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 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.  
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 RECIP. NAME: EISENHUT, D.G. RECIPIENT AFFILIATION: Division of Licensing

DOCKET #  
05000389

SUBJECT: Fulfills commitment made in 830331 ltr re investigating feasibility of performing demonstration test for loss of ac power. Util developed three addl preoperational tests to demonstrate ability to cross-connect diesel generators.

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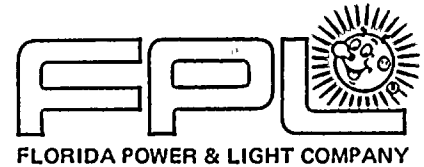
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May 27, 1983  
L-83-333

Office of Nuclear Reactor Regulation  
Attention: Mr. Darrell G. Eisenhut, Director  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit 2  
Docket No. 50-389  
Loss of All AC Power Test Program

Our letter L-83-209, dated March 31, 1983, transmitted our commitment to investigate the feasibility of performing a demonstration test for the loss of all AC power (LOAC). The purpose of this test was to provide assurance that St. Lucie Unit 2 could respond to a LOAC condition without endangering the health and safety of the public. In addition, we committed to demonstrate that no AC power is required for any functions designated as being powered by DC power. Since that time we have reviewed our preoperational testing program, existing analyses and plant design in order to evaluate the necessity of additional LOAC testing.

Several preoperational tests were performed during the November 1982 Hot Ops I Test Program which relate directly to LOAC. The first was the testing of the turbine driven Auxiliary Feedwater Pump and Atmospheric Steam Dump Valves. During the Plant Integrated System Test Program these components were tested utilizing their designed 125V DC controls and power, which includes pump discharge valve and header cross connect valves. These tests demonstrated the ability of the Auxiliary Feedwater System to supply feedwater to the steam generator independent of AC power.

In addition, preoperational tests on the 125V DC system have already been performed successfully to approved procedures. These tests are designed to ensure the proper "as designed" operation of the 125V DC system and related instrumentation. Tests of instrumentation designed to be connected to a DC power source have been conducted to verify that they are connected to the proper power supply. These tests include a point to point wiring check and a check to ensure that the device is powered from the correct power source. On the system level, AC supply to the batteries was disconnected and all devices designated as being powered from that battery were verified to be working properly. In this manner, we were able to verify that no AC power is required for any function designated as being powered by DC. The applicable procedures are available on-site for your review.

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It should be further noted that we have redesigned, constructed and tested a significantly upgraded 125 VDC systems described in FSAR Section 8.3.2. Battery capacity has been increased from 1800 ampere hour safety batteries to 2160 ampere hour safety batteries which represents a 20% capacity increase. In the extremely remote event of a loss of one or both of the Station Safety Grade Batteries, a third station battery (2C) of 1932 ampere hour capacity would be available for service via administratively controlled tie breakers. This action has significantly upgraded our original design and provides additional assurance of the plants' ability to withstand the challenge of LOAC.

Following the tests on the 125 VDC system and the Auxiliary Feedwater System and Atmospheric Dump Valves, it was our determination that two additional areas of plant operation needed to be tested in order to provide additional assurance that St. Lucie Unit 2 could safely be controlled throughout a LOAC. The first was the ability to cross-connect the emergency diesel generators from St. Lucie Unit 1 to St. Lucie Unit 2 to demonstrate the availability of an additional source of emergency AC power. There are permanently installed interties for this purpose. The second was to demonstrate the ability to manually control the operation of the turbine-driven Auxiliary Feedwater Pump and Atmospheric Steam Dump Valve to ensure that decay heat removal capability remains under LOAC conditions.

Based on this determination, three additional preoperational tests were developed:

1) Emergency Power System Testing

This test demonstrated cross-connect capability of the St. Lucie Unit 1 and 2 Emergency Diesel Generators in either direction on both A and B Channel Power Trains. This also includes the ability to Load Diesel Generators.

This testing was completed May 2, 1983.

2) Turbine Driven Auxiliary Feedwater Pump Testing

This test demonstrated the capability of the Turbine Driven Auxiliary Feedwater Pump to operate under manual control.

This testing was completed May 26, 1983.

3) Atmospheric Steam Dump Valve Testing

This test demonstrated the capability of the Atmospheric Steam Dump Valves to be operated and control temperature manually.

This testing was completed May 26, 1983.

Office of Nuclear Reactor Regulation  
Attention: Mr. Darrell G. Eisenhut  
Page 3

These procedures are also available on-site for your review.

In summary, through completed testing we have already confirmed the performance of the 125 VDC system, the ability to supply feedwater to the steam generators independent of AC power using the turbine driven auxiliary feedwater pump and atmospheric dump valves, and the fact that the instrumentation intended to be supplied by DC power is supplied by the correct power source. In order to demonstrate plant capability to withstand a LOAC event, we have added three additional preoperational tests. These tests are designed to demonstrate the ability to cross-connect the St. Lucie Unit 1 and 2 diesel generators, as well as to verify our ability to maintain heat removal capability under manual control.

By means of the tests described above, it is our position that we have established a testing program which demonstrated the ability of St. Lucie Unit 2 to withstand the LOAC event in a safe manner, without endangering the health and safety of the public.

This letter fulfills our commitment given in L-83-209.

Very truly yours,



Robert E. Uhrig  
Vice President  
Advanced Systems & Technology

REU/JEM/cab

cc: Mr. James P. O'Reilly, Region II  
Harold F. Reis, Esquire

