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Department of Nuclear Energy

April 14, 1980

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

RE: Monticello, Fire Protection Review, Item 3.1.8 (5 & 6), 3.2.2.(1),
3.1.12(2).

Dear Bob:

Attached are the Brookhaven National Laboratory inputs to 3.1.8 (5 & 6),
3.2.2(1), Fire Barriers/Penetration Seals and 3.1.12(2), Yard Loop.

Respectfully yours,

Robert E. Hall, Group Leader
Reactor Engineering Analysis

REH:EAM:sd
attachment

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|------------------|---------|---------------|---------|
| cc.: V. Benaroya | wo/att. | E. MacDougall | |
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MONTICELLO

Fire Protection Review

Items 3.1.8(5 & 6) and 3.2.2(1) - Fire Barriers/Penetration Seals

Section 3.2.2(1) of the Monticello SER describes the requirement for the licensee to provide a detailed description of the seal design and evaluation which includes a qualification test of the electrical and mechanical penetration seals. Item 3.1.8 of the SER indicates the locations in the plant where the licensee has proposed to install new or upgrade existing fire barrier penetration seals.

On February 20, 1980 Northern States Power Company who operates the Monticello Nuclear Generating Plant responded to these SER items. Their letter described their approach in developing qualified seal designs for use in the plant. Included in the submittal were sketches illustrating the various constructions and combinations of materials which will be tested in order to determine the adequacy of the designs. The testing will be performed at Southwest Research Laboratory and will conform to the provisions of ASTM E119-76 and IEEE 634-1978 (with NRC comments RS-809-5). These comments include the requirement for testing with a differential pressure across the fire barrier with low pressure on the unexposed side corresponding to plant insitu conditions.

Many of the existing penetration seals at Monticello employ polyurethane foam as part of the construction. Because of the difficulty in removing this material in many of the locations the seals will be upgraded by add-on materials over the existing seals. The configurations that will be tested for this purpose will include various combinations of Flamastic, pyrocrete, fiberglass wool, urethane foam, Kaowool Marinite board, Fiberfrax Hotboard, Intumastic 185 and a new material developed by Southwest Research called Silicate Gel.

All penetration seals will be subjected to a 3 hour fire test and then the hose stream test. The temperatures will be monitored throughout the complete test. As complete a visual inspection as possible, with photographs will be performed at 1-1/2 hours. Any test configuration that is good at 1-1/2 hours but fails at 3 hours, or fails the hose stream test, will be candidate for re-test in a 1-1/2 hour test. Configurations passing a 1-1/2 hour test plus the hose stream test may be used to upgrade seals in areas of the plant where a rating of less than 1-1/2 hours is sufficient and 3 hour rated seals were not explicitly required by the NRC review.

The criteria and test procedures for new and upgraded fire barrier penetration seals submitted by the licensee are considered acceptable in response to SER items 3.1.8(5), 3.1.8(6) and 3.2.2(1).

Item 3.1.12(2) - Yard Loop

Item 3.1.12(2) of the Monticello SER indicates the proposal by the licensee to provide a separate redundant connection from the underground yard loop to each of the two interior piping subsystems supplying the fixed suppression systems and manual hose stations.

By letter dated February 1, 1980 the licensee responded to this item. Their description of the proposed modification meets the intent of the original position and is considered satisfactory. We recommend that the staff accept this item.