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ComEd

November 15, 1996

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Licensee Event Report #96-009, Docket #050-374 is being submitted to your office in accordance with 10 CFR 50.73(a)(2)(ii).

Respectfully,

D. J. Ray
Station Manager
LaSalle County Station

Enclosure

cc: A. B. Beach, NRC Region III Administrator
M. P. Huber, NRC Senior Resident Inspector - LaSalle
C. H. Mathews, IDNS Resident Inspector - LaSalle
F. Niziolek, IDNS Senior Reactor Analyst
INPO - Records Center

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 05/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1):	DOCKET NUMBER (2)	PAGE (3)
LaSalle County Station Unit Two	05000374	1 of 5

TITLE (4)

Potential Degradation of Post Loss-of-Coolant Emergency Core Cooling System Recirculation Capability as a Result of the Discovery of Foreign Material in the Pressure Suppression Pool.

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 NAME	DOCKET NUMBER
10	16	96	96	009	00	11	15	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(iii)	☐ 73.71(b)
☐ 20.2203(a)(1)	☐ 20.2003(a)(3)(ii)	☐ 50.73(a)(2)(iv)	☐ 73.71(c)
☐ 20.2203(a)(2)(i)	☐ 20.2003(a)(4)	☐ 50.73(a)(2)(v)	☐ OTHER
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)	☐ 50.73(a)(2)(vii)	
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
☐ 20.2203(a)(2)(iv)	☐ 50.73(a)(2)(i)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2003(a)(2)(v)	☒ 50.73(a)(2)(ii)	☐ 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Steven P. Brown, Site Support Engineering	(815) 357-6761 Extension 2506

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

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
☐ YES (If yes, complete EXPECTED SUBMISSION DATE)	☒ NO				

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

During a thorough desludging of the Unit 2 Pressure Suppression Pool (PSP) during L2R07, divers recovered a substative inventory of foreign material. An evaluation concluded that sufficient foreign material was present to exceed the design basis blockage limit of multiple Emergency Core Cooling System (ECCS) suction strainers. Each ECCS pump has a dedicated Suppression Pool suction strainer, and each strainer is limited to a value of 50 percent of the strainer surface area blocked to preclude adversely affecting the Net Positive Suction Head (NPSH) available to the pump. Under the high Suppression Pool turbulence of a design basis Drywell blowdown to the PSP, it is possible that this debris could become suspended in the PSP water volume, transported to the strainers, and block the strainer flow area.

The cause of this event was a past breakdown of the LaSalle Foreign Material Exclusion (FME) Program in Primary Containment, apparently during construction and early outage periods. A contributing cause was previous inadequate PSP inspections. Current and future corrective actions include improvements to the FME program, site awareness of FME, and use of temporary Drywell downcomer covers during outages. There were no adverse radiological consequences as a result of this event.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

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

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 10/16/96 Event Time: 1115 hours
Reactor Mode(s): 5 Mode(s) Name: Refueling Power Level(s): 0%

B. DESCRIPTION OF EVENT

During a thorough desludging of the Unit 2 Pressure Suppression Pool (PSP) during L2R07, divers recovered a substantive inventory of foreign material. These items were logged, and a Problem Identification Form (PIF) was initiated. The sludge and other foreign material have been removed from the PSP, and the ECCS suction strainers are now operable.

The inventory of recovered items that could clog a strainer was compared to the 50 percent blocked surface area limitation of the Updated Final Safety Analysis Report (UFSAR) Section 6.3.2.2.6. Each ECCS pump (A/B/C Residual Heat Removal [BO], High Pressure Core Spray [BG], Low Pressure Core Spray [BM]) has a dedicated PSP suction strainer, and this UFSAR limit translated to approximately seven square feet per strainer. It was concluded that sufficient foreign material was present to block multiple ECCS suction strainers; namely, a three foot by three foot sheet of gasket material, a three foot by three foot sheet of rubber mat, and a six foot by four foot nylon bag. The gasket material and rubber mat were found on the PSP floor under the 1/4 inch thick iron oxide sludge layer, and the nylon bag was found inside of a PSP downcomer.

Based upon this evaluation, LaSalle concluded that Unit 2 had previously been operated outside of its design basis as defined in UFSAR Section 6.3.2.2.6. At 1318 hours, October 16, 1996, LaSalle Operations performed the Emergency Notification System (ENS) notification under 10 CFR 50.72(b)(2)(ii), 'Degraded Condition Discovered While Shutdown'. This event is reportable per 10 CFR 50.73(a)(2)(ii) due to the discovery of 'a condition that was outside the design basis of the plant'.

LaSalle had reviewed Unit 1 dive results from L1R07 (Spring, 1996), which included a thorough desludging. The amount and nature of the foreign material recovered from that outage was within design basis requirements. Considering the foreign material discovered in Unit 2, LaSalle re-confirmed this conclusion for Unit 1, including a review of post-desludging diver inspection results. This provided a high level of confidence that the Unit 1 PSP was thoroughly cleaned and that no debris went undetected.

