August 11, 2005

Mr. J. A. Stall
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT, UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION REGARDING RELIEF REQUEST NO. 26 - REPAIR OF ALLOY 600 SMALL BORE NOZZLES WITHOUT FLAW REMOVAL (TAC NO. MC6944)

Dear Mr. Stall:

By letter L-2005-099 dated April 29, 2005, Florida Power and Light (FPL) submitted a request for relief from certain requirements of the American Society of Mechanical Engineers Code for St. Lucie Unit 1. Specifically, pursuant to Title 10, *Code of Federal Regulations*, Section 50.55a(a)(3)(ii), Relief Request No. 26 (RR26) requested an alternative to the requirements of paragraph IWB-3132.3, Acceptance by Replacement, that states, "As an alternative to the repair requirement of IWB-3132.2, the component or the portion of the component containing the flaw shall be removed." The justification for RR26 is based on Westinghouse Topical Report WCAP-15973-P-A, "Low-Alloy Steel Component Corrosion Analysis Supporting Small-Diameter Alloy 600/690 Nozzle Repair/Replacement Programs," which was approved by the U.S. Nuclear Regulatory Commission (NRC) on January 12, 2005.

The NRC staff has reviewed your submittal and finds that the additional information contained in the enclosed Request for Additional Information is needed before we can complete the review. In general, RR26 did not adequately describe the scope of the components to be included and some of the calculations and analyses did not correctly implement the topical report. This request was discussed with members of your staff on July 19, 2005. On August 8, 2005, Mr. George Madden indicated that a response would be provided by August 31, 2005.

If you have any questions, please contact me at (301) 415-2315.

Sincerely,

/RA/
Brendan T. Moroney, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE NUCLEAR POWER PLANT, UNIT 1

DOCKET NUMBER 50-389

1. The description of American Society of Mechanical Engineers components affected only states that it applies to small bore alloy 600 nozzles welded to the reactor coolant piping hot legs. Also, the referenced drawings were not provided and are not included in the Updated Final Safety Analysis Report for St. Lucie Unit 1. Please provide a detailed list of the affected nozzles with locations and dimensions.

2. The requested relief is intended to include previously repaired nozzles. Please provide a listing of previously repaired nozzles, including method of repair and date of repair.

3. The proposed alternative indicates that it is intended to apply to nozzles that have been or will be repaired using the "half-nozzle" technique. As stated in Florida Power and Light Company letter L-2005-099, the U.S. Nuclear Regulatory Commission (NRC) staff has also previously approved repairs using the "sleeved full-nozzle" technique. Please clarify the request to indicate that it is not applicable to the "sleeved full-nozzle" technique, if intended.

4. The calculations and analysis provided to address Section 4.1 of the NRC Safety Evaluation (SE) dated January 12, 2005, for Westinghouse Topical Report WCAP-15973-P, do not correctly respond to the concern. Please provide a revised analysis to address the following:

   a. Step 1 - Does Section 2.4 of the WCAP-15973-P apply to St. Lucie Unit 1 in determining the maximum allowable hole size relative to (1) reduction in the effective weld shear area, and (2) the required area of reinforcement for the nozzle bore holes? If yes, provide the basis for the determination. If not, provide a plant specific analysis concerning the above.

   b. Step 2 - Discuss in detail how the overall general corrosion rate was determined.

   c. Step 3 - Using the calculated corrosion rate in Step 2 above, calculate the amount of corrosion during the service life of the half-nozzle repair.

Enclosure

d. Step 4 - Using the amount of corrosion over the specified time period calculated in Step 4 above, calculate the allowable increase in the diameter of the penetration (not the radius) in the carbon/low-alloy steel piping. Does this diameter increase of the penetration still meet the allowable increase in diameter specified in WCAP-15739-P, Rev. 01, Section 2.4? Provide the basis for this conclusion.

e. Step 5 - The NRC SE requires licensees to track the time at cold shutdown (that are planned or that may occur unexpectedly) to determine whether this time does not exceed the assumptions made in the analysis. If these assumptions are exceeded, the licensees shall provide a revised analysis to the NRC, and provide a discussion on whether volumetric inspection of the area is required. If St. Lucie Unit 1 does not commit to track the time at cold shutdown required by the SE, provide justification why this will not violate the analysis and the criteria in the SE. This justification should also explain how unplanned outages will be accounted for in the corrosion analysis, including statistical analysis of the confidence level that the overall corrosion rate will not violate the criteria established in WCAP-15973-P.

5. To enable the staff to evaluate the response to Item 1 of Section 4.2 of the SE, please provide the plant-specific dimensions for comparison with those used in the Calculation Report CN-CI-02-71, Rev. 1.

6. Is St. Lucie Unit 1 bounded by the linear elastic fracture mechanics analysis in Calculation Report CN-CI-02-71, Rev. 1? Please provide the basis for this conclusion.

7. The responses to address Section 4.3 of the SE provide values of chemistry parameters and contaminant levels and states that they have been maintained at steady state during the past two cycles. Please discuss the scope of the reviews conducted to support the data provided. Also, please identify any water chemistry transients in the last two operating cycles that significantly exceeded the steady state ranges and discuss the impact on stress corrosion crack growth of existing flaws in the crevice area of carbon and low-alloy steel.

Mr. J. A. Stall
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cc:
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