

Commonwealth Edison Company  
LaSalle Generating Station  
2601 North 21st Road  
Marseilles, IL 61341-9757  
Tel 815-357-6761

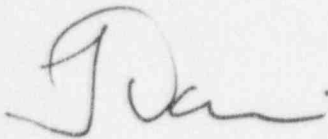
**ComEd**

June 9, 1997

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

Licensee Event Report #97-021-00, Docket #050-373 is being submitted to your office in accordance with 10 CFR 50.73(a)(2)(ii).

Respectfully,



Fred Dacimo  
Plant General 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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## LICENSEE EVENT REPORT (LER)

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.

FACILITY NAME (1): LaSalle County Station Unit One						DOCKET NUMBER (2) 05000373			PAGE (3) 1 of 4			
TITLE (4) Undrainable low areas in the drywell floor resulting in a degradation of the Leak Detection System due to increased delays in detection of unidentified leakage												
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	
05	12	97	97	021	00	06	09	97	LaSalle County Station Unit Two		05000374	
									FACILITY NAME		DOCKET NUMBER	
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10)												
4												
000												
			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(iii)			<input type="checkbox"/> 73.71(b)
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2003(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(iv)			<input type="checkbox"/> 73.71(c)
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 20.2003(a)(4)			<input type="checkbox"/> 50.73(a)(2)(v)			<input type="checkbox"/> OTHER
			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)			<input type="checkbox"/> 50.73(a)(2)(vii)			
			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)			(Specify in Abstract
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.73(a)(2)(i)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)			below and in Text.
			<input type="checkbox"/> 20.2003(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(ii)			<input type="checkbox"/> 50.73(a)(2)(x)			NRC Form 366A)
LICENSEE CONTACT FOR THIS LER (12)												
NAME D. Kapinus, System Engineer									TELEPHONE NUMBER (Include Area Code) (815) 357-6761 Extension 2906			
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)												
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)						<input type="checkbox"/> NO						
						EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR	
									11	03	97	

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

Contrary to the description in the FSAR, there are undrainable areas of the drywell floor which would result in a delay in the detection of unidentified leakage. In addition, the recurring failure of electronic level indication results in the Leak Detection System not meeting its design basis requirements. The cause of the inconsistency between the drywell floor and the description in the FSAR is unknown at this time. The unreliability of the sump level instrumentation is caused by the improper application of a capacitance probe in water of poor quality. Shortly after the start of an operating cycle, contaminants in the water affect the probe in a manner that produces false high readings. The safety consequence of these issues is to reduce the plant's capability for timely leak detection in the reactor coolant pressure boundary, thereby, reducing the time to place the plant in a safe condition prior to further degradation of the pressure boundary. The immediate corrective action was to declare the Leak Detection System inoperable. Planned corrective actions include; a) Resolution of the discrepancy between the as-built configuration of the plant and the description contained in the response to FSAR Question 212.17, b) Improving the reliability of the sump level monitoring instrumentation (e.g. improved maintenance or modification), and c) Confirmation that there are no other hold up volumes in the containment which would result in unacceptable delays in the detection of unidentified leakage.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

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

**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: 05/12/97	Event Time: 1600 Hours
Reactor Mode(s): 4/N	Mode(s) Name: Cold	Power Level(s): 0%/0%
	Shutdown/Defueled	

**B. DESCRIPTION OF EVENT**

LaSalle Station is currently reviewing the functional capability of systems important to safe and reliable operations through System Functional Performance Reviews (SFPR). As part of this effort, a review of Problem Identification Form, PIF#94-295, was performed. PIF #94-295 was written to document a concern regarding the accumulation of water on the drywell floor. The System Performance Functional Review team concluded that the ability of the drywell floor to accumulate water was inconsistent with the description in the FSAR. Specifically, FSAR Question 212.17 (3) states, "Provide assurance that all leakage within the drywell and reactor building will flow directly to the sumps and that there are no reservoirs which must be filled before any sump drain flow occurs." LaSalle's response included the statement that "...There are no undrainable "reservoirs" or low points within the primary or secondary containment which would result in a delay in the detection of leakage....The drainage system in the drywell is designed to provide adequate and responsive detection of leakage." Contrary to this description, there are undrainable areas which would result in a delay in the detection of leakage.

