

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-010/76-07
IE Inspection Report No. 050-237/76-07
IE Inspection Report No. 050-249/76-06

Licensee: Commonwealth Edison Company
P. O. 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, Announced

Dates of Inspection: April 7 - 9, and 13, 1976

Principal Inspector: *T. N. Tambeling*
for W. D. Shafer

4/27/76
(Date)

Accompanying Inspector: *F. A. Maura*

4/27/76
(Date)

Other Accompanying Personnel: None.

Reviewed By: *R. C. Knop*
R. C. Knop, Chief
Reactor Projects Section

4/28/76
(Date)

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SUMMARY OF FINDINGS

Inspection Summary

Inspections on April 7-9 and 13, (Unit 1, 76-07), (Unit 2, 76-07), and (Unit 3, 76-06): Review of semiannual report, review and audits, Dresden 2 refueling activities, Dresden 1 stack release rate experienced on March 29, 1976, and followup on previous items of noncompliance. Five items of noncompliance relating to Unit 2 refueling activities and two items of noncompliance relating to the Unit 1 stack release rate.

Enforcement Items

A. Infractions

1. Contrary to Technical Specifications Section 4.10.A, the licensee failed to perform refueling interlock surveillance after completing safety related maintenance work on the Unit 2 refueling grapple. (Paragraph 2.b., Report Details)
2. Contrary to Technical Specification 6.2.A.7, the operator did not adhere to Unit 1 Procedure 300-S-II, Revision 2, during the performance of the weekly control rod exercise on March 28, 1976. (Paragraph 7, Report Details)
3. Contrary to 10 CFR Part 50, Appendix B, Criterion V, the Unit 1 control rod exercise surveillance procedure was deficient in that it did not warn the operator about possible fuel damage if face adjacent blade tips came within one notch of each other. (Paragraph 7, Report Details)

B. Deficiencies

1. Contrary to Technical Specifications Section 6.2.A.2, the licensee failed to comply with the requirements of the Master Refueling Procedure DFP 800-1 in that personnel observing the Unit 2 refueling operation were not informed to stay out of the line of site of the reactor grid during control rod manipulations. (Paragraph 2.c, Report Details)
2. Contrary to 10 CFR Appendix B, Criterion XVII, no document is available to identify the maintenance work accomplished on the Unit 2 refueling grapple for March 21, 1976, as required by the licensee's Quality Procedure QP 3-52. (Paragraph 2.b, Report Details)

Licensee Action on Previously Identified Enforcement Items

- A. In a previous inspection, (IE Inspection Report 050-237/75-07), the licensee received an item of noncompliance relating to the withdrawal of two adjacent control rods during the 1975, Unit 2 refueling outage. ^{1/}The inspector determined that the corrective action^{1/} to prevent a future occurrence had been accomplished for that specific event.
- B. In a previous inspection, (IE Inspection Report No. 050-237/75-16), the licensee received an item of noncompliance relative to the movement of control rods while personnel were working on the Unit 2 service platform over the open vessel. The corrective action^{2/} to prevent future occurrences has been reviewed and is completed.
- C. In a previous inspection, (IE Inspection Report No. 050-237/75-05), it was determined that no offsite review of NRC (previously AEC) identified noncompliance was being accomplished. A subsequent inspection (IE Inspection Report No. 050-237/75-16), found that onsite reviews of noncompliance items were not being performed. The corrective action^{3/} to prevent future occurrences was to initiate a deviation report in accordance with DAP 10-4. Deviation reports are reviewed by the onsite and offsite review and investigation functions. This corrective action has been accomplished.
- D. In a previous inspection, (IE Inspection Report No. 050-237/75-22), it was determined that onsite audits were being conducted by personnel having direct responsibility for the area being audited. The corrective action^{4/} to prevent future occurrence of this noncompliance has been reviewed and is completed.

Other Significant Items

- A. Systems and Components
None.
- B. Facility Items (Plans and Procedures)
None.
- C. Managerial Items
None.

