

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

Central File

830 Power Building
January 20, 1978

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Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 1217
230 Peachtree Street, NW
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

OFFICE OF INSPECTION AND ENFORCEMENT BULLETIN 77-07 IE:RII:JPO 50-327,
-328, -39C, -391, -438, -439, -518, -519, -520, -521 - SEQUOYAH, WATTS BAR,
BELLEFONTE, AND HARTSVILLE NUCLEAR PLANTS

In response to your December 19, 1977, letter which transmitted IE
Bulletin 77-07, we are enclosing the results of our investigations at
Sequoyah, Watts Bar, Bellefonte and Hartsville Nuclear Plants.

Very truly yours,

J. E. Gilleland

J. E. Gilleland
Assistant Manager of Power

Enclosure

cc: U. S. Nuclear Regulatory Commission (Enclosure)
Office of Inspection and Enforcement
Division of Reactor Construction Inspection
Washington, D. C. 20555

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RESPONSE TO IE BULLETIN 77-07,
DATED DECEMBER 19, 1977
J. P. O'REILLY TO GODWIN WILLIAMS, JR.

CONTAINMENT ELECTRICAL PENETRATIONS -
AT NUCLEAR POWER PLANTS UNDER CONSTRUCTION
(FOR SAFETY RELATED SYSTEMS)

1.0 Do you have containment electrical penetrations that are of the G. E. Series 100, or are otherwise similar in that they depend upon an epoxy sealant and a dry nitrogen pressure environment to ensure that the electrical and pressure characteristics are maintained so as to ensure the functional capability as required by the plant's safety analysis report; namely, (1) to ensure adequate functioning of electrical safety-related equipment and (2) to ensure containment leak tightness? If you do use penetrations of this type at your facility describe the manufacturer and model number of these units.

TVA RESPONSE

TVA does not utilize G. E. Series 100 containment electrical penetrations at either Sequoyah, Watts Bar, Bellefonte or Hartsville Nuclear Plants. The manufacturer and types to be used are described in the response to 1.1.

1.1 If you do not have penetration assemblies of the type(s) referenced in Item 1.0 above, describe the type(s) of penetrations e.g., manufacturer and model number now in use or planned for use in safety systems at your facility.

TVA RESPONSE

Sequoyah Nuclear Plant Units 1 and 2 (50-327 and 50-328)

The electrical containment penetrations for Sequoyah were manufactured by Westinghouse and are Westinghouse type WX-32198, WX-32199, WX-32200, WX-32201, WX-32202, WX-32203, WX-32204, WX-32205, WX-32206, WX-32207, WX-32208, WX-32209, WX-32210, WX-32211, and WX-32212. The design of

these electrical penetrations utilizes epoxy seals for low voltage power and glass seals for instrumentation and control. Neither type requires a dry nitrogen pressure environment so as to ensure functional capability.

Watts Bar Nuclear Plant Units 1 and 2 (50-390 and 50-391)

The electrical containment penetrations for Watts Bar were manufactured by Conax Corporation and are of the double polysulfone seal modular type. The model numbers are 7429-10000 through 7429-10003. The penetrations do not require a dry nitrogen pressure environment.

Bellefonte Nuclear Plant Units 1 and 2 (50-438 and 50-439)

The electrical containment penetrations for Bellefonte are manufactured by ITT Cannon and are of the double glass seal modular type. The model numbers used are NP103582 and NP103583. The penetrations do not require a dry nitrogen pressure environment.

Hartsville Nuclear Plant Units A1, A2, B1 and B2 (50-518, 50-519, 50-520 and 50-521)

The electrical containment penetrations for Hartsville are manufactured by Westinghouse and utilize epoxy and glass seals. The model numbers are WX-33436 through WX-33446. The penetrations do not require a dry nitrogen pressure environment to ensure functional capability.

- 1.2 Do the transition connector pins embedded in the epoxy as discussed in Item 1.0 above, have an insulation jacket?

TVA RESPONSE

The design of the containment electrical penetrations for Sequoyah, Watts Bar, Bellefonte and Hartsville Nuclear Plants do not utilize an insulation jacket over the conductors embedded in the epoxy seal.

2.0 For those penetrations referenced in Item 1 above, has the manufacturer's prescribed nitrogen pressure been maintained at all times during shipping, storage and installation?

TVA RESPONSE

The manufacturers have not provided to TVA any requirement to maintain a prescribed nitrogen pressure for the containment electrical penetrations at Sequoyah, Watts Bar, Bellefonte, and Hartsville Nuclear Plants.

3.0 Is there a need, as determined by either the vendor or yourself, to maintain penetrations pressurized during normal operation, to assure functionability during a LOCA.

TVA RESPONSE

Neither the manufacturers nor TVA have established a requirement at Sequoyah, Watts Bar, Bellefonte, and Hartsville to maintain those electrical penetrations pressurized during design basis events. The penetrations for these facilities have two pressure seals, either of which is capable of withstanding the pressure encountered during a loss of coolant accident.

3.1 What measures have you taken to ensure that penetrations of this type will perform their design function under LOCA conditions? (design reviews, analyses or tests)?

TVA RESPONSE

The manufacturers of containment electrical penetrations for Sequoyah, Watts Bar, Bellefonte, and Hartsville Nuclear Plants use a combination of design reviews, analyses, and tests to ensure that the penetrations will perform their design functions under LOCA conditions. TVA reviews the drawings and test data.

3.2 Are the measures that provide this assurance adequate to satisfy the Commission's regulations (GDC 4, Appendix A to Part 50; QA Criteria, Appendix B to Part 50)?

TVA RESPONSE

Based upon our review of vendor submitted drawings and test data and review of vendors QA Program, there is adequate assurance to satisfy the Commission's regulations (GDC 4, Appendix A to Part 50; QA Criteria, Appendix B to Part 50).