During this investigation, an additional problem related to the reliability of instrumentation associated with portions of the Leak Detection System (LD) [IJ] was raised. There are two functional requirements associated with the Leak Detection System. The first requirement, from Regulatory Guide 1.45, states that "The sensitivity and response time of each leakage detection system employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gpm in less than one hour." The second requirement is contained in Technical Specification section 3.4.3.2 which states, "Reactor coolant system leakage shall be limited to: ...2 gpm increase in unidentified leakage within any 24 hour period." In meeting the first requirement, a capacitance probe is used to measure instantaneous sump level. This level is electronically converted to a flow rate based upon the height relative to a v-notched weir plate. This instrumentation is capable of detecting a change of one gpm leakage within one hour. However, operating experience has shown that the capacitance probe routinely drifts high and is frequently unreliable. As a result, the recurring failure of the electronic level indication results in the Leak Detection System not meeting its design basis requirements. The second requirement is met through the use of pump flow totalizers and manual calculations. This method uses the value from the capacitance probe for comparison purposes only, and the capacitance probe is not needed to fulfill the Technical Specification Requirements.

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

This condition is reportable per 10 CFR 50.73 (a)(ii)(B) due to a condition that was outside the design basis of the plant.

**C. CAUSE OF EVENT**

The design specification for the drywell floor provides for a tolerance of 3/4 of an inch change in elevation over the entire span of the floor. This could result in its ability to have undrainable areas. The reason this was not reflected in the description in the FSAR is unknown. The unreliability of the sump level instrumentation is believed to be caused by the improper use of the type of capacitance probe used with water of poor quality. Shortly after the start of an operating cycle, contaminants in the water affect the probe in a manner that produces false high readings.

**D. ASSESSMENT OF SAFETY CONSEQUENCES**

The safety significance of leaks from the reactor coolant pressure boundary varies depending on the source of the leak(s) as well as the leakage rate and duration. As stated in the response to FSAR Question 212.16, "Judging from observed crack behavior in the GE and BMI experimental programs involving both circumferential and axial cracks, it is estimated that leak rates of hundreds of gpm will precede crack instability. For austenitic stainless steel piping, even larger leaks are expected to precede crack instability." It further states that, "The established limit [5 gpm total unidentified leakage] is sufficiently low so that, even if the entire unidentified leakage rate were coming from a single crack in the nuclear system process barrier, corrective action could be taken before the integrity of the barrier would be threatened with significant compromise."

The accumulation of water on the floor, could have the affect of delaying leakage information to the operator. Assuming 1200 gallons can accumulate on the drywell floor, based upon observations related to PIF # 94-295, there is a 4 hour delay for a 5 gpm leak to reach the sump.

The effect of water contaminants on the sump level probe is to render that portion of the leak detection system instrumentation unreliable. This requires the plant operators to rely on alternative methods to measure flow into the sump which do not meet the sensitivity requirements of Regulatory Guide 1.45.

The safety consequence of these issues is to reduce the plant's capability for timely leak detection in the reactor coolant pressure boundary, thereby, reducing the time to place the plant in a safe condition prior to further degradation of the pressure boundary.

**E. CORRECTIVE ACTIONS**

The immediate corrective action was to declare the Leak Detection System inoperable.

Planned corrective actions include:

1. Resolution of the discrepancy between the as-built configuration of the plant and the description contained in the response to FSAR Question 212.17,

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2. Improving the reliability of the sump level monitoring instrumentation (e.g. improved maintenance or modification), and
3. Confirmation that there are no other hold up volumes in the containment which would result in unacceptable delays in the detection of unidentified leakage.

Results of these corrective actions will be addressed in a supplemental Licensee Event Report. (NTS 373-180-97-SCAQ0002101)

**F. PREVIOUS OCCURRENCES**

LER NUMBER	TITLE
None.	

**G. COMPONENT FAILURE DATA**

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