RELATED CORRESPONDENCE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

11/21/78

In the Matter of	)	
	)	
PUBLIC SERVICE ELECTRIC & GAS COMPANY	)	Docket No. 50-272 Proposed Issuance of Amendment to Facility Operating License No. DPR-70
	)	
(Salem Nuclear Generating Station, Unit No. 1)	)	

INTERVENORS' FIRST SET OF
INTERROGATORIES TO THE LICENSEE

The intervenors, Alfred and Eleanor Coleman, represented by the Public Advocate of the State of New Jersey, respectfully request the licensee, Public Service Electric and Gas Company, to answer fully, in writing, under oath or affirmation, the following interrogatories. In answering each interrogatory, please provide the following:

a. The direct answer to the question.

b. The fact(s) and reasoning that support your answer.

c. Where the interrogatory requests a response which requires or suggests a numerical answer, please give the calculations which support your response.

d. Identification of all documents and studies, and the particular parts thereof, relied upon by you in answering the interrogatory.

e. Identification of the person or persons you rely on to substantiate your answers.

f. Identify the expert(s), if any, you intent to have testify on the subject matter questioned.

Please note that the rules of the Nuclear Regulatory Commission, 10 C.F.R. 2.740b require you to answer in full and under oath within fourteen (14) days after service of these interrogatories. In addition, please note that the definitions provided by the licensee in your interrogatories to the Colemans (dated June 28, 1978) are intended to apply here as well unless noted otherwise.

INTERROGATORIES

The following questions are based on the licensee's Application for Increased Capacity Fuel Racks No. 1 Unit, Salem Nuclear Generating Station, Docket No. 50-272 and the Attachment 1 Description and Safety Analysis Spent Fuel Storage Rack Replacement, (hereinafter referred to as the "Safety Analysis").

1. At p. 2 of the Safety Analysis, the licensee described the alternatives which were considered and "determined to be unsatisfactory" for a variety of reasons. Please describe the changes, if any, which have taken place in the status of spent fuel reprocessing and the availability of the facilities of the General Electric Company and Nuclear Fuel Services available insofar as they relate to away from reactor ("AFR") alternatives. For example, have the facilities applied for expansion of spent fuel storage? Will these facilities be available for reprocessing or AFR storage? If so, when? If not, why not?

1(a). Please explain the basis for the statement (bottom of p. 2) that "storage in the existing racks is possible, but only for a short period of time." How long? What factors and assumptions underly the time of availability (e.g., fuel burnup, capacity factor of the unit, transshipment, etc.)?

1(b). Has the licensee considered the alternative in the intervenors' contention 9(D), "ordering the generation of spent fuel to be stopped or restricted"

(e.g., operation of the unit with existing racks until an offsite AFR alternative is available.) If so, please describe in full. If not, why not?

2. Please describe why the alternative of transshipment to other reactors is not considered a potential alternative. What reactors have been considered for transshipment?

3. Please provide a full update of the licensee's plans for discharge of spent fuel, the first batch of which is planned for discharge in January, 1979 (p. 3).

4. Please provide the basis and all calculations underlying the licensee's statement that "the additional cost to our customers for purchase of replacement power is estimated to be approximately $500,000 for each day the reactor is not operating."

5. Has the licensee evaluated the effect, if any, of a recommendation by the Generic Environmental Impact Statement on the Handling and Storage of Spent Fuel, NUREG-0404 infavor of (AFR) facilities? If so, please describe; if not, please state the reasons.

6. What increase would occur in radiation levels in the storage water of the spent fuel pool in the event that the licensee's application is granted? (see p. 7)

6(a). What increase in radioactive materials and in radiation levels would occur in the coolant water filters? What increase would occur in the screens, traps, drains, and pipes? Please provide all relevant calculations and the basis therefore.

6(b). Please explain the statement at p. 8 that "the amount of corrosion products released into the pool during any year would be the same regardless of the storage capacity of the pool," assuming increased compaction and several years of discharged fuel?

7. If the quantity of spent fuel is increased by a factor of four (4) how would the crud release rate be affected? Similarly, how would the total quantity of radioactive materials released into the spent fuel pool be affected? (see p. 9)

8. Please quantify the amount of corrosion products which would be present in the spent fuel pool as a result of increased compaction.

9. Please explain why the "resin replacement frequency will not be significantly altered by the increase in spent fuel storage capacity" (p. 9). Please describe how reliance on the "differential pressure increase" differs from the "loss of capacity to remove radioactive contaminants" in determining resin replacement (p. 8). Show calculations for predictions in each case.

