



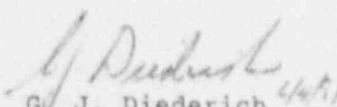
Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

June 4, 1991

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Dear Sir:

Licensee Event Report #91-001-01, Docket #050-374 is being submitted to your office in accordance with 10CFR50.73(a)(2)(i) to supersede previously submitted report #91-001-00.


G. J. Diederich 4/6/91
Station Manager
LaSalle County Station

GJD/JL/vmk1

Enclosure

xc: Nuclear Licensing Administrator
NRC Resident Inspector
NRC Region III Administrator
INPO - Records Center
IDNS Resident Inspector

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LICENSEE EVENT REPORT (LER)												Form Rev 2.0	
Facility Name (1) LaSalle County Station - Unit 2										Docket Number (2) 0 5 0 0 0 3 7 4		Page (3) 1 of 0 5	
Title (4) High Pressure Core Spray Pump Room And Turbine Building Fire Rated Barrier Found Degraded During Inspection													
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 1	1 0	9 1	9 1	0 0 1	0 1	0 6	0 4	9 1			0 5 0 0 0 1 1		
OPERATING MODE (9) 1			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)										
POWER LEVEL (10) 1 0 0			20.4C2(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)		50.73(a)(2)(i)		50.73(a)(2)(vii)(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 James Behn - Technical Staff Engineer, X-2445										TELEPHONE NUMBER AREA CODE 8 1 5 3 5 7 - 6 7 6 1			
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)													
CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPDs			
A	K	P		N									
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)			
Yes (If yes, complete EXPECTED SUBMISSION DATE)										X NO			
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)													

Station Technical Staff was performing LaSalle Technical Surveillance LTS-1000-42 "Fire Assembly Integrity Inspections" and found open penetration in Technical Specification related fire rated walls.

At 0830 hours on January 10, 1991 with Unit 2 in operational condition 1 (Run) at 100% power, three open penetrations were found in the High Pressure Core Spray Room (HPCS). A one hour fire watch was initiated in accordance with LaSalle Technical Specification 3.7.6 action requirement a. A work request was initiated to seal the penetration and was completed on January 15, 1991.

At 1400 hours on April 10, 1991 with Unit 2 in operational condition (Run) at 100% power and Unit 1 in the refuel mode, openings were found between the metal decking and steel beam separating the Turbine Building and the Auxiliary Building. A one hour fire watch was established between columns 13-15 and a continuous fire watch was established for columns 15-17 in accordance with LaSalle Technical Specification 3.7.6 Action Requirement a. A work request was initiated to seal the penetration and was completed on April 16, 1991.

Because the degradation of the fire barrier would not have impaired safe shutdown of Unit 2, the safety significance of this is considered to be minimal. The root cause of this event is the failure to install these required fire barriers during initial construction and annotate them on the design drawings, as appropriate. An additional cause is the location of the openings, being approximately 17 to 20 feet above the floor, which contributed to them not being identified during past performances of LTS-1000-42.

This event is reportable pursuant to the requirements of 10CFR50.73(a)(2)(i) due to a deviation from plant Technical Specifications.

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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

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 01/10/91 Event Time: 0830 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 100%

B. DESCRIPTION OF EVENT

At 0830 hours on January 10, 1991 with Unit 2 operating in the Run Mode at 100% rated core thermal power, while performing LaSalle Technical Specification Surveillance 4.7.6.1.a LTS-1000-42, (Fire Assembly Integrity Inspection), a Technical Staff Engineer discovered three open conduit penetrations on the 687' Elevation of the Diesel Generator Building in Technical Specification related fire rated barriers. One penetration was located in the southwest corner near the ceiling approximately 17 feet off the floor and above a large ventilation duct, between Fire Zones 8C3, Diesel Generator Cooling Water (DG) [BI] Pump Room and 3K, Unit 2 Steam Tunnel. The other two penetrations were located at L.3 and L.21.1 approximately 17 feet from the floor and also above a large ventilation duct (both sides) between Fire Zone 8C3 and 5D2 (High Pressure Core Spray Switchgear Room). A one hour fire watch was initiated in accordance with LaSalle Technical Specification 3.7.6 Action Requirement a. fire rated assemblies. Work request (WR) L04742 was initiated to seal the open penetrations. The Work Request was completed on January 15, 1991 and the fire watch was terminated.

