

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-237/86028(DRP); 50-249/86033(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 3, 1986 through January 29, 1987

Inspectors: L. G. McGregor  
P. D. Kaufman

Approved By: *M. A. Ring*  
M. A. Ring, Chief  
Projects Section 1C

*2/10/87*  
Date

Inspection Summary

Inspection during the period of December 3, 1986 through January 29, 1987  
(Report Nos. 50-237/86028(DRP); 50-249/86033(DRP)).

Areas Inspected: Routine unannounced resident inspection of operational safety, followup of events, maintenance, surveillance, licensee event reports, I.E. Information Notices, and Part 21 Notification Followup.

Results: Of the seven areas inspected, no violations or deviations of NRC requirements were identified.

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## DETAILS

### 1. Persons Contacted

#### Commonwealth Edison Company

\*E. Eenigenburg, Station Manager  
\*J. Wujciga, Production Superintendent  
\*R. Flessner, Services Superintendent  
T. Ciesla, Assistant Superintendent - Planning  
R. Zentner, Assistant Superintendent - Maintenance  
J. Brunner, Assistant Superintendent - Technical Services  
J. Kotowski, Assistant Superintendent - Operations  
R. Christensen, Unit 1 Operating Engineer  
J. Almer, Unit 2 Operating Engineer  
W. Pietryga, Unit 3 Operating Engineer  
J. Achterberg, Technical Staff Supervisor  
D. Adam, Compliance Administrator  
J. Doyle, Q.C. Supervisor  
D. Sharper, Waste Systems Engineer  
E. O'Connor, Radiation Chemistry Supervisor  
J. Mayer, Station Security Administrator  
W. Johnson, Chemistry Supervisor  
D. Saccomando, Radiation Protection Supervisor  
M. Jeisy, Q.A. Supervisor  
R. Stols, Q.A. Inspector  
\*W. Newman, Q.A. Inspector  
\*J. Williams, Staff Assistant

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 the final exit interview conducted on January 29, 1987, and one or more informal interviews at various times throughout the inspection period.

### 2. Operational Safety Verification (71710, 71814, 71846, 71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during this report period. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of the 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.

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 systems listed below 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 verifying that instrumentation was properly valved, functioning, and calibrated.

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.

The following systems were inspected:

Unit 2

Recirculation  
CRD Hydraulic  
Reactor Water Cleanup  
Main Steam

Unit 3

Standby Liquid Control

Common

Standby Gas Treatment System

No violations or deviations were identified in this area.

3. Followup of Events (92700)

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 future recurrence. The specific events are as follows:



- a. Unit 3 - On December 5, 1986, at 1430 hours, with the unit at 99% power, GSEP Unusual Event was declared and a normal shutdown was commenced due to a qualification deficiency of environmentally qualified (EQ) cable butt splices located in three primary containment electrical penetrations. The unit was shutdown on December 6, 1986, at 1011 hours, and the Unusual Event was terminated when the unit achieved cold shutdown at 1028 hours. The licensee notified the NRC of the butt splice failure (AMP type) by telephone on December 5, 1986, in accordance with 10 CFR 21. All of the deficient butt splice connectors were repaired by taping them with environmentally qualified 3M tape and using a qualified procedure. A Special Inspection of these splices was conducted on December 8, 1986, by a Region III Electrical Specialist. Details of this inspection are contained in Region III Inspection Report 50-249/86035. After taping the splices in question, the reactor was made critical at 0550 hours on December 9, 1986.
- b. Unit 3 - On December 11, 1986, while operating at 85% power, an automatic reactor scram occurred at 1435 hours. The reactor scram occurred while cycling the #2 main turbine stop valve. The #2 stop valve was being cycled in order to troubleshoot the fast close circuitry. The licensee's investigation revealed that limit switch SVOS-2 (made by Snap-Lock) for the #2 stop valve had momentarily opened and then reclosed as a result of vibration and contacts being carbonized. As a result of the momentary opening and then reclosing of the limit switch, the seal-in circuit became de-energized. This resulted in the remaining 3 main turbine stop valves going closed, thus causing a full reactor scram. The Snap-Lock limit switch was replaced and the reactor made critical at 0909 hours on December 12, 1986.
- c. Unit 3 - On December 22, 1986, at 2306 hours, while operating at 100% power, one of the two Reactor Building fuel pool radiation monitors spuriously spiked high causing the Reactor Building ventilation system to isolate and the Standby Gas Treatment (SBGT) system to automatically start. The cause of the event was a failed fuel pool radiation monitor 3-1705-16B, General Electric model 194x927G016. The cause of monitor failure is unknown. The failed monitor was sent to the shop for investigation and repair. The failed monitor was replaced within 24 hours as required by Technical Specifications. The replacement monitor was calibrated per DCP 2700-12 and functioned normally after being placed in service.
- d. Unit 2 - On January 8, 1987, at 1310 hours, the licensee made an ENS (Emergency Notification System) call because during a drywell walkdown inspection to observe structural members and connections, it was discovered that a number of "cheek plates" had missing bolts and welds. A cheek plate is a structural

