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Before the

UNITED STATES NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

In the Matter of:)
)
FLORIDA POWER AND LIGHT COMPANY)
)
(St. Lucie Plant, Unit No. 1))

Docket No. 50-335-OLA '88 JAN 21 A8:18

ASLBP No. 88-560-01-4X OFFICE OF GENERAL INVESTIGATION & SERVICE BRANCH

Attention: Docketing and Service Branch

SERVED JAN 21 1988

RE: Opportunity for Hearing on Federal Register Notice, August 31, 1987, Volume 52, No. 168, Page 32852. Proposed Issuance of Amendments to the Facility Operating Licenses No. DPR-67 and issued to Florida Power and Light Company to expand the spent fuel facility for St. Lucie Plant, Unit No. 1.

REQUEST FOR HEARING AND
PETITION FOR LEAVE TO INTERVENE

Petitioner requests a hearing and leave to intervene in these license amendment proceedings.

1. Campbell Rich requests a hearing and petition for leave to intervene in the above captioned amendment proceeding as allowed by the U.S. Nuclear Regulatory Commission's (Commission or NRC) Rules of Practice.

2. The Petitioner lives, uses and works and vacations in and otherwise uses and enjoys, a geographic area within the immediate vicinity of the St. Lucie Power Plant and could suffer severe consequences if a serious nuclear accident occurred at these facilities. Thus the Petitioner is significantly and adversely affected, and otherwise aggrieved, by the final agency action proposed in the captioned Federal Register.

CONTENTIONS

CONTENTION 1: That the expansion of the spent fuel pool at St. Lucie, Unit No. 1 is a significant hazards consideration and requires that a public hearing be held before issuance of the license amendments.

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BASES FOR CONTENTION:

a) The expansion of the spent fuel pool at the St. Lucie facility increases the possibility of a criticality and loss of cooling water accident, involves a significant reduction in the margin of safety of the spent fuel pool, and creates the possibility of a new and different kind of accident occurring, which would cause the pool to lose its structural integrity.

b) The Commission has traditionally held, in a series of case law, that expansion of the spent fuel facility involves a significant hazards consideration. As noted by Commissioner Asselstine, during an exchange with Senator Mitchell in Congress in 1983 and quoted in a letter of March 15, 1983, from Senators Simpson, Hart and Mitchell to Palladino. Mr. Asselstine is quoted as saying:

That is correct, Senator. The Commission has never been able to categorize the spent fuel storage as a no significant hazard consideration.

c) Congress clearly intended the spent fuel pool expansion be considered a no significant hazards consideration. During a meeting in Congress on House Bill 4255, a Mr. Ottinger was quoted as saying:

If the gentlemen will yield, the expansion of spent fuel pools and the reracking of the spent fuel pools are clearly matters which raise significant hazards consideration...
(127 Cong. Record H 8156)

The Senate Committee on Environment and Public Works reiterated this understanding on its report on S. 1207:

The Committee anticipates, for example, that consistent with prior practice, the Commission's standards would not permit a "no significant hazards consideration determination" for license amendments to permit reracking of spent fuel pools." S. Rep. 97-113, p. 15.

Thus, the legislative history behind PL 97-415 clearly contemplates that reracking is an example of licensing amendments involving a significant hazards consideration.

CONTENTION 2: Expansion of the spent fuel pool at the St. Lucie facility, Unit No. 1 constitutes a major Federal action and requires that the Commission prepare an environmental impact statement in accordance with the National Environmental Policy Act of 1969 (NEPA) and 10 CFR Part 51.

BASES FOR CONTENTION: The proposed expansion and reracking of the spent fuel pool at St. Lucie, Unit No. 1 increases both the possibility and probability of an occurrence of a release of radiation or radioactive materials into the environment, both as a result of normal operation and in the event that there is a total or partial loss of coolant from the spent fuel pool. The licensee and the staff must also address the following:

a) As a result of the expansion there will be an increased amount of spent fuel stored at the St. Lucie, Unit No. 1 plant. There is the possibility that this site could become a permanent waste disposal facility. The Licensee and staff have not looked at long term, perpetual maintenance of these wastes, or calculated the costs associated with such in both monetary losses and losses of land use.

b) There has not been an examination of on-site and off-site storage methods and alternatives to the expansions, including alternatives, such as derating which would reduce the amount of spent fuel produced.

