

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) LaSalle County Station Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 7 4	PAGE(S) 1 OF 0 6
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TITLE (4)
Inoperable Safety-Related Strut on Containment Boundary Piping

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)
12	17	84	84	086	000	01	08	85		0 5 0 0 0
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OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.408(e)	<input type="checkbox"/> 80.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.408(a)(1)(i)	<input type="checkbox"/> 80.38(a)(1)	<input type="checkbox"/> 80.73(a)(2)(v)	<input type="checkbox"/> 73.71(e)						
	<input type="checkbox"/> 20.408(a)(1)(ii)	<input type="checkbox"/> 80.38(a)(2)	<input type="checkbox"/> 80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)						
	<input type="checkbox"/> 20.408(a)(1)(iii)	<input type="checkbox"/> 80.73(a)(2)(i)	<input type="checkbox"/> 80.73(a)(2)(vii)(A)							
	<input type="checkbox"/> 20.408(a)(1)(iv)	<input checked="" type="checkbox"/> 80.73(a)(2)(ii)	<input type="checkbox"/> 80.73(a)(2)(vii)(B)							
<input type="checkbox"/> 20.408(a)(1)(v)	<input type="checkbox"/> 80.73(a)(2)(iii)	<input type="checkbox"/> 80.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Daniel R. Szumski, extension 447		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	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS										
E	B	O	S	P	T		P	0	2	9	N								

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

Personnel working in the Reactor Building on 12/17/84 observed what they believed was a damaged strut on the 2C RHR system test return line to the Suppression Pool. The area was investigated by the Tech Staff, who found one of the safety related struts on the line had been dismantled. The support was located on the portion of the line which was between the Suppression Pool and the Outboard Primary Containment isolation valve.

The strut was reinstalled that same day, restoring the line and containment pressure boundary to operable status. Review of Station work listings failed to identify any work which would have affected the strut. No evidence of transients or vibration which may have damaged the strut were noted. The Security Staff made inquiries regarding how the strut could have been dismantled, but they were inconclusive. A general inspection of about 1000 safety related supports was done in the Unit 1 and Unit 2 Reactor Buildings, and it found no failed supports. The investigation showed that the strut was installed in March 1984, but was not able to pinpoint when the support was dismantled. A stress analysis of the piping was done by Sargent & Lundy Engineers to analyze the effects of having this support gone during design basis events for the system, and it showed that Primary Containment integrity would have been maintained under all anticipated loading conditions.

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

I. EVENT DESCRIPTION

Initial Conditions

Unit 2 was in Condition 4 (Cold Shutdown) for a short outage following a scram on 12/14/84 due to high turbine vibration. Maintenance activity was in progress to support an anticipated unit restart on 12/19/84.

The following narrative is a chronological listing of items relevant to this event which occurred on 12/17/84 and 12/18/84.

- | | | |
|-------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/17 | 1130 | A station Rad-Chem Supervisor working on the ground floor of the U-2 Reactor Building in the area of the "C" RHR (BO) full flow test return line observed that one of the rigid supports on the line appeared to be damaged. The individual was unable to observe the support closely due to its location 15 feet above the floor, away from other items to climb upon. The Rad-Chem Supervisor brought his observation to the attention of the U-2 Operating Engineer for further investigation. |
| 12/17 | 1215 to 1315 | The U-2 Operating Engineer had the Technical Staff investigate the area in question for supports damage.

A Tech Staff Engineer climbed up on the "C" BO full flow test line and found that a safety-related seismic rigid strut was dismantled and no longer attached to the pipe. The Engineer made the following observations:

<ul style="list-style-type: none"> - The load bolt that would have engaged the strut to the pipe clamp on the piping was gone, as were the 4 heavy hex nuts which would have kept the bolt in place. The strut was still fully engaged to the Reactor Building wall at one end, but the strut had been swung back away from the pipe at the free end. The bolt and nuts were not found in the area. - Examination of the pipe and supports upstream and downstream of the strut revealed no evidence of water hammer or other dynamic transient effects. - There was no evidence of work activities in the area surrounding the strut. - In March of 1984, Tech Staff personnel had actually walked on the pipe to inspect safety related snubbers on the "C" test line for RHR, and they observed the strut fully installed at the time. |

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

I. EVENT DESCRIPTION (Continued)

- 12/17 1315 The Tech Staff Engineer notified the U-2 Operating Engineer, the Tech Staff Supervisor and the Operations Assistant Superintendent of his observations and the following actions were taken:
 - A work package was initiated to reinstall the strut, and the strut was declared inoperable.
 - The RHR "C" test line was declared inoperable until the strut could be repaired.
 - The test line at the location of the affected strut was part of the Primary Containment, since it was between the outboard containment isolation valve and the suppression pool. Therefore, Primary Containment (NH) integrity was considered compromised until the strut could be returned to service.
- 12/17 1520 Shift Engineer made NRC red phone notification and also called the LaSalle Senior NRC Resident Inspector and briefed him on this problem.
- 12/17 1800 The strut is rebolted to its pipe clamp on the BO "C" full flow test line, returning the line to its original as analyzed condition. Strut and containment returned to service.
- 12/18 1330 Corrective action and probable cause investigation efforts were completed.

