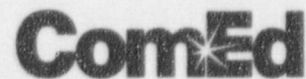


Commonwealth Edison Company
LaSalle Generating Station
2601 North 2nd St Road
Marseilles, IL 61341-9757
Tel 815-357-6761



September 11, 1998

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

Licensee Event Report #97-023-02, Docket #050-373 is being submitted to your office in accordance with 10 CFR 50.73(a)(2)(i).

If there are any questions or comments concerning this letter, please refer them to Perry L. Barnes, Regulatory Assurance Manager, at (815) 357-6761, extension 2383.

Respectfully,

Fred R. Dacimo
Site Vice President
LaSalle County Station

Enclosures: Licensee Event Report

cc: J. L. Caldwell, Acting NRC Region III Administrator
M. P. Huber, NRC Senior Resident Inspector - LaSalle
D. M. Skay, Project Manager - NRR - LaSalle
F. Niziolek, IDNS Senior Reactor Analyst
INPO - Records Center

9809160051 980911
PDR ADOCK 05000373
S PDR

101

1/
IE22

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1): LaSalle County Station, Unit 1 DOCKET NUMBER (2) 05000373 PAGE (3) 1 of 6

TITLE (4) Inadequate Channel Functional Testing of Reactor Protection System due to Procedure Deficiencies

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
06	26	97	97	023	02	09	11	98	LaSalle County Station, Unit 2	05000374
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 4 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)
POWER LEVEL (10) 000

<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)
<input type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2003(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(x)
<input type="checkbox"/>	20.2203(a)(2)(i)	<input type="checkbox"/>	20.2003(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	73.71
<input type="checkbox"/>	20.2203(a)(2)(ii)	<input type="checkbox"/>	20.2003(a)(4)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	OTHER
<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A	
<input type="checkbox"/>	20.2203(a)(2)(iv)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME Benny Jose, System Engineer TELEPHONE NUMBER (Include Area Code) (815) 357-6761 Extension 2820

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO EXPECTED SUBMISSION DATE (15)

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

Inadequacies in the Plant Technical Specification surveillance procedures for the channel functional tests of the Turbine Stop/Control Valve trip logic and the Main Steam Isolation Valve trip logic were identified during the System Functional Performance Review of the Reactor Protection System (RP). Station procedures did not test the Relay contacts associated with various RP trip logics at power levels less than 30 percent. These contacts are bypassed under this power level and hence not required. This has allowed the station to enter Operational Condition 1, without having the RP Technical Specification surveillances completed, and/or could allow the station to invalidate the channel functional testing (CFT) requirements as defined in the Technical Specifications (TS) if the test is performed at power levels less than 30 percent.

This supplemental LER is provided to notify the NRC of changes in the corrective actions for this event, based on our review of NRC correspondence regarding the definition of channel functional testing.

Due to relay contact redundancy, application of single failure criterion and verification of normal system operation during Operational Condition 1, the safety consequences of this event were minimal. This event was the result of procedural deficiencies due to insufficient rigor during the preparation of the procedures and an inadequate review against TS requirements.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station, Unit 1	05000373	97	023	02	2 of 6

(If more space is required, use additional copies of NRC Form 366A)(17)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3323 Megawatts Thermal Rated Core Power

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

A. CONDITION PRIOR TO EVENT

Unit(s): 1/2	Event Date: 06/26/97	Event Time: 1200 Hours
Reactor Mode(s): 4/N	Power Level(s): 000/000	RCS [AB] Temperature: Unit 1 < 200 Degrees F Unit 2 < 140 Degrees F
Mode(s) Name: Cold Shutdown/Defueled		RCS [AB] Pressure: Unit 1, 0 psig Unit 2, 0 psig

B. DESCRIPTION OF EVENT

During the system functional performance review of the Reactor Protection System (RP) [JC], inadequacies were identified in the following station surveillances:

Surveillance	Description	Frequency
LIS-EH-101(201)	Unit 1(2) loss of EHC Fluid Pressure Scram Calibration	18 months
LES-EH-101(201)	Unit 1(2) Turbine Stop Valve Limit Switch 18 months Test and Adjustment	18 months
LES-MS-101(201)	Main Steam Isolation Channel Calibration	18 months
LES-RP-105(205)	Unit 1(2) RPS Relay Logic Test	18 months
LOS-RP-Q2	Turbine Stop Valve Scram and EOC-RPT Functional Test	Quarterly
LOS-RP-Q3	Main Steam Isolation Valve Scram Functional Test	Quarterly
LOS-RP-Q4	Turbine Control Valve Quarterly Surveillance	Quarterly

These issues were identified on June 26, 1997. These procedures did not comply with the channel functional testing requirements of Plant Technical Specification definitions, Sections 1.6 a and b.

