

UNITED STATES NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-010/75-13  
IE Inspection Report No. 050-237/75-19  
IE Inspection Report No. 050-249/75-15

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  
Categories: C

Type of Licensee: GE BWR, 200 and 810 MWe

Type of Inspection: Routine, Unannounced

Dates of Inspection: June 10-12, 17-18, 20, 23-27,  
July 1 and 2, 1975

Principal Inspector: *P. H. Johnson*  
P. H. Johnson

8/11/75  
(Date)

Accompanying Inspectors: *H. B. Kister*  
for H. B. Kister

8/11/75  
(Date)

C. M. Erb

Other Accompanying personnel: None

Reviewed by: *R. C. Knop*  
R. C. Knop  
Senior Reactor Inspector  
Reactor Operations

8/11/75  
(Date)

8009150 632

## SUMMARY OF FINDINGS

### Inspection Summary

Inspection on June 10-12, 17-18, 20, 23-27 and July 1-2 (Dresden 1, 75-13; Dresden 2, 75-18; Dresden 3, 75-15): Review of licensed and non-licensed training, plant operations, abnormal occurrences, and control of plant activities. Four noncompliance items, related to conduct and documentation of the operator requalification program, use of plant startup procedures (Unit 2 only), and baseline inspection of replaced core spray piping (Unit 2 only).

### Enforcement Items

The following items of noncompliance were identified during the inspection:

#### A. Infractions

1. Contrary to paragraph 6.2.A.1 of the Dresden 2 Technical Specifications, applicable checkoff lists were not completed for the Unit 2 startup which occurred on May 18, 1975. (Paragraph 5, Report Details)

This infraction had the potential for contributing to an occurrence with safety significance.

2. Contrary to 10 CFR 50.54(i-1), and the approved Commonwealth Edison Operator Requalification Program (Paragraph 2.e, Report Details):
  - a. Oral examinations for each two year licensed interval were not being conducted.
  - b. No policy was established, and there was no evidence to indicate that station management was conducting an annual review of each licensee's performance.

This infraction had the potential for causing or contributing to an occurrence with safety significance.

3. Contrary to Criterion XVI of 10 CFR 50, Appendix B, and Section XI of the ASME Boiler and Pressure Vessel Code, unacceptable ultrasonic baseline examination results obtained for the Unit 2 core spray safe ends and transition pieces were not reported to management nor reviewed for acceptability or appropriate corrective actions until after resumption of Unit 2 operation on May 18, 1975. (Paragraphs 6 and 9, Report Details)

This infraction had the potential for causing or contributing to an Occurrence with safety significance.

B. Deficiencies

1. Contrary to 10 CFR 50.54(i-1), and the approved Commonwealth Edison Operator Requalification Program, the following required records were not being maintained (Paragraph 2.e, Report Details):
  - a. Results of operator evaluations.
  - b. Licensed operator review of procedure revisions, facility changes, and license changes.
  - c. Licensed operator review of abnormal and emergency procedures.
  - d. Plant manipulations performed by licensed operators.
  - e. The starting and ending of each licensed operator's two-year training program.
  
2. Contrary to Criterion V of 10 CFR 50, Appendix B, and the Commonwealth Edison Quality Assurance Manual, Procedure 2-52:
  - a. The Training Supervisor was not properly preparing and maintaining records of offsite and onsite training for non-licensed personnel. (Paragraph 2.b, Report Details)
  - b. Training of station personnel on new and revised quality procedures was not being accomplished within 30 days of the effective dates. (Paragraph 2.c, Report Details)
  - c. Periodic Reports by the Maintenance Engineer, Operating Engineer, and Technical Staff Supervisor regarding the status and adequacy of the onsite and offsite training programs were not being formulated and provided to the Station Superintendent and Training Supervisor. (Paragraph 2.d, Report Details)

Licensee Action on Previously Identified Enforcement Items

Not reviewed.

