August 30, 1988

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-335-OLA
FLORIDA POWER AND LIGHT COMPANY	)	
	)	(SFP Expansion)
(St. Lucie Plant, Unit No. 1)	)	

RESPONSE OF NRC STAFF IN SUPPORT OF LICENSEE'S MOTION FOR SUMMARY DISPOSITION

I. INTRODUCTION

On August 5, 1988, the Florida Power and Light Company (Licensee) moved the Atomic Safety and Licensing Board (Licensing Board) for summary disposition, pursuant to 10 C.F.R. § 2.749 of the Commission's rules and the Licensing Board's Order of June 21, 1988, of each of the Intervenor's admitted contentions in the captioned matter. For the reasons set forth below, the NRC staff (Staff) supports Licensee's motion for summary disposition (motion) on the grounds that they have demonstrated an absence of any genuine issue of material fact to be ligitated and that they are entitled to a favorable judgment as a matter of law.

II. BACKGROUND

On March 11, 1988, in response to the Licensee's amendment request of June 12, 1987, the Staff issued amendment number 91, authorizing the requested spent fuel pool (SFP) expansion at St. Lucie, Unit 1 to provide for an increase in storage capacity from 728 to 1706 fuel assemblies. Also, on March 11, 1988, and contemporaneously with the issuance of the

amendment, the Staff, made a final no significant hazards determination pursuant to 10 C.F.R. Section 50.92.

Pursuant to the direction of the Licensing Board, Campbell Rich, who had previously filed a petition to intervene and request for a hearing filed an amended petition to intervene on January 15, 1988, which contained sixteen contentions. The Licensee and the Staff filed responses to the petition and a prehearing conference was held on March 29, 1988, where the parties presented oral arguments in support of their positions. In a Memorandum and Order of April 20, 1988, 1/ the Licensing Board admitted seven contentions, 3, 4, 6, 8, 9, 11 and 15. Two contentions, 7 and 12, were withdrawn by the Petitioner and Contention 5 was held in abeyance pending review of certain Staff materials, but has since been dismissed. The Licensing Board then renumbered Mr. Rich's admitted contentions as 1 through 7 respectively. The Licensing Board, in agreement with the positions taken by the Staff and Licensee, found that Campbell Rich had the requisite standing to intervene and admitted him to this proceeding.

Subsequently, on July 27, 1988, the Licensing Board in response to the Campbell Rich's (Intervenor) request dismissed admitted contention 2 with prejudice. In addition to the above, the Licensing Board on June 21, 1988 set forth schedules for the conduct of discovery and the filing of motions for summary disposition. 2/ Pursuant to the Licensing Board's Order, the Licensee's motion for summary disposition was filed on August 5, 1988.

1/ Florida Power and Light Co. (St. Lucie Plant, Unit No. 1), Docket No. 50-355 OLA, Memorandum and Order, slip op. (April 20, 1988).

2/ Florida Power and Light Co., Order, slip op., (June 21, 1988).

III. DISCUSSION

A. STANDARDS FOR SUMMARY DISPOSITION

Summary disposition is appropriate pursuant to the Commission's regulations if, based on a motion, the attached statements of the parties in affidavits, and other filings in the proceeding, it is shown that there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. 10 C.F.R. § 2.749(d). The Commission's rules governing summary disposition are analogous to Rule 56 of the Federal Rules of Civil Procedure. 3/ Therefore, decisions concerning the interpretation of Rule 56 may be used by the Commission's adjudicatory Boards as guidance in applying the provisions of 10 C.F.R. § 2.749.

A hearing on the questions raised by an intervenor is not inevitable. 4/ The purpose of summary disposition is to avoid hearings, unnecessary testimony and cross-examination in areas where there are not material issues to be tried. The Supreme Court has very clearly stated that there is no right to a trial except so far as there are issues of fact in dispute to be determined. 5/ Under the Federal Rules the motion is designed to pierce the allegations of fact in the pleadings and to obtain summary relief where facts set

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3/ Alabama Power Company (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974); Dairyland Power Cooperative (LaCrosse Boiling Water Reactor), LBP-82-58, 16 NRC 512, 520 (1982).

4/ See, Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-654, 14 NRC 632, 635 (1981).