CONTENTION 3: 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 be ALARA, and will not meet with

the 10 CFR Part 100 criteria.

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.

CONTENTION 4: That the consequences of a cask drop accident or an accident similar in nature and effect are greatly increased due to the presence of a large crane to be built inside the spent fuel pool building in order to facilitate the reraiking.

BASES FOR CONTENTION: The presence of the crane is in direct contradiction to the Final Safety Analysis Report in which it was indicated no crane capable of carrying heavy loads can move in the area of the fuel pool.

(9.1.2.3, FSAR, St. Lucie, Unit No. 1) A primary, accident initiating event as cited by, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety", is the structural failure of the pool due to a heavy load drop. "However, the frequency estimates for pool draining due to structural failure resulting from seismic events and heavy load drops were found to be quite uncertain. In the case of seismic events, the seismic hazard

and structural fragilities both contribute to the uncertainty range. For heavy loads, human error probabilities, structural damage potentials and recovery actions are the primary sources of uncertainties."(S.3)

The presence of this crane inside the spent fuel pool building contributes to the potential for a heavy load drop in the pool and may inhibit the ability of the existing cranes to operate, if needed, in any recovery action.

CONTENTION 5: That FP&L has not provided a site specific radiological analysis of a spent fuel boiling event that proves that off-site dose limits and personal exposure limits will not be exceeded in allowing the pool to boil with makeup water from only seismic Category 1 sources.

BASES FOR CONTENTION: The saturation noble gas and iodine inventories could be greater for the St. Lucie plant, Unit No. 1 as a result of fuel failure and increased enrichment; more than 1% of the fuel rods may be defective at the St. Lucie plant, Unit No. 1 because of the same fuel failure and the gap activity of noble gases, such as krypton 85, and fission products, such as radioactive iodine, may also be greater at the St. Lucie plant, Unit No. 1.

CONTENTION 6: The Licensee and Staff have not adequately considered or analyzed materials deterioration or failure in materials integrity resulting from the increased generation of heat and radioactivity as result of increased capacity and long-term storage in the spent fuel pool.

BASES FOR CONTENTION: The spent fuel 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 are:

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 to 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.

CONTENTION 7: That there is no assurance that the health and safety of the workers will be protected during spent fuel pool expansion, and that the NRC estimates of between 80-130 rem/person will not meet ALARA requirements, in particular, those in 10 CFR Part 20.

CONTENTION 8: 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.

BASES FOR CONTENTION:

a) The NRC has stated in numerous documents that the water in spent fuel pools would normally be kept below 122 degrees F. The present temperature of the water at the St. Lucie plant, Unit No. 1 is estimated to be 110 degrees F. After the reracking, the temperature of the water would rise to 152 degrees F on a normal basis, and could reach 182 degrees 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 temperatures 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.

CONTENTION 9: 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 or the electrical power supply to 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.

CONTENTION 10: That in calculating time to boil after loss of cooling after completion of full core discharge with the presence of the proposed 1706 assemblies, FP&L utilized a different set of assumptions than in determining the original figures for time to boil as indicated in the Final Safety Analysis Report for the St. Lucie plant, Unit No. 1. (9.1-49. Table 9.1-3)

CONTENTION 11: That the proposed use of high-density storage racks designed and fabricated by the Joseph Oats Corporation is utilization

of an essentially new and unproven technology.

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 into a system designed by the Joseph Oats Corporation 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.

CONTENTION 12: That the presence of degraded Boraflex specimens or absorber sheets on the floor of the pool will pose an increased hazard in promoting the propagation of cladding fire to low power bundles and thus promote a far larger spent fuel pool accident.

BASES FOR CONTENTION: As indicated in document no. 8709040387 870901 PDR ADOCK 05000335, the presence of degraded Boraflex specimens or absorber sheets on the floor of the spent fuel pool floor is anticipated. The presence of this debris on the pool floor will promote the propagation of cladding fire to other fuel bundles in the pool. (Severe Accidents in Spent Fuel Pools in Support of Generic Safety, NUREG/CR-4982, BNL-NUREG-52093.

4.2. pg. 63-4)

CONTENTION 13: That Licensee has not analyzed the effect that a hurricane or tornado could have on the spent fuel storage facility or its contents, and that the SER neglects certain accidents that could be caused by such natural disasters.

