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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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OFFICE OF SECRETARY
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BRANCH

In the Matter of	)	
	)	Docket No. 50-335-OLA
FLORIDA POWER AND LIGHT COMPANY	)	
	)	ASLBP No. 88-560-01-LA
(St. Lucie Plant, Unit No. I)	)	

INTERVENOR'S STATEMENT OF MATERIAL FACTS AS TO
WHICH THERE IS A GENUINE ISSUE TO BE HEARD
WITH RESPECT TO INTERVENOR'S CONTENTIONS

A. CONTENTION 3:

1. Intervenor's concern in this contention is that the integrity of the Boraflex material to be used in the storage racks is highly suspect over the projected, service life of the spent fuel pool.

2. Very little information pertaining to the performance characteristics of Boraflex has been developed from testing or in-service observation.

3. The polymer which contains the Boror-10 is known to degrade when subject to irradiation.

4. Degradation of the polymer usually leads to formation of gaps in the Boraflex which displaces the neutron absorber.

5. This displacement attenuates the neutron absorbing ability of the Boraflex material, leading to an increase in overall reactivity of the region.

6. The silicons comprising the polymer are clearly unstable. The Quad Cities study revealed the scissioning of the polymer and accompanying substitution of methyl groups resulting in two, new polymers, both different from the first.

7. The acidity or alkalinity of the pool environment probably effects the integrity of the material. More testing is needed to confirm this.

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8. Prolonged exposure to elevated temperatures probably effects the integrity of the Boraflex. More testing is needed to confirm this.

9. The projected overall service life of the Boraflex is 10^{11} rads gamma.

10. This gamma exposure may be accelerated due to the presence of spent fuel of initial enrichment 4.5 w/o U-235.

11. Testing of small samples of Boraflex in a reactor does not give reliable indications of the environment in the spent fuel pool. Thus these results are often inadequate and/or misleading.

12. More actual, inservice experience is reeded with Boraflex to confirm its integrity in a spent fuel pool environmnet over a projected service life of 20 years.

13. Substantial degradation of Boraflex can occur before a cumulative exposure of 10^{10} rads gamma.

14. The Atomic Safety and Licensing Appeal Board stated that degradation of Boraflex can result in gaps.

15. The Atomic Safety and Licensing Board stated that the mechanism causing gap formation remains undetermined.

B. CONTENTION 6:

1. This contention expresses the concern that the Boraflex as it is present in the high density storage racks represents a new and unproven technology as it relates to its ability to act as a strong, fixed neutron absorber over the projected, service life of the spent fuel pool.

2. The actual, service life of Boraflex in a spent fuel pool environment is unknown.

3. The polymer which contains the Boron-10 is known to degrade when subject to irradiation.

4. The essential mechanisms for gap formation are unknown, as stated by Dr. James Wing.

5. The maximum gap size that can be developed is unknown.

6. It has not been proven that no gaps will develop in St. Lucie spent fuel storage racks.

7. The care exercised to avoid mechanical constraint on the Boraflex comprises a new and untested design.

8. Degradation of the polymer usually leads to formation of gaps in the Boraflex which displaces the neutron absorber.

9. The silicons comprising the polymer are clearly unstable when subjected to irradiation.

10. The acidity or alkalinity of the pool environment probably effects the integrity of the material.

11. Prolonged exposure to elevated temperatures in the spent fuel pool environment probably effects the integrity of the Boraflex.

12. During its projected service life, Boraflex is expected to receive a cumulative does of 10^{11} rads gamma.

13. Substantial degradation of Boraflex can occur before a cumulative exposure of 10^{10} rads gamma.

14. There is very little data available concerning the exposure of Boraflex to fuel with an initial enrichment of 4.5 w/o U-235.

15. The manufacturing process for Boraflex is strongly suspected as influencing gap formation and gap size and gap location.

16. Testing of small samples of Boraflex in a reactor does not give reliable results in relation to the environment to be encountered in the aqueous environment of the spent fuel pool.

17. The radiation exposure in a spent fuel pool is primarily gamma radiation.

18. The Atomic Safety and Licensing Appeal Board stated that degradation of Boraflex can result in gaps.

19. The Atomic Safety and Licensing Appeal Board stated there would be less confidence that any gaps in the Boraflex material would not occasion the violation of the criticality limit if the enrichment level of the fuel were 4.5 w/o.

20. The Atomic Safety and Licensing Appeal Board instructed FP&L not to store any fuel of enrichment greater than 4.1 w/o if high density storage racks utilizing Boraflex as a strong, fixed neutron absorber.

C. CONTENTION 7:

1. This contention concerns itself with the presence of a greater density of spent fuel in the pool. This greater density will casue the criticality limts to be exceeded. The pool configuration will be such that the double contingency principle will not be met.

2. Boralfex cannot be considered to be a strong, fixed neutron absorber under the provisions of 10 CFR Part 50 A 62.

3. The double contingency requirement of ANSI N16.1-1975 is violated by this rack design.

4. A single accident event, loss of pool water, would lead to overheating and a cladding fire and would result in the fuel falling into a critical array

at the bottom of the pool.

5. Degraded Boraflex panels with gaps in them could lead to fuel of an initial enrichment of 4.5 w/o U-235 exceeding the limiting reactivity.

6. A requirement of the Standard Review Plan, Section 9.1.2, Part II 1.2.b. will be violated as an assembly of initial enrichment of 4.5 w/o can accidentally be placed into Region II of the spent fuel pool.

7. The net increase in reactivity due to degraded Boraflex is a function of gapsize, number of panels per cell with gaps, and axial location of the gaps. Licensee did not consider the most unfavorable combination of all of these variables in their criticality calculations.

8. The Atomic Safety and Licensing Appeal Board has stated that degradation of Boraflex would lead to formation of gaps in the materials.

9. The Atomic Safety and Licensing Appeal Board has expressed a concern that fuel of initial enrichment of 4.5 w/o U-235 stored in the presence of degraded Boraflex may exceed the limiting reactivity.

10. The Atomic Safety and Licensing Appeal Board has prohibited the storage of spent fuel with an initial enrichment of 4.5 w/o U-235 in the Turkey Point proceedings.

11. The maximum enrichment fuel used in the Quad Cities study was 3.2 w/o U-235.

12. The testimony of Dr. William Boyd revealed that under certain conditions the limiting reactivity could be exceeded in the case of fuel of initial enrichment of 4.5 w/o.

Respectfully submitted,

Campbell Rich