Other Significant Items

A. Systems and Components

1. The licensee discovered cracks in the collet housings of several control rod drives. (Paragraph 7.c, Report Details)

2. The licensee discovered after resumption of Unit 2 operation that the baseline ultrasonic examinations performed on the newly replaced core spray safe ends and transition pieces were unacceptable. (Paragraphs 6 and 9, Report Details)

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee

Contrary to paragraph 6.2.F of the Technical Specifications, Senior Reactor Operator approval for five temporary procedure changes pertaining to Units 2 and 3 were given by an individual with an expired SRO license. (Paragraph 7.d, Report Details)

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

Not reviewed.

Management Interview

The inspectors conducted a management interview with Mr. Stephenson (Station Superintendent) and members of his staff on July 2, 1975. The following matters were discussed:

- A. The inspector stated that he had reviewed selected areas of the Station Training Program to determine conformance with the Code of Federal Regulations, Commonwealth Edison procedures, and commitments. The areas reviewed included licensed and non-licensed training. The inspector summarized the noncompliance items identified during the review. He also noted that management involvement in the training program had been inadequate, particularly with respect to evaluations of licensed personnel. (Paragraph 2, Report Details)

The inspector commented that the Station Training Program requirements point to the Training Supervisor as the central figure. He is required by QP 2-52 to plan and coordinate the entire program, drawing the necessary input from the Station Staff. Observations indicate that the existing program is not centralized and each department essentially conducts its own training, Operations excepted.

The inspector further stated that he considered the training staff and facilities to be inadequate for a three unit station. Discussions with the training staff and observations by the inspector indicated that the Training Supervisor spends the major portion of his time conducting licensed operator training and little time planning and coordinating the Station Training Program. The present facilities, although slightly improved, are not conducive to the learning process.

The licensee acknowledged the inspector's comments and stated that efforts are being made to increase the staff and work is underway to improve the existing training facility. Also, some long range plans with regard to a new facility are being formulated.

- B. The inspector stated that review of procedures associated with the initial Unit 2 startup following the refueling outage disclosed that: (1) a superseded startup checklist was completed prior to the startup, (2) the correct startup checklist and three different startup procedures, covering activities which occurred over a period of approximately 36 hours, were subsequently signed off by one individual, and (3) one startup prerequisite, completion of the master startup checklist, was not accomplished. The inspector stated that these findings represented noncompliance with Section 6.2 of the Technical Specifications and illustrated a need for attention to more formal control and documentation of plant activities. The licensee noted that the deficiencies had also been identified by an onsite audit, and that subsequent to this being identified a program was now underway to insist on following procedures, emphasizing the signoff of checklists. (Paragraph 5, Report Details)
- C. The unacceptable baseline ultrasonic examination of the new core spray safe ends was discussed. The inspector noted that licensee management, because of inadequate control of startup prerequisites, did not know about the unacceptable condition until several days after plant startup.

The license was informed that this represented noncompliance with regulatory requirements in that the questionable UT results were not reviewed and evaluated prior to unit startup. The inspector requested and obtained a commitment from the licensee that a written report describing the resolution of the baseline ultrasonic examination will be submitted to the NRC when this resolution has been obtained. (Paragraphs 6 and 9, Report Details)

- D. The inspector stated that he had concern with the credibility of ultrasonic examination data reported by the licensee. He stated that part of this concern appeared to be related to UT techniques; for example, core spray safe end ultrasonic examination results obtained in June differed from those results obtained in May. He noted that inaccurate communication of UT results was also a factor

In his concern, in that core spray safe end UT results conveyed to the inspector by station management on June 11 differed considerably from those shown in the records of the ultrasonic examination. The licensee expressed an awareness of the problem and stated that attention was being given to this area. (Paragraph 6, Report Details)