II. CAUSE

The lines of investigation pursued on 12/17/84 and 12/18/84 to determine the probable cause of this event went as follows:

1. A field inspection was done on 12/17/84 of the BO "C" test line and supports to verify whether the support was damaged due to vibration or dynamic transients. No evidence of damage or wear due to piping transients was noted at any location. The bolt lost from the strut is normally double-nutted on each end to insure that it remains secured. It appeared that it had been removed in a normal workmanlike manner in this instance. This line sees flow only during the quarterly full flow test of the BO "C" LPCI pump. This test was done in May, August and November of 1984 for the U-2 "C" LPCI pump.

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II. CAUSE (Continued)

The total run time on the pump during the three surveillance runs did not exceed a total of 8 or 10 hours. It is highly unlikely that even a single nutted connection could have come completely loosened with such a limited amount of exposure to low-cycle vibration. Also, the bolted connections of other supports on this pipe were found to be secure, and did not indicate that failures due to steady state vibration were occurring.

2. A review of Station work activities was done to determine if the strut had been dismantled under an approved work package. The review included the "B" BO test line and the Fire Protection system, since these categories covered components near the pipe in question.

The Station Work Request Log was reviewed for any work activities on the BO system and Fire Protection (KQ) system from January 1, 1984, to the date this strut was found dismantled.

The work packages which fell into these categories were checked to see whether the support in question was involved. This review included BO and FP (KQ) system Work Requests for LaSalle Unit 1 as well, to account for the case where a working group may have started a job only to find they were in the wrong unit of the plant. This review showed that no work was done on the strut from January to December, 1984, or in the area around the strut.

The Station Modification list was also reviewed to try identifying any engineering change which would effect the strut, but none was found in the list. Finally, work supervisors in the Maintenance and Station Construction groups were asked whether they had any of their people working in the area of this support after March, 1984. None of the supervisors could recall a time when a working group would have been in the area.

3. The Station Security Supervisor was contacted and made aware of the circumstances surrounding the event. Station Security made inquiries to try and determine why the strut was found dismantled on 12/17/84, but the results of their investigations were inconclusive.
4. In conclusion, it should be noted that the results of the investigation into why this safety-related strut was dismantled were indeterminate. The support could have been disconnected at any time between March, 1984, and the day of the event, and the probable cause is still unknown.

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III. PROBABLE CONSEQUENCES OF THE OCCURRENCE

The actual impact of having this support disconnected during U-2 power operations in 1984 was inconsequential. No LOCA or design basis earthquake occurred at the site during the period when the strut may have been dismantled. Since this support serves no other function in the plant design than to restrain the "C" BO test line against these loads, its absence should have had no impact on plant components or plant operation in 1984.

To adequately assess the potential consequences of not having this safety-related support should a design basis event have occurred, an analysis was initiated by Sargent & Lundy Engineers on 12/17/84. The analysis confirmed that in the instance a design basis event occurred in the absence of this support, the BO "C" test line would experience some yielding due to stress levels in excess of design allowables in the worse case, but it would maintain its mechanical integrity. Therefore, the Primary Containment pressure boundary would not be breached in the absence of this support. The low pressure coolant injection capability of the "C" BO loop would also not have been compromised as a result of this event. Two other loops of the BO system provide redundant capability for the "C" BO loop functions should the loop be disabled due to an event of this nature as well. No other probable consequences would have occurred other than some localized piping damage as discussed above.

IV. CORRECTIVE ACTIONS

Two corrective actions were undertaken by this Station as a result of this event, over and above those items done to assess its cause and probable consequences. First, the support itself was repaired in an expedited fashion on the same day it was found to be disconnected, and returned to operable status within 8 hours.

Also, on 12/18/84 at the 0830 Station Status Meeting, the Operations Assistant Superintendent informed the Senior NRC Resident Inspector that a walk thru inspection of the general areas of the Unit 1 and 2 Reactor Buildings which were easily accessible would be conducted.

The walk thru was done by members of the Technical Staff between 1000 and 1330 on 12/18/84. The inspectors checked the security of the connections of supports in general view, and kept a rough total of how many supports they had examined. Roughly 850 supports were examined in U-2, and 300 in U-1 were inspected. No evidence of damage or other signs of support degradation was seen in either unit. The details of the inspections were provided to the Technical Staff Supervisor and the Senior NRC Resident at approximately 1400 on 12/18/84.

V. PREVIOUS OCCURRENCES

None.

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VI. NAME AND TELEPHONE NUMBER OF PREPARER

Daniel R. Szumski, 815/357-6761, extension 447.



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January 8, 1985

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

Reportable Occurrence Report #84-086-00, Docket #050-374 is being submitted to your office in accordance with 10CFR 50.73.

C E Sargent

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G. J. Diederich
Superintendent
LaSalle County Station

GJD/MLD/kg

Enclosure

xc: NRC, Regional Director
INPO-Records Center
File/NRC

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