5/ Ex parte Peterson, 253 U.S. 300, 310 (1920).

forth in detail in affidavits, depositions, interrogatories, or other material or evidentiary value show that there are no genuine issues of material fact to be tried. 6/ Mere allegations in the pleadings will not create an issue as against a motion for summary disposition supported by affidavits. 10 C.F.R. § 2.749(b); Fed. R. Civ. P. 56(e).

A party seeking summary disposition has the burden of demonstrating the absence of any genuine issue of material fact. 7/ In determining whether a motion for summary disposition should be granted, the record must be viewed in the light most favorable to the opponent of such a motion. 8/

To draw on federal practice, the Supreme Court has pointed out that Rule 56 of Federal Rules of Civil Procedure does not permit plaintiffs to get to a trial on the basis of the allegations in the complaints coupled with the hope that something can be developed at trial in the way of evidence to support the allegations. 9/ Similarly, a plaintiff may not defeat a motion for summary judgment on the hope that on cross-examination the defendants will contradict their respective affidavits. To permit trial on such a basis would

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6/ G. J. Moore, Moore's Federal Practice ¶ 56.04[1] (2d ed. 1976).

7/ Cleveland Electric Illuminating Co. et al. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753 (1977).

8/ Poller v. Columbia Broadcasting System, Inc., 368 U.S. 464, 473 (1962); Dairyland Power Cooperative (LaCrosse Boiling Water Reactor), LPB-82-58, 16 NRC 512, 519 (1982).

9/ First National Bank of Arizona v. Cities Service Co., 391, U.S. 253, 289-90 (1968), rehearing den., 393 U.S. 901 (1968).

nullify the purpose of Rule 56 which permits the elimination of unnecessary and costly litigation where no genuine issues of material fact exist. 10/ To defeat summary disposition an opposing party must present material and substantial facts to show that an issue exists. Conclusions alone will not suffice. 11/

The federal courts have clearly held that a party opposing a motion for summary judgment is not entitled to hold back evidence, if any, until the time of trial. 12/ The opponent must come forth with evidentiary facts to show that there is an outstanding unresolved material issue to be tried. 13/ Summary disposition cannot be defeated on the hope that the Intervenor can possibly uncover something at hearing. Hurley v. Northwest Publications, Inc., 273 F. Supp. 967, 974 (Minn. 1967). Now, is the time for the Intervenor to come forth with material of evidentiary value to contravene the Licensee's affidavits and to show the existence of a material fact to be resolved at an evidentiary hearing.

The Commission's regulations permit responses both in support of and in opposition to motions for summary disposition. 10 C.F.R. §

10/. See, Orvis v. Brickman, 95 F. Supp 605, 607 (1951), aff'd 196 F.2d 762 (D.C. Cir. 1952), cited with approval in Gulf States Utilities Co. (River Bend Station, Units 1 and 2), 1 NRC 246, 248 (1975).

11/ River Bend, LBP-75-10, supra at 248; Perry, ALAB-443, supra at 754.

12/ Lipschutz v. Gordon Jewelry Corp., 367 F. Supp. 1086, 1095 (SD Texas 1973).

13/ Stansifer v. Chrysler Motors Corp., 487 F.2d 59, 63 (9th Cir. 1973), and Franks v. Thompson, 59 FRD 132, 145 (M.D. Alabama 1973).

2.749(a). Such responses may be filed with or without supporting affidavits. Id. However, if the motion is properly supported, the opponent of such a motion may not rest simply on allegations or denials of the contents of the motion. 14/ In addition, any facts not controverted by the opponent of a motion are deemed to be admitted. 10 C.F.R. § 2.749(b). The Appeal Board noted that a hearing on each issue raised "is not inevitable," but "wholly depends upon the ability of the intervenors to demonstrate the existence of a genuine issue of material fact ..." 15/

In conclusion, both the Appeal Board and the Commission have encouraged the use of the Commission's summary disposition procedure. 16/

The Commission has stated that:

> ... Boards should encourage the parties to invoke the summary disposition procedures on the issues of material fact so that evidentiary hearing time is not unnecessarily devoted to such issues.

14/ Virginia Electric and Power Co. (North Anna Nuclear Power Station, Units 1 and 2), ALAB-584, 11 NRC 451, 453 (1980).

15/ Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), supra 632, 635 which is in accord with Budget Dress Corp. v. Joint Board (SD NY 1961) 198 F Supp 4, aff'd 299 F2d 936, cert den (1962) 371 US 815.

