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Dresden Nuclear Power Station
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December 12, 1990

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Licensee Event Report #90-014-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(ii)(B).

E. D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/ade

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
File/NRC
File/Numerical

(ZDVR/89)

IE22
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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	1 of 0 4

Title (4) Indication of Through-Wall Crack on Shutdown Cooling Piping Weld 16-8 Due to Intergranular Stress Corrosion Cracking

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
									N/A	0 5 0 0 0
1 1	2 4	9 0	9 0	0 1 4	0 0	1 2	1 2	9 0	N/A	0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
N	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)		
POWER LEVEL (10) 0 0 0	___ 20.405(a)(1)(i)	___ 50.36(c)(1)	___ 50.73(a)(2)(v)	___ 73.71(c)		
	___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ Other (Specify in Abstract below and in Text)		
	___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)			
	___ 20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)			
	___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER AREA CODE
Gerald Whitman, Technical Staff ISI Coordinator Ext. 2351	8 1 5 9 4 2 - 2 9 2 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	B 0	P S P	X X X X	N					

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e, approximately fifteen single-space typewritten lines) (16)

On November 24, 1990, while Unit 2 was in a scheduled refuel outage, visual inspection revealed a Shutdown Cooling piping weld seeping from two small areas. This weld joins the Shutdown Cooling piping to the "A" Loop Reactor Recirculation suction piping.

The cause of this occurrence is intergranular stress corrosion cracking. Corrective action for this situation included additional inspections and the application of a standard weld overlay repair on the affected weld. The safety significance of this event has been considered minimal. This is due to the fact that crack indications of this type tend to propagate at a relatively slow rate and the Primary Containment Sump Monitoring System would easily have detected a through-wall crack before a complete system failure would occur. This is the first occurrence in recent history (the last 3 unit 2 outages) of a through-wall crack being identified on safety-related Unit 2 primary system piping.

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Shutdown Cooling Weld 16-8 was visually found to have two through wall leaks due to intergranular stress corrosion cracking.

A. CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: November 24, 1990 Event Time: 0900 Hours

Reactor Mode: 2 Mode Name: Refuel Power Level: 0%

Reactor Coolant System (RCS) Pressure: 0 psig

B. DESCRIPTION OF EVENT:

At 1400 hours on November 8, 1990, with Unit 2 in the Refuel Mode, Ultrasonic Examination (UT) of 28 inch Reactor Recirculation [AD] suction weld PS1A-D5 identified one axial intergranular stress corrosion cracking (IGSCC) indication. The indication was .700" in length and 15% through-wall. Also on November 8, 1990, two axial and two circumferential IGSCC indications were identified on 28 inch Recirculation discharge weld 202-5A/PD1B. The axial indications were .750" and .500" long with through-wall dimensions of 40% and 22% respectively. The circumferential indications were 6.0" and 1.5" long with through-wall dimensions of 20%.

Detection of the above identified indications resulted in a sample expansion of four 12", one 22" and two 28" Recirculation welds.

On November 15,1990, three circumferential IGSCC indications were identified on 28" Recirculation suction weld PS2A/202-1B. The indications were 1", 2.5" and 3.5" in length and 10%, 10%, and 20% through-wall, respectively.

Detection of the above identified indications resulted in a second expansion sample. This expansion sample scope included ten 12", one 22", seven 28", seven 4" recirculation welds and one 16" Shutdown Cooling [BO] weld.

At 0900 hours on November 24, 1990, a weeping indication was visually observed during preparation for ultrasonic testing of Shutdown Cooling weld 16-8, as part of the second sample expansion described above. Upon further investigation by Technical Staff, System Materials Analysis Department (SMAD), and Operations personnel it was confirmed that two weeping through-wall cracks were contained in the weld. A subsequent ultrasonic examination revealed two circumferential IGSCC indications in the weld. One indication was 16.5" in length with a through-wall dimension of primarily 33% that went to 100% through-wall in the two areas found to be leaking. The second indication was 3.5" in length and 16% through-wall.

Detection of the above identified indications resulted in a third expansion sample that included all remaining welds in the Generic Letter 88-01, Category "D" population. This group consisted of eight 4" Recirculation welds, one Reactor Head Vent weld, two Control Rod Drive [AA] welds, four Isolation Condenser [BL] welds, and five Low Pressure Coolant Injection welds [BO]. No further IGSCC indications were identified.

Each of the IGSCC indications identified in this report were detected by Electric Power Research Institute (EPRI) qualified Ultrasonic Testing Examiners. The indications were additionally verified by a Commonwealth Edison System Materials Analysis Department Level III Ultrasonic Examiner. The Authorized Nuclear Inservice Inspector (ANII) was also notified of each indication.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii), which requires the reporting of any event or condition that resulted in the serious degradation of the nuclear power plant, including its principal safety barriers. The root cause of this event has been attributed to IGSCC.

D. SAFETY ANALYSIS OF EVENT:

Technical Specification Section 4.6.D requires Primary Containment sump monitoring once every four hours during power operation. If any of the indications had resulted in any significant coolant leakage during power operation the leakage would have been identified in a timely manner. Also in accordance with the Technical Specifications, Primary Containment air and water samples would be required if a total of three gpm or a one gpm increase over the previous four hours of sump monitoring had been identified. A Primary Containment inspection would have been required if leakage equaled four gpm in addition to the Unit being placed into the cold shutdown condition within 24 hours if the unidentified leakage exceeded five gpm. Since crack indications of this type tend to propagate at a relatively slow rate, the Primary Containment Sump Monitoring System would easily have detected a through-wall crack before a complete system failure would occur. Additionally, total failure of this weld is bounded by the design basis Loss of Coolant Accident analyses. For these reasons the safety significance of this event has been considered minimal.

E. CORRECTIVE ACTIONS:

Shutdown Cooling weld 16-8 and Recirculation weld 202-5A/PD1B were repaired with a "standard" weld overlay. Recirculation welds PS1A-D5 and PS2A/202-1B were repaired with "design" weld overlays. Each of these repairs meets the Generic Letter 88-01 criteria for weld overlay repairs. Additionally, each overlay was surface finished and baseline examined using the EPRI Technique for overlay ultrasonic examination. All four weld overlays were found to have sound overlay material of sufficient thickness to meet the Generic Letter 88-01 criteria for Category "E" weldments. Additionally, all Generic Letter 88-01 Category "D" welds will continue to be inspected at the frequency specified in Generic Letter 88-01.

F. PREVIOUS OCCURRENCES:

The following occurrences are similar in nature to the ones described in this report, in that they addressed rejectable IGSCC indications in piping welds.

LER/Docket Numbers	Title
84-019/50-237	Indications Discovered During Inservice Inspection

This report addressed rejectable IGSCC indications identified in sixteen Reactor Water Clean-Up System [CE] welds.

87-001/50-237 Ultrasonic Testing Indication Found on Primary Systems Piping Due to Intergranular Stress Corrosion Cracking.

This report addressed rejectable IGSCC indications identified in two Reactor Recirculation piping welds and one Reactor Water Clean-Up piping weld.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
N/A	N/A	N/A	N/A

An industry wide NPRDS data base search revealed no other reports of this nature. This is due to the fact that piping is not considered an NPRDS reportable component. However, IGSCC indications have been a known concern at sites of similar age as the Dresden units. Extensive inspection and repair programs have been implemented industry-wide.