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ComEd

June 6, 1997

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

Licensee Event Report #97-003-01, 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. Nizioiek, IDNS Senior Reactor Analyst
INPO - Records Center

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): Inadequate Procedure for Racking 4.16 KV Switchgear Breakers Results in Seismically Unqualified Condition Outside the Design Basis

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
02	13	97	97	003	01	06	06	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
☐ 20.2203(a)(2)(iv)	☐ 50.73(a)(2)(i)	☐ 50.73(a)(2)(viii)(B)	below and in Text,
☐ 20.2003(a)(2)(v)	☒ 50.73(a)(2)(ii)	☐ 50.73(a)(2)(x)	NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Louis Mallavarapu, Senior Engineer	(815) 357-6761 Extension 3132

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)

On February 13, 1997, LaSalle reported to the NRC that several safety-related 4.16 KV breakers were found to be racked in seismically unqualified positions. Therefore, the plant configuration was considered to be outside the design basis. The cause for this condition was an inadequate operations procedure for racking out 4.16 KV breakers and an incomplete seismic analysis.

Immediate corrective action was to perform a walkdown of safety-related switchgear. Breakers found racked in a seismically unqualified position were returned to a qualified position.

Corrective actions completed and planned include operator training, procedure revision, and an engineering evaluation to review the process, including implementation, for qualifying electrical switchgear and incorporating seismic limitation into operations procedures.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

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

A. PLANT CONDITIONS PRIOR TO EVENT

Unit(s): 1/2 Event Date: 02/13/97 Event Time: 1030 Hours
Reactor Mode(s): 4/N Mode(s) Name: Cold Shutdown/Defueled Power Level(s): 0%/0%

B. DESCRIPTION OF EVENT

On February 13, 1997 LaSalle reported to the NRC, via telephone, that fifteen (15) ITE/ABB Metal Clad Type 5HK350 switchgear Division 1 and 2, 4.16 KV breakers were found in a seismically unqualified position, i.e., they were racked past the disconnect position. The following loads fed by the 4.16 KV safety-related switchgear were susceptible to inadvertent trips: Low Pressure Core Spray Pumps (LP) [VB], Suppression Pool Clean-up Transfer Pump (SF) [CG], Residual Heat Removal Pump (RH) [BO], Control Rod Drive Feed Pump (RD) [AA], Primary Containment Water Chiller (VP) [VB], Recirculating Motor Generating Set Drive Motor (RR) [AD], and 480 Volt Substation Feeds (AP) [EB]. The Division 1 and 2 seismic qualification addresses the breakers in only the connect, test, and disconnect positions. Therefore, the plant configuration was considered to be outside the design basis. This event is reportable per 10 CFR 50.73(a)(2)(ii). The qualification does not address the breakers racked past the disconnect position.

Also, some General Electric (GE) Metal Clad Type AM-4.16-350-2H switchgear Division 3, 4.16 KV breakers for the High Pressure Core Spray (HP) [BG] pumps, including some routinely stored within the switchgear, were also found in a seismically unqualified position, i.e., breakers racked to the disconnect position. The racking mechanism for these GE breakers is different from the Division 1 and 2 ITE 4.16 KV breakers. Unlike the Division 1 and 2 safety-related ITE/ABB breakers, the Division 3 GE breakers in the disconnect position are free to roll in the front and back direction and impact the door. Even though the seismic analysis did address such impacting, the seismic qualification did not address the effect of the impact of breaker movement on other breakers, including those in adjacent cubicles. If this breaker is racked to the disconnect position when a seismic event occurs, it may roll and impact the door. This may initiate relay contact chatter in the protective relays in the breaker cubicle and adjacent switchgear cubicles, and through interlocks could cause the other breakers in the switchgear to trip.

These conditions were identified when investigating to determine if LaSalle had problems similar to issues identified at the Byron station. The LaSalle investigation included all potentially affected safety-related switchgear by reviewing the qualification documents and walkdown of selected ITE/ABB 4.16 KV switchgear, Division 3 GE 4.16 KV switchgear, and 480-volt switchgear.

During the initial walkdown, it was discovered that some ITE 4.16 KV breakers were racked past the disconnect position. To effect immediate corrective action for ITE 4.16 KV breakers, a walkdown of all Unit 1/2 safety related Division 1 and 2 switchgear was performed to identify all breakers racked past the disconnect position. The switchgear was declared inoperable until these breakers were returned to the qualified disconnect position.