16/ Statement of Policy on Conduct Licensing Proceedings, CLI-81-8, 13 NRC 452, 467 (1981). See, Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-73-12, 6 AEC 241 (1973), aff'd sum nom BPI v. Atomic Energy Commission, 502 F.2d 424 (D.C. Cir. 1974); Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550-51 (1980); Mississippi Power & Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 424-25 (1973); Duquesne Light Co. (Beaver Valley Power Station, Unit 1), ALAB-109, 6 AEC 243, 245 (1973).

CLI-81-8, supra, 13 NRC 452, 457. The Commission's summary disposition procedures "provide ... an efficacious means of avoiding unnecessary and possibly time-consuming hearings on demonstrably insubstantial issues." 17/ Licensee has met these standards with regard to its motion for summary disposition concerning the admitted contentions.

B. THE LICENSEE HAS DEMONSTRATED THE ABSENCE OF A GENUINE ISSUE OF MATERIAL FACT AND IS ENTITLED TO A FAVORABLE JUDGMENT AS A MATTER OF LAW PURSUANT TO C.F.R. § 2.749(d)

The factual basis used in support of the Staff's position that there is no genuine issue of material fact to any of the Intervenor's admitted contentions is found in the Staff's Response as set forth below and in the "Affidavit of Edmond G. Tourigny in Support of Motion for Summary Disposition," dated August 30, 1988. Mr. Tourigny's Affidavit is appended hereto as Attachment A and made a part of Staff's Response.

Admitted Contention 1

That the calculation of radiological consequences resulting from a cask drop accident are not conservative, and the radiation releases in such an accident will not meet the 10 CFR Part 100 criteria. (Originally Amended Petition Contention 3.)

Memorandum and Order, Appendix A. p. 1, (April 20, 1988). The bases for the contention read as follows:

17/ Allens Creek, supra, 11 NRC at 550.

Bases for Contention

> The study prepared by the Department of Nuclear Energy, Brookhaven National Laboratory, entitled "Severe Accidents in Spent Fuel Pools in Support of Generic Safety," NUREG/CR-4982, BNL-NUREG-52093, indicates that, "... the calculation of radiological consequences resulting from such an accident are, at this point in time, apparently impossible to determine." "There is substantial uncertainty in the fission product release estimates. These uncertainties are due to both uncertainty in the accident progression (fuel temperature after clad oxidation and fuel relocation occurs) and the uncertainty in fission product decontamination." (S.6) In light of such uncertainty, no estimate can be determined to be conservative.

Amended Petition, p. 4.

In admitting this Contention, the Licensing Board stated that:

> Licensee's response ... should show that its analysis of a cask drop accident bounds those uncertainties that are identified in the BNL Report and listed as the bases for this contention. Thus, by such conservatisms and analysis, Licensee must demonstrate compliance with 10 CFR Part 100 (1987).

Memorandum and Order, p. 13, (April 20, 1988).

In essence, the Intervenor contends that a cask drop accident will cause radiological consequences greater than 10 C.F.R. Part 100 criteria, citing the Brookhaven National Laboratory (BNL) report on severe accidents: "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82" NUREG/CR-4982, BNL-NUREG-52093, July 1987 (BNL Report). However, the BNL Report assumes a number of unlikely events will occur in order to postulate a significant radiological release, such as a complete failure of the pool, including a rapid loss of all contained cooling water, eventual fuel heatup and a subsequent zirconium cladding fire.

Mr. Tourigny, in his Affidavit, states that in his opinion a cask drop accident will not cause a radiological release greater than 10 C.F.R.

Part 100 guidelines, provided the Licensee adheres to existing Technical Specifications that limit the maximum load which may be handled by the spent fuel cask crane to 25 tons. This 25 ton limit was placed in the Technical Specifications when St. Lucie Unit 1 was licensed in 1976 as a result of Staff analysis of the spent fuel pool structure that determined that dropping a load in excess of 25 tons could cause leakage from the spent fuel pool in excess of the pool's maximum makeup capability. Tourigny affidavit, item 4 at 3. This limit assures that the initiating event described in the BNL Report, failure of the pool thereby causing rapid loss of all contained water, will not occur. Id.

In addition, Mr. Tourigny notes that the spent fuel cask crane cannot carry a cask over most of the spent fuel pool because the door of the fuel handling building limits cask entry into only a portion of the building. Id., fn.1; accord, Licensee's Marschke affidavit at item 15. Based on his review Mr. Tourigny agrees with the Licensee's conclusion that a cask drop will not cause a failure of the pool. These conclusions are set forth in Licensee's Motion at 10-11. See, Marschke affidavit at item 19; Weber affidavit at 1, item 15. Mr. Tourigny concurs that a cask drop accident will not cause radiation doses to exceed 10 C.F.R. Part 100 guidelines. Tourigny affidavit, item 4 at 4.

