1985, and informally at various times throughout the inspection period.

2. Followup On Previous Inspection Findings

(Closed) Inspection Item (237/83-029-03(DRP)) Economic Generation Control (EGC) frequency sensitivity could result in unplanned turbine generator trips or reactor scrams. The licensee has modified the control circuitry to eliminate the sensitivity and has satisfactorily tested the system. Presently, the EGC is permitted by Technical Specifications and being used by the licensee.

(Closed) Inspection Item (237/83032-03(DRP); 249/83030-03(DRP)) All alarms annunciated in the control room are not recorded. The licensee has provided better guidance to operators through administrative procedure DAP 7-5 "Operational Logs" on recording alarms and those that are normal or expected alarms.

(Closed) Inspection Item (237/84002-01(DRP)) The licensee has completed the actions committed as a result of their investigation of the control rod insertion event. These include procedure changes to DGP 3-4 "Control Rod Movement - Control Rod Sequences which provided consistent symbols, enhanced communications between operators and nuclear engineers, provides a control rod sequence package index, requires verification of transformed procedures, verifies the rod worth minimizer (RWM) is loaded and requires the shift supervisors signature on sequence changes. The licensee has also revised administrative procedures for protection against unexplained symbols, provided guidance for the operability of the RWM, established procedures for work on the RWM and has a corporate task force review control of computer maintenance at all status.

(Closed) Violation (237/84002-02(DRP)) Failure to Follow Control Rod Insertion Sequence. The licensee has completed all corrective actions committed as shown in inspection item (237/84002-01(DRP)).

(Closed) Inspection Item (237/84002-04(DRP)) Nuclear Engineers (NE) and Nuclear Station Operators (NSO) had communications that were too informal. This contributed to a control rod insertion error. The licensee has modified Dresden procedure DGP 3-4 "Control Rod Movements - Control Rod Sequences" to assure communications are more formalized. Reference Inspection Item (237/84002-01(DRP)).

3. Headquarter's Request

Temporary Instruction TI 2515/64 Near Term Inspection Followup to Generic Letter (GL) 83-28 "Required Actions Based on Generic Implementation of Salem ATWS (Anticipated Transient Without a Scram) Events July 8, 1983.

This TI will be completed through the efforts of Region III Divisions of Reactor Projects (DRP) and Reactor Safety (DRS). The inspector selected two to three components of Category A (Reactor Trip System) and two to three components of the Category B (Another Safety-Related System) and verified that the selected components were clearly safety-related through referral to plant drawings or other appropriate documentation. The inspector then selected up to five completed work order packages for each component selected, then identified the Technical Manuals and the test on maintenance procedures for the selected work packages. The inspector also acquired preventative maintenance and surveillance schedules for reactor protection system components. The material was then packaged and submitted to Region III for further evaluation by DRS along with the name of the licensee contact on this matter.

Temporary Instruction TI 2515/67

The request was to survey the licensee actions on steam binding of auxiliary feedwater (AFW) pumps and mispositioned control rods. These issues were previously reported to the licensee via IE Information Notices 83-75 and 84-06 and through INPO Significant Operating Experience Reports (SOER) 84-2 and 84-3.

The AFW issue is primarily directed toward pressurized water reactors (PWR) however, the INPO SOER implied that BWR high pressure coolant injection (HPCI) or reactor core isolation cooling (RCIC) could be similarly affected. Dresden has no AFW or RCIC but does have the HPCI system. The inspector reviewed the licensee's internal memo dated July 25, 1985 and the conditions that would prevent a similar occurrence with the Dresden HPCI pumps. The licensee considered their procedural control of motor operated valves, verification of valve position, and that the HPCI pump discharge check valve is not cycled during normal operation. The licensee also considered the keep full system, component elevations, relief protection on the pump suction, detection of leakage in the HPCI pump room, system walkdowns each shift and in the event of an HPCI failure, the backup protection of the automatic depressurization system, low pressure coolant injection, and core spray systems.

The inspector agreed with the licensee's summary that no further action was necessary.

With regard to the control rod mispositioning, the licensee has experienced such an event at Dresden on January 9, 1984, and it is addressed in a special inspection report (50-237/84-02(DRP)). The licensee was also aware of the events at Quad-Cities and Plant Hatch and has implemented procedure modifications and appropriate training to prevent recurrence. The inspector verified that: the procedure modifications implemented written instructions, management concurrence and operations personnel briefing if a nuclear engineer is not present during scheduled control rod movements; conditions under which the rod worth minimizer (RWM) may be bypassed; procedures specify authorized uses of scram timing equipment; guidelines on appropriate use of the "Emergency-in" mode of rod insertion and "notch override" switch in continuous withdrawal; and training has been provided to operators relative to proper movement of control rods, consequences of improper movement, the consequences of operating a mispositioned control rod, and the function of the RWM and scram test switches.