Also during the walkdown, the seismic qualification of Division 3, 4.16 KV breakers was evaluated. The Division 3 switchgear was not declared inoperable since it was OOS. The seismic analysis did address the possibility the breaker may roll back and forth in the disconnect position and impact the door. The analysis did not address the possibility that impacting the door may cause the breakers in adjacent cubicles to initiate a trip of loads.

LaSalle analysis of safety-related GE 480 volt switchgear demonstrates that the seismic and structural adequacy is not impaired when the 480 volt breakers are in the racked out position. These breakers cannot be racked past the disconnect position, and therefore this is not a concern.

C. CAUSE OF EVENT

1. Incomplete procedures. The operating procedures for racking out the 4.16 KV breakers to the test and disconnect position did not provide adequate requirements to ensure that equipment is not left in a seismically unqualified position.

2. Incomplete seismic analysis. The seismic analysis for the GE breakers does not address the impact of breaker movement on other breakers in the cabinet and adjacent cabinets when not in a seismically qualified position. The seismic analysis for GE Division 3 switchgear does address the possibility that a breaker in the disconnect position may roll back and forth and impact the door. The analysis also concludes that the door is capable of holding the breaker in the cubicle.

D. SAFETY ANALYSIS

During a seismic event, the breakers in seismically unqualified positions could potentially affect the operation of the breakers in the adjacent cubicles through relay contact chatter in the protective relays in the breaker cubicle and adjacent cubicles. This could have caused inadvertent trips of the safety related loads.

On February 13, 1997, fifteen breakers were found in an unqualified position, as the breakers were being scheduled for maintenance activities in the present outage of both the units. These safety related services were not available at that time as the breakers were in the disconnect and or in the past the disconnect positions. During full power operation, had a seismic event occurred with a breaker in the unqualified position, the adjacent breakers could have tripped through contact chatter. This could have resulted in the loss of a safety related service in the 4.16 KV switchgear. However, the back up service in 4.16 KV switchgear redundant Division would be still available for performing the same function as the component that failed.

Although an unanalyzed condition, it is unlikely that an earthquake of sufficient magnitude and frequency could have occurred and caused the ITE breakers in the past disconnect position and the GE breakers in the disconnect position (i.e. unqualified position) to start, trip and or damage adjacent safety related equipment. However, there has been no Seismic event that resulted in 4.16 KV breakers causing damage to other safety related equipment.

The immediate corrective action performed by LaSalle provides adequate confidence that if a seismic event occurs, it will not impact the health and safety of the public. Therefore, there were no safety consequences associated with the event, since no transient condition occurred which would have required changes to the plant configuration or manual or automatic safety system responses.

E. CORRECTIVE ACTIONS

The following corrective actions have been implemented:

1. All safety-related ITE 4.16 KV breakers were returned to their qualified position. Additionally, the non-safety-related switchgear breakers within a seismic category 1 area were also returned to the disconnect position.

2. Equipment operators have been trained on the seismically qualified positions of ITE/ABB 4.16 KV.

The following corrective actions are in progress:

1. A procedure change has been initiated to require that the Division 1 and 2 ITE/ABB 4.16 KV breakers to prevent them from being racked to the past disconnect position and Division 3 GE 4.16 KV breakers from being left in the disconnect position. The procedure changes will require that ITE breakers racked to the unqualified position, be immediately removed from the switchgear and restrained. Procedure changes will require that GE breakers, racked to disconnect position, be immediately removed from the switchgear and restrained. (NTS 373-180-97-003.01LER)

2. Equipment operator training on the seismically qualified positions for GE breakers and procedure changes is being scheduled. (NTS 373-180-97-003.02LER)

3. Selected procedures used for work on electrical equipment will be reviewed to determine whether seismic limitations are addressed. Any deficiencies will be resolved. The results of the review will be used to evaluate the need for further reviews. (NTS 373-180-97-003.03LER)

4. An engineering evaluation will be performed to review the process, including implementation, for qualification of electrical switchgear and incorporation of seismic limitation into operations procedures. (NTS 373-180-97-003.04LER)

F. PREVIOUS OCCURRENCFS

LER NUMBER	TITLE

None.

G. COMPONENT FAILURE DATA

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