

August 12, 1996

Mr. J. V. Parrish
Chief Executive Officer
Washington Public Power Supply System
P.O. Box 968 (Mail Drop 1023)
Richland, Washington 99352-0968

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - WASHINGTON PUBLIC POWER SUPPLY SYSTEM (WPPSS) - NUCLEAR PROJECT NO. 2 (WNP-2) (TAC NO. M74489)

Dear Mr. Parrish:

In reviewing your Individual Plant Examination (IPE) responses to Generic Letter 88-20, dated July 27, 1994, and August 7, 1995, we have determined that we will need the additional information contained in the enclosure to complete our review. We request that you provide your response within 30 days of receipt of this letter.

If you have any questions, please contact me at (301) 415-1341.

Sincerely,

Original Signed By
Timothy G. Colburn, Senior Project Manager
Project Directorate IV-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Request for Additional Information

cc w/encl: See next page

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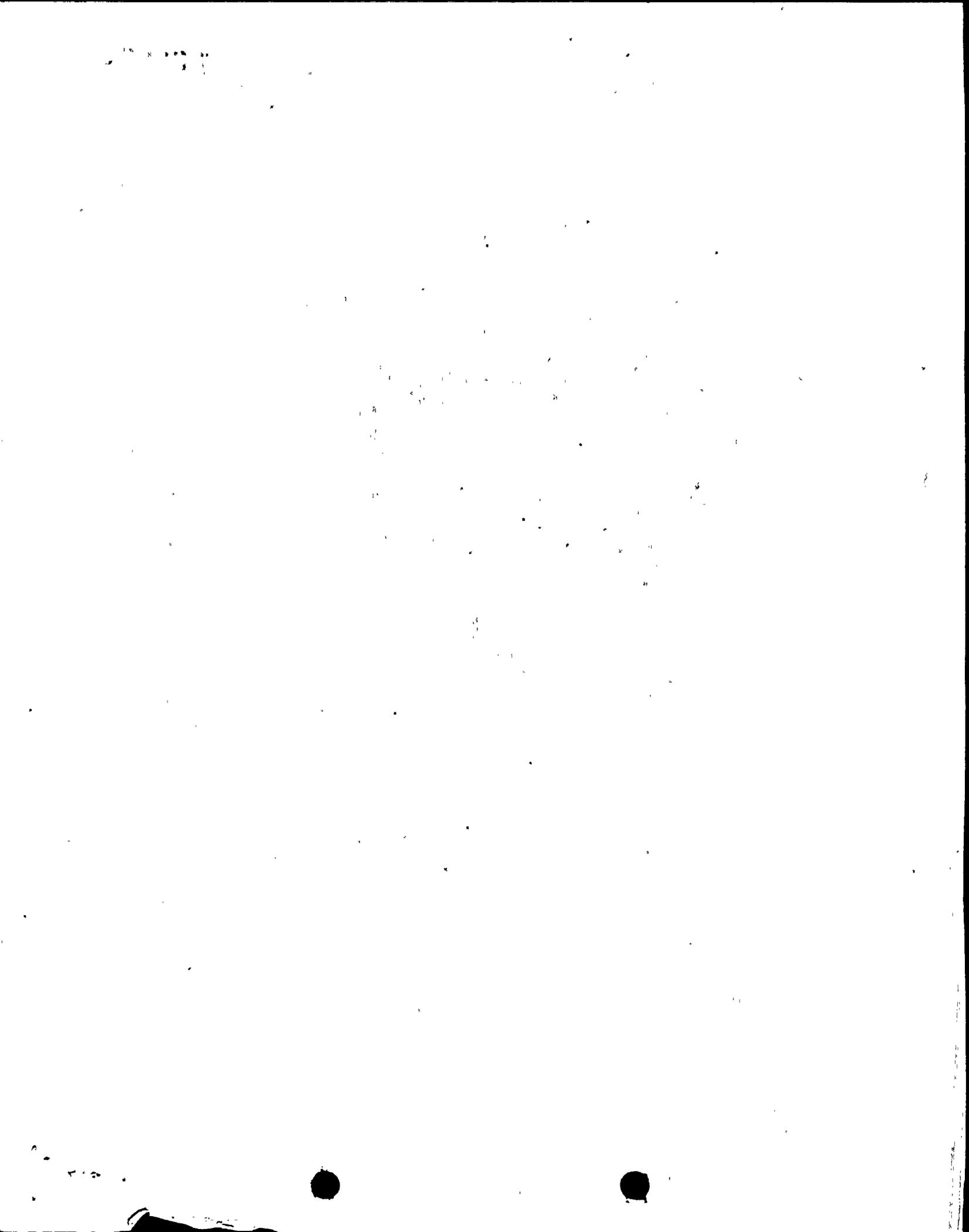
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Mr. J. V. Parrish