LIS-EH-101(201) and LES-EH-101(201) are 18 month calibration procedures. Based on Technical Specification definitions, Section 1.4, channel calibrations shall include channel functional tests. Channel functional tests, as defined by NRC Inspection Manual Part 9900 Technical Guidance STS10, must test all components up to the point where single-action signals are combined, including relays in the channel upstream of the point where single-action signals are combined.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station, Unit 1	05000373	97	023	02	3 of 6

(If more space is required, use additional copies of NRC Form 366A)(17)

LOS-RP-Q4 and LOS-RP-Q2 are Quarterly surveillances credited with fulfilling the channel functional test requirements of LIS-EH-101(201) and LES-EH-101(201), respectively. Based on our understanding of the definition of channel functional test, LOS-RP-Q4 and LOS-RP-Q2 had to test all the contacts of relays 1(2)C71-K8 A-D (providing a reactor trip signal due to turbine control valve fast closure) and 1(2)C71-K10 A-H (providing a reactor trip signal following turbine stop valve closure). However, when these tests are performed under 30 percent reactor power, the quarterly procedures only require verification of the alarm contacts of associated relays. The RP contacts of the relays that initiate a reactor trip are bypassed under these conditions. Therefore, these procedures did not appear to fully satisfy the channel functional test requirement by Technical Specification definition.

LOS-RP-Q3 when performed under 30 percent reactor power, in modes other than "run" does not satisfy the CFT requirements of the Main Steam Isolation channel calibration procedures LES-MS-101(201), because the quarterly procedure only tests the alarm contacts of relays 1(2)C71-K3 A-H and omits the Reactor Trip contacts. Since the Logic System Functional Test (LSFT) LES-RP-105(205) for this function credits testing performed by the CFT and channel calibration, failure to test all relay contacts during the CFT and channel calibration could result in not meeting the Technical Specification surveillance requirements for the LSFT. This would also result in not fulfilling the requirements of Technical Specification Section 4.0.4, which requires these surveillances be current prior to entry into an operational condition.

Since these problems were discovered during a cold shutdown condition of both LaSalle units, the affected RP trip functions were not required to be operable at the time of discovery. LaSalle Station has taken administrative actions that will ensure that these RP trip functions will remain inoperable until the issues described herein are resolved.

These issues are reportable per 10 CFR 50.73(a)(2)(i)(B), due to conditions prohibited by the plant's Technical Specifications.

Further investigation and review was conducted to determine the best method for satisfying the Technical Specification requirements. This led to the conclusion that revision of the previously identified procedure, LES-MS-101(201), was not the best method for insuring the logic system functional test requirements have been met. LES-PC-108, "Unit 1 MSIV Isolation Actuation Logic System Functional Test (No Air)" was revised (revision 5) to include the overlap for meeting logic system functional test requirements instead of revising LES-MS-101. LES-RP-105 has been revised (revision 7), incorporating cross-reference to LES-PC-108 for CFT requirements of Main Steam Isolation channel calibration. NTS# 373-180-97-SCAQ23S101 has been generated to track revision of LES-PC-208 instead of LES-MS-201 and to revise LES-RP-205 to include cross-reference to LES-PC-208 for CFT requirements of Main Steam Isolation channel calibration.

Station LSFT procedures LIS-EH-101, LES-EH-101, LES-PC-108, and LES-RP-105 have been revised to include testing previously dependent on the performance of quarterly CFT procedures, LOS-RP-Q2, LOS-RP-Q3 and LOS-RP-M5 (previously LOS-RP-Q4). The LSFT procedures test the required relays and verify the required contacts are tested every 18 months. In addition, the revised LSFT procedures test the required relay contacts both above and below 30 percent power.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station, Unit 1	05000373	97	023	02	4 of 6

(If more space is required, use additional copies of NRC Form 366A)(17)

Station CFT procedures (LOS-RP-Q2, Q3, M5) were also revised to allow for the testing of all relay contacts above and below 30 percent power in an effort to meet our understanding of CFT requirements.

NRC Task Interface Agreement (TIA) Response dated February 18, 1997, from the Chief of Instrumentation and Controls Branch Division of Reactor Controls and Human Factors, states "Our present interpretation of the definition of CFT with the "and/or" statement requires licensee to demonstrate operability of relays by verifying that at least one contact has changed state. If the design of the channel is such that additional contacts associated with the relay can be verified operable, then it is desirable to do so as part of the CFT. However, if the design is such that jumpering or lifting of leads is necessary for verifying contact operability, then the CFT need not include these contacts. These contacts would be included in the LSFT."

Further, NRC Inspection Report 50-277/97-04 and 50-278/97-04 states at M8.1.c that "The staff has not required licensees to monitor all relay contacts during the more frequent CFT."

Based on review of the above documents, the revisions to the CFT procedures are unnecessary. CFT procedures LOS-RP-Q2, LOS-RP-Q3, and LOS-RP-M5 will be revised to remove the redundant relay contact testing and relay actuation will be verified by alarm contacts only.

The System Functional Performance Review (SFPR) program was initiated to establish a level of confidence that selected systems demonstrate performance consistent with the design basis. One of the elements of the program is to verify proper functional testing is performed as required by the Technical Specifications. This deficiency was identified through that review. The discovery phase of the program has been completed. Identified discrepancies have been documented and will be tracked to resolution.