- E. The inspector stated that he had observed the initial startup of the Unit 2 charcoal filter, which was performed by an operator without reference to the operating procedure, although he was previously briefed by a technical staff engineer (Licensed SRO). The inspector stated that no noncompliance with the operating procedure was noted, but that the operator demonstrated uncertainty when questioned about his personal knowledge that all prerequisites to system startup had been satisfied. He stated that this further illustrated the need for attention to operating procedures. He also noted that various persons contacted during the inspection had considered operator knowledge of the recombiner-charcoal system to be inadequate. The licensee acknowledged the inspector's comments. (Paragraph 4.a, Report Details)
- F. The licensee was informed that the inadvertent lapse of a Senior Operator's license involved noncompliance with Technical Specifications Requirements, although a response would not be required in view of the licensee's corrective action. Enforcement action was not taken regarding this item in that the item of noncompliance was discovered, reported, and corrected by the licensee. (Paragraph 4.d, Report Details)
- G. The inspector requested and obtained from the licensee a commitment that IE:III would be given one week's verbal notification prior to shipment of fuel from Unit 2 to MFRP.
- H. The inspector noted that 11 of the 16 LPRM indicators on the Unit 2 control board 2 x 2 array were inoperable, a condition which had been noted on Units 2 and 3 for some period of time.<sup>1/</sup> The licensee stated during a subsequent phone conversation that the indicators would be returned to service during the next unit outage and would be modified to provide more trouble-free service as soon as the modification could be arranged. (Paragraph 4.b, Report Details)
- I. The inspector stated that the response contained in the licensee's May 9, 1975, letter was not considered to fulfill the commitment discussed in the IE:III letter dated April 18, 1975, and the enclosed inspection report.<sup>2/</sup> The inspector obtained from the licensee a commitment that the additional training would be provided to licensed operators no later than September 15, 1975.

<sup>1/</sup> RO Inspection Rpts No. 050-237/74-10 and 050-249/74-12.  
<sup>2/</sup> IE Inspection Rpts No. 050-237/75-07 and 050-249/75-07.

- J. The inspector referred to previous discussions concerning the decrease in core spray piping design pressure from 1250 to 1150 psig. This matter was also discussed during a telephone conversation on July 21, and a licensee representative stated that the need for a change to the bases to Technical Specifications Section 1.2 would be reviewed. (Paragraph 3.c, Report Details)

## REPORT DETAILS

### Part I

Prepared by P. H. Johnson and H. B. Kister

#### 1. Persons Contacted

B. Stephenson, Station Superintendent  
A. Roberts, Assistant Superintendent  
D. Butterfield, Administrative Assistant  
G. Abrell, Unit 2 Operating Engineer  
J. Almer, Senior Radwaste Foreman  
T. Blackmon, Training Specialist  
E. Budzechowski, Unit 1 Operating Engineer  
J. Dolter, Leading Nuclear Engineer  
D. Dransfeldt, Nuclear Station Operator  
F. Dunkel, Shift Engineer  
G. Heintz, Nuclear Station Operator  
W. Hildy, Instrument Engineer  
B. Jaicomo, Nuclear Station Operator  
R. Janacek, Thermal Engineer  
W. Joyce, Training Supervisor  
B. Knop, Engineering Assistant  
C. Maney, Engineering Assistant  
R. Meadows, Engineering Assistant  
E. Meintel, Maintenance Engineer  
J. Farson, Nuclear Station Operator  
R. Ragan, Unit 3 Operating Engineer  
W. Roman, Training Specialist  
C. Schiavi, Engineering Assistant  
N. Scott, Shift Engineer  
J. Uremovic, Nuclear Station  
T. Watts, Technical Staff Supervisor  
H. Whitehead, Shift Engineer  
M. Wright, Quality Control Engineer  
B. Zank, Training Specialist

#### 2. Training

The inspector reviewed selected areas of the station training program delineated in the Commonwealth Edison Quality Assurance Manual, QP 2-52 (Revision 1) and the approved Operator Requalification Program dated April 5, 1974.

- a. General Employee Training was reviewed to determine compliance with ANSI N18.1. Station Training procedures had been issued for all the areas specified in the General Employee Training section of the Standard. No items of noncompliance were noted.