At 1400 hours on April 10, 1991 with Unit 2 in operational condition (Run) at 100% power and Unit 1 in the refuel mode; while performing LTS-1000-42. A Technical Staff Engineer discovered various open penetrations along the R-Line from columns 13 to 17. The openings were located in the open web of the steel decking that was used as a form to hold the concrete flooring above. Some of the penetrations were filled with concrete. The bottom of the steel decking is supported by a steel beam. The penetration is located approximately 20 feet off the turbine deck floor, elevation 768'. The turbine side is fire zone 5A3 and the control building side is the computer room 4C4 together with the control building corridor 4C3. Since the computer room has automatic smoke detectors, a one hour fire watch was necessary in accordance with LaSalle Technical Specification 3.7.6 action. A continuous fire watch was necessary for the corridor side since it lacks fire detection according to Technical Specification 3.7.6. Work request (WR) L06650 was initiated to seal the open penetrations. The work request was completed on April 16, 1991 and the fire watch was terminated.

C. APPARENT CAUSE OF EVENT

The penetrations on the south wall of the Diesel Generator Cooling Water Pump Room were required to be sealed to a three hour fire rating as required by Technical Specifications. All conduits which penetrate a fire rated concrete wall, floor and/or ceiling at LaSalle are sealed around the outside with grout to achieve a three hour fire rating. A conduit penetration sealed with grout is considered to be part of the fire wall and as such is not given a penetration number.

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C. APPARENT CAUSE OF EVENT CONTINUED

The penetration's in the turbine deck wall were required to be sealed to a three hour fire rating as required by Technical Specifications. A maximum of 12 inches of thermafiber and two inches of gypsum (turbine side only) were installed to restore the fire barrier to its rated capacity.

The root cause of this event is the failure to install these required fire barriers during initial construction and annotate them on the design drawings, as appropriate. An additional cause is the location of the openings, being approximately 17 to 20 feet above the floor, which contributed to them not being identified during past performances of LTS-1000-42. However, scaffolding, which was erected for other work, was available and used by the Technical Staff Engineers during this performance of LTS-1000-42.

D. SAFETY ANALYSIS OF EVENT

Fire Zone BC3, 5D2, 3K

The Diesel Generator Cooling Water Pump Room is identified as Fire Zone BC3. A fire in this zone could affect only components and cables associated with the Emergency Core Cooling System (ECCS) Division III. Therefore, ECCS Divisions I and II, and the Reactor Core Isolation Cooling System (RCIC), which are independent of this fire zone, would be available to bring the reactor to a shutdown condition in an emergency situation. The south wall of this zone has a 3-hour fire rating with the exception of a non-fire rated watertight door providing access to 5D2. Ionization detectors are provided to annunciate an alarm locally and in the Main Control Room. The average fire loading for this zone, including a transient loading of 55 gallons of lubricating oil, is 42,600 BTU/FT². This loading is equivalent to a fire severity of 32 minutes.

Fire Zone 5D2, Unit 2 High Pressure Core Spray (HPCS) [BG] Switchgear Room, shares a partial common 3-hour fire rated wall with Fire Zone BC3. The design-basis fire would be contained within this zone; however, it is assumed to render the HPCS System inoperative. The Emergency Core Cooling System (ECCS) Divisions I and II, and the Reactor Core Isolation Cooling (RCIC) [BN] System, which are independent of this fire zone would be available to bring the reactor to a shutdown condition in an emergency situation. Ionization detectors are provided to annunciate an alarm locally and in the Main Control Room. The average fire loading for this zone, including an assumed transient fire load equivalent to 55 gallons of lube oil, is 31,400 BTU/FT². This loading is equivalent to a fire loading of 24 minutes.

Fire Zone 3K, the steam tunnel, shares a partial common 3 hour fire rated wall with Fire Zone BC3. This zone contains safety-related conduit, electrical equipment, and the main steam and feedwater isolation valves. A design-basis fire is not considered, due to an absence of combustibles. Fire Zone 3K is a high radiation area and during operation of the unit, is inaccessible.

A design-basis fire in either 5D2 or BC3 could render the HPCS System (ECCS Division III) inoperative. The ECCS Divisions I and II, and the RCIC System would still be available to mitigate the consequences of a design basis event and to bring the unit to a shutdown condition.

Because degradation of the fire barrier would not have impaired safe shutdown of Unit 2, the safety significance of this event is considered to be minimal.

