



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

*Docket File*

December 7, 1989

Docket Nos. 50-373 and  
50-374

MEMORANDUM FOR: Hubert J. Miller, Director  
Division of Reactor Safety  
Region III

FROM: John A. Zwolinski, Assistant Director  
for Region III  
Division of Reactor Projects III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

SUBJECT: LASALLE FIRE DETECTION SYSTEM (TAC NOS. 66104 AND 66105, TIA  
NO. III 87-7, AITS F03016887)

This memo is in response to the request from N. J. Chrissotimos to Gary Holahan, subject concerning violations of fire protection requirements at LaSalle, dated May 22, 1987. We have reviewed those portions of the Region III's Inspection Report and Notice of Violation, transmitted to the licensee on February 28, 1986. We have also reviewed the licensee's response contained in letters dated April 11, 1986 and April 15, 1987. We agree with and support the Region III's staff interpretation of the first issue. However, we agree with the licensee on the second. Our technical rationale in support of our positions is as follows.

The first issue had to do with lack of electrical supervision on local fire alarm circuits. The licensee's position is that supervision of these circuits is not required by the 1975 edition of NFPA 72D because the local audible or visual alarm circuits are in the category of "supplementary alarms," and NFPA No. 72D-1975 provides an exception from the requirement for installing electrical supervision for supplemental alarms (§ 2441.a). We reject this position on two counts.

First, Section E.1.(b) of Appendix A to Branch Technical Position (BTP) APCSB 9.5-1 (August 23, 1976) states:

"(b) Fire detection system should give audible and visual alarm and annunciation in the control room. Local audible alarms should also sound at the location of the fire."

This section of the BTP indicates that the staff did not consider the local alarms to be "supplemental" in the sense that they were simply in addition to the control room alarm but basically not essential. Specifically, the staff considered the local alarm to be an integral part of the alarm/annunciation system which served to warn regular employees and assist the fire brigade in their response notification. It seems the licensee understood this requirement

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since, in certain locations, they also installed visual alarms; a practice usually followed only in locations where the ambient noise levels are sufficiently high that audible alarms alone cannot be relied upon.

Second, Section 2441.a of NFPA 72D-1975, a paragraph that the licensee quotes to justify their position, states:

- "2441. The electrical supervision shall include all circuits for operating alarm sounding devices and appliances except:
- a. A circuit employed to produce a supplementary local alarm signal to indicate the operation of an automatically operated alarm transmitter or a manual fire alarm box provided that an open or ground fault of the signal circuit conductor results only in the loss of the supplementary signal" (emphasis added).

Even if the staff accepted the licensee's interpretation of this section of NFPA 72D-1975 that the local alarms are "supplementary" alarms, the staff would not permit those circuits to remain unsupervised since the electrical faults did not result "only in the loss of the supplementary signal." As described in the inspection report, "...local alarms in the Unit 1 reactor building were giving audible fire alarms simultaneously as a result of a wire to wire short." In addition, "...according to interviews with cognizant licensee personnel, this was a recurring event that confused and diminished employees and fire brigade member confidence in the fire alarm system to the extent that it is difficult to distinguish an actual fire alarm from a false one."

For these two reasons, we reject the licensee's position that installation of electrical supervision of local fire alarm circuits is not required.

The second issue had to do with lack of electrical supervision on the visual alarm annunciator circuits for the Unit 1 and Unit 2 control room fire detection system. The ionization fire detection circuits at the LaSalle County Nuclear Station are electrically supervised from the individual detectors to a panel in the Auxiliary Electric Equipment Room (AEER). In order to satisfy the requirements for a central supervised station of NFPA 72D-1975, the location where alarms are received must be continuously attended. The AEER is not continuously attended. Therefore, the alarm circuits have been extended from the panel in the AEER to two panels in the control room which is continuously attended. These extended circuits are not electrically supervised. This lack of electrical supervision is not in accordance with the requirements of NFPA 72D-1975. The licensee's position is that this is a deviation only of the standard and that the deviation is acceptable at LaSalle County Nuclear Station. The licensee supports this position by stating that:

- o high quality cable is used throughout the installation,

- modifications and maintenance on these cables/circuits are infrequent resulting in a low probability of removal of, or damage to the circuits, and
- surveillance of the circuits performed on a once-per-shift frequency would discover on a sufficiently timely basis any disruption to these circuits.

We find the lack of electrical supervision of these alarm circuits from the cabinets in the AEER to the control room acceptable primarily on the basis of the once-per-shift surveillance of the unsupervised circuits. This surveillance, in conjunction with the use of high quality cable and general absence of modifications or maintenance activities involving the circuits, renders the lack of supervision a minor deviation from the requirements of NFPA 72D-1975. We, therefore, consider the level of protection provided by this arrangement to be essentially equivalent to the level that would be provided if all of these alarm circuits were electrically supervised. (The licensee also stated that, "To supervise these circuits would be very expensive and result in routing hundreds of additional cables through the AEER, the Cable Spreading Room and the Control Room." While this statement did not weigh heavily in our consideration of this deviation, we question the accuracy of the assertion that hundreds of cables would be involved.)

We, therefore, recommend acceptance of the alarm circuits as installed from the AEER to the control room without electrical supervision. Should future surveillances discover problems with these circuits, the issue should be reevaluated to assess the continued acceptability of this installation.

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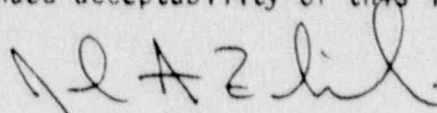
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