



Commonwealth Edison

Dresden Nuclear Power Station

R.R. #1

Morris, Illinois 60450

Telephone 815/942-2920

May 31, 1990

EDE LTR #90-377

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Licensee Event Report #90-006-0, Docket #050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(i)(B).

E.D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/jt

Enclosure

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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 3	Docket Number (2) 0 5 10 10 10 12 14 19	Page (3) 1 of 0 5
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Title (4)

Failure to Establish Appropriate Fire Inspections Due to Procedure Deficiency

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)
0 5	1 4	9 10	9 10	0 1 0 16	0 1 0	0 5	3 11	9 10		0 5 10 10 10 1 1 1

OPERATING
MODE (9)THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR
(Check one or more of the following) (11)

POWER LEVEL (10) 0 9 8	N	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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)(vi)	Other (Specify
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	in Abstract
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	below and in
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name E. Skowron, Technical Staff System Engineer Ext. 2353	TELEPHONE NUMBER AREA CODE 8 1 5 9 14 12 1 -12 19 12 10
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPRDS	
X	I C	D E T	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)

At 1722 hours on May 14, 1990, while performing routine rounds, an Equipment Operator observed that the Pressure Suppression Chamber/Low Pressure Coolant Injection pump room area linear heat detection fire protection system local alarm was lit. The Control Room was notified immediately, an inspection of the areas was completed to verify no fire existed, and the alarm was reset. Investigation revealed that this alarm had previously printed on the Control Room alarm printer at 0933 hours and had not been reset in the interim; the previous shift Operations crew had attempted unsuccessfully to reset the alarm, performed an inspection of the area, and initiated repairs, but had not established the appropriate periodic fire inspections due to a deficiency in the alarm response procedure. Corrective actions included procedure revisions and training improvements. Safety significance was minimal because of the short time period involved, regular inspection of these areas during routine rounds, and an operable smoke detector system available to detect a fire in these areas. A previous event involving a fire inspection problem was reported by LER 89-10/050249.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

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:

Failure to Establish Appropriate Fire Inspections Due to Procedure Deficiency

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: May 14, 1990 Event Time: 1722 hours

Reactor Mode: N Mode Name: Run Power Level: 98%

Reactor Coolant System (RCS) Pressure: 1010 psig

B. DESCRIPTION OF EVENT:

At 1722 hours on May 14, 1990, while Unit 3 was operating at 98% rated core thermal power, an Equipment Operator (EO) performing routine plant rounds observed that the Pressure Suppression Chamber/Low Pressure Coolant Injection (LPCI) [B0] pump room area linear heat detection fire protection [IC] system local alarm was lit. The Control Room was notified immediately, an inspection of the area was performed to verify no fire existed, and the alarm was reset. Investigation revealed that this alarm had previously printed on the Control Room alarm printer at 0933 hours on May 14, 1990 and had not been reset in the interim period of approximately eight hours. The previous shift Operations crew had attempted unsuccessfully to reset the alarm, performed an inspection of the Pressure Suppression chamber/LPCI areas to verify no fire existed, and initiated repairs. However, the appropriate periodic fire inspections were not established. Dresden Administrative Technical Requirement (DATR) section 3.1.1.1.a required establishing, within one hour, an hourly fire inspection in the LPCI rooms and a once per shift fire inspection in the Pressure Suppression area. It should be noted that these areas were also inspected at approximately 1630 hours on May 14, 1990 as part of routine EO rounds.

C. APPARENT CAUSE OF EVENT:

A Regulatory Assurance investigation committee was convened by the Station Manager to review this event. Review of the event and comprehensive interviews with all personnel involved concluded that the root cause of this event was deficiencies within Dresden Fire Protection Procedure (DFPP) 4185-1, XL3 Fire Detection System Operation, which is the alarm response procedure used for fire protection system alarms of this type. At the time the original alarm occurred (0933 hours on May 14, 1990), the center desk Nuclear Station Operator (NSO) referred to DFPP 4185-1, and promptly carried out the required action steps, including initiating immediate inspection of the area and notification of an Operations Shift Supervisor. However, review of DFPP 4185-1 concluded that it contained two deficiencies which directly contributed to this event, as listed below.

- It contained no specific directions concerning how to locally reset this alarm. This resulted in the Operators assuming equipment failure was preventing remote reset of the alarm condition. In fact, the EO submitted a work request for repairs to the device after unsuccessful attempts to reset it.

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- It contained references to Technical Specification requirements which are no longer in effect. As such, the fire inspection requirements listed in DFPP 4185-1 were inaccurate because more stringent fire inspection requirements had been implemented subsequent to the last revision of DFPP 4185-1. This had occurred during implementation of the DATRS, an administrative document specifically designed in accordance with Generic Letters 86-10 and 88-12 to control and track commitments with the same emphasis and attention of the fire protection Technical Specifications. The fire protection Technical Specifications had been deleted and replaced by the DATRS in August, 1989.

The Unit 3 Technical Specifications contain a License Condition requiring adherence to the approved fire protection program. Therefore, this report is submitted in accordance with 10CFR50.73(a)(2)(i)(B), which requires the reporting of any condition prohibited by the Technical Specifications.

It should be noted that training had been provided to all Licensed Personnel concerning implementation and interpretation of the DATRS. Therefore, inadequate follow-up by the NSO and Shift Supervisor responding to the first alarm were concluded to be contributing factors. Interviews with the personnel involved concluded that further training, as well as clarification of various DATR requirements, would help prevent this type of event. Upgrade of the entire package of fire protection surveillance and alarm response procedures to properly reference the DATRS was also identified as a priority for completion.

