

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-010/75-20  
IE Inspection Report No. 050-237/75-26  
IE Inspection Report No. 050-249/75-23

Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, Illinois 60690

Dresden Nuclear Power Station  
Units 1, 2, and 3  
Morris, Illinois

License No. DPR-2  
License No. DPR-19  
License No. DPR-25  
Category: C

Type of Licensee: BWR (GE) 200 and 810 MWe

Type of Inspection: Routine, Unannounced

Dates of Inspection: November 5-7 and 25-26, 1975

Principal Inspector:

*P. H. Johnson*  
P. H. Johnson  
(November 25-26, 1975)

12/18/75  
(Date)

Accompanying Inspector:

*W. D. Shafer*  
W. D. Shafer  
(November 5-7, 1975)

Other Accompanying Personnel: None

Reviewed By:

*R. C. Knop*  
R. C. Knop, Section Leader  
Reactor Projects No. 1

12/22/75  
(Date)

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## SUMMARY OF FINDINGS

### Inspection Summary

Dresden 1: Inspection on November 5-7 (75-20): Review of procurement program.

Dresden 2 and 3: Inspection on November 5-7 and 25-26 (75-26, 75-23): Review of design changes, procurement program, reportable occurrences, and plant operation. Four Unit 2 noncompliance items were noted, related to material procurement and control, torus level limits, correction of a safety-related malfunction emergency core cooling system operability, and reporting requirements. One Unit 3 noncompliance item was noted, related to operability of intermediate range monitors.

### Enforcement Items

The following items of noncompliance were identified during the inspection:

#### A. Infractions

1. Contrary to 10 CFR 50, Appendix B, Criterion IV and the licensee's Quality Procedure 4-51, components used on a safety-related Unit 2 system were purchased from a vendor not on the licensee's approved vendor list. (Paragraph 7.a, Report Details)
2. Contrary to 10 CFR 50, Appendix B, Criterion XV and the licensee's Quality Procedure 15-51, safety-related material was released for installation in Unit 2 without clearing a discrepancy report. (Paragraph 7.b, Report Details)
3. Contrary to paragraph 3.1.A and Table 3.1.1 of the Dresden 3 Technical Specifications, the required number of intermediate range monitors were not operable during a Unit 3 startup conducted on September 8, 1975. (Paragraph 3.e, Report Details)
4. Contrary to paragraph 3.7.A.1 of the Dresden 2 Technical Specifications, torus water level was found to be less than the minimum required on May 26, 1975, and exceeded the maximum allowed level on October 31, 1975. (Paragraph 3.a, Report Details)
5. Contrary to 10 CFR 50, Appendix B, Criterion XVI and Dresden Administrative Procedure 2-12, action was not initiated to correct improper operation of the low pressure coolant injection system loop selection logic which was observed following a Unit 2 reactor scram on September 29, 1975. (Paragraph 3.c, Report Details)

B. Deficiencies

1. Contrary to 10 CFR 50, Appendix B, Criterion VIII and the licensee's Quality Procedure 8-51, the licensee did not provide material control on equipment purchased for a safety-related Unit 2 system. (Paragraph 8.a, Report Details)
2. Contrary to paragraph 6.6.A of the Dresden 2 Technical Specifications, a startup report (required because of the insertion of reactor fuel of a different design) was not submitted within 90 days after Unit 2 resumed commercial power operation. (Paragraph 5, Report Details)
3. Contrary to paragraphs 3.5.A.1 and 3.5.A.3 of the Dresden 2 Technical Specifications, core spray and low pressure coolant injection pumps were placed in pull-to-lock more than one hour earlier than such action would have been required to prevent excessive reactor vessel cooldown rates. (Paragraph 4.d, Report Details)

Licensee Action on Previously Identified Enforcement Items

Not reviewed.

