

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

FEB 11 1975

Commonwealth Edison Company  
ATTN: Mr. Byron Lee, Jr.  
Vice President  
P.O. Box 767  
Chicago, Illinois 60690

Docket No. 50-237  
Docket No. 50-249

Gentlemen:

This refers to the inspections conducted by Messrs. Johnson, Erb, and Schumacher of this office on January 6, 7, 9, and 13, 1975, of activities at Dresden Units 2 and 3 authorized by NRE Operating Licenses No. DPR-19 and No. DPR-25 and to the discussion of our findings with Messrs. Stephenson, Roberts and other members of your staff at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

No items of noncompliance with NRC requirements were identified within the scope of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be placed in the Public Document Room.



FEB 11 1975

No reply to this letter is necessary; however, should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Gaston Fiorelli, Chief  
Reactor Operations Branch

Enclosure:

IE Inspection Rpts. No. 050-237/75-01  
and No. 050-249/75-01

cc: Mr. B. B. Stephenson  
Station Superintendent

bcc: IE Chief, FS&EB

IE:HQ (4)

Licensing (4)

DR Central Files

IE Files

PDR

Local PDR

NSIC

TIC

Anthony Roisman, Esq.

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

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-237/75-01  
IE Inspection Report No. 050-249/75-01

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

Dresden Nuclear Power Station  
Units 2 and 3  
Morris, Illinois

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

Type of Licensee: GE BWR, 810 MWe

Type of Inspection: Special, Announced

Dates of Inspection: January 6, 7, 9 and 13, 1975

Dates of Previous Inspection: December 16-18, 1974 (Operations); Unit 2  
October 21-25, 29; and November 1, 1974  
(Operations); Unit 3

Principal Inspector:

*P.H. Johnson*  
P. H. Johnson

*2/7/75*

(Date)

Accompanying Inspectors:

*C.M. Erb*  
C. M. Erb

(January 6, 7, and 9, 1975)

*M.C. Schumacher*  
M. C. Schumacher  
(January 13, 1975)

Other Accompanying Personnel: None

Reviewed By:

*R.C. Knop*  
R. C. Knop  
Senior Reactor Inspector  
Reactor Operations Branch

*2/7/75*

(Date)

## SUMMARY OF FINDINGS

Enforcement Action: None

Licensee Action on Previously Identified Enforcement Matters:

Not inspected.

Unusual Occurrences

The licensee reported on December 28, 1974, that cracks had been discovered in two areas of the Dresden 2 feedwater sparger. (Paragraph 10)

Other Significant Findings

A. Current Findings

Ultrasonic examination of the Dresden 3 recirculation bypass piping showed no indication of cracking. (Paragraph 7)

B. Status of Previously Reported Unresolved Items

An ultrasonic indication in the 28" recirculation piping of Dresden 2 reported during the inservice inspection was determined to have resulted from the characteristics of the weld. (Paragraph 6)

Management Interview

Mr. Erb discussed the findings of his inspection with Messrs. Stephenson (Station Superintendent) and Potter (Supervisor, Operations Analysis Department and ASNT Level III) on January 9. He noted that weld identification had been incomplete and penetrometer location had not been labeled on some radiographs examined by the inspector. The licensee stated that additional attention would be given to these areas.

Messrs. Johnson and Schumacher conducted an interview with Messrs. Roberts (Assistant Superintendent) and Adam (Radiation/Chemistry Supervisor) on January 13, 1975. The interview was limited to discussion of the proposed replacement of the Dresden 2 feedwater sparger and related personnel exposure control. The inspectors emphasized their concern for maintaining the total man-rem dosage as low as practicable as well as the dose to individuals.

