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LaSalle County Nuclear Station
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TO: H. MASSIN
PROJ. ENG'G.

ATTACHMENT I

March 8, 1982

Mr. Cordell Williams
U.S. Nuclear Regulatory Commission
Region III Office
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Design of the Cable Spreading Room Fire Protection System
at LaSalle County Station

Dear Mr. Williams:

In response to the concern you and your staff expressed March 4, 1982 on the design of the Cable Spreading Room Fire Protection System, we have investigated the design considerations made by Viking Fire Protection Co., Nuclear Mutual Limited, and Sargent & Lundy.

Specifically, these considerations are as follows:

Spray Nozzle Type Selection - Due to concern for accidental discharge on electrical equipment, a closed system design was specified. This limited the selection of the nozzle to the Gem Type EA-1, the only approved closed spray nozzle available at the time of design. The smallest spray angle (65°) was chosen to contain the spray in the cable pan. (It should be noted that the smallest spray angle available today is 60°.)

Spray Nozzle Spacing - In accordance with standard industrial and insurance requirements, a 10 ft. standard spray nozzle spacing was adopted, similar to the spacing required for coal conveyors. This spacing was also adequate in the designer's opinion to keep the spray of one spray nozzle from coming in contact with the fusible link of another. (Thus cooling the fusible link of that nozzle and preventing its actuation.)

Spray Nozzle Size Selection - With the 10 ft. nozzle spacing specified, an average cable pan protection area per nozzle was computed to be 25 sq. ft. The hydraulic design data indicates the lowest pressure head to be 9 psig @8.5 GPM, (based on 97 psig supply header pressure @1093.9 GPM). The sprinkler system specification requirement for spray density is .3 GPM/sq.ft. A 3/8" size orifice was indicated when these factors were taken into account. A 1/2" orifice size (largest) could have been selected for an additional margin of safety, but was not due to concerns for room flooding and equipment damage from multiple nozzle actuation.

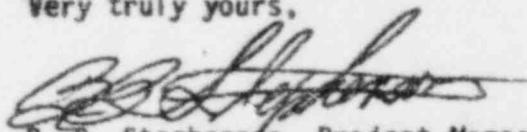
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Spray Nozzle Orientation - Spray nozzles are arranged approximately 8 in. above the floor of the pan, inclined at a 45° angle (minor field adjustments are sometimes made). This distance and angle assure containment of the spray pattern in the pan and induce water flow down the length of the pan.

The design outlined above represents a well coordinated effort between our sprinkler designer, insurance consultants, and architect engineers. The application of this closed spray nozzle is based on sound engineering judgments and will provide adequate protection for the hazard specified.

If you have any further concerns on this matter, please contact E. Falb at (815) 357-6761, Ext. 590, so he may arrange for a meeting with you and all the principals involved.

Very truly yours,



B. B. Stephenson, Project Manager
LaSalle County Station

BBS/EEF/dlt

cc: J. A. Kellock - Viking Fire Protection Co.
D. A. Krumm - viking Fire Protection Co.
J. M. Connolly - M & M Protection Consultants
R. H. Pollock - Sargent & Lundy
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E. E. Falb - File J2910.19