attachment plate connecting two beams. Sargent & Lundy's engineering analysis has established that six of the thirty cheek plates analyzed would not meet FSAR design requirements. The licensee is continuing their evaluation of this matter. A Regional Specialist is following the licensee's activities and will document the results in Region III Special Inspection Report 50-237/87006.

The licensee made another ENS call on January 16, 1987, at 1820 hours, with respect to finding additional structural deficiencies inside the Unit 2 drywell. This problem is being reviewed by the above Regional Specialist.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observation (62703, 71710)

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 was assigned to safety related equipment maintenance which could affect system performance.

The following maintenance activities were observed/reviewed:

- |                       |  |
|-----------------------|--|
| Unit 2<br>&<br>Unit 3 | Drywell steel shell thickness measurements. Ultrasonic test results show no detectable evidence of drywell corrosion.                      |
| Unit 2                | Structural "cheek plate" connections inside drywell. Bolts and welds missing.  |
| Unit 2                | General Electric Low Pressure Rotor "B" conversion to Brown Boveri Company turbine rotor on the main turbine.                              |
| Unit 2                | Work Request #D56978<br>Conduit Hangers for new 125 volt Battery Installation<br>Fabricated conduit hangers and installed per instruction. |
| 2/3 Diesel Generator  | Work Request #D53694<br>Semi Annual Preventive Maintenance -<br>Retorque Stator Nuts and Cylinder Head<br>Liner Nuts.                      |

Unit 3      Safety Related Maintenance

MOV 205-2-4	W.R. D43418	Completed E.Q. Inspection and Check List- O.K.
MOV 1201-2	W.R. D43419	Completed E.Q. Inspection and Check List- O.K.
MOV 1201-3	W.R. D43420	Completed E.Q. Inspection and Check List- O.K.
MOV 2301-8	W.R. D43422	Completed E.Q. Inspection and Check List- O.K.
MOV 1001-1A	W.R. D44486	Replaced internal wiring. Installed torque limiter plate, cast iron cover and "T" drain per procedures.

No violations or deviations were identified in this area.

5. Monthly Surveillance Observation (61726)

The inspectors observed surveillance testing required by technical specifications for the items listed below 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:

1. Drywell high range radiation monitor - Group II Isolation Function and calibration tests. DIS 1600-16.
2. Diesel oil storage tank level calibration for Units 2, 3 and 2/3 fuel oil storage tanks. DIS 5200-1.
3. Reactor pressure transmitter/indicator (feed water control) calibration and maintenance inspection. DIS 600-1.
4. Rod block monitor calibration. DIS 700-8.
5. ECCS fill system alarm pressure switches (LPCI - Core Spray pressure switches). DIS 1400-4.
6. Control Rod Drive Accumulator low pressure switch and pressure indicator calibration. DIS 300-2.



7. Reactor vessel low water level scram and low water level isolation analog trip system calibration. DIS 500-2.

No violations or deviations were identified in this area.

6. Licensee Event Reports Followup (93702)

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) 86024-00: Loss of the Unit 2/3 Main Chimney Sample Flow Due to Water Existing in the SPING Filters. The licensee will issue a supplement to this LER when an investigation is completed to determine the cause of the water in the filter and the department responsible for placing the SPING sampler in the "standby" mode. Alarm annunciations in the Control Room are by-passed when the SPING is in the "standby" mode. The SPING filters were dried out, mylar detector shields replaced, SPING calibrated and operability verified before placing the SPING back in service.