- b. Selected training records for non-licensed personnel in the custody of the Training Supervisor were reviewed for completeness and adequacy. The records were found to be generally incomplete with some folders completely void of information. A licensee representative stated that records of training completed were not always forwarded to the training department for inclusion in the individual training folders, but were retained by the parent department. The inspector noted that QP 2-52 requires the Training Supervisor to maintain records of all offsite and onsite training. The licensee acknowledged the inspector's comments and stated that the departments were required to forward results of training to the training department but were not always prompt. A lack of manpower to maintain records was also stated as a principal cause. The inspector later examined Maintenance Department training records and found them to be generally adequate. It is noted, however, that records of training prior to 1972 were generally not recorded.
- c. Record review also revealed that training on new and revised Quality Procedures was not being accomplished within 30 days of the effective date as required by QP 2-52. Records did not indicate training on most QP's to have been conducted. Licensee representatives acknowledged the deficient records, but stated that the training was in fact being conducted, though not within the required 30 days.
- d. The inspector requested to review any Periodic Reports that had been submitted to the Station Superintendent and Training Supervisor regarding the status and adequacy of the onsite training program. The inspector noted that QP 2-52 requires such reports to be submitted as requested by the Station Superintendent. Review subsequently established that the surveillance program calls for submission of such reports in January and July of each year. The licensee stated that none had been provided. The inspector noted during the Management Interview that more management attention to the station's training programs was needed.
- e. The inspector reviewed the implementation of the approved Operator Requalification program and concluded that implementation had not yet been achieved in the following areas:
- (1) Paragraph IV.C of the program requires that oral examinations be conducted each two-year licensed interval. No orals had been conducted to date.
  - (2) Paragraph IV.E of the program requires that Station Management conduct an annual review of each licensed individual's performance. Discussions with the Training Supervisor regarding this review indicated that it was not being conducted as intended. The Training Supervisor stated that he reviewed

the annual examination and the simulator evaluation; however, there is no record of that review, nor does there appear to be a policy established or specific management responsibility assigned for conducting and evaluating the review.

(3) Paragraph VII of the requalification program requires that the Training Supervisor maintain certain records for each man in the requalification program. The inspector reviewed selected training folders in the custody of the Training Supervisor and noted that no records existed for:

(a) Results of evaluations.

(b) Licensed operator reviews of procedure revisions, facility design changes, and license changes.

Note: Apparent lack of proper ongoing review in areas (a) and (b) was further substantiated by the inspector's review of the simulator instructor's evaluation contained in the folders. These noted that some operators were not familiar with recent setpoint changes and plant modifications.

(c) Licensed operator review of the contents of all abnormal and emergency procedures.

(d) Records showing the beginning and end of each person's two year retraining program.

Records of plant manipulations performed by the operators were present in some cases where in other folders records were not present or were not up to date.

The inspector also noted that the Training Supervisor did not have an adequate up-to-date list of all licensed personnel and license expiration dates.

### 3. Miscellaneous Items

The inspector conducted a followup on licensee commitments resulting from occurrences at other facilities and results of previous inspections. The following comments are noted.

- a. In Units 2 and 3 Inspection Report No. 75-07 the licensee committed to improving the core spray system filling procedure to include system venting. A review of the current procedure indicated that proper system venting had been included. This item is considered closed.

b. In Units 2 and 3 Inspection Report No. 74-02 the licensee committed to preparing the following procedures or revisions:

- (1) Procedure for response to off-gas detonations.
- (2) Procedure revision to include all the station instrument air compressors.
- (3) Procedure for handling the malfunction of a safety or Electromatic relief valve.

The inspector reviewed the above procedures and considers the commitment satisfied.

c. A previous inspector report<sup>3/</sup> discussed action taken by the licensee to reduce the pressure of portions of the new core spray piping. A representative of the Division of Reactor Licensing questioned during a subsequent telephone conversation whether the reduced pressure had a bearing upon the reactor pressure safety limits contained in Section 1.2 of the Technical Specifications. After discussion with licensee representatives, the inspector was informed that possible effect on the safety limit had been considered during the safety review, but that further review and possible discussion with DRL would be undertaken to determine whether a change to the bases of the Technical Specifications, Section 1.2, should be submitted.

#### 4. Observation of Plant Operation

Plant operations were observed at various times during the inspection, principally from the control room, with comments as follows:

a. The Unit 2 charcoal filter was placed into operation for the first time on June 17. A technical staff engineer (Licensed SRO) briefed the Nuclear Station Operator and others concerned with the evolution and directed its performance. The inspector noted that no reference was made to the approved system startup procedure. Although no deviation from the procedure was apparent, the NSO demonstrated uncertainty when questioned about his personal knowledge of prerequisites and understanding of the evolution conducted. The shift engineer was present for a portion of the evolution and stated that he would have remained until system startup were completed had the technical staff engineer not been a licensed SRO. The shift engineer and others contacted during the inspection stated that operator knowledge of the off-gas system was considered to be inadequate. The inspector further noted that the technical staff engineer who had been most closely involved with the new off-gas systems was due to be transferred away from the station during the month of July, and questioned whether adequate technical experience to support the systems would be retained at the station. Licensee representatives stated that an effective turnover of information would be provided to another engineer who had been working with the new off-gas system.