Admitted Contention 3

> The licensee and staff have not adequately considered or analyzed materials deterioriation or failure in materials integrity resulting from the increased generation of heat and radioactivity as a result of increased capacity in the spent fuel pool during the storage period authorized by the license amendment. (Originally Amended Petition Contention 6).

Memorandum and Order, Appendix A, p. 1, (April 20, 1988). The bases for the contention state:

Bases for Contention

The spent fuel pool facility at the St. Lucie plant, Unit No. 1, was originally designed to store a lesser amount of fuel for a short period of time. Some of the problems that have not been analyzed properly:

a) Deterioration of fuel cladding as a result of increased exposure and decay heat and radiation levels during extended periods of pool storage.

b) Loss of materials integrity of storage rack and pool liner as a result of exposure of higher levels of radiation over longer periods.

c) Deterioration of concrete pool structure as a result of exposure to increased heat over extended periods of time.

Amended Petition, pp. 5-6. Of this contention, the Licensing Board said:

> Petitioner argues that the pool was designed to store lesser quantities of spent fuel for a shorter period of time and that licensee has failed to adequately analyze problems that may result from exposure to the increased amount of decay heat and radiation emitted by the larger number of spent fuel assemblies stored. Petitioner specifies three problems: (1) deterioration of fuel cladding; (2) loss of integrity of materials making up the storage rack and the pool liner; and (3) deterioration of the concrete of which the pool is constructed. Amended Petition, 5-6. At oral argument, Petitioner asserted that the normal temperature of the pool would be increased, subjecting the pool materials, particularly the concrete, to greater stress. Petitioner asserted that the calculation of these factors were "clearly inadequate."

Memorandum and Order, page 17 (April 20, 1988). The Licensing Board limited the scope of the contention to the length of time authorized by the licensing amendment at issue. Id. at 19.

In view of the admitted contention, it is clear that the Intervenor believes that the long-term performance of the materials associated with the spent fuel pool has not been demonstrated. However, Staff's witness, Mr. Tourigny, disagrees that there is any factual dispute on this issue and points out that the successful long-term performance of spent fuel pools has been repeatedly demonstrated in a number of Commission documents and

studies. Mr. Tourigny points out that long-term performance of spent fuel pool materials were demonstrated in the Final Generic Environmental Impact Statement on Handling and Storage of Spent Fuel Light Water Reactor Fuel, NUREG-0575, (August 1979) and in the Waste Confidence Decision and Requirements for License Actions Regarding the Disposition of Spent Fuel upon Expiration of Reactor Operating Licenses, 43 F.R. 34658, (August 31, 1984).

In addition, Section 3 of the Staff's St. Lucie 1 safety evaluation entitled "Material Compatibility and Chemical Stability" also analyzed this matter with specific emphasis on the St. Lucie spent fuel pool and concluded, inter alia, stress corrosion cracking and thus corrosion in the spent fuel storage pool environment should be of little significance during the life of the plant. Tourigny affidavit, item 6 at 5-6. Moreover, the Commission's waste Confidence Decision, noted above, at Finding number four found reasonable assurance that spent fuel can be stored safely for at least thirty years beyond the expiration of the reactor's operating license at that reactor's spent fuel storage basin. Id. In addition, NUREG-0575, at Section 3.0, determined that fuel handling experience in the United States going back to 1959 has not revealed any instance where zircaloy clad uranium oxide fuel has undergone observable corrosion or chemical degradation during pool storage. Id. at 6.

Based on the above studies and analyses including the St. Lucie 1 safety evaluation Mr. Tourigny is of the opinion that the materials used in the pool and structure will fulfill their design function for the length of time authorized for the spent fuel pool amendment at issue. Id. at 7. In view of the foregoing, Mr. Tourigny notes his agreement with the affidavits

provided by the Licensee in support of its motion for summary disposition that conclude:

- The reinforced concrete spent fuel structure will withstand the radiation and heat levels expected
- The structure will withstand the expected thermal loads
- There are no materials degradation concerns for the stainless steels in the pool liner and storage racks
- Radiation heat effects, if any, on the spent fuel cladding and fuel assembly materials are neglible when compared to prior reactor materials
- The suitability of using Boraflex as a neutron absorber for the storage of spent fuel in the pool has been demonstrated.