(Closed) 86025-00: 2/3 Chimney Noble Gas Grab Sample Exceeds 8-Hour Interval Due to Incorrect Sampling. The sample was taken with the system in purge mode which by-passed the effluent from the sample point. This resulted in one sample not being obtained. Comprehensive training is planned for all Radiation Chemistry Technicians to review Technical Specifications and procedural requirements; this is scheduled to be completed by March 31, 1987.

(Closed) 86-26-00: Primary Containment Inadvertently Deinerted More Than 24 Hours Prior to Shutdown Due to Personnel Error. Review of this event is documented in Region III Inspection Reports 50-237/86024; 50-249/86029 and 50-237/87005.

(Closed) 86028-00: High Pressure Coolant Injection Area Temperature Switches Exceeded Technical Specification Limit Due to Instrument Setpoint Drift. Three HPCI area temperature switches tripped beyond their Technical Specification limit of less than or equal to 200° F. The abnormalities were found during an inspection performed by the Instrument Maintenance Department of all three switches. Thus, it is believed that instrument setpoint drift is the root cause of the switch failures. Each switch was re-calibrated to a trip set point of 180° F plus or minus 5° F. To prevent recurrence, the licensee is evaluating replacing the existing United Electric control temperature switches with a different type of switch.

(Closed) 86029-00: Standby Liquid Control Relief Valve Setpoint Out of Specification Due to Setpoint Drift. High vibrations from the SBLC pumps may be the cause of the setpoint drift. No abnormalities were discovered when the relief valve internals were inspected. The relief valve setpoint was adjusted to 1440 psi and successfully retested. In addition, pressure gauges were added to the accumulator to ensure proper pressure of the accumulator, thus reducing system oscillation which could affect the setpoint at which the relief valve activates.

(Closed) 86030-00: Leakage in Excess of Technical Specification 3.7.A.2.b Limit Found on Main Steam Isolation Valve 2-203-2B Due to Packing Leak. Leakage was identified as coming from a packing leak. The valve was repacked and successfully passed a LLRT on December 21, 1986.

(Closed) 86009-01: Missing Mounting Bolts in the Unit 2 Main Control Room Panel Due to Initial Installation Deficiency. This supplemental report was issued to include the manual scram initiated to meet the limiting condition for operation (LCO) since hot shutdown could not be reached within the required time frame using normal shutdown procedures.

### Unit 3

(Closed) 86024-00: Unit Shut Down for Repair of Environmentally Qualified Cable Splices in the Drywell Penetrations. EQ butt splices manufactured by AMP Industries were found to be deficient during further EQ testing at Wyle Laboratory on December 4 and 5, 1986. The cable splices are located in three primary containment electrical penetrations assemblies. Test results indicate that these splices would fail, due to excessive leakage current, during a LOCA. All splices were repaired by taping with environmentally qualified tape and using a qualified procedure. Review of this event is documented in Region III Special Inspection Report 50-249/86035(DRS) conducted on December 8, 1986.

(Closed) 86023-00: Reactor Coolant Sample Radioactivity Analysis Not Completed Within 96 Hours Due to Insufficient Management Control. No station procedure existed to control the analysis interval times. Radiation Chemistry Department revised existing procedures to implement a checklist system. The checklist system will ensure that the required analysis has been performed.

(Closed) 86019-00: Reactor Scram Due to Personnel Error and Average Power Range Monitor Setpoint Fluctuation. Review of this event is documented in Region III Inspection Reports 50-237/86024; 50-249/86029. The second half-scrum has now been attributed to a dirty connection in a flow-biased APRM electrical connection. This caused the APRM "Hi-Hi" and "Hi" setpoint to be erratic. At the time of the event the setpoint was low enough to cause a half-scrum.



(Closed) 86025-00: Unit 3 Turbine Stop Valve 10% Closure Scram Due to Limit Switch Contact Failure. It has been determined that the limit switch momentarily opened and then reclosed as a result of vibration and contacts being carbonized. The Snap-Lock limit switch was replaced and test circuitry operated as required. Review of this event is documented under Paragraph 3.b of this report.

Except where separate inspection reports are annotated, the preceding LERs have been reviewed against the criteria of 10 CFR 2, Appendix C, and the incidents described meet all of the following requirements. Thus no Notice of Violation is being issued for these items.

