

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of)	
VIRGINIA ELECTRIC AND POWER COMPANY)	Docket Nos. 50-338 SP
)	50-339 SP
(North Anna Power Station,)	
Units 1 and 2))	(Proposed Amendment to
)	Operating License NPF-4)

STATEMENT OF FACTS AS TO WHICH
THERE EXISTS A GENUINE ISSUE TO BE HEARD

This supplement to CEF's Response to Vepco's Motion for Summary Disposition of June 5, 1979, sets forth those matters that CEF maintains remain a subject of controversy in this proceeding and about which there are genuine issues to be heard.

Contention 1: Thermal Effects

Vepco and NRC answers to

1. CEF disputes the following "facts," contingent on the outcome of/discovery questions, set forth in Vepco's Statement of Material Facts as to Which There Is No Genuine Issue to Be Heard:

- "10. The environmental impact of this increased heat load will be insignificant...
- "23. The fuel pool temperatures summarized above were calculated based on very conservative and worst-case assumptions and are valid for establishing a design basis..." (CEF maintains that an adequate design basis accident would consider the droppage of a spent fuel assembly that would damage at least one other assembly stored in the racks in addition to the dropped assembly.)
- "27. The failure analysis confirms that boiling and any adverse effects are prevented even in the event of a postulated failure of a spent fuel cooling pump or spent fuel pool heat exchanger..." (CEF needs to know the distance of the racks from the pool floor and walls.)
- "34. If the spent fuel pool cooling system became completely inoperable, installed station systems could provide sufficient make-up water to cool the fuel and to maintain sufficient water shielding over the fuel..." (Could these manually operated systems be put in operation in the event of a high release of radioactivity in the spent fuel pool area?)

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- "48. The fuel rack base is elevated above the floor to ensure adequate flow under the rack to each fuel assembly..." (Again, what is the distance of the racks from the fuel pool floor?)
- "49. The spacing of the fuel assemblies also permits adequate downflow within the rack to each storage location..." (CEF needs to know the distance of the racks from the walls as well as the force of the cooling water.)
2. The effect of the spent fuel pool area ventilation system on the cooling of the spent fuel pool is currently unknown.
 3. Vepco has provided no information concerning the temperature at specific areas in pool, but has given only the overall, average temperature of the pool. This information pertains to CEF's contention that hot spots would occur as a result of the proposed modification.
 4. The ability of the service water system to maintain the pool at a temperature between 140°F and 170°F in the event of an emergency is questionable in light of new information supplied by Vepco that the service water temperature, and therefore the component cooling temperature, will exceed FSAR values.

Contention 2: Emissions

5. CEF disputes the following "facts," contingent on the outcome of Vepco and NRC answers to discovery questions, set forth in Vepco's Statement of Material Facts

As to Which There Is No Genuine Issue to Be Heard:

- "64. Since the added fuel storage represents longer term storage of well-cooled fuel, the escape of gaseous or volatile fission products, even with defective fuel, is expected to be negligible..." (Vepco has shown no evidence that it has analyzed the effects of any escape of radioactivity offsite.)
- "67. Because of the long half-life of Krypton-85 (10.76 years), Kr-85 levels remain in older fuel; however, the thermal driving force required to cause its diffusion in defective fuel is greatly reduced..." (In its Summary of Proposed Modifications, Vepco states that "...the thermal driving force required to cause its diffusion in defective fuel is not present..." CEF questions this inconsistency.)
- "69. Therefore, increased fuel storage will have essentially no impact on the concentration of radioactivity in the air of the fuel building..." (This conclusion is based on experience at Surry, which CEF maintains is an invalid comparison, as mentioned earlier.)
- "62. Based on experience at Surry, no significant effect on the worth Anna system due to prolonged storage of spent fuel assemblies is to be expected..." (see response to 69 above.)