- 2 -

August 12, 1996

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REQUEST FOR ADDITIONAL INFORMATION

WASHINGTON NUCLEAR PLANT UNIT 2 (WNP-2)

DOCKET NO. 50-397

INDIVIDUAL PLANT EXAMINATION (IPE) SUBMITTAL

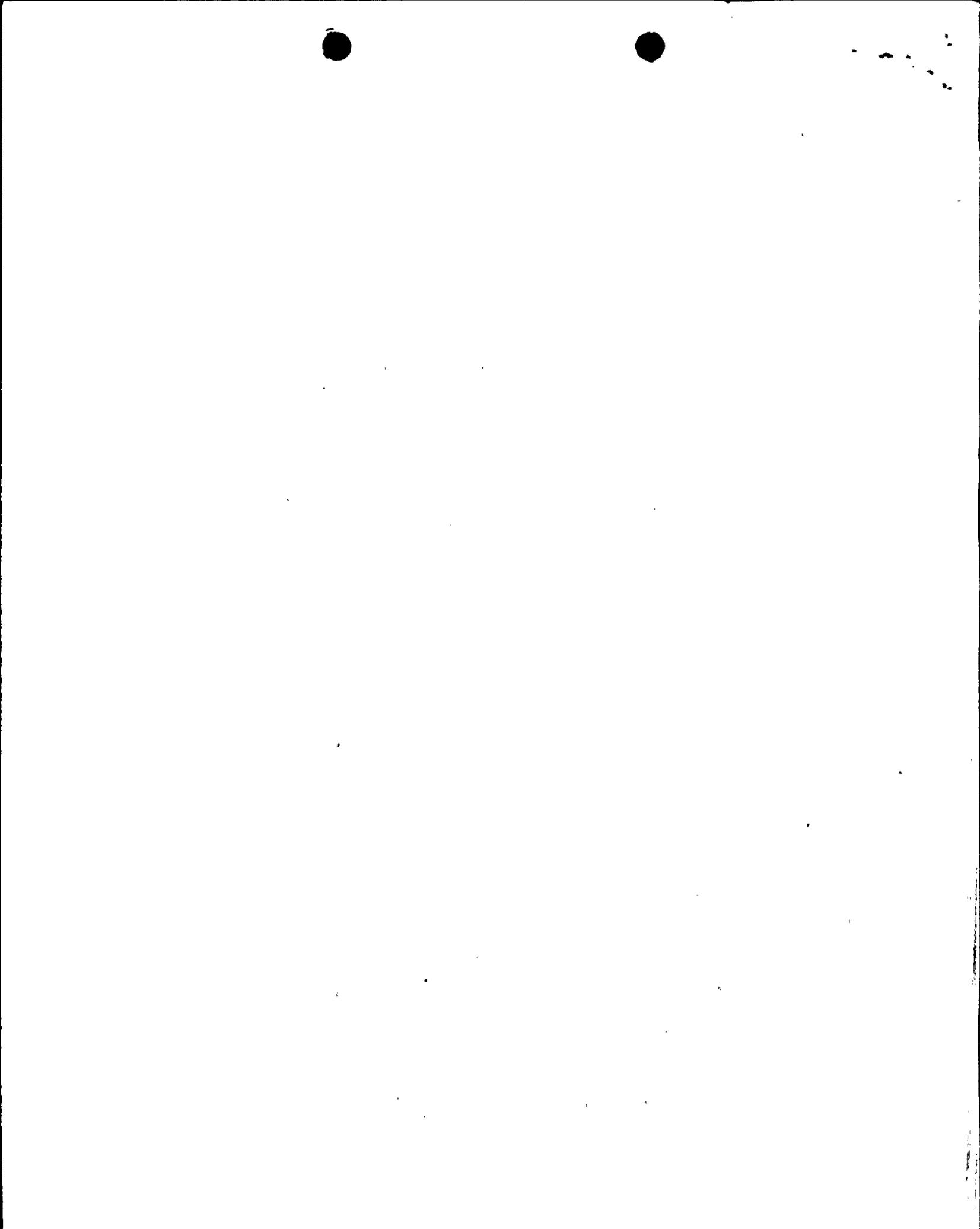
1. Initiating Events

The licensee did not model in the IPE the loss of certain support systems that may cause a reactor trip as initiating events. Events such as loss of heating, ventilation, and air conditioning (HVAC) to the emergency bus electrical switchgear rooms, loss of Division 1 direct current (DC) electrical power, loss of individual alternating current (AC) buses, and loss of reactor building component cooling water were apparently not specifically modeled or quantitatively evaluated as initiating events. It is stated in the licensee's response to the staff's request for additional information (RAI) that loss of these systems have "negligibly small" frequencies or their occurrence was assumed to be adequately accounted for through the evaluation of the loss of other support systems. Although an initiating event frequency of $1E-4$ may be small, its contribution to core damage frequency (CDF) may not be negligible if it results in a CDF of $1E-6$. In addition, loss of these support systems has the potential of affecting the availability or operability of many systems simultaneously and the systems affected can differ depending on the support system. Therefore, grouping the loss of one support system under another may not be appropriate.

The staff is concerned that the licensee did not perform an in-depth, systematic analysis of plant specific initiating events, particularly with regard to the loss of the support systems mentioned above. Please provide (a) the exact values for those initiators (e.g., loss of all HVAC and loss of Division 1 of DC power) for which you concluded that their contribution to the CDF is negligibly small and the bases for these values; and (b) the bases (e.g., failure mode and effects analyses) for concluding that loss of all DC power is not a credible event, and that loss of AC buses is enveloped by loss of DC buses due to battery depletion.

2. Interface Between Core Cooling and Containment Heat Removal

