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NUCLEAR REGULATORY COMMISSION
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Administrative Judge
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Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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In the Matter of
FLORIDA POWER & LIGHT COMPANY
(St. Lucie Plant, Unit No. 1)
Docket No. 50-335-01A; ASLRP No. 88-560-01-LA

Dear Administrative Judges:

The NRC staff (Staff) has discovered two areas of its proposed "Findings of Fact" (findings) filed in this proceeding on March 17, 1989, which it believes require clarification and correction. These are as follows:

1. The first sentence of paragraph 38 on page 15 presently states that:

38. The Staff and the Licensee have reviewed and evaluated the performance records of Boraflex used in the storage racks at four facilities.

This sentence should be revised to read as follows:

38. The Staff has reviewed and evaluated the performance records of Boraflex used in the storage racks at four facilities.

In addition, the following record reference, which was inadvertently omitted on the final version of the Staff's findings, should be inserted following the above revised sentence.

King on Contention 3, ff Tr. at 4-5.

2. At line 6 of finding 57 on page 24, the last line on page 25 (finding 61) and the third line from the bottom of finding 61 on page 26 of the

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findings, the Staff inadvertently stated that Dr. Stanley E. Turner's criticality analyses assumed "one-half inch gaps every 6 inches in the Boraflex in the St. Lucie racks". The number "6" should read "12" in all three of the above cited places in the findings. (See Turner on Contentions 3 and 6, ff Tr. 110 at 19 (fni)).

The Staff inadvertently used the number "6" in its findings because it was focusing on the fact that the Boraflex sheets in region one have scallops or cut outs on each side. Each side has the scallop or cut out twelve inches apart. However, the scallops or cut outs are not lined up directly on both sides of the Boraflex sheets. They are offset by six inches. (See, for example, Exhibit 10-Boraflex Panel in Region I, copy attached). However, the use of the number "6" in the context of the above-noted findings was, in fact, incorrect.

For the convenience of the Board and parties, enclosed are corrected pages 15, 24, 25 and 26 of the Staff's findings which include the above changes. These pages should be substituted for the current pages 15, 24, 25, and 26.

The Staff apologizes for any inconvenience caused by the above corrections to its findings.

Sincerely,

Patricia A. Jehle
Patricia A. Jehle *By BMB*
Counsel for NRC Staff

Encls.: As stated

cc w/Encls.: Service List

Exh. 10

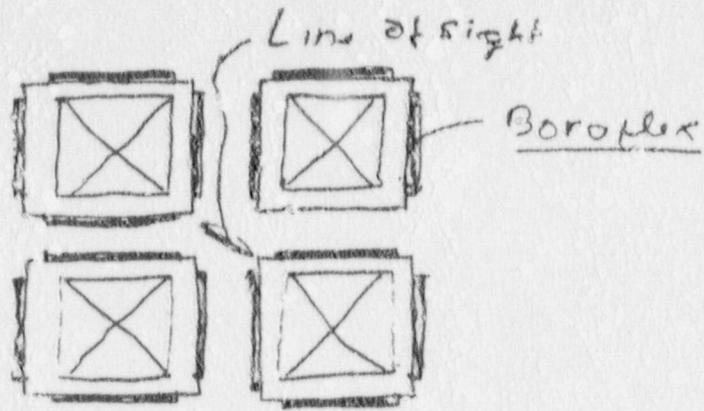
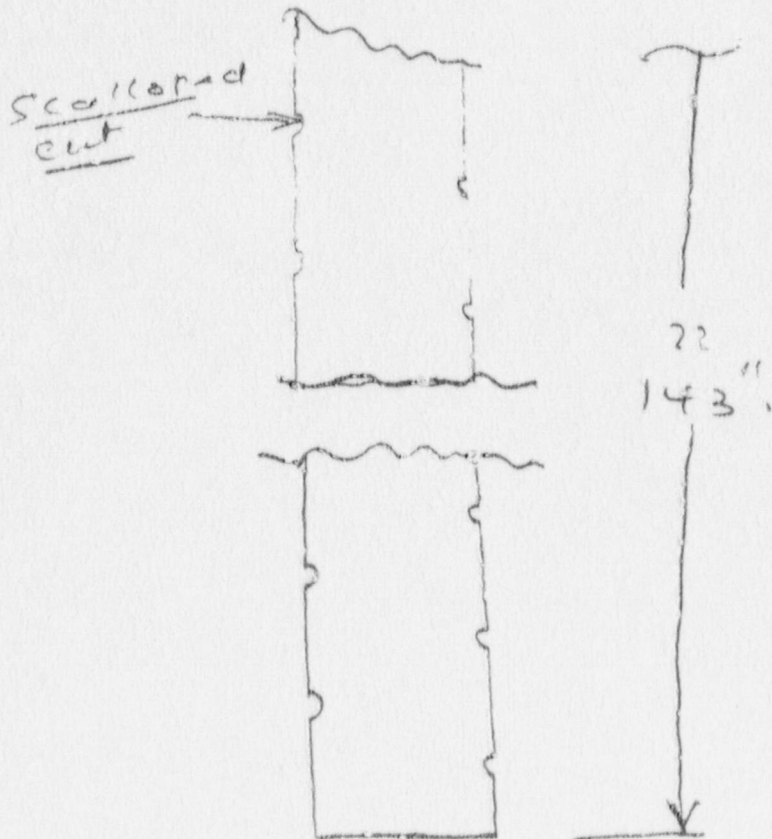