Other Significant Items

A. Systems and Components

Unresolved Item: The licensee is investigating to determine whether charcoal cartridges installed in the Unit 2/3 standby gas treatment system are properly oriented. (Paragraph 4.c, Report Details)

B. Facility Items (Plans and Procedures)

Two noncompliance items involving control of safety-related equipment and documentation of safety-related malfunctions had been identified by the licensee and were in the process of being corrected.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee (Dresden 1, 2 and 3)

1. Contrary to paragraph 6.5.A.2 of the Technical Specifications, the licensee was not maintaining a complete record or record control modifications to safety-related systems. (Paragraph 7.c, Report Details)

2. Contrary to 10 CFR 50, Appendix B, Criterion XII: and Quality Procedure 13-51, a program for the proper storage and handling of safety-related equipment did not exist at the time of the inspection. (Paragraph 8.c, Report Details)

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

Not reviewed.

Management Interview

Mr. Shafer conducted an interview with Mr. Abel (Administrative Assistant) and other licensee representatives on November 7, 1975. The following matters were discussed:

- A. The inspector summarized noncompliance items identified during the inspection (noncompliance items A.1, A.2, and B.1). The licensee made no comment in response to the inspector's statements.
- B. The inspector stated that two other areas involving noncompliance had been observed; however, since these areas had been identified by the licensee and corrective actions were in progress, these items would be documented as noncompliance identified by the licensee. (Paragraphs 7.c and 8.c, Report Details)

Mr. Johnson conducted an interview with Mr. Roberts (Assistant Superintendent) and other members of the station staff on November 26, 1975. The following matters were discussed:

- A. The inspector summarized reportable occurrences reviewed during the inspection and discussed three noncompliance items identified during the review (Infractions 3 through 5). In view of corrective actions taken by the licensee with respect to infraction Nos. 3 and 4, it was noted that a response to these items of noncompliance would not be required.
- B. With respect to the failure of No. 2 diesel generator to start on September 23, it was noted that the cause of the occurrence, as identified in the licensee's abnormal occurrence report, had subsequently been determined to be incorrect. The inspector stated that a followup report should be submitted to clarify the matter, and noted that followup reports on two previous start failures of the same diesel generator were still outstanding. Licensee representatives stated that investigation into the latest occurrence was continuing, and that a followup report would be forthcoming. (Paragraph 3.d, Report Details)

- C. The inspector stated that markings on the manufacturer's certification labels indicated that 11 of the 12 charcoal cartridges installed in the Unit 2/3 standby gas treatment system were misoriented. Licensee representatives stated that the matter would be investigated. (Paragraph 4.c, Report Details)
- D. The Dresden 2 scram and isolation caused by containment high pressure on September 29, 1975 were discussed. The inspector noted that review of logs indicated the core spray pumps and three of the four LPCI pumps had been placed in pull-to-lock when Technical Specifications still required these systems to be operable. During subsequent telephone conversations, the licensee noted that continued operation of the pumps during plant cooldown would have resulted in the injection of ambient temperature water into the hot reactor vessel, likely resulting in excessive reactor vessel cooldown rates. The licensee noted, however, that the pumps had been placed in pull-to-lock more than one hour earlier than would have been required to avoid injection to the reactor vessel. The inspector responded that premature deactivation of the ECCS pumps was considered to represent noncompliance with Technical Specifications requirements. (Paragraph 4.d, Report Details)
- E. Licensee representatives stated, in response to an earlier question from the inspector, that the startup report required for Unit 2 had not been submitted. This was noted to represent an item of noncompliance with Technical Specifications reporting requirements. (Paragraph 5, Report Details)

REPORT DETAILS

Part I - November 25-26, 1975

Prepared by P. H. Johnson

1. Persons Contacted

B. Stephenson, Station Superintendent  
A. Roberts, Assistant Superintendent  
J. Abel, Administrative Assistant  
J. Dodge, Nuclear Station Operator  
G. Heintz, Nuclear Station Operator  
J. Kolanowski, Unit 2 Leading Engineer  
E. Montanus, Nuclear Station Operator  
R. Ragan, Unit 3 Operating Engineer  
N. Scott, Unit 2 Operating Engineer  
R. Thomas, Instrument Foreman  
T. Watts, Technical Staff Supervisor

2. General

Units 2 and 3 were both operating at power at the time of this inspection. Unit 1 was in a refueling outage with unloader return line replacement in progress.