Potential causes of the spurious linear heat detection alarm were also investigated by the System Engineer and a vendor representative. The following potential causes for the alarm occurring at 0933 hours on May 14, 1990, were investigated.

- Shorting of the heat detection cable (e.g., damaged insulation). Previous alarms on linear heat detection systems due to this cause have prevented alarm reset until the source of the short is located and repaired. In this case, the spurious alarm was reset, indicating that an actual cabling short was not the likely cause.
- A power supply voltage surge would be another potential cause behind these symptoms. However, this would likely have resulted in other fire protection system spurious alarms. As this was not the case, this potential cause is also believed unlikely.
- The zone module for this system is located in an access passage which has limited clearance. Inadvertent bumping of the zone module cabinet could have actuated the mechanical relays driving this alarm. This was considered the most probable cause behind this spurious alarm.

D. SAFETY ANALYSIS OF EVENT:

The linear thermal detection system in the Pressure Suppression Chamber/LPCI pump rooms was a part of modifications installed in order to comply with the requirements of 10 CFR 50 Appendix R. Protectowire linear heat detection cabling was installed in and under the cable trays in the Pressure Suppression Chamber area and at the intermediate grating and ceiling elevations of the LPCI corner rooms. Both the LPCI pump rooms and the Pressure Suppression Chamber area have minimal in-situ combustibles; 1760 Btu per square foot in the LPCI pump rooms and 860 Btu per square foot in the Pressure Suppression Chamber area. These combustible loads are very low by comparison to the ASTM E119 Standard Time/Temperature Curve which defines a combustible load of 80,000 Btu per square foot for a one hour fire. Cabling in the cable trays represents the major source of fixed combustibles in these areas. The cable trays in the Pressure Suppression Chamber area are located near the ceiling and can be accessed from the top of the Pressure Suppression Chamber. Fire hose stations are located on an elevated catwalk with sufficient hose length to reach and extinguish a fire in the cable trays. The LPCI pump rooms are also equipped with hose stations that are capable of reaching and extinguishing a fire located anywhere in the room.

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Transient combustibles in these areas are minimal, and are administratively controlled by Dresden Administrative Procedure (DAP) 3-3, Control of Transient Combustibles. In addition, regular housekeeping inspections of accessible areas are performed in accordance with DAP 3-11, Station Material Condition and Housekeeping Program.

Both the LPCI pump rooms and the Pressure Suppression Chamber room have openings that reach up to the ground floor of the Unit 3 reactor building, elevation 517 feet 6 inches. The ground floor of the Unit 3 reactor building has ceiling mounted smoke detectors that alarm both locally and in the control room. These detectors would be capable of detecting smoke from a fire in the rooms below. The detection system on the ground floor on the Unit 3 reactor building was available during the time the linear detection system was inoperable. If a fire were detected, the fire brigade would have been quickly dispatched to locate and extinguish the fire.

Also, as noted previously in Section B of this report, this linear heat detection system was inoperative for a relatively short time frame (approximately eight hours). Inspections of the areas involved were performed subsequent to each alarm (0933 hours and 1722 hours on May 14, 1990), and as part of routine EO rounds at 1630 hours on May 14, 1990. Therefore, the safety significance of this event is considered to be minimal.

E. CORRECTIVE ACTIONS:

The following corrective actions were initiated concerning this event.

1. The System Engineer will continue to monitor the performance of the linear heat detection equipment. If further spurious alarms occur, further investigation will be performed (249-200-90-06901).
2. The Assistant Superintendent of Operations will counsel the Operations personnel involved in the response to the first alarm in order to insure their awareness of these requirements (249-200-90-06902).
3. Alarm response procedure DFPP 4185-1 was promptly corrected via a temporary procedure change to insure proper reference to DATR requirements and appropriate local reset methods (249-200-90-06903). The Station Fire Marshal will follow-up with a permanent revision to this procedure (249-200-90-06904).
4. The Station Fire Marshal will complete upgrading of the fire protection surveillance and alarm response procedures to insure proper reference to DATR requirements (249-200-90-06905).
5. The Training Department will provide further training on DATR compliance and interpretation in an upcoming Continuing Operator Training session (249-200-90-06906).
6. The Technical Staff will perform a review of the DATRs and revise them to include clarifying statements where appropriate (249-200-90-06907).

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F. PREVIOUS EVENTS:

LER/Docket Numbers Title

89-10/050249 Improper Stationing of Fire Inspections Due to Personnel Error

This previous event involved misinterpretation of DATR 3.1.1.1.a such that fire inspections required for an inoperable Unit 3 Pressure Suppression Chamber/LPCI pump room area linear heat detection fire protection system were not established for 14 days, contrary to the one hour requirement. The root cause was attributed to personnel error on the part of a Technical Staff Engineer and the Station Fire Marshal because improper direction was provided to the Operations shift concerning these requirements. Corrective actions included counselling of the personnel involved and initiation of additional clarification statements in the appropriate DATR tables in order to facilitate application of the fire inspection requirements for inoperable single loop systems within the required time frame.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
The Protectowire Company	Heat Sensitive Cable	NA	200269

As this component is not reportable to the NPRDS data base, an industry-wide NPRDS search for similar events was not performed.