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ComEd

February 24, 1997

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

Subject: **SUPPLEMENTAL RESPONSE TO UNRESOLVED ITEM 96011-20**

References:

1. **G. E. Grant Letter to W. T. Subalusky, dated November 15, 1996, Transmitting NRC Inspection Report 373/374-96011**

2. **W.T. Subalusky Letter to United States Nuclear Regulatory Commission, dated December 20, 1996, Transmitting ComEd Response to NRC Inspection Report No. 50-373/96011; 50-374/96011 (DRP) and Notice of Violation**

The enclosed attachment contains LaSalle County Station's supplemental response to Unresolved Item 96011-20.

This supplemental response is provided to address the consequences of a fire in a diesel generator corridor that resulted in the loss of the associated Unit System Auxiliary Transformer and the Emergency Diesel Generators located adjacent to the corridor.

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If there are any questions or comments concerning this letter, please refer them to me at (815) 357-6761, extension 3600.

Respectfully,

W. T. Subalusky
Site Vice President
LaSalle County Station

Enclosure

cc: A. B. Beach, NRC Region III Administrator
M. P. Huber, NRC Senior Resident Inspector - LaSalle
D. M. Skay, Project Manager - NRR - LaSalle
DCD - Licensing (Hardcopy: Electronic:)
Central File

ATTACHMENT
RESPONSE TO NOTICE OF VIOLATION
NRC INSPECTION REPORT
373/374-96011

Unresolved Item 96011-20:

The inspectors noted an issue open from 1987 to July 1996. The issue related to a potential fire in a corridor where control panels for all three EDGs were located. The fire could render all three division EDGs inoperable. The action taken in 1987 was initiation of an hourly fire watch and origination of a modification request to install physical protective barriers. However, due to concerns with fire retardant materials, the modification package was put on hold in 1991 and was canceled in September of 1996.

The basis for canceling the modification was establishment of an alternative shutdown path: core cooling by the reactor core isolation cooling system, which did not require EDG operation. Other longer term actions, such as cooling the suppression pool, would be handled by cross-tying the emergency busses to the other unit. This assumption and the analysis was previously approved by the NRC for the Station Blackout issue.

The inspectors questioned the licensee on the adequacy of the compensatory actions in place from 1987 to 1996 and what guidance would have been available to the operators had a fire occurred during this nine-year period. The focus of the inspectors' concerns was on why the licensee required the EDGs to operate, as 10 CFR Part 50, Appendix R, did not require a licensee to assume that offsite power was lost, unless the fire caused it to be. The licensee stated that assuming loss of offsite power was a conservative measure. However, neither the original (1987) fire hazard analysis contained in Appendix H of the UFSAR, nor the revision proposed in 1996, stated that a conservative assumption of loss of offsite power had been applied. Therefore, the inspectors inquired whether the licensee had confirmed that offsite power cables either would or would not be affected by a fire in the zone.

Conclusions: The lack of compensatory actions for a nine-year period could be a significant failure to take adequate corrective actions. The significance, however, depended on whether offsite power would be affected for a fire in the EDG corridor. Although the licensee claimed that loss of offsite power was a conservative assumption, this was not reflected in either the original fire hazards analysis nor in the 1996 revision. The inspectors requested that the licensee respond in writing providing evidence to support the assertion that a fire in the EDG corridor would not result in loss of normal power to the affected components. This is considered an unresolved item, pending the licensee's response (50-373/96011-20(DRS); 50-374/96011-20(DRS)).

Supplemental Response:

Both the original and current UFSAR assume a postulated fire occurs simultaneously with loss of offsite power. This assumption is conservative because offsite power is not affected by a fire in every fire zone and the normal safe shutdown systems are powered by the emergency buses.

As discussed further below, safe shutdown is assured for all fire conditions in the diesel corridors required to be postulated per 10 CFR 50, Appendix R, including loss of offsite power to either unit. If normal offsite power is unavailable, required power is provided by the EDGs located adjacent to the corridor. If both offsite power and the EDGs are not available for any reason, including fire damage, required power is provided by the emergency dc system and the opposite unit normal and emergency power supplies (i.e., SAT and EDG). The emergency dc and opposite unit power supplies are not affected by a fire in either corridor. In addition, each corridor is protected with automatic suppression and detection.