The IPE submittal and the RAI responses indicate that the licensee may not have comprehensively evaluated the impact of loss of containment cooling on the ability to provide both short and long term cooling of the core. For example, the IPE assumed that reactor core isolation cooling (RCIC) and high pressure cooling spray (HPCS) systems would be able to provide core cooling even under conditions where the containment has failed due to overpressurization and suppression pool temperatures exceeding 212°F . Under such conditions, RCIC is expected to trip due to high turbine exhaust pressure and HPCS may fail due to excessive temperatures causing bearing and seal failure and/or due to loss of adequate net positive suction head (NPSH). In



addition, with loss of containment cooling, the containment repressurizes and ultimately the safety relief valves (SRVs) may be forced closed. Upon closure of the SRVs, the reactor pressure vessel will repressurize and lose low pressure injection. These phenomena do not appear to have been taken into account. The staff is concerned that the licensee did not examine the interfaces between containment conditions and core cooling systems thoroughly and comprehensively. The information provided in the submittal and response do not indicate that a systematic and comprehensive assessment of each system's capability to perform satisfactorily under adverse conditions such as loss of containment cooling or containment failure was made. The licensee indicated during a conference call with the staff (April 29, 1996) that they are in the process of addressing these limitations of the IPE. Please provide the following:

- a. The revised core damage frequency.
- b. A description of the new important sequences and their contributors.
- c. A description of the accident progression for each sequence involved in the General Transient Event Tree. The description should include the assumptions and system success criteria used for both the OK and CD branches in relation to different containment conditions (containment cooled, containment not cooled, containment failed).

3. Alternative Injection Sources

The use of the fire water system for injection to the core was credited on a very limited basis in the licensee's IPE. Specifically, fire water was not credited for station blackout although it has diesel driven pumps independent of AC power. The intent of Generic Letter 88-20, however, was for the licensees to identify instances of plant cost-effective improvements reducing the CDF. Since station blackout contributes 61.0 percent to the total CDF, it appears that it would be reasonable for the licensee to consider improvement(s) enabling the use of fire water during station blackout. Please explain why you did not address the use of fire water during station blackout as part of the IPE improvements effort.