3. Review of Reportable Occurrences (Unit 2 and 3)

A review of reporting requirements, corrective actions, licensee review and evaluation, and compliance with regulatory requirements was conducted for the following reportable occurrences:

	<u>Event Title</u>	<u>Event Date</u>	<u>Licensee Report Date</u>
<u>Unit 2</u>			
1.	High Torus Water Level	10/31/75	11/6/75
2.	Main Steamline Low Pressure Instrument Drift	10/8/75	10/17/75
3.	LPCI Loop Select Failure	10/9/75	10/17/75
4.	HPCI Turbine Failure to Trip	9/29/75	10/9/75

	<u>Event Title</u>	<u>Event Date</u>	<u>License Report Date</u>
5.	Unit 2 Diesel Generator Failure to Start	9/23/75	10/2/75
6.	Unit 2/3 Diesel Generator Cooling Water Pump Trip	9/11/75	9/19/75
7.	Unit 2/3 Diesel Generator Cooling Water Pump Trip	8/29/75	9/8/75
<u>Unit 3</u>			
8.	Failure of Intermediate Range Monitors to Respond	9/8/75	9/16/75
9.	Reactor Pressure 600 psi Switch Setpoint Drift	8/27/75	9/4/75

The inspector's review included discussions of each event with licensee representatives as required, and examination of the report referenced above and other documents related to the particular areas reviewed. The following comments resulted from the review:

- a. Event No. 1: This event appeared to have resulted from the operator's failure to open the HPCI test return line isolation valve. Subsequent operation of the HPCI system caused the pump's minimum flow valve to open, allowing storage tank water to discharge to the torus. After receiving a high level alarm and terminating HPCI system operation, torus water level was observed to be one inch, or approximately 6000 gallons, above the Technical Specifications limit. Discussions with the licensee indicated that HPCI system operation must have continued for several minutes with the improper valve lineup. The licensee stated that improved torus water level indication was being considered because of sluggish operation of the installed indicators observed on previous occasions. The inspector informed the licensee that the event represented noncompliance with Technical Specifications requirements, in that torus water level was not maintained within limits specified as a Limiting Condition for Operation. The licensee was also informed that an occurrence involving low torus water level<sup>1/</sup> in May 1975 had been determined to involve noncompliance

<sup>1/</sup> Letter, Stephenson to Keppler, dtd 6/5/75 (AO 237/75-33).

with the same requirement. The inspector noted that corrective actions had been taken as described in the referenced reports, and that a response to the citation would not be required.

- b. Event No. 2: This occurrence involved setpoint drift of a Barksdale precycled pressure switch type B2T-A12SS. The inspector noted that during previous review<sup>2/</sup> of a similar occurrence, a precycling program had been described by the licensee. At that time, the licensee had been optimistic that the precycling would correct the observed setpoint drift problem. Licensee representatives stated during the current inspection that precycling had shown little or no improvement, although setpoint drifts beyond Technical Specification limits have been infrequent due to the licensee's established conservatism of approximately 15 psi in as-left setpoints. The licensee representative also stated that other proposals for instrument improvements were being considered.
- c. Event No. 3: Improper operation of the LPCI loop selection circuitry was observed following a scram and containment isolation on September 29, 1975; however, the reason for the improper operation was not identified prior to resuming unit operation. Improper loop selection was again observed during surveillance testing on October 9. The inspector stated that the licensee's failure to identify the cause and correct the observed malfunction represented noncompliance with Dresden Administrative Procedure 2-12, "Safety Related Malfunctions", and Criterion No. XVI of Appendix B to 10 CFR 50.
- d. Event No. 5: The licensee's report stated the cause for this failure to have been an improper O-ring installed in the diesel generator air start valve. Licensee representatives stated during the inspection that some of the discussion in the report had subsequently been determined to be incorrect, and that a followup report would be forthcoming. The inspector noted that a cause for two earlier failures of the Unit 2 diesel generator to start<sup>3/</sup> had not been identified, and that followup reports for these occurrences were outstanding. Noting that the two earlier occurrences showed some similarities to Event No. 5 above he

