May 13, 1999

MEMORANDUM TO: Docket File

FROM: Jack Cushing, Project Manager, Section 2 /s/
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: WASHINGTON PUBLIC POWER SUPPLY SYSTEM NUCLEAR PROJECT NO. 2 (WNP-2) - FACSIMILE TRANSMISSION REGARDING QUESTIONS ON SECONDARY CONTAINMENT AND STANDBY GAS TREATMENT SYSTEM (TAC NO. M96928)

The attached questions were transmitted by fax on May 6, 1999, to Mr. John Arbuckle of WNP-2 to prepare him and others for an upcoming telephone call. This memorandum and the attachment do not convey a formal request for information or represent an NRC staff position.

Docket Nos. 50-397

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Attachment: As stated

REQUEST FOR ADDITIONAL INFORMATION

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PROJECT NO. 2 (WNP-2)

DOCKET NO. 50-397

1. The WNP2 drawdown analysis takes credit for 40% mixing of leakage from primary containment within secondary containment prior to processing by the SGT system (Note (a) to Table 1 of Attachment 2 of October 15, 1996 submittal).

1.1 Describe the calculation that was done with GOTHIC to derive the 40% mixing fraction. Was the same model (noding, penetrations, flow paths, ventilation systems in operation) used for the mixing study as for the actual drawdown analysis?

1.2 Demonstrate, by describing the flow paths available for any leakage from the primary containment to secondary containment exhaust paths, that there will be adequate mixing prior to release, that is, there will be no flow directly to the exhaust path that can remain unmixed. (Such flow is sometimes referred to as slug flow or stream flow.) In particular, address those penetrations which contribute the most to La.

2. Describe how the service water temperature is included in the GOTHIC calculation.

2.1 How does the assumed winter value of 77 F compare with previously measure service water temperatures?

2.2 What is the sensitivity of the drawdown time to the service water temperature?

3. The drawdown calculations assume an initial secondary containment humidity of 0% because the drawdown time is "somewhat" longer than with humid (less dense) air. However, NRC Information Notice 88-76 states that the effect of outside air temperature on reactor building delta-P increases as the humidity increases in the reactor building.

3.1 Show that assuming 0% humidity bounds the effect of outside temperature.

4. The GOTHIC analysis assumes a flow split of 60%/40% between the upper and lower elevations. Why was this particular flow split selected?

5. How is heat transfer from the primary to secondary containment modeled? What temperature is assumed for the primary containment?

6. Describe how wind and outside temperature conditions are modeled in the GOTHIC calculations.

7. Proposed SR 3.6.4.1.3 refers to the "required" SGT subsystem. Explain what this means. Doesn't operability of the SGT require that both subsystems of both filter trains are operable?

ATTACHMENT

8. The GOTHIC analysis assumes that Pa is maintained for 30 days. Discuss the conservatism of this assumption. Provide a sensitivity analysis to demonstrate the conservatism of this assumption.

9. Page 5 of 14 of the October 15, 1996 submittal states that the proposed change would increase the drawdown time from 120 seconds to 20 minutes and establish acceptable drawdown as a function of secondary containment differential pressure and SGT flow rate." A curve of acceptable region for secondary containment differential pressure and SGT flow rate is derived. The October 15, 1996 submittal states that the SGT flow rate must be greater than or equal to 5000 cfm within 2 minutes.

9.1 What is the purpose of this criterion (5000 cfm in 2 minutes)? How is it used?

9.2 An equation of flow into the secondary containment as a function of the pressure drop is given in the October 15, 1996 submittal (Page 19 of 20, Attachment 3B). This curve provides regions of acceptable and unacceptable performance of the SGT. It appears that this curve is derived completely from analysis and normalized so as to give 0.25 inch water gauge at 2240 cfm. The equation appears to be based on such difficult-to-quantify items as leakage through seams in the secondary superstructure and leakage through closed doors. What confidence is there that this equation represents the behavior of the WNP Unit 2 secondary containment and SGT system? What confidence is there that, as the condition of secondary containment leakage paths may change with time that this equation will continue to be valid?

10. Explain why the bypass leakage is being increased from 0.74 to 18 scfm.