

TENNESSEE VALLEY AUTHORITY

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JUL 13 1989

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - 10CFR50 APPENDIX R - CLARIFICATION OF ANSWER TO QUESTION 12 IN TVA LETTER TO NRC DATED NOVEMBER 21, 1986.

The purpose of this letter is to clarify the response to question number 12 contained in the NRC letter from Richard J. Clark to S. A. White dated August 7, 1986. The TVA response was originally made by enclosure 7 of TVA letter from R. L. Gridley to D. R. Muller dated November 21, 1986.

A conservative interpretation of which wires (signal and/or power) constitute an initiating device circuit (IDC) implies that many smoke detectors at BFN should be considered Style B instead of the previously reported Style D.

Therefore, TVA's response to NRC's question should be amended to read as follows:

QUESTION

12. Page 8-3. Identify the "style" of fire detection device circuits to be implemented at Browns Ferry.

RESPONSE

The initiation device circuits (IDCs) at BFN utilize a mixture of Style D (old Class A) IDCs and Style B (old Class B) IDCs as defined by Table 3-9.1 of NFPA 72D-1979.

The enclosure to this letter more fully addresses the technical issues of this matter.

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U.S. Nuclear Regulatory Commission

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If you have any questions, please telephone Patrick Carrier at BFN,  
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Very truly yours,

TENNESSEE VALLEY AUTHORITY

Manager, Nuclear Licensing  
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Enclosure

cc (Enclosure):

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## ENCLOSURE

Many of the existing smoke detector circuits installed at BFN in the 1975 timeframe used Walter Kidde Fire Alert CPD-1201 ionization smoke detectors. They were UL listed and Factory Mutual (FM) approved. These circuits were wired in accordance with the manufacturer's technical bulletin (Bulletin 851) illustration for a typical class A circuit. These are four-wire type detectors, with one pair for power and another pair for alarm/trouble signaling. They are driven by Kidde Model MA-2400 control panels with Class A model ZPA zone panels.

In enclosure 7 to a letter from R. L. Gridley to D. R. Muller of the NRC November 21, 1986, TVA made written responses to NRC questions about the type of detector circuit supervision. On page 7-8 of enclosure 7, TVA responds to NRC question 12 which reads:

Identify the 'style' of fire detection device circuits to be implemented at BFN.

The TVA response is:

The initiation device circuits (IDC) at BFN utilize style "D" IDCs as defined by Table 3-9.1 of NFPA 72D 1984.

The same response is also included in the TVA BFN Fire Protection Report which was transmitted to the NRC by TVA letter from R. Gridley dated April 4, 1988.

The definition of Class A in NFPA 72D-1974 Section 1111 is as follows:

Class A system provides emergency operation for fire alarm, waterflow alarm, and guard's tour signals during a single break or single ground fault of the signaling line circuit. A Class B system does not include this feature.

Subsequent to the BFN design, NFPA issued NFPA 72H-1984 as a guide for testing fire alarm circuits. Note that this is a recommended practice, not a mandatory code or standard. In it, circuit styles are described in much more detail than in previous NFPA 72 series codes. According to the current 72H, the Kidde Class A circuit designs would comply as a Class A circuit only for the pair of wires that measure alarm and trouble data, but not for the two power supply wires that run to each detector. If it is interpreted that the power wires are part of the IDC, then the detectors are not fully Class A (new Style D) but are Class B (new Style B). This is because a single open in the power wiring will cause loss of function of all devices beyond the open. A single open in the alarm/trouble pair will register trouble, but retain alarm operation for all devices on the circuit.

Further, the internal trouble contacts on the Kidde CPD-1201 detectors and on Gamewell Model 26699 detectors, which are also used at BFN, are wired into the IDC along with the alarm contact terminals for each detector, as was recommended by the manufacturer at that time. Paragraph 7-9 of NFPA 72H-1988 indicates that internal trouble contacts are to be wired between the last device and the end of the IDC.

Enclosure (continued)

Accordingly, if the later guidance is applied, and a conservative interpretation taken to which wires are an IDC, it is appropriate for TVA to amend its 1986 Question and Answers response cited previously to the wording below. The conservative answer should read:

The initiation device circuits (IDCs) at BFN utilize a mixture of Style D (old Class A) IDCs and Style B (old Class B) IDCs as defined by Table 3-9.1 of NFPA 72D-1979.

The version of NFPA 72D which is contained in the 1984 National Fire Codes is NFPA 72D-1979. The next edition was not issued until 1986, which is the current edition. The corrected TVA response above is unaffected by differences in these revisions.