

OEAB EVENT TRACKING SHEET

27
#68

SORT> Assigned To
QUERY> "GREENE" \$ Assigned To & Event Date >= 04/20/94 & Event Date <= 04/20/94 & "DRESDEN" \$ Plant Name & "3" \$ Units

Plant: DRESDEN Unit: 3 Engineer: GREENE T.
Event: 04/20/94 Morning Report: Briefing: 94-15
50.72#: 0 LER#: 050000009400000 PN#: 3-94-0032

Other Notification: PROJECTS CALL

System: Component:

OPERATING MODE

SIGNIFICANCE

- 1 - Operation
- 2 - Startup
- 3 - Hot Standby
- 4 - Hot Shutdown
- 5 - Cold Shutdown
- 6 - Refueling
- 7 - Other _____

- A - Reactor Protection System
- B - Safety-Related Cooling System
- C - Fuel Cladding
- D - Reactor Coolant Pressure Boundary
- E - Containment
- F - Plant Power
- G - Unexpected Plant Performance
- H - Other:

CAUSE

EVENT TYPE

- 1 - Equipment Failure
- 2 - Design or Installation Error
- 3 - Operating Error
- 4 - Maintenance Error
- 5 - External
- 6 - Other _____

- ~~X~~ SIA - Significant Event
- EOL - Event of Interest
- TBD - To Be Determined
- OTH - Other

POTENTIAL AO: Criterion: _____

Proposed By: GREENE T. *Thomas Greene*
Engineer

Approved: *R.A. J.D. 7/23/94*
Section Leader

A. Chaffee
Branch Chief

John Bergerson
9/27/94

EVENTS ASSESSMENT PANEL First Screening: 05/24/94

Closure:

Significance Description:

DURING THE APRIL 1994 REFUELING OUTAGE, LICENSEE DISCOVERED A 360 DEGREE CIRCUMFERENTIAL CRACK IN ONE OF THE WELDS ON THE LOWER PORTION OF THE CORE SHROUD.

H-4

PSE -- YES / NO

EVENT FOLLOW-UP ASSIGNMENT SHEET

ASSIGNMENT DATE: 5/6/94
 ASSIGNED TO: T. GREENE
 PLANT & UNIT: DRESDEN 3
 EVENT DATE: 4/20/94
 50.72 REPORT NO NA
 DAILY REPORT DATE/NO: _____
 OTHER REPORT: PROJECTS CALL

EVENT SUMMARY AND SPECIFIC FOLLOW-UP ASSIGNMENT

DURING THE APRIL 1994 REFUELING OUTAGE, LICENSEE DISCOVERED A 360 DEGREE CIRCUMFERENTIAL CRACK IN ONE OF THE WELDS ON THE LOWER PORTION OF THE CORE SHROUD. OBTAIN DETAILS AND CONTINUE TO FOLLOW ISSUE. DETERMINE SAFETY SIGNIFICANCE AND PREPARE A BRIEFING. RELATE TO EARLIER EXPERIENCE AT BRUNSWICK.

CIRCLE THE APPLICABLE CASE:SAFETY SIGNIFICANCE CLASSIFICATION: OTH _____ EOI X SIG _____ AO _____

GENERIC CONCERN STATUS: (YES) IN #94-42 BUL # _____ GL#94-03
 94-42, Supp. 1

OR BRIEF: YES #94-15 _____CLOSEOUT

During the April 1994 refueling outage at Dresden Unit 3, Commonwealth Edison Company found a 360-degree crack that extended around the outside circumference of the core plate support ring weldment. The crack was in the lower heat affected zone (HAZ) of weld H5 which is 18 inches below the bottom of the fuel. Also, weld H3 had numerous crack indications. The licensee performed ultrasonic testing (UT) examination using GE automated tracking system to characterize the depth of cracking. To corroborate the UT results and determine the root cause for the cracking, the licensee removed material (boat) samples by electric discharge machining.