In July, 1996, UFSAR Section H.4.2.57 (Safe Shutdown Analysis for Fire Zone 5C11) and associated tables were revised to reflect the systems and power supplies that are (and were) available for safe shutdown in the event of a fire in a diesel generator corridor. The revision documents the systems available for mitigating the potential loss of the power supplied from the System Auxiliary Transformer (SAT) and the Emergency Diesel Generators (EDGs) located adjacent to the corridor. The systems available (i.e., Reactor Core Isolation Cooling (RCIC), Automatic Depressurization System (ADS), and Residual Heat Removal (RHR)) are credited for performing their normal design function. The method utilizes the direct current (dc) mode of the RCIC system to maintain hot shutdown until the power necessary for achieving and maintaining cold shutdown (i.e., RHR) is provided from the opposite unit SAT or EDG. A fire in either corridor does not affect the opposite Unit SAT, EDG, or the ability to cross-tie the power supplies from one unit to the other.

The potential for a single fire in the Unit 1 diesel corridor to result in a loss of the Unit 1 SAT and the 0 / 1A / 1B EDGs is due to the fact that the CO2 Control Panels for the EDGs and the feed from the Unit 1 SAT are located in the Unit 1 corridor. The potential for a single fire in the Unit 2 diesel corridor to result in a loss of the Unit 2 SAT and the 2A / 2B EDGs is due to the fact that the CO2 Control Panels for the EDGs and the feed from the Unit 2 SAT are located in the Unit 2 corridor. The control panels for the EDG's are located in the individual EDG rooms (and, therefore, separate fire zones).

Though no single circuit failure could actuate more than one EDG CO2 system, it was postulated that a single fire could "short out" the panels / circuits in one corridor and cause the CO2 systems to spuriously actuate in the EDG rooms located adjacent to the corridor. In this postulated scenario, the EDGs could be disabled because the ventilation system for each room would be disabled by the CO2 trip.

In the event that a single fire in a diesel generator corridor causes (or had caused) a loss of the Unit SAT and the 0 / 1A / 1B or 2A / 2B (i.e., Unit 1, Unit 2, respectively) EDGs, safe shutdown from the Control Room will be (and would have been) achieved utilizing RCIC, ADS, and RHR, in accordance with standard normal, off-normal, and emergency operating procedures, as follows:

- Hot shutdown achieved by automatic reactor scram with full isolations.

- Hot shutdown maintained by controlling vessel level and pressure with RCIC and the Safety Relief Valves (i.e., ADS). RCIC would be manually started from the Control Room in accordance with LOP-RI-02 (Operation of the Reactor Core Isolation Cooling System for Level Control). RCIC also auto starts on a reactor water low level signal. RCIC would be operated in the dc mode until ac power is established.

- AC power to equipment necessary for achieving and maintaining cold shutdown established by cross-tying the opposite unit SAT or EDG in accordance with LOA-AP-101 / 201.

- Cold shutdown achieved and maintained with RHR.

The fact that the RCIC room cooler is not (would not have been) available until ac power is restored is acceptable because the RCIC system can operate for at least 4 hours without exceeding the RCIC system temperature qualification limits and the cross-tie can be established in a timely manner (i.e., less than 1-hour). Operating procedures for establishing the cross-tie during a loss of power to either unit are available. Specifically, LOA-AP-101 (Unit 1) and LOA-AP-201 (Unit 2) have been available since May of 1996 Prior to these procedures, LOA-AP-07, "Loss of Auxiliary Electrical Power", and LOA-AP-08, "Total Loss of AC Power", were available to the operators for the restoration of power.

As a result, power to the components required for achieving and maintaining safe shutdown are (and would have been) available for a fire in either corridor, and one train of systems needed to achieve and maintain safe shutdown are (and have been) protected from fire damage and spurious CO2 trip.