2/ RO Inspection Report 050-237/74-10.

3/ Letter, Stephenson to Keppler dtd 6/13/75 and 6/18/75 (AO's 237/75-37 and 237/75-39).



also questioned whether the three failures might have a common cause. Licensee representatives stated that investigation of the failures was continuing.

- e. Event No. 8: This occurrence involved failure of five of the eight installed intermediate range monitors (IRM's) to respond during the initial Unit 3 startup following the 1975 refueling outage. Subsequent investigation by the licensee showed that the related IRM cables appeared to have been affected by personnel working under the reactor vessel during the outage and by the presence of water found in some cable connectors. The inspector noted that the occurrence represented noncompliance with license requirements in that (1) sufficient IRM's were not available to satisfy the Limiting Condition for Operation set forth in the Technical Specifications and (2) the malfunctions appeared to have resulted not from outright equipment failure, but from poor quality control practices during the refueling outage. A licensee representative stated that outage activities required rerouting of the detector leads to permit rotation of the CRD work platform and that the leads were apparently not checked for continuity after the connections were returned to normal. The licensee's report stated that the startup checklist would be revised to provide a resistance check for all IRM's prior to startup when major work has been performed under the reactor vessel. The licensee representatives also stated that longer signal cables were being provided to eliminate the present need for installation of extension leads during outage maintenance. The inspector noted that in view of the corrective actions identified by the licensee, a response to the item of noncompliance would not be required.
- f. Event No. 9: This occurrence involved setpoint drift of Meletron Model 372 pressure sensors used to monitor reactor pressure to permit bypassing of certain scram signals below 600 psig. The licensee's report stated that "long periods at zero pressure apparently allow instrument setpoints to drift significantly out of calibration." Similar problems with the same model pressure sensor were also reported<sup>4/</sup> by the licensee during the same period. The functions provided by the other three groups of switches are reactor high pressure scram, isolation condenser initiation, and low pressure ECCS initiation. The licensee stated that evaluation of replacement instrumentation was continuing, although the monthly setpoint checks were considered adequate to assure instrument operability during the

<sup>4/</sup> Letters, Stephenson to Keppler, dtd 8/23/75, 8/26/75, and 8/26/75 (AO's 249/75-36, 249/75-37, and 249/75-39.)

interim. It was also noted that setpoint drift between monthly checks since Unit 3 resumed operation had not been excessive.

- g. The inspector reviewed the circumstances of maintenance performed on the Unit 2 high pressure coolant injection system on November 12, 1975, to verify compliance with reporting requirements. No discrepancy was noted.

4. Review of Plant Operation (Units 2 and 3)

The review of plant operation conducted during this inspection included discussions with operating personnel, review of operating records and logs, and a tour of accessible areas of the plant. The following comments resulted from the review:

- a. The inspector noted during a visit to the Control Room that the Unit 2 containment purge line inlet low temperature annunciator was lighted with Unit 2 operating at power. He remarked that the licensee had made a commitment during the previous inspection to adjust the alarm setpoint such that a low temperature alarm would be indicated only during a valid abnormal condition. Licensee representatives stated that the alarm was lighted due to low ambient temperature in the vicinity, but that increased temperatures during nitrogen inerting would cause it to clear. The alarm setpoint was further readjusted prior to completion of the inspection, however, such that it was not indicating an abnormal condition with the unit in operation.
- b. Some improvement in plant housekeeping was observed in above-grade areas.
- c. During a plant tour, the inspector observed that 11 of the 12 charcoal cartridges installed in the standby gas treatment system appeared to have been installed with an improper orientation. This observation was based on direction-of-flow arrows shown on the certifications tags attached by the manufacturer. Licensee representatives stated that the question would be revisited to determine whether the tags were correctly attached.
- d. While performing review of the Shift Engineer's Log, an entry was observed which indicated that both core spray pumps and three of the four LPCI pumps had been placed in pull-to-lock following the September 29 Unit 2 scram and containment isolation. Other log entries indicated these switch manipulations to have

been made before reactor coolant temperature was reduced below 212°F. Further examination of the occurrence and discussions with licensee representatives indicated that:

- (1) Management had made the decision to place the switches in pull-to-lock since, with a high containment pressure signal still present, admission valves would have opened at a reactor pressure of 300-350 psig, permitting torus water at approximately ambient temperature to be injected into the reactor vessel. Since the reactor temperature would then have been approximately 430°F, the injection would likely have caused reactor vessel cooldown rate limits to be exceeded. The licensee stated that the step was taken only after a review of plant conditions showed reactor vessel level and other key parameters to be under proper control.
- (2) The log indicated the switches to have been placed in pull-to-lock at 0615. A licensee representative stated that at this time reactor pressure was approximately 700 psig, and that reactor vessel pressure did not reach the upper limit of the injection setpoint range until approximately 0724. The inspector expressed agreement with the decision to place the pumps in pull-to-lock in order to prevent exceeding reactor vessel cooldown rate limits, although this action should not have been taken until just prior to reaching the point of injection. Doing so earlier needlessly defeated the auto-initiation capability of the core spray and LPCI systems during the intervening period of more than one hour. This action was determined to represent noncompliance with Section 3.5.A of the Technical Specifications, although it was noted that alternative actions specified in paragraph 3.5.A.7 were in progress at the time.

5. Startup Report (Unit 2)

The inspector inquired about the status of a startup report covering the Unit 2 startup in May 1975 following its refueling outage. Section 6.6.A of the Technical Specifications and Regulatory Guide 1.16 (Revision 1) require a startup report "following the installation of fuel that has a different design," due 90 days following completion of the startup test program or 90 days following resumption of commercial power operation, whichever is earliest. A licensee representative stated that the startup report was still in preparation and had not yet been submitted. Since Unit 2 resumed commercial power operation in May 1975, the inspector noted that late submission of the report represented noncompliance with reporting requirements in the Technical Specification.

REPORT DETAILS

Part II November 5-7, 1975

Prepared by W. D. Shafer  
W. D. Shafer

12-22-75  
(Date)

Reviewed by E. L. Jordan  
E. L. Jordan, Section Leader  
Reactor Projects No. 2

12-22-75  
(Date)

6. Persons Contacted

B. Stephenson, Station Superintendent  
A. Roberts, Assistant Superintendent  
J. Abel, Administrative Assistant  
T. Watts, Technical Staff Supervisor  
M. Wright, Quality Control Engineer  
R. Meadows, Special Projects  
C. Schiavi, Modifications Coordinator  
J. Plese, Storekeeper  
M. Hummel, Stockman  
D. Ruby, Central Files Supervisor

7. Design Changes (Units 2 and 3)

The following design changes were reviewed to verify that modification were; (1) made in accordance with 10 CFR 50.59, (2) reviewed and approved by licensee management (3) conducted in accordance with formal procedures, (4) tested and documented as required, and (5) completed in regards to drawing and procedure updating.