<sup>3/</sup> IE Inspection Rpt No. 050-237/75-15.

- b. The inspector noted during observation of Unit 2 operations that only 5 of the 16 LPRM indicators on the control board 2 x 2 array were operable. Further review, including discussions with intrument maintenance personnel, disclosed that the indicators are high-maintenance equipment, principally because of the frequent need for bulb replacement and the consequent recalibration of the reflective mirror. The inspector noted, however, that without the LPRM indicators operable, an operator withdrawing control rods has no indication of core response other than alarms and the computer printout. In discussions during the management interview and a subsequent telephone conversation, station management stated that the indicators would be made operable during the next outage, and that a modification previously performed at Quad-Cities to extend bulb life would be made to Unit 3 prior to the end of the refueling outage and to Unit 2 as soon as the modification could be processed.
- c. Control of rod programs was reviewed on two occasions and in each case, the provided rod program was noted to have been approved by authorized persons in accordance with licensee procedures. On one of the two occasions a nuclear engineer was noted to be approving on-the-spot changes to the rod program to effect the desired flux shape prior to increasing reactor power. The inspector noted that the changes were being written on a blank key log form by the nuclear engineer, then passed to the NSO. The inspector informed the licensee that consideration should be given to the use of a separate form which would provide for a listing of sequence changes along with the signature of the approving nuclear engineer.
- d. A high conductivity annunciator was noted to be lighted on the Unit 1 control panel on July 1. Point 8 on the condensate conductivity recorder was seen to be reading 4.5 umho/cm. Upon questioning, the NSO stated that he had been informed that the recorder point was not operating correctly. Investigation by instrument maintenance personnel after questioning by the inspector showed the recorder point to be out of step, such that point 4, condensate storage, was reading high. This tank was known by station management to have a high conductivity, but had been determined acceptable for continued use.
5. Plant Startup Procedures (Dresden 2)
- Review of documents related to the initial startup of Unit 2 following the refueling outage showed several inadequacies. A superseded startup checklist was apparently completed prior to reactor startup on May 18, 1975, although revised startup procedures and checkoffs had been issued during the previous month. The revised startup procedure, if actually used during the startup, was not signed off as it was completed. The correct startup checklist and "normal unit startup" procedure DGP 1-1 were

subsequently signed off on May 20 by one individual, although the activities covered by DGP 1-1 were completed over a period of more than 36 hours. One prerequisite on DGP 1-1, "Master Outage Checklist DGP 1-S3 completed" was not signed off, and further review with licensee representatives verified that it had not been completed. Procedures DGP 1-2 ("Unit Startup to Hot Standby") and 1-3 ("Unit Hot Standby to Power Operation"), which together accomplish essentially the same evolution as DGP 1-1, were also signed off on May 20 by the same individual. All three of the procedures had also been reviewed and signed by the same shift engineer. During discussion of the conditions, licensee representatives stated that the startup checklist and procedures had been signed off at one time after the omissions were identified by an onsite auditor.

The inspector informed licensee representatives that improper use of the startup checklists and procedures represented non-compliance with Section 6.2.A of the Technical Specifications. Subsequent review by the inspector of startup procedures and checklists related to a June 15 startup of Unit 2 showed the documents to have been completed with the exception of some checklist items which could not be accomplished until after reactor startup (e.g., testing of electromatic relief valves). A licensee representative noted that a format change was needed to accommodate such items.

During discussions with station management, the inspector asked how authorization to start up a unit was normally given. Management representatives stated that authorization was normally given verbally or in written daily orders. For weekend outages, authority is sometimes delegated to a duty Operations Engineer, although management stated that this was not done for startup following an extended outage. The inspector noted that authorization for plant startup should in any case be based upon an assurance that all prerequisites are satisfied.