## REPORT DETAILS

Part I - Prepared by P. H. Johnson

### 1. Persons Contacted

#### Station Personnel

B. Stephenson, Station Superintendent  
A. Roberts, Assistant Superintendent  
T. Watts, Technical Staff Supervisor  
D. Adam, Radiation/Chemistry Supervisor

#### General Electric

D. Saven, Project Manager, Feedwater Sparger Replacement  
J. Staley, Assistant Project Manager  
V. Elliott, Field Services Specialist  
~~C. Brockelman, I&SE Engineer~~

### 2. General

This special inspection was conducted to review activities related to cracking of the 4" recirculation bypass piping and replacement of the Unit 2 feedwater sparger. C. Erb reviewed replacement of recirculation bypass piping in Dresden 2, evaluation of an ultrasonic indication in a 28" recirculation pipe in Dresden 2, and ultrasonic examination of the recirculation bypass piping in Dresden 3. His findings are discussed in Part II of the Report Details. M. Schumacher reviewed plans associated with replacement of the Unit 2 feedwater sparger, as discussed in the Report Details, Part III.

### 3. Recirculation Bypass Piping Replacement (Dresden 2)

The inspector reviewed the procedure for isolating the isolable section of the Loop A recirculation bypass piping for replacement. The piping was verified to have been isolated as required by the procedure. The licensee's schedule called for replacing the isolable piping in the A Loop and then in the B Loop. Replacement of the unisolable piping was to be performed following removal of the feedwater sparger. The licensee had not yet determined whether jet pump plugs or freeze seals would be used to isolate the unisolable piping from the reactor for replacement.

### 4. Feedwater Sparger Replacement (Dresden 2)

The licensee reported by telephone on December 28, 1974, that a

scheduled inspection with an underwater television camera had disclosed cracks in two areas of the feedwater sparger. The cracks were stated to be in the heat-affected zone, sparger side of the weld, at two junctions of the sparger section to the thermal distribution box. One crack was at the northeast thermal box, the other at the southwest. The inspectors visited the site on January 13 to review the licensee's procedures related to removal and replacement of the feedwater sparger and to discuss measures to be taken to minimize radiation exposures during the replacement. The procedures were still in preparation by the licensee and were not reviewed. Discussions with the licensee related to control of radiation exposures are described in Part III of the Report Details.

REPORT DETAILS

Part II

Prepared By:

C. M. Erb  
C. M. Erb

Jan. 25, 1975  
(Date)

Reviewed By:

D. M. Hunnicutt  
D. M. Hunnicutt

2/7/75  
(Date)

5. Persons Contacted

Commonwealth Edison Company (CE)

B. Stephenson, Station Superintendent  
R. Meadows, Engineering Assistant  
E. Potter, Supervisor - Operations Analysis Department  
W. Witt, Engineer - Operations Analysis Branch  
M. Wright, Site Quality Control

Phillips Getschow Company (P-G)

A. Marconi, Welding Engineer  
M. Kelly, Supervisor - Quality Assurance

6. Indication in 28" Recirculation Piping Weld (Dresden 2)

An ultrasonic indication was reported<sup>1/</sup> in the 28" recirculation piping during performance of the inservice inspection. The inspector reviewed the licensee's examination of NDE results on weld No. PS2A-D2, which is in Type 304 stainless pipe on the vertical run of the suction side of the Loop B, Dresden Unit 2, recirculation pump.

a. History

This 28" diameter, 1.361" wall steel piping spool was fabricated by Dravo Corporation, and weld No. PS2A-D2 was made in the Dravo shop. An in-service UT inspection, to CE Procedure No. NDT-C2, Revision 9, performed about December 26, 1974, by the Conam Company, revealed a maximum amplitude indication of 40% of distance amplitude curve (DAC) from both sides of the weld, using a 45° angle wave search.

b. Evaluation

An effort to ascertain the cause of this indication was begun

<sup>1/</sup> RO Inspection Report No. 050-237/74-12

with radiography, photographs by fiberoptics of the inside surface, and comparison with original radiography performed by Dravo.

The original base-line UT inspection was performed in August 1970 by General Electric Company (GE) using a 45° angle wave. No recordable indications were indicated by the GE results. Certain differences in the inspection procedures used in 1970, and NDT-C-2, Revision 9, used in 1974, could result in unrecorded indications by GE and recorded indications today.