M12-2-75-24, Feedwater System  
M12-2-74-197, Control Rod Drive Hydraulic System  
M12-2-74-139, HPCI  
M12-2-74-95, Containment System  
M12-2-75-70, Recirculation System Sample Lines  
M12-3-75-77, Drywell Cable Repair  
M12-3-74-191, U-3 Southwest Blowout Panel Repair  
M12-3-74-192, U-3 South Blowout Panel Repair

Problem areas identified by the inspector are as documented below:

- a. Temperature sensors used for modification M12-2-74-139 (Unit 2 HPCI System), were purchased from a vendor not on the licensee's approved vendor list. The inspector noted that

material certification was available; however, this purchase was contrary to the licensee's quality assurance requirements identified in QP 4-51. This was identified as an item of noncompliance.

- b. A 20" butterfly valve (safety related), used for modification M12-2-74-95 (Unit 2 containment system) was released for installation without clearing a discrepancy report which was initiated at the time the valve was received from the vendor. Discrepancy reports are initiated by the licensee to identify nonconforming items such as a lack of documentation or actual equipment inadequacies as required by QP 15-51. The licensee was unable to identify the reason the discrepancy report was written in the first place. This was identified as an item of noncompliance.
- c. The inspector identified several problems with record keeping for the licensee's design change program: (1) material certification was not available for two of eight valves modified under modification M12-2-74-95 (containment system), (2) parts list and material identification was incomplete and inadequate for modification M12-3-74-192 and 191, and (3) the lack of document traceability and control was apparent when modification package M12-3-74-191 was identified as having been missing for several months. (The package was found on the second day of this inspection.)

The licensee representative stated that the quality control department had identified a need to improve their audit methods for modification documents. In recognition of the program inadequacies, a final documentation checklist was initiated in June, 1975.

The inspector spot checked two modification packages completed with the use of the final documentation checklist and found the records adequate. Based on this spot check and the fact that the problems previously identified by the inspector had occurred prior to implementing a final document checklist, the inspector informed the licensee that these record inadequacies would be reported as an item of noncompliance identified by the licensee.

8. Procurement Program (Units 1, 2 and 3)

- a. The following items purchased by the licensee were reviewed to verify that procurement specifications included proper

approval, quality control inspection and complete record keeping. The records were also reviewed to determine that procured material met all the procurement requirements.

- (1) Schedule 80 pipe for the CRD system, GE PO No. 39184082-001.
- (2) HPCI temperature sensors, PO No. 181019.
- (3) Rubber seats for containment ventilation valves, PO No. 719931 and 715041.
- (4) CRD accumulators for Unit 1 (PO No. not identified, items still in receipt inspection).

The inspector determined that the licensee had failed to provide material control on the temperature sensors procured for the Unit 2 HPCI system. The control of procured items is accomplished by attaching red two-part stock tags to the material at the time of receipt. The licensee was informed that this lack of material control was contrary to QP 8-51 (Identification and control of material), and represented an item of noncompliance.

- b. Except for item (4), the inspector verified that the following spare parts used for safety related systems were properly handled, inspected and purchased from approved vendors.

- (1) Inlet valve plug, PO No. 174208.
- (2) Fenwal Thermal Switch, PO No. 175178.
- (3) Stainless Steel Needle valves, PO No. 191203.
- (4) 20" Butterfly Valve (see paragraph 7.b).

- c. In reviewing the licensee's storekeeping program at the site the inspector determined that the licensee had no formal program for preventive maintenance of items in storage or control of safety related items with a limited shelf life. It was also noted that a program to separate safety related items from non-safety related items had only recently been instituted and many safety related items were still mixed in with non-safety related material.

A licensee representative stated that these problems had been identified and corrective action in the form of formal procedures were being reviewed. The licensee had placed a high priority on the storage and procurement program and expected to meet the intent of ANSI N-45.2.2 (Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants) by December 1, 1975.

The inspector reviewed four draft procedures pertaining to warehouse procedures, control of items with limited shelf life, storage of chemicals, and handling and storage of weld material. These procedures were being processed for proper approval. Based on the licensee's efforts to initiate a storage and preventive maintenance program, the inspector informed the licensee that the lack of a previous program would be documented as an item of noncompliance identified by the licensee.