6. Core Spray Piping Base Line Examination (Dresden 2)

Licensee representatives informed the inspector during the inspection of an anomaly discovered with respect to baseline inspection of a portion of the Unit 2 core spray piping. The piping components were stated by the licensee to have been received with proper certifications and were installed and verified to be acceptable by radiography and hydrostatic tests. An ultrasonic examination of the replaced piping was also performed to serve as a baseline for future in-service inspections.

The 316 stainless steel safe end and the 304 stainless steel transition ("pup") piece to the carbon steel piping were both internally clad with 308 weld material to provide increased resistance to intergranular corrosion. Although station management did not become aware of the condition until after several days of operation, the internal clad on the safe ends and pup pieces produced a high background signal which effectively defeats possible future in-service examination using existing ultrasonic test procedures. Further review by the inspector disclosed the following findings:

- a. Ultrasonic examinations performed on May 4, 1975, showed indications of 100% + 14 dB over the entire length and circumference of the safe end and pup piece on the A core spray line. Records of the B line examinations showed lesser indications which were diagnosed as outer or inner diameter geometry. According to the initial verbal report to the inspector, only the pup piece in the B core spray line had such indications. Following reexamination by ultrasonic means, the licensee informed the inspector that whole-area indications of 100% + 3-6 dB had been observed for all four components plus a sample of material obtained from General Electric and determined to be similar to that used in the safe ends.
- b. The indications were not completely evaluated prior to the Unit 2 startup. Undated comments found on the reverse of the UT data pertaining to the A core spray line noted that the results appeared as "unbonded cladding", but no evidence of further evaluation prior to operation was present.
- c. Paragraph IS-232 of ASME, Section XI, states that all detailed examinations "shall be performed completely, once, as a pre-operational examination requirement prior to initial plant startup...." Paragraph IS-311 states that "evaluation shall be made to determine disposition and/or need to make repairs".

Further review of the licensee's examination is discussed in Paragraph 9 of this report. The licensee stated that attempts were being made to develop a special ultrasonic test procedure which could give an acceptable in-service examination of the pipe components, and that in the meantime the acceptable radiographs will be used as baseline inspection results. The licensee stated that if an acceptable ultrasonic test method were not developed, both safe ends

and pup pieces would be considered for replacement during the next refueling outage. The inspector acknowledged the licensee's intention, noting that failure to determine the anomalous condition and provide proper review prior to plant operation represented an item of noncompliance with regulatory requirements.

7. Unusual Occurrences

Certain unusual occurrences were reviewed during the inspection, as follows:

- a. Failures of Unit 2 Electromatic relief valves were reported by the licensee on three occasions<sup>4/</sup>. Review of these events and discussions with licensee representatives showed the events and corrective actions to have been as described in the referenced reports. Control room logs and test records showed each relief valve to have been operationally tested at reduced pressure and at near rated pressure following repairs.
- b. The licensee reported<sup>5/</sup> high chlorides in the Unit 1 reactor coolant in excess of 0.1 ppm during reactor startups conducted on April 7 and 9, 1975. Review during the inspection showed the sequence of events to have been as described in the referenced reports. The inspector questioned licensee representatives concerning the approximately three hours which elapsed following the sample confirming high chloride concentration on April 7 before reactor shutdown was commenced. The representatives stated that the time had been used in an effort to locate the source of the chlorides, since condenser effluent and other indications did not appear to be the source. The inspector reviewed recorder charts showing condensate conductivity and demineralizer effluent conductivity and could find no conclusive indication of a source of the chlorides. The inspector noted that a significant amount of river water would have to be introduced into the reactor coolant system to give 3.0 ppm chloride concentration, but could see no other possible cause for the observed increase. The temporary increase in concentration noted on April 9 appeared to have been a result of incomplete cleanup of the original chloride condition.
- c. The inspector was informed on July 2, 1975, that cracks had been observed by the licensee in the collet housing of four control rod drives removed from Unit 3 for maintenance. Cracks in additional drives were subsequently discovered. Further discussion of the conditions is given in an

4/ Ltrs, Stephenson to Keppler, dtd 5/30, 6/3, and 6/23/75.  
5/ Ltrs, Stephenson to Keppler, dtd 4/15 and 4/16/75.