Diagram illustrating edge gaps (lines of sight)



Enlarged view of

Scalloped cut



Boroflex Panel in Region I

37. We find that Boraflex is a material with proven neutron absorption characteristics and that minor degradations will not significantly affect the neutron attenuation capability of Boraflex. We conclude that Boraflex is a satisfactory poison material and that it is suitable for use in the St. Lucie 1 spent fuel pool. In fact, the record amply demonstrated that the material ... been subjected to testing environments more severe than environmental conditions which will be encountered in the St. Lucie 1 spent fuel pool, and still retained its neutron absorption capability and physical integrity.

6. In-Plant Performance of Boraflex

38. The Staff has reviewed and evaluated the performance records of Boraflex used in the storage racks at four facilities. Wing on Contention 3, ff Tr. 110 at 4-5. The Staff learned that gaps (separations) of up to 4 inches had formed in some Boraflex panels at the Quad Cities Nuclear Power Station, Units 1 and 2 in April of 1987. Wing on Contention 3, Tr. 110, at 3. The NRC Information Notice No. 87-43 "Gaps in Neutron Absorbing Material in High-Density Spent Fuel Storage Racks" (September 8, 1987) on page 1:

"[A] lerted recipients to a potentially significant problem pertaining to gaps identified in the neutron absorber component of the high density spent fuel storage racks at Quad Cities Unit 1 [a BWR facility]. The safety concern ... [was] that certain gaps might excessively reduce the margin of nuclear subcriticality in the fuel pool."

57. The NRC staff did not perform its own criticality analyses for St. Lucie because that is not general practice in an NRC review of a licensee's submittal for a spent fuel pool expansion. Testimony of Laurence I. Kopp, transcript at 495 [hereinafter Kopp, Tr. at ____]. The Staff did not review the criticality analyses performed by Dr. Stanley E. Turner, which assumed one-half inch gaps every 12 inches in the Boraflex in the St. Lucie racks, because these were not available at the time the Staff conducted its review. Kopp, Tr. at 530; see generally Tourigny, Tr. at 507-14. However, a Staff member reviewed the written direct testimony and heard the oral testimony of Dr. Stanley E. Turner on these criticality analyses and concluded that there would be no adverse effect on k_{eff} which would violate the acceptance criteria of 0.95. Kopp, Tr. at 535. Dr. Kopp also reviewed generic criticality calculations and criticality calculations performed by the Staff for the Turkey Point Plant Units 3 and 4 which verified these findings. Kopp, Tr. at 531-537.