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- "84. Therefore, there will be no significant increase on the purification system load due to the proposed modification, because the number and frequency of refueling operations will not change..." (This ignores the fact that there will be more assemblies stored over longer periods of time.)
- "85. Any increase in the liquid or gaseous radioactive emissions from North Anna 1 and 2 resulting from the proposed modification are expected to be negligible..."
- "100. The proposed modification will not affect the consequences of the accidents analyzed, because the analysis assumes that only one fuel assembly, the one that is dropped, is damaged..." (see response to 23)
- "101. Thus the consequences of the accident are independent of the number of spent fuel elements stored in the pool..." (CEF maintains that the greater number of spent fuel assemblies stored, the greater consequences of an acceptable design basis accident.)
- "103. While minor damage may be incurred by the rack if an element is dropped on it, the stored fuel will not be affected, and subcriticality will be maintained..." (CEF maintains that the stored fuel would be affected if an element were dropped in a manner not considered by Vepco, as noted earlier; that is, if an assembly were dropped horizontally, rather than perpendicular to, the fuel rack and if other assemblies were hit.)
- "105. While minor damage may be incurred by the stuck fuel assembly, the weight of the fuel rack is sufficient to prevent any motion of the rack itself..." (The weight of the rack is not given by Vepco.)
- "106. The surrounding stored fuel assemblies will not be damaged, and subcriticality will be maintained. (see response to 103)
- "109. With the normal concentration of boric acid in the pool water, criticality cannot be attained with any possible array of fuel assemblies..." (Vepco has previously stated that the spent fuel pool water is pure and demineralized; this information was given during the informal meeting with Vepco, the NRC staff and CEF March 8, 1979 to agree upon conventions to be considered in this proceeding. This is the subject of one of CEF's interrogatories to Vepco.)
- "110. In short, the safety implications of the proposed modification insofar as fuel handling accidents are concerned remain the same as those previously analyzed..." (CEF maintains that the greater the number of spent fuel assemblies stored, the greater consequences of a fuel-handling accident.)

6. Vepco says that the proposed modification would result in "negligible" amounts of emissions but does not define what constitutes a "negligible" emission.
7. The gaseous fission products resulting in the spent fuel pool area have not been identified in full.

Contention 5: Corrosion

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8. CEF disputes the following "facts," contingent on the outcome of Vepco and NRC answers to discovery questions, set forth in Vepco's Statement of Material Facts As to Which There Is No Genuine Issue to Be Heard:

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- "127. Storing 966 instead of 400 fuel assemblies in the spent fuel pool will not materially increase the corrosion of, the stress upon, or other resultant problems with the fuel cladding, the racks, or the pool liner due to higher radiation levels." (Vepco itself states on page 56 of its Summary of Proposed Modifications that "Storing additional spent fuel in the pool will increase the amount of corrosion and fission product nuclides introduced into the pool water.")
- "129. The additional radiation will not cause significant stress or corrosion because the materials chosen for this application (stainless steel and Zircaloy) were chosen because of their low susceptibility to corrosive attack in a nuclear environment..." (See response to 127 above)
- "130. Increased decay heat will not materially increase the corrosion of, the stress upon, or resultant problems with the fuel cladding or the racks and pool liner because the spent fuel pool cooling system will still maintain the fuel pool water below the FSAN limits of 140°F and 170°F and far below the temperatures in the reactor." (see 4 and response to 127 above)
- "134. As noted above, the spent fuel pool purification system is adequate to remove any potential incremental impurities resulting from the proposed modification...." (As noted previously, CEF is awaiting Vepco's response to discovery questions to evaluate this statement.)
9. The long-term ability of the pool's purification system to remove corrosion beyond the lifetime of the plant, if needed, is questionable.
10. The ability of Zircaloy cladding to withstand the effects of increased heat and radioactivity as a result of the proposed modification is being debated in the scientific community. (See letter by Professor Earl A. Gulbransen, Department of Metallurgical and Materials Engineering, University of Pittsburgh; in the Bulletin of Atomic Scientists, June 1975, page 5.)
11. The amount of corrosion that may result in the spent fuel pool over long periods of storage has yet to be ascertained. NUREG 0404 states, "Corrosion effects that might occur after longer storage periods need to be examined in much greater detail so that effects such as accelerated corrosion, microstructural changes, or alterations in mechanical properties can be determined." A.E. Johnson, in "Behavior of Spent Nuclear Fuel in Water Pool Storage," (Sept. 1977, BNWL-2256, UC 70) states, "[Corrosion problems] have potential significance principally in the event that pool storage were to be extended into the 20-to-100-year time frame." And, as noted previously, Vepco itself states in its Summary of Proposed Modifications (page 56), that "storing additional spent fuel in the pool will increase the amount of corrosion and fission product nuclides introduced into the pool water."

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the foregoing "Response to Vepco's Motion for Summary Disposition" and the accompanying "Statement of Facts As To Which There Is a Genuine Issue to Be Heard" have been mailed this 5th day of June, 1979, by deposit in the U.S. Mail, First Class, to the following:

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