An examination of the original radiographic film from Dravo was made, and no indications were seen. The line was drained and RT was performed by inserting a source through a branch connection and then exposing the entire weld by the panoramic method. This was made possible by attaching a copper tube, 1/2" in diameter, with a closed end to the source cable and then inserting the source into the copper tube which was placed in the proper position at the center of the pipe weld.

These radiographs showed four or five scattered slag inclusions along one side of the weld which were acceptable. Fiberoptics equipment was then inserted in the pipe and a photograph taken, utilizing the light transmitted by the glass fibers. This approach revealed reinforcement on the inside surface, indicating that a weld had been made from the inside. While some fogging from environmental radiation occurred, the radiographs were of good quality, and the No. 20 penetrometer on the film side was easily seen. The conclusion from the above examinations is that the UT indication which persisted around the entire circumference on both sides of the weld was caused by the weld reinforcement on the inside of the weld.

The inspector's evaluation indicates that no deleterious defects exist in this weld at this time.

7. Examination of 4" Recirculation Bypass Piping (Dresden 3)

a. General

The inspector reviewed inspection results of January 5, 1975, on the 4" bypass line welds for primary recirculation Loops A and B in Dresden Unit 3. Two previous ultrasonic inspections had been conducted: (1) a General Electric Company base-line inspection in December 1970, and (2) a special Conam inspection in September 1974. A comparison of the results of the three ultrasonic inspections, plus supplementary radiography, led



to the conclusion that no rejectable defects were present in the welds.

b. Details

The current UT inspection was performed to Procedure No. NDT-C2, Revision 9, with the following calibration specifications:

- (1) No. 1001 - L-wave search
- (2) No. 2001 - 45° angle wave
- (3) No. 3001 - 70° angle wave

The UT procedure now calls for reporting and evaluating all indications which produce a response greater than 20% of reference level.

The 70° angle wave examination was added for field welds and was not performed in two previous inspections of December 1970 or September 1974. In several cases, the 70° angle ray examination was possible only from one side, because a plane surface was not available on the other side or else there was interference as in the welds joining the T-fittings to pipe.

Eleven welds on each loop were UT inspected by Magnaflux, Incorporated. Where additional evaluation was necessary (UT indications greater than 20% of reference level) radiography was performed by Conam. Since the loops were filled with water, and since residual radiation was present, the sensitivity of the radiography was less than that obtained in the original construction radiography. The inspector examined radiographs on two welds in the B Loop and one weld in the A Loop, with none showing rejectable indications.

Three of the welds on the two loops had reportable indications, but the indications were determined to be on the inside surface and represented either suck back or mismatch.

Several changes have been made in the UT procedure and in the reporting since the original base-line inspection, so that the results of all inspections are not completely comparable. Notches were used in the base-line inspection for calibration, while for the last inspection holes were used. Grinding and added polishing has been performed on the weld reinforcement for L-wave inspection and better quality on the angle wave inspection.

The inspector examined the qualifications of the Magnaflux Level II UT inspectors and found them to be satisfactory.

8. Recirculation Bypass Piping Replacement (Dresden 2)

a. General

This portion of the inspection was conducted to review material specifications, welding procedures, nondestructive test procedures, and to observe fabrication and testing of the 4" bypass piping on the Dresden Unit 2 recirculation Loops A and B. The inspector reviewed the procedures, fabrication, and non-destructive test results for shop welds No. SPM45-5, No. SPM45-13, and No. SPM45-9 in Loop B. The welds appeared to have been made in accordance with applicable codes and standards.

b. Details

The following fabrication, welding, and NDT procedures were used in the fabrication of the replacement 4" bypass loop piping for Dresden Unit 2:

- (1) SPM-45, Revision 0 - Recirculation 4" Bypass Loop Spool Fabrication.
- (2) SPM-47, Revision 0 - Recirculation Loop Bypass Repair Isolatable Section "A" Loop.
- (3) IA-MA-88 - Welding Procedure.
- (4) NDT-D-2, Revision 1 - Penetrant Test.
- (5) NDT-C-2, Revision 9 - Ultrasonic Test.
- (6) NDT-RT-1-NP - Radiography.