C. CAUSE OF EVENT

The root cause of the event was a past breakdown of the LaSalle Foreign Material Exclusion Program in Primary Containment. The location and type of items recently recovered indicate that the items most likely were in the PSP since plant construction or early refueling outages.

A contributing cause was inadequate previous PSP inspections and cleaning. Suppression pool inspection and cleaning was previously performed during L2R03 and L2R06. The inspection instructions provided during these outages focused on locating and removing foreign material that was detectable without disturbing the shallow sludge layer and did not include a thorough inspection of all downcomers. These instructions were developed primarily to locate and remove fiber-based material which had been the cause of early industry ECCS strainer blockage events. Removal of PSP sludge was not considered until after the 1995 Limerick event involving strainer blockage due to the combination of sludge and other foreign material. As a result, desludging and thorough downcomer inspections did not occur before the 1996 outages.

D. ASSESSMENT OF SAFETY CONSEQUENCES

UFSAR Section 6.3.2.2.6 states that the available ECCS pump NPSH is determined assuming Suppression Pool suction strainers have 50 percent of the surface area blocked. This requirement provides assurance that the strainer will pass the design maximum flowrate to the ECCS pump without unduly impacting the NPSH margin for the pump. As demonstrated via recent industry events, to exceed this strainer clogging limit degrades NPSH margin to the point of potentially rendering the ECCS pump incapable of performing its safety function as required by 10 CFR 50.46. The Reactor Core Isolation Cooling [BN] PSP strainer is also vulnerable to this blockage limitation.

Based upon operational experience of both Unit 1 and Unit 2 ECCS systems, including surveillance data and SCRAMs with Main Steam Safety Relief Valve discharges into the PSP, it does not appear that sufficient PSP turbulence has been previously generated to lift and/or transport the larger debris items. Furthermore, as required by NRC Bulletin 95-02, special multiple ECCS pump runs were performed in January 1996, on both Units with satisfactory results and with no apparent transport of the foreign material described herein.

However, the most severe challenge posed by PSP debris is under a Design Basis Accident (DBA) scenario that includes a Drywell blowdown into the Wetwell. This condition could generate sufficient PSP turbulence to lift some or all debris from the PSP floor. This postulated accident scenario has safety significance in that the 50 percent blockage limit could have been exceeded, and as a result, the operability of multiple ECCS strainers was not assured.

There were no adverse radiological consequences as a result of this event.

E. CORRECTIVE ACTIONS

The following corrective actions have been performed:

1) At the conclusion of the Unit 2 PSP desludging activities, divers performed a thorough underwater foreign material inspection of the entire PSP and 100 percent of the PSP downcomers consistent with that previously done in Unit 1. Expectations regarding PSP cleanliness and PSP downcomer foreign material inspection/removal were covered with the divers, and the divers were questioned to identify any PSP location that may continue to hold debris due to inaccessibility or other causes. The result of this inspection was satisfactory, and no inaccessible areas were identified.

2) Following this event, LaSalle Site Quality Verification (SQV) personnel performed a surveillance of the current compliance of the LaSalle workforce to the requirements of the LaSalle Foreign Material Exclusion Program procedures. This surveillance included a Drywell housekeeping inspection and an effectiveness review of previous LaSalle corrective actions and commitments as it relates to foreign material exclusion. A summary of identified weaknesses include:

   a) Inadequate Drywell downcomer drain hose control;

   b) No specific Drywell downcomer FME procedural requirements;

   c) Lack of documented roles and responsibilities of the Drywell Coordinator as related to FME requirements and practices; and

   d) Wetwell inspection surveillance procedure contains insufficient FME inspection criteria.

   Immediate corrective actions regarding these weaknesses included proper routing of all Drywell downcomer drain hoses, implementation of additional Drywell downcomer FME requirements and continuing emphasis on FME control during pre-job briefings for Drywell work.

3) All station personnel were instructed on this event to heighten the awareness of, and compliance with, the Foreign Material Exclusion Program.

Future corrective actions as a result of this event include:

1) LaSalle's procedure regarding foreign material exclusion is being revised to specifically address PSP foreign material. Other procedures are being revised to address the issues identified by SQV. All procedure revisions are in progress and will be tracked via the station's Nuclear Tracking System.

2) LaSalle will design and fabricate Drywell downcomer foreign material exclusion covers. These covers are to be temporarily installed during refueling outages to prevent Drywell debris from entering the PSP via the downcomers. Procedural guidance to control installation and removal of these covers will be in place prior to the next refueling outage (L1R08). These covers will also be available for use during extended forced outages.

3) LaSalle will define a frequency of Suppression Pool desludging, and will document this frequency as part of a 60-day follow-up response to NRC Bulletin 96-03.

4) To provide greater margin against potential foreign material in the PSP, LaSalle will install larger capacity passive ECCS suction strainers during the next scheduled refueling outage for each Unit (L1R08, L2R08) as part of LaSalle's response to NRC Bulletin 96-03.

F. PREVIOUS OCCURRENCES

LER NUMBER TITLE

None.

G. COMPONENT FAILURE DATA

Since no component failure occurred, this section is not applicable.