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ASSOCIATED UNIVERSITIES, INC.

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Peach Bottom

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Department of Nuclear Energy

August 26, 1980

Mr. Robert L. Ferguson
Chemical Engineering
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

RE: Peach Bottom, Fire Protection Review

Dear Bob:

Attached is Brookhaven National Laboratory's input on Peach Bottom item 3.2.8(1) and (2), Fire Barrier Penetration Seals.

Respectfully yours,

Robert E. Hall, Group Leader
Reactor Engineering Analysis

REH:EAM:sd
attachment

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PEACH BOTTOM

Fire Protection Review

Item 3.2.8(1) and (2) - Fire Barrier Penetration Seals

Item 3.2.8(1) of the Peach Bottom SER states that the licensee will investigate the practicality of sealing the open pipe penetrations separating zones 4B from 12B and 4C from 12C.

In their submittal dated February 16, 1979, Philadelphia Electric responded to this item stating that the open pipe penetrations through the floor slabs separating zones 4B and 4C from 12B and 12C will be sealed with a watertight three hour fire rated sealant.

The licensee's response to this item is acceptable.

Item 3.2.8(2) of the SER indicates that the licensee will provide a detailed description and evaluation of electrical and mechanical penetration seals.

In their submittal dated February 16, 1979 the licensee responded to this item referenced as response to staff position PF-18. This submittal contained two attachments entitled Attachment PF-18-1 and Attachment PF-18-2.

Attachment 1 provides fire barrier penetration seal construction criteria and attachment 2 presents the results of fire exposure tests using oil soaked rags as the source of fuel. All the tests are limited to cable penetrations. The licensee has addressed mechanical fire barrier penetration seals previously in their submittal to SER item 3.1.7.

The licensee's submittals on SER item 3.2.8(2) adequately describes the electrical and mechanical fire barrier penetration seals as called for in this item, but does not adequately address the second part of this item requiring an evaluation of the electrical and mechanical fire barrier penetration seals. The oily rag fire exposure tests do not meet the requirements for fire barrier penetration seal qualification as outlined in Appendix R, and therefore is unacceptable. Based on the above reasons, it is our opinion that the licensee's submittal on SER item 3.2.8(2) is considered only partly satisfactory.

It is recommended that the licensee evaluate the adequacy of all electrical and mechanical penetration seals in fire barriers throughout the plant separating fire areas. Criteria for determining this adequacy should be based on the fire rating of the barrier or the ability to resist a fire of a magnitude equivalent to the combustible loading in the area using the standard time-temperature relationship outlined in ASTM E-119. Where fire barrier penetration seals are found to be inadequate, they should be upgraded or replaced. The upgraded or new penetration seals should successfully meet the fire barrier penetration seal requirements described in Section III.N of Appendix R to CFR Part 50.