The results of this survey were transmitted to Region III on June 27, 1985, for further transmittal to NRR where the data will be evaluated for the need for additional NRC action.

During a recent controlled shutdown, while the RWM was inoperable, the inspector observed the verification process and noted a weakness which is discussed in paragraph 5, "Operational Safety Verification".

No violations or deviations were identified in this area.

4. Followup of Events

During the inspection period, the licensee experienced several events, some of which required prompt notification of the NRC pursuant to 10 CFR 50.72. The inspectors pursued the events onsite with licensee and/or other NRC officials. In each case, the inspectors verified that the notification was correct and timely, if appropriate, that the licensee was taking prompt and appropriate actions, that activities were conducted within regulatory requirements and that corrective actions would prevent recurrence. The specific events are as follows:

- a. June 9, 1985, Unit 2. During a shutdown when the reactor was at less than 1% power a scram occurred. On June 8, 1985, the "B" recirculation pump field breaker opened due to blown fuses in the control cabinet. Several attempts to restart the pump failed. A unit shutdown was commenced to investigate, do miscellaneous maintenance items, and also to conduct a snubber inspection that had been previously scheduled for June 22, 1985. During the shutdown, while in the startup mode, a rod block and half of a Group I isolation signal occurred. Due to a history of mode switch problems, it was believed that not all of the startup mode contacts had made up. The operator adjusted the mode switch to try to pick up all of the startup contacts but instead picked up some more of the run mode contacts. Since pressure was below 850 psi at this time, when the run mode contacts picked up a Group I isolation occurred which caused the scram. The unit returned to power on June 14, 1985.
- b. June 19, 1985, Unit 2. A scram occurred from high-high scram discharge volume level due to a leaking scram outlet valve. The unit was in hot standby at the time due to electro-hydraulic control system repairs in progress. The unit was back on line on June 21, 1985.
- c. On August 16, 1985, at 12:21 a.m., Unit 2 experienced a scram with a loss of offsite power due to an electrical failure in the 138 KV auxiliary electrical system. This resulted in the emergency diesels starting and taking loads on their respective buses and Groups I, II and III reactor containment isolations occurring. The isolation condenser was used to remove decay heat from the reactor core and make up water was supplied through the control rod drive (CRD) system. The licensee declared an Alert in accordance with their emergency procedures and notified the NRC per 10 CFR 50.72. The reactor was ultimately brought to cold shut down through normal methods after auxiliary electrical power was restored.

During the event, the Senior Resident Inspector and a regional site team were dispatched to the site to follow and evaluate the activities. In addition, the Region III Incident Response Center was activated and the NRC Headquarters Operation Center was placed in stand-by until the event was down graded to an Unusual Event.

More complete details of the event will be forth coming in a special report.

No violations or deviations were identified in this area.

5. Operational Safety Verification

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the inspection period. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Units 2 and 3 reactor buildings and turbine buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance.

Throughout the entire inspection period, Unit 1 remained in a longterm shutdown condition with all fuel removed from the vessel. The inspectors verified that all applicable requirements for Unit 1 were met during this period.

The inspectors, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the station security plan.

The inspectors observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the inspection, the inspectors walked down the accessible portions of the following systems to verify operability by comparing system lineup with plant drawings, as-built configuration or present valve lineup lists; observing equipment conditions that could degrade performance; and verified that instrumentation was properly valved, functioning, and calibrated.

Unit 2

Portions of DC Battery System
Isolation Condenser
Low Pressure Coolant Injection System (Loop A)
Core Spray System (Loop A)
Standby Liquid Control

Unit 3

Isolation Condenser
Standby Liquid Control
Emergency Diesel-Generator

Unit 2/3

Standby Gas Treatment

The inspectors reviewed new procedures and changes to procedures that were implemented during the inspection period. The review consisted of a verification for accuracy, correctness, and compliance with regulatory requirements.

The inspectors also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR, and administrative procedures.

During observation of a controlled reactor shutdown, while the rod worth minimizer (RWM) was inoperable, the inspector verified that an independent operator was assigned to verify control rod movement as required by Technical Specifications. The inspector noted that the verification was done by selecting each rod in the group to verify its position after the entire group had been moved for each particular sequence step. This was identified as having a weakness in that the operator manipulating the control rods could move additional control rod(s) and have it go unnoticed by the verifier. To date, this type of error in control rod movement apparently has not occurred. It should be noted that most shutdowns are scrams and controlled shutdowns are infrequent and even more infrequent with the RWM inoperable.