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D. SAFETY ANALYSIS OF EVENT CONTINUED

Fire Zones 4C3, 4C4, 5A3

Fire zone 5A3 does not contain any equipment affecting safe shutdown. Fire zone 4C4 contains cables necessary for both Unit 1 and Unit 2 Division 2 RHR Service Water flow indications from Residual Heat Removal (RHR) [BO] Service Water [BI] C&D Pumps. Fire zone 4C3 contains assorted Unit 2 HPCS equipment cables. If a single fire were to spread to all three areas through the identified gaps, adequate means for reactor shutdown would still remain. Division 2 RHR core heat removal could be replaced by Division 1 RHR. If use of Division 2 RHR was required, two alternate methods of confirming Service Water flow exist. The pump running light and valve position status lights at the control panel could be viewed to show a clear Service Water path exists. Additionally, the RHR Service Water Heat Exchanger outlet temperature (1/2E12-N005B, 1/2E12-R601) can be monitored at the control panel to verify that the heat exchanger process is effective. The cables supplying the temperature indication to the Control Room do not pass through fire zones 4C3, 4C4 or 5A3 so the temperature indication would be unaffected. HPCS could be replaced by RCIC for higher pressure core cooling. Therefore, the review of safe shutdown equipment reveals that the Station would have adequate means for shutting down both Unit 1 and 2 without the use of equipment in fire zones 4C3, 4C4 or 5A3.

A review of radiation concerns concluded that operation of the plant would not be prevented or made hazardous by gaps between the Turbine Building and the Computer Room (Zone C1) and adjacent Auxiliary Building space (Zone N1). The Computer Room's ventilation is an isolated system, therefore, an airborne contamination situation would not spread from the Computer Room to spaces that have lesser airborne contamination levels. Radiation streaming could occur from the Turbine Building into the Computer Room or Auxiliary Building spaces but at an upper elevation near the ceiling of the 768 foot level. At that location, streaming would not be a personnel hazard. The calculated resulting dose would be 2.6 rem, less than the 5.0 rem legal limit. This small dose increase does not affect the radiation qualification levels previously specified for zones C1 and N1.

The loss of ventilation barrier between the Turbine Building and Auxiliary Building would not prevent safe shutdown of the plant or cause a personnel hazard. If a steam leak were to occur in the Turbine Building, steam would enter the computer room and adjacent space in the Auxiliary Building. Electrical equipment could be damaged by the steam in which case the fire scenario analysis would show what safe shutdown systems capabilities were lost. As noted above, safe shutdown capability would not be lost by such an occurrence. Neither the Computer Room or adjacent Auxiliary Building ventilation exhaust can be routed through the ventilation system to the Control Room ventilation supply so the Control Room would retain its designed habitability.

To summarize the "as found" condition - safe shutdown capability is maintained and no unacceptable personnel hazards are caused although the Unit 2 HPCS system could be rendered inoperable and the Computer Room rendered uninhabitable by a limited number of events in the Turbine Building as detailed above.

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E. CORRECTIVE ACTIONS

The initial corrective actions were to establish an hourly/continuous fire watch in accordance with LaSalle Technical Specification Section 3.7.6 Action Requirement a. A permanent fire seal was installed on January 15, 1991 in each of the three open penetrations using grout and on April 16, 1991 for the open turbine deck seal using thermofiber and gypsum.

Procedure LTS-1000-42 states that the inspector should ensure that there are no unsealed openings, particularly around grouted conduit and piping. Since there were no visible indications that these holes/gaps had ever been sealed, it was concluded that the holes had existed since the barrier was constructed. LTS-1000-42 has just been completed for Unit 2. Unit 1 is scheduled to be completed by September, 1991.

A tailgate of this event will be conducted with Technical Staff personnel stressing the importance of complete and accurate inspections. Action Item Record (AIR) 374-200-91-00101 will track this tailgate. LaSalle Administrative Procedure LAP-400-2, Technical Staff Surveillance Qualification Program, will be revised to include this Licensee Event Report as required reading prior to certification for firewall inspector. AIR 374-200-91-00102 will track this procedure revision.

F. PREVIOUS EVENTS

LER Number	Title
373/89-024-00	Unsealed openings in the Control Room

G. COMPONENT FAILURE DATA

There were no component failures in this event. Consequently, no NPRDS search was performed.