

Docket No. 50-237
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MAY 26 1978

Distribution

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Commonwealth Edison Company
 ATTN: Mr. C. Reed
 Assistant Vice President
 P. O. Box 767
 Chicago, Illinois 60690

Gentlemen:

We have reviewed your letter of April 14, 1978 regarding Commonwealth Edison's proposed procedure for testing electrical cable penetration fire stops for Dresden, Quad Cities and Zion stations. Enclosed are comments and recommendations resulting from our review. We conclude that your proposed program of testing penetration fire stops is acceptable provided the program properly addresses the items included in the enclosure to this letter. If these are agreeable to you for inclusion in your program, no further information will be required other than the test results and conclusions from the test program which are scheduled to be submitted by July 1, 1978. If you have questions regarding this matter, please contact us.

Sincerely,

Original signed by
 George Lear, Chief
 Operating Reactors Branch #3
 Division of Operating Reactors

Enclosure:
 Seven items in memo
 Attached

cc w/enclosures:
 See next page

JA

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DATE >	5/ /78	5/ /78	5/ /78	5/ /78		

May 26, 1978

cc

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ENCLOSURE

COMMONWEALTH EDISON - PENETRATION FIRE STOP TESTING

The referenced submittal includes Commonwealth Edison's proposed procedure for testing electrical cable penetration seals which are typical of seals use at the Dresden, Quad Cities, and Zion Stations. We find that the proposed test procedure is acceptable, with the following exceptions:

1. The size of cable conductors should be stated for both the control and power cables. Cable sizes should be chosen which are typical of actual conditions.
2. The acceptance requirements should be expanded to ensure that the temperature levels for the unexposed side are analyzed and to demonstrate that the maximum temperatures are sufficiently below the cable ignition temperature.
3. The test should be expanded to include a hose stream test. The acceptance criteria should be expanded to require that the barrier remains intact and does not allow projection of water beyond the unexposed surface during the hose stream test.
4. Item 3 under Fire Stop Constructions to be tested refers to three alternative details for main control board floor slot penetrations. Two of these details indicate that a bare 250 MCM ground cable may be routed through the fire stop penetration.

Since such a large bare conductor as this may cause an unacceptable temperature on the unexposed side, the detail selected for testing should include this ground conductor. The 3 to 5 foot length of cable on the unexposed side of control board floor slot penetrations may not be a realistic situation. In some cases where cables terminate at terminal strips near the floor, the cable jacket and conductor insulation may be exposed to higher temperatures due to heat conduction by the copper conductor. Tests should be representative of such conditions, to the extent that they exist. This may also be true for power cables which enter switchgear through floor penetrations. The test procedure should be modified if such is the case for field penetrations.

5. Items 5 and 6 under Fire Stop Constructions to be tested refers to detail 2 as shown on CECO drawing 12E6508. This detail allows the use of either flame retardant mastic or ebony asbestos board to be used on the lower side of the penetration seal. Since this fire stop is somewhat similar to that noted above and which specifies an ebony board on the lower portion

of the fire stop, the tests for the fire stops, detail 2, referenced herein should include samples which use a coating of flame retardant mastic on the lower portion of the fire stop. In addition, the construction details allow either Flamemastic 71A or Vimasco Cable Coating #1A to be used. The test procedures should reflect testing of fire penetration seals using both materials.

6. With regard to Appendix A; Cellular Concrete Fire Stops, we agree that there is a logical basis to expect that such fire stops should be equivalent to the rating of the fire barrier penetrated. However, we do not feel that these arguments alone support a conclusion that no fire stops of this type of construction need be tested. We would accept the results for a single test with both power and control cables as providing sufficient confirmatory basis for such a conclusion. The fire test procedure should include at least one such test for cellular concrete penetration seals.
7. The final report on cable seal test results should include an analysis of the adequacy of all fire seals used based upon an examination of the selected penetration seal configurations tested.