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NUCLEAR ENERGY BUSINESS OPERATIONS
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MC 682, (408) 925-5722

May 1, 1985
MFN- 58-85

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Attention: C. O. Thomas, Chief
Standardization & Special Projects Branch

Gentlemen:

SUBJECT: POWER GENERATION CONTROL COMPLEX (PGCC) FIRE SUPPRESSION LICENSING TOPICAL REPORT ADDENDUM 1 - SUPPLEMENTAL INFORMATION

Reference: MFN-29-85 dated February 28, 1985

We would like to amplify upon several points which were made in our previous request (reference letter) for establishing a specific Halon concentration and soak time requirement for control rooms where the cable insulation is primarily Tefzel within the PGCC.

We want to emphasize that deep seated burning of the non-Tefzel cable insulation (less than 20% of the total insulation) in the control room PGCC is not possible for the following reasons:

First, only power cables are supplied with sufficient electrical energy to possibly initiate a cable insulation fire. Since all power cables are in flexible metallic conduit within the PGCC, any burning of insulation initiated by this electrical source will be confined to the conduit in which the overheating occurs.

Another reason that deep seated burning will not occur is that a cable fire introduced by an ignition source within the PGCC must be initiated in the surface burning mode and then progress to the deep seated mode of burning. The automatically initiated fire suppression system will extinguish the ignition source and any resultant cable fire while the cable insulation is still burning in the surface mode. This conclusion is substantiated by the fact that the 10-minute required minimum soak time for the fire suppressant envelopes the transition from surface burning to deep seated burning (first minimum of curve at about 5 minutes) exhibited in the fire test reported in Figure 4.2 of NEDO-10466. Automatic initiation of the suppressant system ensures extinguishing before deep seated burning is initiated.

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We also want to emphasize there is additional information available now as compared to that which was available in 1976 to justify the inclusion of a predominately Tefzel insulated control room with a required Halon concentration of 6% for 10 minutes. The basis for this justification are the three additional items of information in the following paragraphs.

The first item is that the applicable control rooms are built and it is an established fact that the cable insulation is at least 80% Tefzel. The original requirements of 20% Halon concentration for 20 minutes was based on cables with non-Tefzel insulation. It is appropriate to establish the requirement for the "as-built" condition of the control rooms.

The second item is that redundant remote shutdown capability has been provided external to the control rooms for the applicable plants. This makes it possible to be much more aggressive in combatting fires in the control room.

The third item relates to a series of fire tests conducted at Sandia Laboratories and summarized in NUREG/CR-2607. The cable tray configuration and ignition source were not similar to what might be encountered in the PGCC, but some conclusions applicable to the PGCC may be drawn. Fully developed deep seated fires were initiated in cable trays which contained primarily non-Tefzel insulated cables which were then totally flooded with Halon 1301 at a 6% concentration. A 10-minute soak time extinguished the deep seated fires and prevented re-ignition upon reintroduction of air to the tray. The extinguishing action should be just as effective in the PGCC if for some reason discharge of Halon was delayed until a fire had progressed to deep seated burning in the small amount of non-Tefzel cable insulation which could be present in a PGCC floor section.

Please contact R. D. Hickman on (408) 925-4584 should you have any questions.

Very truly yours,

R. Villa, Manager
Product Licensing

RV:rm/A05015

cc: L. S. Gifford
G. G. Sherwood
D. Moran
D. C. Scaletti

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MFN-29-85

February 28, 1985

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Attention: C. O. Thomas, Chief
Standardization & Special Projects Branch

Gentlemen:

SUBJECT: POWER GENERATION CONTROL COMPLEX (PGCC) FIRE SUPPRESSION LICENSING TOPICAL REPORT ADDENDUM 1

The purpose of this letter is to transmit a special report which documents in Addendum 1 to NEDO-10466 an additional Halon concentration and soak time option for the PGCC's fire suppression system.

We request a review and safety evaluation report (SER) for referencing and licensing actions by Utility applicants, i.e. Illinois Power Company, Gulf States Utilities, etc. This fire suppression option has been discussed by John Stang, NRC, Ed Maxwell, GE, and various Utility representatives. We request an expedited review schedule, i.e. two to four weeks after receipt of this letter.

Under separate correspondence to William O. Miller, NRC, we have provided the $150.00 application fee.

Please contact R. D. Hickman on (408) 925-4584 should you have any questions.

Very truly yours,

H. C. Pfefferlen
Manager
BWR Licensing Programs

HCP:csc/I02213

Attachments

cc: L. S. Gifford, w/Att
G. G. Sherwood, w/o Att
D. Moran (NRC), w/Att
D. C. Scaletti (NRC), w/o Att

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