BASES FOR CONTENTION: The St. Lucie plant, Unit No. 1 site is in an area of potential hurricane and tornado activity. Accidents externally initiated by such events should be analyzed, including:

a) The possibility that a tornado driven or hurricane wind driven missile could damage the spent fuel racks.

b) The possibility that a tidal wave caused by a hurricane could cause the radioactivity in the spent fuel pool to be washed into the surrounding environment.

c) The possibility that a washover of the island, on which the plant is situated, for an extended period of time due to the presence of a hurricane or large storm could undermine the foundation of the spent fuel pool and endanger the integrity of the structure.

CONTENTION 14: That FP&L has not properly considered or evaluated the radiological consequences to the environment and surrounding human population of an accident in the spent fuel pool.

BASES FOR CONTENTION: The original design of the spent fuel pool was to accommodate a maximum of 727 assemblies for a period of very limited duration. The NRC in, "Severe Accidents in Spent Fuel Pools", identified three factors that had not been included in earlier risk assessments, because of the original design of these storage facilities.

However, even taking the present need for expansion into account the study indicates, "Although these disciplines have been integrated before in the normal operation risk assessments, the application to the spent fuel pool problem posed novel and uncertain conditions not encountered in the normal operation risk assessments. The results of this study have additional uncertainty, beyond those characteristic of traditional risk assessment studies for reactor operations, which is associated with the novel aspects of the phenomenology and the limitations of the data base." (Sever Accidents in Spent Fuel Pools, XIII) "Under certain conditions, the entire inventory of stored fuel could become involved." (Severe Accidents in Spent Fuel Pools, pg. XVII) FP&L could not have previously evaluated the consequences of the burning of 1706 assemblies. "A more sensitive indication of the severity of a spent fuel accident is the interdiction area (the area with such a high level of radiation that it is assumed that it cannot ever be decontaminated). For these long lived isotopes the interdicted area increases directly with the release fraction and provides a convenient measure of the societal consequences. As indicated in Table 4.7 the worst spent fuel accident is calculated to result in an interdiction area of 224 sq. miles." (Severe Accidents in Spent Fuel Pools, pg. 66)

Therefore, clearly this high-density storage creates the possibility of a new or different kind of accident from any previously evaluated. In addition, the presence of this uncertainty implies that the consequences of an accident previously evaluated may very well exceed original estimates. This contention is further bolstered by the inadequacies of FP&L's

population projections for this area.

CONTENTION 15: That the increase of the spent fuel pool capacity, which includes fuel rods which have experienced fuel failure and fuel rods that are more highly enriched, will cause the requirements of ANSI-NI6-1975 not to be met and will increase the probability that a criticality accident will occur in the spent fuel pool and will exceed 10 CFR Part 50, A 62 criterion.

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 to the environment in excess of the 10 CFR 100 criteria.

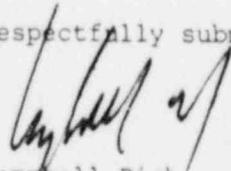
CONTENTION 16: That FP&L has not responded to the concerns as presented by the NRC by outlining a loading schedule for the spent fuel pool detailing how the most recently discharged spent fuel will be isolated from other recently discharged fuel and/or a full core discharge in order to mitigate potential risks from fires in the spent fuel pools resulting in releases of radioactivity into the environment in excess of the 10 CFR 100 criteria.

BASES FOR CONTENTION: "For those plants which have a significant spent fuel pool risk, the one preventive measure which appears to have a substantial effect on risk (a risk reduction of 5 or more) is to maintain recently discharged fuel in low density storage racks that are isolated from the rest of the fuel racks by a foot or more of space." (Severe Accidents

in Spent Fuel Pools, pg. 80). "Since high-density fuel storage racks are predicted to cause self-sustaining oxidation even after storage for one or more years, it seems clear that it would be undesirable to store spent fuel in high-density storage racks if it has been discharged within the last two years."(Severe Accidents in Spent Fuel Pools in Support of Generic Safety issue 82. NUREG/CR-4982, BNL-NUREG-52093). Therefore, the presence of a loading and storage configuration for all discharged fuel and a full core discharge is necessary.

Thus, for all of the above reasons, Intervenor contends that the expansion of the spent fuel facility at the St. Lucie plant, Unit No. 1 involves a significant hazard determination, which requires a public hearing be held and an environmental impact statement issued before the requested action is allowed to take place, as required by the Atomic Energy Act of 1954 and The National Environmental Policy Act of 1969.

Respectfully submitted,



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