All of the above procedures were approved by the Dresden Onsite Review group.

Each bypass loop will contain a total of eleven welds, of which seven are shop welds and four are field welds. The isolatable portion of the loop, extending from the horizontal section of the 28" line to the bypass valve, will be installed first, and the non-isolatable part of the loop will be installed after plugs have been placed in the jet pumps to allow draining of the 28" line.

The following certifications for materials were examined by the inspector and conform to Type 304 stainless steel requirements.

Item	Spec.	Supplier	Chemical Analysis (%)				
			C	Mn	Si	Cr	Ni
4" Schedule 80 Pipe	SA312	B&W M-7297	.054	1.57	.50	18.42	10.57
T-Fittings	SA403	Custom Alloy	.42	1.50	.52	18.65	10.87
90° Ells	SA403	Custom Alloy	.05	1.62	.52	18.72	9.25
Reducers	SA403	Custom Alloy	.024	1.39	.56	18.45	10.20

Mechanical test results were above the minimum yield, tensile, and elongation requirements. The qualifications for nine welders and two NDT inspectors were examined and found to be in accordance with ASME requirements.

REPORT DETAILS

Part III

Prepared By: W. L. Fisher for 2/2/75  
M. C. Schumacher (Date)

Reviewed By: W. L. Fisher 2/7/75  
W. L. Fisher (Date)

9. Persons Contacted

D. Alam, Radiation/Chemistry Supervisor  
D. Saven, G.E. Project Manager  
J. Staley, G.E. Assistant Project Manager  
V. Elliott, G.E. Field Services Specialist

10. Feedwater Sparger Replacement (Dresden 2)

Replacement of the Unit 2 feedwater spargers will be done by General Electric (G.E.). Radiation protection aspects of the work were discussed with the licensee's radiation protection supervisors, the G.E. health physics supervisor and the G.E. project manager and assistant. All personnel involved directly will be G.E. employees, most of whom have had previous experience with this type of work. Direct health physics coverage will be by G.E. technicians and will be in conformity with the licensee's radiation protection procedures. The licensee will perform backup monitoring and will maintain day to day cognizance of doses incurred. All workers will be given Dresden radiation protection orientation and respirator training. Training specific to the job will be given by G.E. engineers with the use of mock-ups and photographs as needed. The representatives stated that mock-ups to be used would include a feedwater nozzle, an end-bracket, and a thermal sleeve. Before each entry to the vessel, the increment of work to be accomplished during that entry will be discussed.

The job will require lowering of the water level in the vessel to about 8 feet above the core. A platform will be installed inside the vessel, covered with canvas and sealed to the vessel wall. Lead shielding blankets will be installed around the inside of the vessel wall. Working area dose rates in the neighborhood of 1 rem/hour are anticipated. The licensee has set an administrative limit of 2 rem per man for the job and a complete dose history for each man will be required before performing any work. Three G.E. health physics technicians will be on the job at all times to maintain cognizance of dose rates, air concentrations, perform personnel

surveys and to do time keeping. Film badges will be processed daily by the licensee's film badge contractors. Based on a similar job at Millstone, a total dose commitment of 900 man-rem may be required. The inspector emphasized the importance of limiting the total man-rem incurred as well as the total dose to individuals and stressed the importance of preplanning to eliminate unnecessary occupancy in the vessel to accomplish this. The inspector also noted that consideration should be given to limiting the access of station personnel to the refueling floor during this work. The licensee's representative stated that refueling floor access would be limited to those personnel having need for entry. Also, necessary entries made in conjunction with the operation of Unit 3 would be made via the Unit 3 reactor building rather than the usual route via the Unit 2 reactor building.