Id. at 7. See, inter alia, Weber affidavit at 3, items 18, 21-22,; Kilp affidavit at 3a, items 12 and 20, 14-17; Singh affidavit at 3-6, items 20-21 and 30. Therefore, Staff concludes that the St. Lucie 1, spent fuel pool materials have been adequately evaluated and will perform their design function.

Admitted Contention 4

That the high-density design of the fuel storage racks will cause higher heat loads and increases in water temperature which could cause a loss-of-cooling accident and/or challenge the reliability and testability of the systems designed for decay heat and other residual heat removal, which could, in turn, cause a major release of radioactivity into the environment. (Originally Amended Petition Contention 8). Memorandum and Order, Appendix A, p. 1 (April 20, 1988).

Bases for Contention

a) The NRC has stated in numerous documents that the water in spent fuel pools would normally be kept below 122°F. The present temperature of the water at the St. Lucie plant, Unit No. 1 is estimated to be 110°F. After the reracking the temperature of the water would rise to 152°F on a normal basis, and could reach 182°F with a full core load added.
b) There is also the possibility that a delay in the make-up emergency water could cause the zirconium cladding on the fuel rods

to heat up to such high temperature that any attempt at later cooling by injecting water back into the pool could hasten the heat up, because water reacts chemically with heated zirconium to produce heat and possible explosions. Thus, the zirconium cladding could catch on fire especially in a high-density design and create an accident not previously evaluated.

In this contention the Intervenor maintains that the rerack will cause higher heat loads which could cause a loss of cooling accident or impair the system designed for decay heat which could lead to a possible delay in makeup water leading to a zirconium cladding fire.

The spent fuel pool water temperature changes with time and is dependent upon how much spent fuel is placed in the pool, the decay time of each fuel assembly before it is placed in the pool and how many pumps are operating with the single heat exchanger. Tourigny affidavit, item 7 at 8. Nevertheless, the Standard Review Plan (SRP) permits a maximum temperature of 140°F for normal refueling conditions, a 1/3 core offload, and below boiling for abnormal refueling conditions, i.e., a full core offload. The Staff, in its analyses of the St. Lucie 1 spent fuel pool expansion amendment independently determined that the maximum water temperature for a normal refueling condition would be 134°F and 167°F for a full core offload. Thus, there would be no loss of coolant because of boiling and the reliability and testability of the systems designed for heat removal would not affected. Tourigny affidavit, item 7 at 8. See also, Licensee's Singh affidavit at 4-5, items 22-25.

With regard to the allegation concerning the loss or delay in makeup water, the Licensee notes that the time for loss of forced pool cooling until the pool water boils for a normal discharge is approximately 13 hours and 5 hours for an abnormal discharge condition, Licensee's Singh

affidavit at 4-5, items 26-28; Houghtaling affidavit at 4, item 18. The Staff agrees, that there is a significant amount of time available before the pool water starts to boil and notes that there is also a significant delay between the time the pool water starts boiling and the water level recedes so that the fuel would be uncovered. Tourigny affidavit, item 7 at 8-9. In Staff's view, these long lead times are sufficient to allow appropriate action for providing makeup water. In that regard, the Licensee notes that makeup water can be provided from a number of sources. These are the Refueling Water Tank, Primary Water Tank, City Water Tank and Seismic Category I, Intake Cooling Water System. Further, three pumps associated with the system can be powered by the emergency diesel generators and only one pump is needed to fulfill the function. Licensee's Houghtaling affidavit at 4-5, item 8. The Staff agrees. Tourigny affidavit, item 7 at 9.

Therefore, the temperature of the pool water can be controlled and cooling of the spent fuel can be accomplished under a variety of circumstances.

Admitted Contention 5

That the cooling system will be unable to accommodate the increased heat load in the pool resulting from the high density storage system and a full core discharge in the event of a single failure of any of the pumps on the shell side of the cooling system and/or in the case of a single failure of the electrical power supply to the pumps on the pool side of the spent fuel pool cooling system. This inability will, therefore, create a greater potential for an accidental release of radioactivity into the environment. (Originally Amended Petition Contention 9).

Memorandum and Order, Appendix A, p.2 (April 20, 1988). No basis was specified to support Amended Contention 5.