This matter was brought to the attention of station management. For corrective action, the licensee has issued a memo to all licensed operators stating that each rod selection and movement should be observed. For additional protection, the operators were instructed to verify each group movement as before. The licensee will also present this during the routine six week operator training program. In addition, similar instructions will be placed in appropriate operating procedures to further assure that this type of control rod movement error does not occur.

No violations or deviations were identified in this area.

6. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

Unit 2

(Closed) 85-025-01. Drywell Sump Pumps Missed Surveillance Interval. Allowable interval was exceeded by one minute. The computer has been reprogrammed with a back-up alarm to prevent recurrence.

(Closed) 85-027-00. Reactor Scram. Reference paragraph 4.

(Closed) 85-028-00. Reactor Scram. Reference paragraph 4. A metal piece from previous maintenance on an upstream valve was found lodged under the valve seat causing the excessive leakage. The line was flushed and the affected scram discharge valve was repaired.

(Closed) 85-030-00. Refuel Floor High Radiation. This was caused from moving a highly contaminated component in the spent fuel pool and resulted in an ESF actuation. The inspector's discussion with the personnel involved showed that further decontamination effort would have resulted in unnecessary radiation exposure to plant personnel and the event was expected.

Unit 3

(Closed) 84-005-01. East LPCI Submarine Door Found Open. The licensee has modified the corrective action by placing locking bars on the doors rather than alarms.

(Closed) 84-007-01. Reactor Scram Due to Erratic Bypass Valve Opening. The supplement reported that the servovalve failure was due to accumulation of sediment over an extended period of time. The filter/strainer is replaced every refueling outage and should preclude recurrence.

(Closed) 85-010-00 and Rev. 01. Reactor Scram on Low Water Level Signal While Shutdown. The licensee investigation indicated that the most probable cause was instrument rack vibration from water hammer in the nearby Reactor Building Closed Cooling Water (RBCCW) system. Planned corrective action are instrument switch replacement with analog sensors, retraining personnel on filling and venting the RBCCW system and appropriate procedure changes.

(Closed) 85-013-00. Reactor Building Vent and Refueling Floor Radiation Monitors Set at 120 mR/hr. The Technical Specifications limit is 100 mR/hr. Upon discovery, the ventilation system was tripped and the standby gas treatment system was started. The instrument used to calibrate the radiation monitors was incorrectly calibrated. The individual was reinstructed and cautioned to pay greater attention to detail.

(Closed) 85-014-00. Unit 3 Turbine Trackway Sprinklers Out-of-Service for greater than 14 Days. The system was modified to facilitate upcoming turbine rotor movements. Due to testing difficulties, the system was out of service for 5 1/2 hours greater than the 14 days allowed by Technical Specifications.

The preceding LERs have been reviewed against the criteria of 10 CFR 2, Appendix C, and when the incidents described meet all of the following requirements, no Notice of Violation is normally issued for that item.

- a. The event was identified by the licensee,
- b. The event was an incident that, according to the current enforcement policy, met the criteria for Severity levels IV or V violations,
- c. The event was appropriately reported,
- d. The event was or will be corrected (including measures to prevent recurrence within a reasonable amount of time), and
- e. The event was not a violation that could have been prevented by the licensee's corrective actions for a previous violation.

No violations or deviations were identified in this area.

7. Maintenance Observation

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and, fire prevention controls were implemented. Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activity was observed/reviewed:

Unit 2

Emergency Diesel Generator
Refuel Floor Area Radiation Monitor

Unit 3

3A Containment Cooling Service Water Pump

No violations or deviations were identified.

8. Surveillance Observation

The inspectors observed surveillance testing required by technical specifications and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspectors also witnessed portions of the following test activities:

Unit 2

24/48 V Quarterly Battery Checks
Intermediate Range Monitors (IRM) Rod Block/Scram Test

Unit 3

Source Range Monitors (SRM) Calibration
Intermediate Range Monitors (IRM) Calibration

No violations or deviations were identified in this area.

9. Report Review

During the inspection period, the inspector reviewed the licensee's Monthly Operating Reports for May and June 1985. The inspector confirmed that the information provided met the requirements of Technical Specification 6.6.A.3 and Regulatory Guide 1.16.

No violations or deviations were identified in this area.

10. Regulatory Program for Improved Performance (RPIP) Meeting

A meeting was held on June 24, 1985, at the LaSalle County Generating Station between the NRC and the licensee to discuss the RPIP status. The NRC was represented by Region III, headquarters and resident inspectors from the operating CECO plants. The licensee was represented by station and corporate personnel and presented a statistical summary of the program. The details are presented in a special report (010/85010(DRP); 237/85025(DRP); 249/85-020(DRP)).

11. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraph 2.

12. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on June 28, August 12, 1985, and informally throughout the inspection period and at the conclusion of the inspection on August 19, 1985, and summarized the scope and findings of the inspection activities. The inspector 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.