- 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. I.E. Information Notice Followup (92703)

Each of the following I.E. Information Notices (IEN) was reviewed by the Resident Inspector to verify (1) that the information notice was received by licensee management, (2) that a review for applicability was performed, and (3) that if the information notice was applicable to the facility, applicable actions were taken or were scheduled to be taken.

(Closed) IEN 86-104: Unqualified Butt Splice Connectors Identified in Qualified Penetrations. Dresden Unit 3 declared an Unusual Event on December 5, 1986, at 1430 hours due to Wyle Laboratory EQ test results. The licensee declared the AMP splices unqualified and shut down Unit 3 to rework the splices, which are located in three primary containment penetrations, GE electrical F-01 series. The licensee also notified the NRC by telephone on December 5, 1986, in accordance with 10 CFR 21. All the deficient AMP splices were repaired by wrapping them with environmentally qualified tape using a qualified procedure. Unit 2 was in a refueling outage during this event and had previously replaced all AMP splices in question with Raychem splices. The licensee's corrective actions were reviewed by a Region III specialist and documented in Region III Special Inspection Report 50-249/86035.

(Closed) IEN 86-99: Degradation of Steel Containments. The licensee has taken a set of drywell skin thickness measurements on Units 2 and 3. The ultrasonic testing was accomplished by General Electric UT personnel on site for the Unit 2 In-Service Inspection Program.

The thickness measurements were taken at eight equally spaced azimuths (0°, 45°, etc.) inside the drywell at the basement elevation. These

azimuths are directly between the vent header penetrations connecting the drywell to the torus. At each azimuth nine measurements were made over a 2' x 2' square with the bottom of the square at the drywell floor elevation of 520'4". These nine readings at each azimuth were then averaged. The average readings for the eight azimuths ranged from 1.06" to 1.16" on Unit 2. Similar readings on Unit 3 ranged from 1.06" to 1.18" for the average values at the eight azimuths and between 1.03" and 1.26" for all 72 readings.

A review of CB&I design drawings indicates the wall thickness in the areas examined is 1.0 inch nominal with several plates of 1.06" thickness. The UT thickness measurements all meet or exceed these values in the respective areas within the accuracy of the inspections.

(Closed) IEN 86-52: Conductor Insulation Degradation on Foxboro Model E Controllers. The only Foxboro controller used at Dresden Station in a safety-related application is the model #130M-N4. This is a pneumatic indicating type controller used in the Standby Gas Treatment System for flow control. This controller does not utilize the coil-cord cable set. Therefore, this Information Notice does not apply to Dresden Station.

No violations or deviations were identified in this area.

#### 8. 10 CFR 21 Report Followup

(Closed) 10 CFR 21 Report 237/86-01-PP): Defective 250 Volt Battery Inter-Rack Cable Assembly. This Part 21 concern was brought to the attention of the NRC by Commonwealth Edison's letter dated November 10, 1986 from I. M. Johnson to James G. Keppler. The Part 21 matter involves a failure of battery inter-rack connecting cable assembly supplied by the GNB Forth Smith, Arkansas plant. During the preparation for battery replacement at the Quad Cities Nuclear Station, a specific defect in a new battery cable assembly was noticed while maintenance personnel were laying out new cables. During this operation, a lug disengaged from a cable. The apparent cause of the failure was inadequate cable penetration into the lug, and is attributed to improper assembly at the manufacturing facility.

All inter-rack connecting cable assemblies installed in the new 125 volt batteries for Dresden Unit 2 and Unit 3 have been radiographed to verify proper cable engagement into the lugs. Through radiography and engineering judgement, it has been determined that the cable assemblies are acceptable and the cables will maintain the proper electrical connection for battery bank operability.

#### 9. Management Meeting in Region III Office

On January 23, 1987, a management meeting was held at the NRC Region III office to discuss the circumstances surrounding the event at Dresden, Unit 2 relating to a LCO violation, which occurred on November 29, 1986. Details of this event are contained in Region III Special Inspection Report 50-237/87005.

10. Report Review

During the inspection period, the inspectors reviewed the licensee's Monthly Operating Report for November and December 1986. The inspectors confirmed that the information provided met the requirements of Technical Specification 6.6.A.3 and Regulatory Guide 1.16.

11. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) informally throughout the inspection period and at the conclusion of the inspection on January 29, 1987, 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.