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LaSalle Generating Station
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ComEd

August 14, 1997

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

Licensee Event Report #97-027-00, Docket #050-373 is being submitted to your office in accordance with 10 CFR 50.73(a)(2)(i).

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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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 7 |

TITLE (4)

Equipment Not Seismically Restrained in Seismic Category I Areas Due To Ineffective Implementation of 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 |
| 07 | 15 | 97 | 97 | 027 | 00 | 08 | 14 | 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) |
|---|---|
| Tom Best, Support Engineer | (815) 357-6761 Extension 2979 |

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 | | 10 | 14 | 97 |

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

Numerous pieces of temporary and service equipment and a transient monitoring cabinet located in safety related areas were discovered to lack proper restraints to prevent impacting safety related equipment, should a seismic event occur. Had a seismic event occurred, the potential existed to disable some safety related equipment. A walkdown of remaining accessible safety-related areas was performed and additional unrestrained equipment was found. Immediate corrective action was to move this equipment to locations that are not in the vicinity of safety related equipment or to seismically restrain it. An investigation to determine the root cause(s) is in progress and the results will be submitted in a Supplemental LER. Apparent contributing causes include lack of previous effective corrective action, less than adequate written guidance, and lack of understanding of the regulatory requirement. Corrective actions will be determined. There were no health or safety consequences as a result of this event. This event is reportable per 10 CFR 50.73 (a)(2)(ii)(B) as a condition outside the design basis of the plant.

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: 7/15/97 Event Time: 1530 Hours
Reactor Mode(s): 4/N Mode(s) Name: Cold Shutdown/Defueled Power Level(s): 0%/0%

**B. DESCRIPTION OF EVENT**

There were no inoperable components or systems that contributed to the event.

The status of a cabinet located adjacent to the Reactor Protection System motor-generator set (RPS MG set) at El. 749' in the Auxiliary Building of Unit 1, and several items in the backpanel area of the Control Room that were not restrained were questioned. A corrective action item was generated on July 17, 1997 to remove the cabinet from near the RPS MG set and to determine the status of the unrestrained equipment in the Control Room. Subsequent evaluation determined that should a seismic event of sufficient magnitude occur, safety related control panels could be within the "arc of fall" of the Control Room copying machine, emergency food storage cabinet, breathing air equipment cart, emergency air sampling equipment, wood easels and a refrigerator. Lateral movement as a result of a seismic event was also considered. LaSalle FSAR Appendix B, "Conformance to Regulatory Guides," states that "those portions of structures, systems, or components (SSC) whose continued function is not required but whose failure could reduce the functioning of any plant feature required for safe shutdown to an unacceptable safety level are designed and constructed so that the Safe Shutdown Earthquake would not cause such failure."

Immediate corrective action was to relocate the unrestrained equipment to areas that would not impact safety related equipment or to restrain the equipment in its current location to prevent tip over or lateral movement. No equipment was declared inoperable.

Based on the results of the Control Room evaluation, the Unit 1 and Unit 2 Division 1, 2, and 3 Switchgear Rooms were walked down on July 24,1997. Thirty one pieces of unrestrained equipment (breakers, eye wash stations, rope stand, operator cabinet, hand and foot monitors, and a ladder) were discovered. Immediate action was to relocate this equipment to non-safety related areas.

Subsequent plant walkdowns throughout the remaining safety related structures (Auxiliary Building, Reactor Building, Diesel Generator Building and Off Gas Building) were completed on July 31, 1997. Some areas of these buildings were excluded from this walkdown, as follows:

- The Drywell - At the completion of the outages, the Drywell is walked down using procedure LOP-DW-01 to verify all unrestrained equipment has been removed.
- The Wetwell - No equipment can be stored in the Wetwell.
- The radwaste tank rooms in the basement of the Auxiliary Building - These rooms are very high radiation areas. No equipment other than tanks is expected to be located in these rooms. For this reason and to keep exposure ALARA, these areas have been excluded.
- The Radwaste Pipe Tunnels - These tunnels are very high radiation areas. No equipment other than piping is expected to be located in these tunnels. For this reason and in an effort to keep exposure ALARA, these areas have been excluded.
- The Turbine and Reactor Building fan rooms in the Auxiliary Building - The fans are running so these areas are not accessible. Accessibility will be established, and a future walkdown of these fan rooms will be conducted.