C. CAUSE OF EVENT

The procedures that provided instructions for testing the RP logic did not ensure the Technical Specification requirements are met. The deficiencies in these testing procedures have existed since the original issuance of the procedures. Although no firm evidence could be identified, the procedural deficiencies appear to be the result of insufficient rigor in the development of the original procedure early in plant life. Internal reviews of these procedures did not identify these deficiencies. This was caused by insufficient rigor in verifying procedural adequacy. The corrective actions provided in Section E of this LER will prevent recurrence of this type of an event.

D. SAFETY ANALYSIS

The issues described within the text of this report could have allowed the station to enter into an operational condition, where the various RP scram contacts would not have been adequately tested. As previously described, various RP contacts are bypassed at power levels less than 30 percent reactor power and hence are not tested until a quarterly surveillance is performed at power levels greater than 30 percent. This scenario could present two issues; 1) the station could enter Operational Condition 1 without having the RP Technical Specification surveillances current, 2) the station could invalidate

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station, Unit 1	05000373	97	023	02	5 of 6

(If more space is required, use additional copies of NRC Form 366A)(17)

the channel functional testing requirements as defined in the Technical Specifications if the test is performed at reactor power levels less than 30 percent. The invalidation occurs since all of the associated RP contacts are not tested below this power level. The safety consequences of these issues are bounded by the fact that the relay contacts in question are tested periodically by applicable quarterly surveillances when reactor power is greater than 30 percent.

Reviewing the failure history of these relays and their contacts do not indicate a reliability problem. Also, since the relay contacts in question use two contacts from the same relay in series, redundancy of these contacts will minimize the changes of a single contact failure preventing a scram. The contacts associated with each RP function utilize a common relay. A single failure will not prevent or cause a scram during accident or normal operating conditions since a redundant channel exists. Therefore, the safety consequences of this event are minimal.

E. CORRECTIVE ACTIONS

1. The specific issues associated with logic testing adequacy on the RP system will be addressed through appropriate procedure revisions. These revisions and the appropriate testing have been completed on Unit 1 and will be completed on Unit 2 prior to restart to ensure the Technical Specification surveillance requirements are satisfied. NTS Items 373-180-97-SCAQ00023.01, 373-180-97-SCAQ00023.02, and 373-180-97-SCAQ00023.03 will track completion of this action.

The initial corrective action is modified after further review to include:

- a. NTS# 373-180-97-SCAQ00023S101 will track revision of: 1) LES-PC-208 instead of LES-MS-201 for Unit 2, and; 2) LES-RP-205 to include cross-reference to LES-PC-208 for CFT of Main Steam Isolation channel calibration. (Corresponding Unit 1 procedures have been revised)
2. In response to NRC Generic Letter 96-01, "Testing of Safety Related Logic Circuits", LaSalle Station will review all Engineered Safety Feature Systems against plant surveillance test procedures to ensure all portions of the logic circuitry are adequately covered in the surveillance procedures to fulfill the Technical Specification requirements. The reviews and corrective actions associated with this issue will be completed prior to start-up following refuel outages L1R08 and L2R08. NTS Item 373-104-96-00101 is currently tracking completion of this issue for Unit 1; NTS #373-104-96-00101.a is tracking completion for Unit 2.

F. PREVIOUS OCCURRENCES

LER NUMBER	TITLE
373-97-006	Diesel Generator Testing Did Not Meet Surveillance Requirements Due to Misinterpretation of Technical Specifications

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station, Unit 1	05000373	97	023	02	6 of 6

(If more space is required, use additional copies of NRC Form 366A)(17)

- 373-97-008 Rod Block Monitor Not Enabled At Power Level Required By Technical Specifications Due To Nonconservative Test Method In An Inadequate Procedure
- 373-97-013 Misinterpretation of Technical Specifications Resulted in Failure to Perform the Isolation Valve Surveillance for All Transversing Incore Probes
- 373-97-016 Rod Block Monitor Functions Not Completely Tested Due to Inadequate Procedures
- 373-97-020 Recirculation Flow Converter Calibration And Functional Testing Deficiencies Due To Inadequate Procedures
- 373-97-024 Missed Technical Specification Surveillance and Inadequate Post Maintenance Testing of Reactor Manual Control System Instrumentation Due to Inadequate Procedures

Corrective actions for related events prior to initiation of the SFPR program failed to identify the deficiencies regarding channel functional testing because previous reviews were not sufficiently rigorous. The SFPR program has verified that Technical Specifications for systems within the scope of the program are properly implemented by test procedures.

Reviewed INPO Events and LER databases for similar events. Two events addressed logic concerns, but these events are not similar. Attempted searches with keywords including words and terms "RPS", "PCIS", "Bypass", and "MSIV" with no significant results.

LER database search provided an apparently similar event (LER 324-85-010) at CP&L's Brunswick Station. Lessons Learned from this previous event were specific to the mode switch contacts and as such, did not address the same issue as the LaSalle event.

G. COMPONENT FAILURE DATA

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