^{1/} Ltr, Bolger to Fiorelli, dtd 5/9/75.

^{2/} Ltr, Bolger to Keppler, dtd 8/13/76.

^{3/} Ltrs, Lee to Davis, dtd 11/18/75 and Bolger to Keppler dtd 8/13/75.

^{4/} Ltr, Lee to Keppler, dtd 11/16/76.

- D. Noncompliance Identified and Corrected by Licensee
None.
- E. Deviations
None.
- F. Status of Previously Reported Unresolved Items
Not reviewed.

Management Interview

A management interview was conducted by Mr. Maura with Messrs. Stephenson and Budzichowski at the conclusion of the Unit 1 inspection conducted on April 7, 1976.

- A. The items of noncompliance identified under Enforcement Items were discussed.
- B. The inspector noted that for approximately one year the operator had been a member of a crew which could not rotate assignments through Unit 1 and that there are actually two crews in such condition. The inspector suggested rotating personnel more often through such crews.

The licensee stated they are studying methods of minimizing the effect caused by personnel with only a Unit 1 license, but they feel that condition did not contribute to the problem since a similar test is also performed on Units 2 and 3. (Paragraph 8, Report Details)

- C. The plans to prevent recurrence were discussed. The licensee stated the investigation has not been completed, therefore, present plans are preliminary. The inspector requested that once final plans are formalized they be reported in the 14-day letter concerning the event or a followup letter. The licensee concurred. (Paragraph 9, Report Details)

On April 9, 1976, a management interview was conducted by Mr. Shafer with Messrs. Stephenson, Station Superintendent; and other licensee staff members. The following matters were discussed:

- A. The inspector stated that during the inspection of the Unit 2 refueling activities the following concerns were identified:

1. The work requests initiated for maintenance on the refueling grapple on March 21 and 22, 1976, are missing and no other documentation is available to identify what maintenance work was accomplished. The inspector emphasized the need for these documents, especially since the control room logbook identifies the refueling grapple as broken on both days, (instances not related) but does not state the actual problems. The inspector stated that the inspection would not be completed until the following week and asked that a search be made for the missing documents in the interim. The licensee stated that every effort would be made to locate the documents prior to the inspector's return.
2. In a subsequent management interview, on April 13, 1976, with Messrs. A. Roberts, Assistant Plant Superintendent and other licensee staff members, the inspector was informed that the work request initiated on March 21, 1976, was still missing. A licensee representative described the work that was accomplished on the grapple on that day, and contended that the work was not safety related.

The inspector did not challenge the licensee's explanation of the work performed; however, he informed the licensee that the lack of an actual work request document was an item of noncompliance. (Paragraph 2.b, Report Details)

- B. In reviewing the work request initiated on March 22, 1976, the inspector determined that the maintenance performed was associated with the refueling interlocks for the grapple and a surveillance test should have been performed as required by the Technical Specifications. This was identified as an item of noncompliance. (Paragraph 2.b, Report Details)
- C. The inspector stated that while on the refueling floor during the inspection, control rod manipulations were taking place while several visitors were leaning on the guard rail, with a line of sight directly to the reactor core grid. The inspector stated that this was contrary to the licensee's Master Refueling procedure and was an item of noncompliance. A licensee representative stated that the Master Refueling procedure would be reviewed and the need for the requirement will be determined. (Paragraph 2.c, Report Details)

REPORT DETAILS

Part I

Prepared By: W. Shafer

1. Persons Contacted

B. Stephenson, Station Superintendent
A. Roberts, Assistant Superintendent
J. Abel, Administrative Assistant
N. Scott, Unit 2 Operating Engineer
T. Watts, Technical Staff Supervisor
D. Adam, Radiation Chemistry Supervisor
J. Dolter, Leading Nuclear Engineer
D. Simpson, Fuel Handling Foreman
F. Gebert, Shift Engineer
R. Drauden, Nuclear Station Operator
J. Toscas, Assistant Lead Nuclear Engineer
J. Kolanowski, Unit 2 Lead Engineer