No unrestrained permanent equipment was identified in any of the areas included in this walkdown. Temporary equipment (portable equipment, wheeled carts, toolboxes, etc.) was found seismically secured in accordance with LaSalle Policy Guideline Number 67. Lateral seismic movement was considered as well as "arc of fall".

Unrelated to the above events, during a July 15, 1997 plant walkdown to investigate a reported problem with phone wire routing in the Auxiliary Electric Equipment Room (AEER), an engineer noted that the Temporary Startrec Monitoring Cabinets were not mounted or restrained to prevent tip over during a seismic event. Immediate actions were to confirm the seismic requirement with a knowledgeable engineer and to confirm that safety related equipment could be impacted if the cabinet were to fall during a seismic event. It was subsequently determined that no equipment could be impacted that is required to be operable in the current plant modes (Cold Shutdown/Defueled). The cabinets were removed and stored in an area outside the AEER the same day they were discovered.

Several missed opportunities occurred which could have prevented these events:

**1. Startrec Cabinets in the seismic Category I auxiliary electrical equipment room not seismically mounted**

The non-safety Startrec Monitoring System is a transient analysis system that continuously monitors critical plant parameters every 10 milliseconds. When these inputs exceed setpoints (triggers) data is collected, stored, and displayed in various formats. The charts are useful to determine causes of scrams and transients. The first Startrec Cabinet was installed by General Electric for startup testing during the early 1980's. It consisted of a 5 foot by 5 foot by 30 inches deep cabinet with wheels (blocked), a computer, and magnetic tape recorder. The same Startrec Cabinet was used in both Units. After Unit 2 startup, ComEd purchased the equipment and enough spare parts to assemble a second Startrec Cabinet approximately April 1984. These Startrec Cabinets remained in the AEER of each Unit until 1992, when Plant Technical Support requested the General Office Information Systems Department to upgrade the temporary monitoring cabinets. Standard 78 inches high by 24 inches wide by 30 inches deep cabinets were provided with a datalogger and upgraded computers and software. The modification process was not used since the cognizant Technical Support Staff Engineers determined that the Startrec Cabinets were temporary portable monitoring equipment. The potential seismic effect of the cabinets tipping over was not considered at that time.

An opportunity to discover this condition was also missed in 1991 when minor plant modifications (DCP-91-00215 and 236) were developed to permanently mount the nine cables and change the connections to be internal to the permanent Startrec Data Processing Panel [1(2)PA16J]. A walkdown for installation was performed in 1992-93; however, the modification was never installed.

**2. Items improperly stored in the Control Room**

During an NRC Electrical Distribution System Functional Inspection in 1991, an NRC inspector observed unrestrained equipment in the Control Room back panel area. LaSalle corrective action included an October 1, 1991 memo from Engineering to Operations, specifying which equipment should be restrained and which should be relocated to areas in the Control Room that contained only non-safety related control panels. This guidance was posted in the Back Panel area at the time, but is not currently posted.

An investigation to determine the root cause(s) and the proper corrective actions to prevent recurrence of these events will be completed and submitted as an LER Supplement.

C. **CAUSE OF EVENT**

**1. Startrec Cabinets in the seismic Category I auxiliary electrical equipment room not seismically mounted**

The root cause(s) of this event will be determined upon completion of an investigation, and submitted in an LER Supplement. Apparent causes include: (1) A lack of guidance for what should be considered portable monitoring equipment, how long it can be installed in a temporary condition, how it should be installed, size and weight limits, etc. (2) When the cabinet upgrade was performed in 1992 by information services personnel and the plant Technical Support personnel, it was viewed as a "replacement-in-kind" of existing monitoring equipment and therefore no modification was needed.

**2. Items improperly stored in the Control Room**

The root cause(s) of this event will be determined upon completion of an investigation, and submitted in a Supplement to this Report. Apparent causes include: (1) Ineffective previous corrective actions to prevent recurrence (2) Less than adequate written guidance for LaSalle station workforce to use in determining acceptable seismic anchoring of temporary and service equipment in the vicinity of safety related equipment. The current guidance, LaSalle Policy Guideline No. 67, does not address seismic restraint to prevent tip over of temporary and service equipment that will remain in permanent locations. (3) Lack of understanding of the requirements for seismically supported or mounted non-safety related equipment located in safety related structures. (4) Lack of self assessment of effectiveness of previous corrective actions.

**3. Switchgear Rooms and Area near RPS MG Set**

The root cause(s) will be determined and reported in a Supplement to this Report.