In admitting this Contention, the Licensing Board stated that:

"Licensee's evidence on this contention should be directed toward applicability of and compliance with Criterion 44 of 10 C.F.R. Part 50, Appendix A." Memorandum and Order, p. 22 (April 20, 1988).

At the March 29, 1988 Prehearing Conference, Intervenor emphasized his concern over the alleged vulnerability of the electrical power supply; in particular, to the effects which humidity, wear, corrosion, elevated temperatures and exposure to radiation would have on components. Tr. 80. Essentially, the Contention alleges that, if a pump or pump power supply fails, then the spent fuel pool cooling system will be unable to accommodate the increased heat load associated with the higher density fuel storage under full discharge conditions. Thus, this contention interrelates with Admitted Contention 4, supra., because heat loading and single failure analysis of pool water temperatures under normal and abnormal refueling conditions, including the loss of all spent fuel cooling are addressed in Admitted Contention 4. However this contention goes one step further and raises the issue of an accidental release of radioactivity.

Staff concluded in Admitted Contention 4 that the spent fuel pool cooling system will maintain pool temperatures below the values set forth in the SRP and should forced cooling be lost, the fuel would remain well covered with water at a safe temperature. Staff's analyses and conclusions set forth in Admitted Contention 4 are incorporated herein by reference.

Staff's analysis of events in the remote possibility of a loss of makeup water with the resulting boil off of water was furnished to the Intervenor earlier this year. Staff's analysis concluded that the total radiation dose to the thyroid from iodine was calculated to be approximately 0.1 rem and the total radiation dose to the whole body is approximately 10^{-5} rem. Tourigny affidavit, item 8 at 10. These values are applicable to the exclusion area boundary and the low population zone

Boundary. Id. Therefore, even in the remote and unlikely event described above, these values are well below the 10 C.F.R. Part 100 guidelines of 300 rem to the thyroid and 25 rem to the whole body. Thus, even if a radiological release occurs, it will be well below the limits set forth above.

However, Staff believes that, as concluded in Admitted Contention 4, that pool water temperature can be adequately controlled and cooling of the spent fuel pool can be accomplished under the various refueling conditions described in Admitted Contention 4. See., Licensee's Houghtaling affidavit at 4-5, items 16-18. Tourigny affidavit, item 8 at 10. Further, as noted above, even in the highly unlikely event of loss of all forced pool cooling, the resulting radiation doses would be very small and well within the 10 C.F.R. Part 100 guidelines.

Admitted Contention 6

> The proposed use of high-density racks designed and fabricated by the Joseph Oat Corporation is utilization of an essentially new and unproven technology. (Originally Amended Petition Contention 11).

Memorandum and Order, Appendix A, p.2 (April 20, 1988). The bases for the contention read:

Bases for Contention

> As recently as 8 September 1987, the NRC has provided information concerning these racks to all nuclear power reactor facilities warning of a " . . . potentially significant problem pertaining to gaps . . .". The concern is that separation of the neutron absorbing material used in high-density fuel storage racks might compromise safety." (NRC Information Notice No. 87-43. SSINS No.: 6835). Again on 23 October 1987, the NRC is requiring more information of FP&L in order to assess the integrity of the Boraflex system. The answer to this latest inquiry has not yet been made available to the public.
>
> FP&L's response to these and other problems relating to the use of Boraflex incorporated in a system designed by the Joseph Oat Corp. represents an essential modification of the current technology to such an extent that it, in fact, represents utilization of a new technology and fabrication process that is, thus, unproven and untested.

Amended Petition, page 8. In admitting this contention the Board stated:

> While the use of Boraflex may not be considered "new technology," the problems identified in the NRC Staff Board Notifications concerning the reports on the Quad Cities and Point Beach plants raise specific questions about the use of Boraflex in the Joseph Oat storage racks.

Memorandum and Order, at 24 (April 20, 1988).

The Intervenor contends that the use of high-density racks designed and fabricated by the Joseph Oat Corporation is utilization of an essentially new and unproven technology. For the reasons set forth below, the Staff disagrees.

One the bases used by the Intervenor in support of this contention is NRC Information Notice No. 87-43, "Gaps in Neutron Absorbing Material in High Density Spent Fuel Storage Racks." The purpose of the Information Notice was to point out that gaps had developed in the Boraflex used in the high density spent fuel storage racks at Quad Cities, Unit 1 and that the gaps could reduce the margin of safety. Information Notice at 1. The gaps were attributable to mechanical restraint of the Boraflex undergoing shrinkage caused by irradiation. Licensee's Turner affidavit, item 36.