2. Refueling Activities (Unit 2)

- a. An inspection of the Unit 2 refueling activities verified that the licensee had completed all pre-refueling surveillance testing as required by the Technical Specifications and all necessary surveillance on equipment directly associated with the refueling work.
- b. In a review of the Unit 2 control room log book the inspector noted that on two separate occasions (March 21 and March 22) maintenance work was performed on the refueling grapple. On March 21, 1976, a nonsafety related work request (No. 2481) was issued to repair a spring on the positive return cutout switch in the grapple controls. The description of the actual maintenance performed was given to the inspector in discussions with licensee representatives. The work request (No. 2481) was missing and had not been filed as required by the licensee's Quality Procedure, QP 3-52. The licensee was informed that the lack of records on the maintenance work performed was contrary to 10 CFR 50 Appendix B, Criterion XVII.

On March 22, 1976, maintenance work was again performed on the refueling grapple. The nature of the work as identified on work request (No. 2522) indicated that the maintenance performed was safety related and was associated with the refueling grapple interlocks. However, a review of the licensee's records indicated that no surveillance work was performed on the refueling interlocks associated with the grapple as required by Technical Specifications Section 4.10.A. The licensee was informed that failure to perform the required surveillance was an item of noncompliance in the category of an infraction.

- c. In reviewing the licensee's records and by direct observation, the inspector verified that during refueling the reactor mode switch was in refuel, and the core monitoring, containment integrity, fuel accountability methods, vessel water level, and general housekeeping appeared adequate. The inspector also observed that the insertion and removal of fuel was accomplished with established procedures; the make-up and license requirements of the refueling crew was adequate; and the core internals and other significant equipment was properly stored to protect against damage. In verifying that control blade checks were being accomplished, the inspector noted that at least 5 persons, not involved with the refueling, were within the line of sight of the core grid while a control rod was being moved. The Master Refueling Procedure DFP 800-1, Revision 3, Section D.4, states that all personnel shall evacuate all areas from which the grid of the reactor vessel may be viewed during control rod movement. The failure to notify personnel on the refueling floor of control rod movement is contrary to licensee's Procedure DFP 800-1 and is an item of noncompliance with Technical Specifications 6.2.A.2.

A licensee representative stated that the requirement to keep all personnel out of the line of sight of the reactor core grid during control rod movement was not intended for use during refueling when the upper cavity is filled with water and only one rod was being withdrawn. The procedure requiring this precaution will be reviewed and revised as appropriate.

3. Review and Audits (Units 1, 2 and 3)

- a. An inspection of the licensee's review and audit functions verified that reviews of proposed tests

and experiments, violations of facility Technical Specifications and proposed Technical Specification changes have been accomplished by the Onsite Review and Investigative Function as required by the licensee's Technical Specifications. No problem areas were identified.

- b. A review of records relating to all audits conducted during the third and fourth quarters in 1975, and the first quarter of 1976, indicated that all audits were conducted in accordance with written procedures and checklists by trained personnel not having direct responsibility in the area being audited. Audit frequency was in conformance with Technical Specification and all results were reviewed by management having that area of responsibility. Followup action of audit findings is documented on the licensee's Action Item System. No areas of concern were identified.

4. Semiannual Report Review, (Units 1, 2 and 3)

A review of facility records relating to indications of failed fuel showed that all information requested to be reported by the Technical Specifications has been accomplished. The inspector reviewed water chemistry data and determined that the facility records are as reported. No concerns were identified.