abnormal occurrence report submitted by the licensee.<sup>6/</sup>  
The cracks were noted to be circumferential in nature, at the location of increased wall thickness of the collet housing. Discussions with licensee representatives and examination of a control rod drive used for training purposes showed that complete severance of a collet housing at the point of cracking would cause the rod drive to lock and prevent further movement by either scram or normal drive pressure. The licensee's initial review noted that such a break was extremely unlikely, and that simultaneous failure of more than one drive would be necessary to affect safety of operation. The licensee accordingly concluded that operation of Unit 3 and Quad-Cities Unit 1 and 2 could continue pending resolution of the cracking phenomenon. Due to the generic character of this problem, it was referred to the Division of Reactor Licensing for further review.

- d. The licensee discovered on June 5, 1975, and subsequently reported<sup>7/</sup> to the NRC that a Senior Reactor Operator's license was determined to have expired on December 8, 1974. The licensee reported that a license renewal request had been submitted based upon 2 years from the effective date of an amended license, while in fact two years from the initial issuance of the license was allowed. The licensee noted that the minimum shift manning required by Table 6.1.1 of the Technical Specifications had been provided at all times, since no more than two units have operated simultaneously since the license expired. However, review of procedure files showed the individual to have given SRO approval to five temporary procedures for Units 2 and 3 since the beginning of 1975. The licensee was informed that noncompliance with Technical Specifications was therefore apparent, although a formal response would not be required since the matter had been identified, reported, and corrected by the licensee.

6/ Ltr, Stephenson to Keppler, dtd 7/3/75.  
7/ Ltr, Stephenson to Keppler, dtd 6/12/75.

REPORT DETAILS

Part II

Prepared By: C. M. Erb 8/11/75  
C. M. Erb (Date)  
Reviewed By: J. C. LeDoux 8/11/75  
J. C. LeDoux (Date)

8. Persons Contacted in a Meeting at the Dresden Site on June 20, 1975

Commonwealth Edison Company (CE)

L. D. Butterfield, Administrative Assistant  
R. Meadows, Engineering Assistant  
R. Williams, Unit 2 Engineer  
E. Potter, Nondestructive Examination Supervisor - Quality Assurance Department  
M. Wright, Quality Control Engineer

9. Ultrasonic Baseline Inspection Problem (Dresden 2)

History

Ultrasonic (UT) indications above 100% of reference level were noticed when performing the Baseline volumetric inspection on the replacement ten-inch core spray loops at Dresden Unit No. 2. Four pieces of pipe (two safe ends and one short pipe length adjacent to each safe end) gave indications with shear wave testing above the 100% level, and it was decided that either defects existed near the inner surface of the pipe or some metallurgical condition caused the sound to be reflected.

The safe ends are Type 316 stainless base metal, clad on the inside with 308L weld deposit, and the pipe lengths are Type 304 stainless base metal clad with 308L. Since the shear wave indicated this unknown condition for the full 360° circumference of the pipe and for the entire length of the pipes excepting the welds, it was considered to be an anomalous condition caused by the clad layer. The licensee had been unable to secure any leftover pieces for destructive test from the fabricator, M. W. Kellogg Company (Kellogg) because of a strike. The licensee did obtain a safe end piece which had been used for welder qualification and which showed a UT response similar to that in the production pieces. The licensee proposed to section this piece and determine

its soundness and the metallurgical structure. This was done, and the inspector witnessed the result on June 23, 1975. The cladding proved to be 1/8" thick, with a wavy irregular fusion line between the weld cladding and base material. The metal was sound, with no evidence of any defects such as lack of fusion. However, grain growth had occurred in the heat affected zone of the base metal nearest the weld clad. These grains had grown to as high as 0.020" in diameter, which was easily ten times the size of other grains removed from this heat affected zone.

All present agreed that this grain growth precluded meaningful shear wave examination, but did not seem to hamper the longitudinal wave examination.

The licensee stated that special transducers were being purchased from Aerotech Company and efforts would be made to develop a suitable UT technique for this pipe.

In the meantime, the plant will be taken up to power, and methods utilizing lower heat input during the cladding operation will be investigated. It is mandatory that UT be applicable for this inspection because radiation levels during future inspections may preclude satisfactory radiographic examination.