



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD PANEL
WASHINGTON, D.C. 20555

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November 12, 1981

DEPUTY SECRETARY
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Barton Z. Cowan, Esq.
Eckert, Seaman, Cherin & Mellott
600 Grant Street, 42nd Floor
Pittsburgh, Pennsylvania 15219

Stephen M. Sohinki, Esq.
Counsel for NRC Staff
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



In the Matter of
OFFSHORE POWER SYSTEMS
(Floating Nuclear Power Plants)
Docket No. STN 50-437 MP

Gentlemen:

Pursuant to the Board's Order of November 3, 1981, Applicant and/or the NRC Staff are requested to submit written direct testimony by November 27, 1981, in response to the following Board questions:

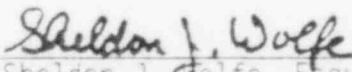
1. Since Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977), involved a construction permit application rather than a manufacturing license application and since River Bend cites the "reasonable assurance" provision of § 50.35(a) which Appendix M to Part 50 states is inapplicable, why did Staff specifically include Appendix C to Supplement 4 to the SER to respond to the River Bend decision? (See p. C-3 of Appendix C). (Since this is a legal question, Staff's counsel may respond orally at the commencement of the hearing.)
2. With respect to unresolved generic issues in Appendix C to Supplement 4 to the SER, the Staff concluded that (a) as to some issues there is reasonable assurance that the FNPs can be manufactured before these generic issues have been resolved without endangering the health and safety of the public, (b) as to some issues that FNPs can be manufactured before these generic issues have been resolved without endangering the health and safety of the public, (c) as to some issues that the FNPs can be manufactured and operated before these generic issues have been resolved, without undue risk to the health and safety of the public, and (d) as to some issues that a satisfactory solution will be incorporated in the FNPs before they are placed in operation, and, therefore, there is reasonable assurance that FNPs can be manufactured and operated, without undue risk to the health and safety of the public? What were the reasons for wording these conclusions differently?

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3. In light of the information required to be furnished by Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 775 (1977), with regard to the Staff's discussion of unresolved safety issues, Task Numbers A-12 and A-47, in Supplement 4 to SER, what alternative courses of action might be available should the programs for each not produce the envisaged results?
4. What changes in the magnesium oxide core ladle would be necessary to provide complete containment of a molten core? Is such a design feasible for the proposed floating nuclear plants?
5. Explain in greater detail the differences between the density driven case and the Kulacki-Goldstein case for heat transfer in the molten pool. Describe qualitatively the behavior at the interface between the magnesium oxide and the molten uranium oxide in the core ladle, particularly at the bottom of the pool. Discuss the possibility that pits will form in the pool bottom and grow preferentially. Is the range of measurements described in the Kulacki-Goldstein paper appropriate to the situation in the molten core ladle? Table 5 of SER Supplement 3 reflects that two of the analyzed sixteen cases show that the pool freezes. Explain in qualitative terms why that happens.
6. Explain why convective heat transfer by air was not considered by the Staff in its thermal analysis of the molten pool. Following a core melt scenario, would there be any air exchange between the chamber of the core ladle and the balance of the containment?
7. What changes would be required in the OPS design to meet the requirements of the proposed final rule on hydrogen control which, as modified by the Staff at the Commission's request, is now being considered by the Commission?

Very truly yours,


Sheldon J. Wolfe, Esquire
Chairman

cc: Service List