



May 13, 1986

Public Service of New Hampshire

SBN- 1050
T.F. B7.1.2

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Vincent S. Noonan, Project Director
PWR Project Directorate No. 5

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket
Nos. 50-443 and 50-444
(b) USNRC Letter, dated April 22, 1985, "Request for
Additional Information Regarding Post-Fire Safe
Shutdown Capability", G. W. Knighton to R. J.
Harrison
(c) PSNH Letter (SBN-836), dated July 3, 1985, "Response
to 410 Series RAIs (Post-Fire Shutdown Capability)",
J. DeVincentis to G. W. Knighton

Subject: Response to RAI 410.58 (Multi-High Impedance Fault)

Dear Sir:

In RAI 410.58, Reference (b), the Staff expressed a concern regarding the potential for multi-high impedance faults in ac-power circuits which could result in the loss of power to safe shutdown equipment.

In response to RAI 410.58, we stated our position in Reference (c) regarding the above concern. Our position is summarized below:

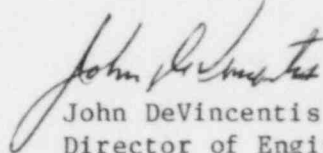
Although a high impedance fault might occur in a cable subjected to fire damage, current industry codes for fault current calculation preclude the possibility of supply breaker trip for any one such fault occurring in a branch circuit. Postulating multiple high impedance faults simultaneously in branch circuits goes beyond the bounds of conservative electrical distribution design. In such a scenario, each branch circuit cable (carrying a different load current) would have to fail along its length in such a manner as to result in a unique insulation resistance that will produce a leakage current to ground (or conductor to conductor), which added to the conductor load would result in a current just below the protective device rating. These fault currents would then have to be sustained long enough to cause the supply breaker to trip. Thus, an improbable combination of temporary leakage currents in different cables would have to occur at once to trip the supply breaker.

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We still believe that this type of fault condition is not credible. However, we will add a general note in the safe shutdown and cooldown procedures from the 051200.01 and 051200.02 to alert plant personnel to trip all bus loads prior to restoration of power to the bus and to restart only necessary loads sequentially, should a loss of power occur to a bus due to fire.

Very truly yours,

A handwritten signature in cursive script, appearing to read "John DeVincentis".

John DeVincentis
Director of Engineering

cc: Atomic Safety and Licensing Board Service List

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