REPORT DETAILS

Part II

Prepared By: *W. S. Little*
F. A. Maura

4/27/76
(Date)

Reviewed By: *W. S. Little*
W. S. Little

4/27/76
(Date)

5. Persons Contacted

B. Stephenson, Station Superintendent
E. Budzichowski, Operating Engineer, Unit 1
J. Dolter, Leading Nuclear Engineer
T. Schneider, Chemistry, Unit 1

6. Event (Unit 1)

On March 23, 1976, at 0400 hours a Unit 1 control rod drive exercise surveillance test was being performed in accordance with Procedure 300-S-II, Revision 2, dated February 21, 1975. The reactor was operating at approximately 82% of rated power with a stack release rate of approximately 11,000 uCi/sec.

Approximately 24 hours later, on March 29, 1976, the stack release rate increased to approximately 45,000 uCi/sec. A sample taken at 1130 on March 29 showed a decrease to 31,700 uCi/sec and on April 7, 1976, at 75% of rated power the stack release rate was 16,000 uCi/sec.

7. Review of CRD Surveillance Test

A review of the control rod exercise surveillance data sheets showed that the operator had mentally inverted the axial position of the in-core instrumentation detectors during the test because whenever he was exercising a fully inserted rod he observed the bottom detector and for a fully withdrawn rod he observed a top detector. As a result a test which normally requires only one notch of rod movement to observe a local power level change this time required from 2 to 4 notches. The operator also failed to notice that in most instances the observed power level change was opposite to what would be expected. For example while inserting a rod the indication would be of a local power increase instead of decrease. This was caused by the flux being forced towards the upper area of the core where the selected detector is located.

The licensee plotted the rod motions experienced during the test and verified that in four cases adjacent diagonal rods passed or were within one notch of each other in violation of Procedure 300-S-II, Revision 2. This is considered to be an infraction of Paragraph 6.2.A.7 of the Technical Specifications. The specific blades were D-7, E-6, F-7, and G-4. In addition another twenty blades passed or were within one notch of a face adjacent blade, tips are closer to each other and the combined flux spike is therefore larger. However, the surveillance procedure had failed to warn the operator about this condition. This is considered to be an infraction of 10 CFR Part 50, Appendix B, Criterion V.

The licensee has conducted a preliminary review of the flux radial factors for the fuel surrounding the affected blades and has identified four to five areas where fuel was probably damaged. A more detailed analysis is planned to more accurately pinpoint the areas where fuel was damaged and/or weakened so that these areas can be favored in future rod patterns for the duration of this fuel cycle.

8. Operator Retraining

The licensee's investigation revealed that the operator who performed the test had not worked on that unit for approximately one year, until January, 1976. This condition was created because the Dresden Station has two operators who are only licensed to operate Unit 1; therefore, the other member of these two crews do not get an opportunity to operate Unit 1.

A review of the operator training records showed that since his transfer in January 1976 to a crew where he would have to operate Unit 1 periodically, he received three days of abnormal and emergency procedures, operating procedures, and systems training during early March.

A review of the weekly rod following exercise tests for Unit 1 showed that prior to March 28 the operator had not performed such test for thirteen months, since February 23, 1975.

9. Licensee's Present Plans to Prevent Recurrence

The licensee's investigation of the event had not been completed as of the time of the inspection. In progress are investigations being conducted by:

- a. Different groups at the Corporate Office.
- b. On-site investigating team.

As a result of the initial investigation the licensee plans to:

- a. Revise Procedure 300-S-II to include face adjacent rods in the precautions section, plus indicate to the operator the axial position of the detectors.
- b. Perform the test at minimum secondary steam flow.
- c. Improve the training program by being more explicit as to why it is undesirable to have adjacent rods within one notch of each other.

10. Licensee's Event Report

The event was reported by the licensee in accordance with Technical Specification requirements. The 14-day letter, received on April 14, 1976:

- a. Failed to mention the fact that the procedure was deficient in its warning to the operator concerning face adjacent rods.
- b. Does not specify what procedures changes will be made to help prevent recurrence.
- c. Did not discuss the areas of improved training, and operating personnel rotation through Unit 1 as discussed during the inspection.