The UT examination indicated a maximum H5 weld crack depth of 0.84 inches. The results from metallographic examinations of the boat samples show that the UT examinations using the automated tracking system underestimated the size of the existing flaws by up to 0.31 inches. These discrepancies may be due to the tightness and fineness of the IGSCC near the crack tip. The licensee confirmed that the cracking in the boat samples was IGSCC.

The crack in weld H5 at Dresden is lower than the cracks reported at Brunswick, Unit 3. Brunswick found circumferential cracks in the inside shroud surface in the HAZ of weld H3. The Brunswick discovery of core shroud cracking resulted in NRC issuing Information Notice 93-79, Core Cracking at Beltline Region Welds in Boiling-Water Reactors." Information Notice 94-42 and Supplement 1, "Cracking in the Lower Region of the Core Shroud in Boiling-Water Reactor," discusses the Dresden core shroud cracking. Since cracking of the core shroud have been reported by Brunswick and Dresden, other plants have also reported cracking of the shroud. These include Peach Bottom 3, Millstone 1, Quad Cities 1, Hatch 2, and Browns Ferry 3. The NRC has issued Generic Letter 94-03 requesting licensee to inspect their core shroud and to perform a safety analysis supporting continued operation until inspections of the shroud are conducted.

On July 12, 1994 the NRC issued a Safety Evaluation on the core shroud cracking at the Commonwealth Edison Company Plants. Based on the staff review of the licensee documentation, and NRC own independent analyses, the staff concluded that the cracks shroud would satisfy ASME Code margins against failure for at least 12 months of operation for the normal operating and accident loads specified the plants' FSAR and thereby, satisfy 10 CFR 50.55a. This conclusion was based on assuming a conservative flaw depth, greater than that presented by the licensee, uniformly around the entire H5 weld, and applying a upperbound crack growth rate for the crack. The staff found that Dresden Unit 3 and Quad Cities, Unit 1 could be safely returned to operations for at least 12 months without undue risk to the public health and safety.

Date: April 29, 1994

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE PNO-III-94-32

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region III staff on this date.

<u>Facility</u>	<u>Licensee Emergency Classification</u>
Commonwealth Edison Co. Dresden 3 Morris, Illinois Docket No. 50-249	General Emergency Site Area Emergency Alert Unusual Event X Not Applicable
Quad Cities 1 Cordova, Illinois Docket No. 50-254	

Subject: CRACKS IDENTIFIED IN REACTOR CORE SHROUD AT TWO SITES

On April 20, 1994, the licensee commenced an inspection of the Dresden Unit 3 reactor core shroud during its scheduled refueling outage. During the week of April 25, visual inspections identified cracking at the "H5" weld area around the entire circumference of the shroud. The H5 weld is in the lower part of the shroud about 50 inches from the bottom of the shroud. Informational ultrasonic testing (45 readings at 6 areas) showed a crack depth ranging from 0.95 inches to 1.55 inches. The core shroud is a 2-inch thick steel cylinder which surrounds the reactor core inside the reactor vessel. It provides an attachment for the jet pumps and directs the water flow through the reactor core.

The licensee has developed an action plan and assembled a 15-person project team to characterize the crack and develop repair options. The licensee will obtain more sensitive instrumentation from the reactor manufacturer to better evaluate the cracks.

Region III (Chicago) has inspection specialists onsite monitoring the licensee's evaluation.

On April 27, 1994, Quad Cities Unit 1 also identified shroud cracking at the same H5 weld location. Eight accessible areas were inspected and indications were seen the entire 14" length of each area.

The Dresden and Quad Cities units are similar. The second unit at each site is currently in operation. The licensee is reviewing the potential effect of the cracking issue on these other units.

The States of Illinois and Iowa will be notified. The information in this preliminary notification has been reviewed with licensee management.

This information is current as of 10:00 a.m. on April 28, 1994.

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