

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50–335 and 389]

Saint Lucie Nuclear Plant; Notice of Consideration of Issuance of Amendments to Facility Operating License, Proposed No Significant Hazards Consideration Determination, and Opportunity for a Hearing

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating License Nos. DPR–67 and NPF–16, issued to Florida Power & Light (FPL) for operation of the Saint Lucie Units 1 and 2 located in Saint Lucie County, Florida. The proposed amendments would revise the Technical Specifications (TS) section 5.6, “Design Features—Fuel Storage,” to include the design of a new cask pit spent fuel storage rack for each unit to increase the allowable spent fuel wet storage capacity at both units and include the description of Boral™ as the neutron absorbing material used in the new cask pit storage racks. The proposal also revises the spent fuel pool (SFP) thermal-hydraulic analyses for core offload times of 120 hours after reactor shutdown and for a partial core offload as the normal offload condition. In addition the proposal includes a change in FPL’s commitments regarding the Unit 2 spent fuel cooling system design basis described in the Updated Final Safety Analysis Report (UFSAR). A current UFSAR commitment regarding the Unit 2 peak SFP temperature limit during full core offloads with minimum SFP cooling will be replaced with a new design basis.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission’s regulations in title 10 of the Code of Federal Regulations (10 CFR), section 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Would operation of the facility in accordance with the proposed amendment involve a significant increase in the

probability or consequences of an accident previously evaluated?

No. The proposed change to increase the spent fuel storage capacity with cask area racks was evaluated for impact on the following previously evaluated events:

- a. A fuel handling accident (FHA)
- b. A heavy load drop into the cask area
- c. A loss of SFP cooling
- d. A stored fuel criticality event
- e. A seismic event

The probability of a fuel handling accident is not significantly increased by the proposed change, because the same equipment (e.g., the spent fuel handling machine) and procedures will be used to handle fuel assemblies and the frequency of fuel movement will be essentially the same, with or without cask area racks. The FHA radiological consequences are not significantly increased because the source term of a single fuel assembly will remain unchanged, and the cask area racks will be installed at the same water depth as the existing SFP racks, with the same iodine decontamination factors assumed in the FHA analysis. The structural consequences of dropping a fuel assembly on a cask area rack were also found to be no more severe than those in the current FHA analysis.

The probability and consequences of a heavy load drop of the cask area rack are bounded by the existing cask drop analyses. The consequences are not adversely affected because a fuel transfer cask is much heavier than the empty rack. The probability of such an event is not adversely affected because adding a cask area rack will postpone the need for cask handling operations by extending the spent fuel storage. The cask area rack will be removed prior to any cask handling operations, such that a cask drop scenario onto a cask area rack loaded with fuel is not credible. Therefore, the probability and the consequences of a heavy load drop in the cask area are not significantly increased.

The probability of a loss of SFP cooling is unaffected and its consequences are not significantly increased with cask area racks installed. The addition of a cask area rack has an insignificant impact on the total SFP decay heat load. With the cask area rack installed, loss of forced cooling results in a sufficient time-to-boil for the operator to recognize the condition and establish SFP makeup to compensate for water lost due to pool bulk boiling, and thereby maintain a sufficient water blanket over the stored spent fuel.

The probability and consequences of a stored fuel criticality event are not increased by the addition of a cask area rack. The reactivity analysis for the new racks demonstrates the storage configuration remains subcritical for the worst-case fuel mispositioning event, with credit for soluble boron.

The probability of a seismic event is unaffected and its consequences are not significantly increased with cask area racks installed, because the structural analysis of the new racks demonstrates that the fuel storage function of the rack is unimpaired by loading combinations including seismic motion, and there is no adverse seismic-

induced interaction between the rack and adjacent structures.

Based on the above, it is concluded that the proposed amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Would operation of the facility in accordance with the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed change to add a cask area rack to each unit does not alter the equipment credited in the mitigation of design basis accidents, nor does the proposed change affect any of the important parameters required to ensure the safe storage of spent fuel. A new rack material (Boral™) is introduced into the pool under this change, but based on its operating history in SFPs, there are no mechanisms that create a new or different kind of accident.

The potential for dropping the new rack during installation or removal is bounded by the existing analysis for dropping a spent fuel transfer cask into the cask area. The same equipment (e.g., the spent fuel handling crane) and procedures will be used to handle fuel assemblies for the new cask area racks as are used for existing spent fuel storage. The fuel storage configuration in the new racks will be similar to the configuration in the existing SFP storage racks, and a fuel drop or mispositioning event in the new racks does not represent a new or different kind of accident from fuel handling and mispositioning events previously evaluated. Therefore, the proposed amendments will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Would operation of the facility in accordance with the proposed amendment involve a significant reduction in a margin of safety?

No. The effect of the proposed change on current margins of safety was evaluated for spent fuel storage functionality and criticality, spent fuel and SFP cooling, and structural integrity of the spent fuel pool. The design of the new racks uses proven technology which preserves the proper safety margins for spent fuel storage to provide a coolable and subcritical geometry under both normal and abnormal/accident conditions. The design complies with current regulatory guidelines and the ANSI [American National Standards Institute] standards, including 10 CFR 50 Appendix A General Design Criterion (GDC) 62, NUREG–0800 section 9.1.2, the OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications, Regulatory Guide 1.13, and ANSI/ANS [American Nuclear Society] 8.17. Handling the racks in accordance with the defense-in-depth approach of NUREG–0612 with temporary lift items designed to ANSI N14.6 preserves the proper margin of safety to preclude a heavy load drop in the cask area.

The cask area rack criticality analysis demonstrates that the neutron multiplication factor is maintained below 1.0, without credit for soluble boron, and less than or equal to 0.95 when credit is taken for the 650 ppm [parts per million] of soluble boron required