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Department of Nuclear Energy

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April 14, 1980

Mr. Robert L. Ferguson
Plant Systems Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

RE: Vermont Yankee, Fire Protection Review, Item 3.1.8.

Dear Bob:

Attached is Item 3.1.8, Fire Barrier Penetrations, for Vermont Yankee. This is in response to the licensee's submittal dated February 25, 1980.

Respectfully yours,

Robert E. Hall
E. Hall

Robert E. Hall, Group Leader
Reactor Engineering Analysis

REH:EAM:sd
attachment
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VERMONT YANKEE

Fire Protection Review

Item 3.1.8 - Fire Barrier Penetrations

Item 3.1.8 of the Vermont Yankee SER requires the licensee to seal both electrical and mechanical penetrations to a maximum of 3 hour fire rating or equivalent to the fire barrier. The seals will be installed by Chemtrol Corporation.

The sealant used will be a GE RTV Silicone Elastomer or Foam. The typical penetrations found at Vermont Yankee have been shown in a series of drawings. Each typical penetration has been accepted by American Nuclear Insurers (ANI) as meeting a three hour fire rating. The only penetration not approved by ANI is "Typical H." Chemtrol and ANI are discussing the penetration seal and its acceptance test. The licensee will forward the information to NRC as soon as agreement is reached.

The test criteria established by ANI is similar to the NRC requirements except for the pressure differential across the seal. The acceptance criteria for the ANI test is more restrictive in regard to temperature rise than the NRC requirement.

We recommend that the staff consider the design and construction of the penetration seals as conditionally acceptable (except "Typical H") because not all the test criteria of the original position was tested (i.e., pressure differential). If subsequent test results show that the pressure differential in the original NRC position produces a significant downgrading of the penetration seal as proposed by the licensee further testing and upgrading to meet this criteria may be required.

We recommend that the conditional acceptance of Typical H penetration should be withheld until adequate test data has been submitted.