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ComEd

January 13, 1997

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

Licensee Event Report #96-022-00, Docket #050-373 is being submitted to your office in accordance with 10 CFR 50.73(a)(2)(i).

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 One	05000373	1 of 5

TITLE (4) Thermal Overload Protection Devices for Residual Heat Removal Valves Not Bypassed In Accordance With UFSAR and Technical Specification Requirements

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
									LaSalle County Station Unit Two	05000374
12	13	96	96	022	00	1	13	97	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	4
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)
E. Seckinger, Engineer	(815) 357-6761 Extension 2005

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)

Site Engineering has determined that the design of the thermal overload bypass circuits for sixteen Residual Heat Removal (RHR) system valves were not in conformance with the requirements of UFSAR section 6.3.2.2.13 and Technical Specification 3.8.3.3. These valves are RHR Test Return Valves, RHR Suppression Pool Spray Valves, RHR Injection Valves, and RHR Heat Exchanger Bypass Valves.

The UFSAR and Technical Specification specify that the thermal overload protection devices for these motor-operated valves (MOV) are to be bypassed whenever they are required to perform a safety-related function under accident conditions. Contrary to these requirements, the thermal overload protection devices for these valves are only bypassed while the automatic actuation signal is present. When the automatic signal is removed by a manual override signal or the control circuit, the thermal overload bypass signal is also removed. Thus, the thermal overloads are not bypassed when the operators are required to remote manually operate these valves under accident conditions. The remote manual operation of these valves is required for the valves to perform a safety-related function. The thermal overload bypass logic was installed prior to initial startup of either unit and this logic has not been revised since original construction for these valves. Design changes to comply with the Technical Specification and UFSAR requirements will be made. Calculation of the thermal overload setting demonstrated that their trip setpoint meet the criteria of Regulatory Guide 1.106, position 2, and IEEE-741-1990. As a result, the thermal overloads will not cause in an inadvertent trip during valve operation. Consequently, the safety consequences of this condition are minimal.

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): 1/2 Event Date: 12/13/96 Event Time: 1400 Hours
Reactor Mode(s): 4/N Mode(s) Name: Cold Shutdown/ Defueled Power Level(s): 0%/0%

B. DESCRIPTION OF EVENT

On October 21, 1996, Site Engineering submitted Problem Identification Form (PIF) No. 96-3660 on the design of the thermal overload bypass circuits for Residual Heat Removal (RHR)[BO] heat exchanger bypass valves 1(2)E12-F048A and B. While preparing a design change package for these valves, Engineering discovered that the thermal overload protection devices for these valves were only bypassed while the automatic open signal was present. After the automatic open signal is removed by the control circuit, the thermal overload bypass signal for these valves is also removed. Thus, the thermal overload protection devices for these valves are not bypassed when remote manual closure or throttling of these valves from the control room is required for controlling flow through the heat exchangers under post-accident conditions.

In response to PIF # 96-3660, an engineering evaluation was initiated on October 29, 1996, to review the thermal overload bypass circuits for the MOVs listed in either UFSAR Table 6.3-9 or Technical Specification Table 3.8.3.3-1. The purpose of this review is to verify that the thermal overloads for these valves are bypassed whenever the valve is required to perform a safety function under accident conditions.

At 1400 hours on December 13, 1996, Site Engineering also determined that the design of the thermal overload bypass circuits for the following RHR system valves do not meet the requirements of UFSAR section 6.3.2.2.13 and Technical Specification 3.8.3.3:

1) RHR Test Return Valves 1(2)E12-F024A and B.
2) RHR Suppression Pool Spray Valves 1(2)E12-F027A and B.
3) RHR Injection Valves 1(2)E12-F042A and B.

A review of the logic showed that the thermal overloads for these valves are only bypassed while the automatic actuation signal is present. When the automatic signal is removed by a manual override signal, the thermal overload bypass signal is also removed. Thus, the thermal overloads will not be bypassed when the operators are required to remote manually operate these valves under accident conditions. The manual operation of these valves is required for the valves to perform a safety function.

This problem is not applicable to other electrical equipment such as fan and pump motors because the UFSAR and Technical Specification only require the installation of thermal overload bypass circuits for MOVs that perform a safety function under accident conditions.

This condition is reportable per 10CFR50.73(a)(2)(i)(B) due to a condition prohibited by the plant's Technical Specifications.

C. CAUSE OF EVENT

The cause of this event is unknown. A review of the superseded schematic drawings for these valves indicates that the thermal overload bypass logic was installed prior to initial startup of either unit and that this logic has not been revised since original construction.