10. What other gases besides Kr-85 may be released from the spent fuel storage area (p. 10)? Please identify and quantify.

10(b). Why is there intended to be no separate monitoring device to measure radioactive gases released from the spent fuel storage area? Identify any impediments to such a monitoring system, if any.

11. Please describe how the Table 2.0-1 (p. 39) relates to the determination of expected radioactive gases released from the spent fuel storage area during the period of storage.

11(a). What is the purpose of Table 2.0-1?

11(b). What is the lower limit of detection applicable to Table 2.0-1?

11(c). What techniques are available for measuring below this limit?

12. At p. 14, you describe the "B-10 loading of 0.025 gm/cm^2." Please explain this value in light of Table 3.1-1 which refers to 0.05 gm/cm^2 as minimum and Table 3.1-4 which shows 0.025 gm/cm^2 as minimum.

12(a). What are the correct values and the B-10 loadings?

12(b). What is the uncertainity in the value of the expected loadings?

13. Please describe why the licensee believes that the increased spent fuel compaction and storage will not affect the consequences of a spent fuel pool accident? (see p. 21) Explain how the consequences of an accident would be affected by acts of sabotage.

14. Please describe how the fuel cask would be handled and the basis for the chosen method. Also, please describe the specific controls to be employed to assure that the cask handling does not encroach upon the pool area.

15. Please describe the basis for the statement at p. 22 that "there is no deterioration or corrosion of stainless steel in this environment." (emphasis added) Please describe the variables which affect the rate of deterioration or corrosion, if any. What assumption underly the determination that no deterioration or corrosion will occur.

16. Please describe the "non-destructive testing of the cells."

16(a). What would be the consequences of a less than 100 percent leak tightness?

16(b). Describe the basis for the 95 percent confidence level, including any calculations and methodologies.

17. If in-pool surveilance finds problems requiring repair of spent fuel rods or racks, what are the licensee's contingency plans for removal and repair?

18. Does the page 28 reference to "two phase flow" signify that local boiling can occur? If so, how many bundles and for how long would such boiling have to occur to reduce the water level to the top of the fuel?

18(a). Please describe the circumstances or situations which would lead to two phase flow.

18(b). Please provide a worst case analysis and an average or typical case analysis for the coolant mass flow rate for each fuel assembly.

19. Regarding spent fuel cooling capacity (at p. 30) please provide the basis for the licensee's determination that "the spent fuel cooling system can provide the necessary cooling for the normal annual discharge as early as 100 hours after reactor shutdown."

19(a). What is the minimum delay between a shutdown and full core discharge?

19(b). Assuming a full spent fuel pool (but with full core discharge space available and after shutdown) when could the core be discharged to the spent fuel pool and still receive adequate cooling from the spent fuel cooling system?

19(c). What are the volumes, masses, heat rates, flow rates, temperatures, and all other pertinent variables calculated and plotted as a function of time after shutdown? Show the calculations.

20. Please describe the allowable distortion or damage for fuel storage cells. (see p. 33) What is the sensitivity of the K eff to damage or distortion of the cell dimensions?

21. What are the results of the seismic non-linear analysis and structural analysis described at the bottom of p. 34? Please provide a copy of the relevant analysis and study.

21(a). Similarly, please provide the results and a copy of (1) the analysis described on p. 36 ("Time history analysis"), (2) the postulated dropped fuel assembly accidents (p. 36), (3) the cases to be evaluated regarding fuel assemblies dropped inside the storage cell, and (4) the fuel assembly dropped from above the racks but with the assumption that the assembly rotates as it drops and impacts a row of storage cells. (see p. 37)

22. The calculated K eff values for ORNL Critical Lattices (p. 46) cases four and five sets forth central values which are outside the range of

values for the 95 percent confidence level. Please explain how it is possible for the central value and K eff to be outside the range of values provided in the table.

Respectfully submitted,

STANLEY C. VAN NESS
PUBLIC ADVOCATE OF NEW JERSEY

By: R. Will Potter
R. WILLIAM POTTER
Deputy Director
Division of Public Interest Advocacy

Date: 11/21/78

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CERTIFICATE OF SERVICE

I hereby certify that copies of "INTERVENORS' FIRST SET OF INTERROGATORIES TO THE LICENSEE" in the above-captioned proceeding have been served upon persons listed on service list by deposit in the United States mail, first class, postage prepaid, this 21st day of November, 1978.

R. William Potter

R. WILLIAM POTTER
Deputy Director
Division of Public Interest Advocacy