58. Although the various parameters such as U-235 enrichment, fuel assembly center-to-center spacing and B-10 areal density in these calculations are not identical to those in the St. Lucie spent fuel racks, they are similar enough so that one would not expect changes in reactivity due to postulated varying gap size to be significantly different. Kopp, Tr. at 532. The base reactivity assuming no gaps would be dependent on all of these parameters. Kopp, Tr. at 536. Changes in reactivity due to a given gap size, however, would not be dependent on these parameters. Kopp, Tr. at 536.

59. An analysis of the reactivity consequences of a physically impossible condition, namely, the total loss of Boraflex in the storage

racks, was analyzed to demonstrate the very large reactivity margin in the St. Lucie 1 pool. Turner on Contentions 3 and 6, ff. Tr. 139, at 9. With consideration of the double contingency principle and with credit for the soluble boron present, calculations for the hypothetical loss of all the Boraflex resulted in a maximum k_{eff} of 0.875 for Region 1 and 0.831 for Region 2, both of which are still well below the limit of k_{eff} 0.95. Turner on Contentions 3 and 6, ff. Tr. 139, at 9.

60. Prior to the issuance of the St. Lucie 1 spent fuel amendment, the design basis k_{eff} limit was 0.95. Turner on Contention 7, ff. Tr. 21, at 13. The spent fuel pool expansion did not modify this design basis limit. Turner on Contentions 3 and 6, ff. Tr. 139, at 8-9. Thus, the Licensee and the Staff have established on the record that the amendment has not decreased the margin of safety for preventing a criticality accident at St. Lucie 1.

61. The central issue to be resolved is whether unsafe and unpredictable gap formation will develop in the St. Lucie 1 racks. The Staff did not identify a mechanism for gap development based on the FSAR submitted by the Licensee. Wing, Tr. at 543-47. The Licensee, however, has postulated a possible mechanism for gap development in the St. Lucie 1 storage racks; that is, the use of a cut-out design in conjunction with spot-welding every 12 inches along the sides of the Boraflex panels. Singh, Tr. at 310-14. The Licensee has concluded that gaps may occur in a systematic pattern. Id. The Licensee's conclusion is based on additional analyses which were not available to the NRC when the Staff reviewed the FSAR and prepared its SER and the written direct testimony. Tourigny Tr. at 507-14. Using a conservative assumption that 1/2 inch gaps every 12

inches, the Licensee established that the degree of gapping would not effect reactivity in the spent fuel pool. Turner on Contentions 3 and 6, ff. Tr. 139, at 6. Furthermore, the NRC staff evaluated the sworn written testimony and heard the oral testimony of the Licensee's witnesses which described: 1) the rack design in detail; 2) the conservative assumptions concerning gap formation; and 3) the effects on the reactivity of the pool. Kopp, Tr. at 534-36; Tourigny, Tr. at 499-504, 507-14, 540-48; Wing, Tr. at 544-45. The Staff concluded that should the maximum projected gap formation, of 1/2 inch gaps every 12 inches, occur there will be no criticality concern. Kopp, Tr. at 534-36; Tourigny, Tr. at 540-48; Wing, Tr. at 544-45.

62. The Intervenor raised the issues that the Boraflex racks at St. Lucie 1 spent fuel pool 1) use a significantly modified design and are essentially the result of new technology and fabrication process; 2) that the design is unproven and untested; 3) that gap formation problems reported with in-service Boraflex panels at other plants are unresolved; and 4) that gap formation, the separation of neutron absorbing material, may compromise safety. The Licensee established that both the design and the materials used to fabricate the St. Lucie 1 spent fuel pool racks are based on established technology which has been tested. The Licensee also established that the reported incidents of gapping have been resolved and that gapping will not compromise safety.

8. Licensee's In-Service Surveillance Program

63. Boraflex is a satisfactory neutron absorber, capable of performing its intended function of criticality control. Turner on Contentions 3 and 6, ff. Tr. 139, at 15. The Licensee and the Staff