D. **SAFETY ANALYSIS**

**1. Startrec Cabinets in the seismic Category I auxiliary electrical equipment room not seismically mounted**

During a seismic event the Startrec Monitor could tip over hitting the Reactor Recirculation Flow Control Cabinet (1H13-P634) and the Alternate Rod Insertion Division 2 Panel (1H13-P800) on Unit 1 and the Low Low Set/Safety Relief Valve Division 2 Panel (2H13-P645) and Alternate Rod Insertion Division 2 Panel (2H13-P801) on Unit 2. The 1H13-P634 Panel is not safety related but is seismically mounted. The other above identified panels are safety related; however, none of the panels are required for safe shutdown (Reference UFSAR Appendix H.4 "Safe Shutdown Analysis").

During power operation, if a seismic event occurred and one of the above panels were damaged a redundant train would be available; therefore, the safety consequences of this postulated event would have been minimal.

**2. Items improperly stored in the Control Room**

Had a seismic event occurred of sufficient magnitude to tip over or cause lateral movement of unrestrained equipment, the following safety related control panels could have been impacted:

1. Panel 1H13-P609 [(Reactor Protection System (RPS) and Primary Containment Isolation System (PCIS)] was within the "arc of fall" of a copying machine. RPS is required in the current Reactor Modes.

2. Panel 2H13-P636 (RPS & PCIS) and Junction Box 2JB162A (safety related) were within the "arc of fall" of the emergency food storage cabinet.

3. Panel 2H13-P636 (RPS & PCIS) was within the "arc of fall" of the breathing air equipment wheeled cart.

4. Panel 2H13-P635 (Division I Radiation Monitor) was within the "arc of fall" of the GSEP PING (air sampling equipment necessary for Control Room personnel during accident conditions).

5. Panels 2H13-P603 (Emergency Core Cooling System) and 1PM01J (Emergency Electrical Control Panel) were within the "arc of fall" of wood easels. Panel 1PM01J is required in the current Reactor Modes.

6. An electrical junction box related to the Control Room Ventilation System was within the "arc of fall" of a refrigerator.

The previously described immediate corrective actions restored compliance with the FSAR design requirements.

Had the Units been operating during a postulated seismic event of sufficient magnitude to cause movement of unrestrained equipment in the Control Room which could have disabled equipment used for safe shutdown, alternate safe shutdown equipment and procedures are available from outside the Control Room, should sufficient operable equipment in the Control Room not be available. Therefore, the safety consequences of this postulated event would have been minimal.

**3. Switchgear Rooms and Area near RPS MG Set**

The safety consequences of items improperly stored in the Switchgear Rooms and the area near RPS MG Set will be discussed in a Supplemental LER.

**E. CORRECTIVE ACTIONS**

1. Immediate corrective action was to relocate the unrestrained equipment to areas that would not impact safety related equipment or to restrain the equipment to prevent movement. The unrestrained cabinet in the area near the RPS MG Set was removed on July 21; unrestrained equipment in the control room was relocated or secured on July 23; the Startrec Cabinet was moved from the AEER on July 15; and the unrestrained equipment in the Switchgear Rooms was relocated or secured on July 24.

2. Walkdowns were immediately performed in the remaining accessible safety-related structures (Auxiliary Building, Reactor Building, Diesel Generator Building and Off Gas Building) and no additional unrestrained equipment was found. Areas not accessible due to operating equipment or high radiation will be addressed based on availability. (NTS # 373-180-97-SCAQ00027.01)

3. An investigation to determine the root cause(s) of this event is continuing in order to determine the proper corrective actions to prevent recurrence. A Supplement to this Report will be submitted, identifying these additional corrective actions.( NTS # 373-180-97-SCAQ00027.02)

4. A Plant procedure will be developed to control used of temporary and permanent equipment in safety related areas and will provide guidance on when a modification is needed.( NTS # 373-180-97-SCAQ00027.03)

5. An initial self assessment will be conducted to determine the effectiveness of corrective actions for this event. Results of this initial self assessment will be used to determine an appropriate schedule to confirm continued effectiveness of corrective actions. ( NTS # 373-180-97-SCAQ00027.04)

6. Seismic mounting of the Startrec Cabinets will be evaluated for permanent installation.( NTS#373-180-97-SCAQ00027.05)

**F. PREVIOUS OCCURRENCES**

A search of previously submitted Licensee Event Reports identified no similar occurrences.

**G. COMPONENT FAILURE DATA**

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