In the case of St. Lucie, unlike the Quad Cities spent fuel storage racks, the use of adhesives in the attachment of slightly oversized Boraflex to the rack cell was not permitted and the manufacturing process avoided techniques that could pinch the Boraflex. Tourigny affidavit, item 9 at 11-12. Therefore the Boraflex installed at St. Lucie 1, should be able to slightly shrink, unrestrained, under irradiation and this should resolve the gap problem found at Quad Cities. Tourigny affidavit, item 9 at 12. The foregoing construction techniques used for the St. Lucie 1 storage rack construction are routinely used in the industry and represent

total conformance with the industry norm. Licensee's Singh affidavit, at 3-6, item 29. Further, all signficant construction features of the racks are direct adaptions of well established technology. Id., item 32. In view of the foregoing, it is clear that the use of high-density racks designed and fabricated by the Joseph Oat Corporation does not involve the use of a new and unproven technology as alleged.

Admitted Contention 7

> That the increase of the spent fuel pool capacity, which includes fuel rods that are more highly enriched, will cause the requirements of ANSI-N16-1975 not to be met and will increase the probability that a criticality accident will occur in the spent fuel pool and will exceed 10 C.F.R. Part 50, A 62 criterion. (Originally Amended Petition Contention 15).

Memorandum and Order, Appendix A, p.2 (April 20, 1988). The bases for the contention read:

Bases for Contention

> The increase in the number of fuel rods stored and the fact that many of them may have experienced fuel failure or may be more highly enriched and have more reactivity will increase the chances that the fuel pool will go critical, and cause a major criticality accident and perhaps, explosion that will release large amounts of radioactivity into the environment in excess of the 10 C.F.R. 100 criteria.

Amended Petition, p. 11. The Licensing Board amended Intervenor's contention as originally filed to delete reference to failed fuel, and admitted the contention. See, Memorandum and Order, p. 28 (April 20, 1988).

In admitting this contention, the Licensing Board stated that "[c]riticality control is one of the basic concerns when fuel is being stored, and the methods used to achieve this control are of great importance. The contention is therefore admitted."

Memorandum and Order, p. 28 (April 20, 1988).

In this contention the intervenor is concerned that a criticality accident has a higher probability of occuring because of the increased spent fuel capacity and the higher enriched fuel in the pool.

Criticality consideration is a prime input in this matter since the spacing between fuel assembles in a given rack is now smaller and higher enriched fuel is permitted. In St. Lucie 1, Boraflex is the primary method used to meet regulatory requirements. Tourigny affidavit, item 10 at 13. Because subcritcality is important technical specification 5.6.1 has been incorporated into the St. Lucie 1 operating license. This technical specification requires that all fuel assemblies must have an initial enrichment in U-235 equal to 4.5 weight percent or less; that a boron concentration of at least 1720 ppm will be maintained in the pool water and non-temporary placement of spent fuel in Region II is permitted only if the fuel assembly meets certain burnup requirements. Id. The purpose of this technical specification then is to assure that the K-eff of the pool is maintained. The Standard Review Plan (SRP) calls for a K-eff of 0.95 or less for normal storage conditions. Id. If a K-eff of 0.95 or less is maintained a criticality accident cannot occur. Id. at 14.

The Staff has reviewed the Licensee's analysis of the criticality of the spent fuel pool and concurs in Licensee's conclusion that the K-eff for Region I will be 0.9409 and 0.9435 for Region II. Id. Therefore, Staff has concluded that under the above circumstances and provided that the applicable technical specifications are continually met a criticality accident cannot occur at the St. Lucie, Unit 1 spent fuel pool. Id. See, Licensee's Turner affidavit, item 42.

IV. CONCLUSION

In view of the foregoing, the Staff agrees with and supports Licensee's motion for summary disposition, because there is no genuine

issue of material fact in any of the Intervenor's admitted contentions to be litigated. Therefore, pursuant to 10 C.F.R. § 2.749, the Licensee is entitled to favorable decision on each of the admitted contentions as a matter of law.

Respectfully submitted,

Benjamin H. Vogler

Benjamin H. Vogler
Senior Supervisory Trial
Attorney

Dated at Rockville, Maryland
this 30th day of August, 1988