D. ASSESSMENT OF SAFETY CONSEQUENCES

Regulatory Guide 1.106 provides two methods or positions acceptable to the NRC to ensure that the thermal overload protection devices for a safety related motor-operated valve will not needlessly prevent the valve from performing its safety function. The thermal overload protection devices shall either be bypassed under accident conditions (position 1), or the trip setpoint shall be established with all uncertainties resolved (position 2). LaSalle is committed to meet the requirements of Regulatory Guide 1.106, position 1, for the safety-related MOVs which are listed in either UFSAR Table 6.3-9 or Technical Specification Table 3.8.3.3-1.

However, the design of the thermal overload bypass circuits for the RHR valves listed above are not in conformance with these UFSAR and Technical Specification requirements. The thermal overloads for these valves are only bypassed while the automatic actuation signal is present. When the automatic signal is removed by either a manual override signal or the control circuit, the thermal overload bypass signal is also removed. Thus, the thermal overloads will not be bypassed when the operators are required to manually operate these valves under accident conditions.

The safety function of these valves following the design basis accident (DBA) are as follows:

1) Upon receipt of a LOCA signal, the RHR valves are automatically aligned for the Low Pressure Coolant Injection (LPCI) mode to assure that the discharge of the system pumps are correctly routed to the reactor vessel. An automatic open signal is sent to the RHR injection valves after the reactor pressure drops below the low pressure interlock setpoint; an automatic open signal is sent to the RHR heat exchanger bypass valves; and an automatic close signal is sent to the RHR test return and suppression pool spray valves to ensure that all flow from the RHR pumps is initially routed to the reactor vessel. Except for the RHR heat exchanger bypass valves, these valves are normally closed during reactor operation.

2) After reactor vessel level has been restored, remote manual operation of these RHR valves from the control room is required for the following safety-related functions:

a) The RHR injection valves are required to be manually closed before suppression pool cooling or spray can be initiated.

b) The RHR heat exchanger bypass valves are required to be manually closed to initiate either suppression pool or containment cooling. Closure of these valves will cause the water from the RHR pumps to flow through the heat exchangers to be cooled.

c) The RHR test return valves are required to be manually opened to start suppression pool cooling.

d) The RHR suppression pool spray valves are required to be manually opened to start suppression pool spray.

Although LaSalle is committed to meet the requirements of Regulatory Guide 1.106, position 1, for these valves, a calculation of the existing thermal overload setting for these valves demonstrates that their trip setpoint meets the criteria of Regulatory Guide 1.106, position 2. This calculation shows that the trip setpoints for these thermal overloads are in conformance with IEEE-741-1990 which requires that the inaccuracies in the device characteristics, the ambient temperature at the location of the overload device following an accident, and anticipated overloads be considered. Thus, the thermal overloads will not result in an inadvertent trip during required valve operation.

The function and reliability of these thermal overloads has also been demonstrated by surveillance testing and the MOV program. The subject RHR valves are required to be stroke tested at least once per refueling cycle in accordance with LaSalle Operating Surveillance (LOS) procedures LOS-RH-Q1, LOS-RH-Q2, or LOS-RH-Q3. In addition, RHR valves 1(2)E12-F027A/B, and F048A/B are required to be cycled once a quarter for these surveillance procedures. This testing verifies that the thermal overloads will not inadvertently trip during valve operation. These valves are also tested under the MOV program in accordance with LTS-600-25 which performs a "VOTES" test of the MOVs. In addition to verifying the function of these valves, their motor currents are verified to be less than 110% of motor rating. The safety consequences of this condition are minimal.

E. CORRECTIVE ACTIONS

1. Design changes will be implemented on both units to revise the thermal overload bypass circuit for the subject RHR valves to comply with the requirements of the UFSAR and Technical Specifications. The logic will be revised to ensure that the thermal overload protection devices for these valves are always bypassed whenever an accident signal is present. These design changes will be completed on each unit prior to startup following the current unit outages (L1F35 and L2R07).

2. To reduce the probability of similar events in the future, the evaluation that is discussed above in Section B on the thermal overload bypass logic for the motor-operated valves listed in either UFSAR Table 6.3-9 or Technical Specification Table 3.8.3.3-1 will be completed. The purpose of this review is to verify that the thermal overload protection devices for these valves are bypassed whenever the valve is required to perform a safety function under accident conditions. This evaluation will be completed prior to startup following the current unit outages (L1F35 and L2R07).

3. In addition, we are reviewing the motor-operated valves which perform a function described in the Emergency Operating Procedures but are not listed in either UFSAR Table 6.3-9 or Technical Specification Table 3.8.3.3-1. The purpose of this review is to verify that the thermal overload protection devices for these valves will not inadvertently prevent performance of a function important to safe plant operation under post-accident conditions. This review and necessary corrective actions will be completed prior to startup of the current unit outages (L1F35 and L2R07).

4. The reportability determination for this event was not timely. Engineering and Regulatory Assurance are investigating the timeliness of reportability and will initiate corrective actions as appropriate.

F. PREVIOUS OCCURRENCES

None.

G. COMPONENT FAILURE DATA

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