

September 30, 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 UNITS 1 AND 2 - RESPONSE TO NRC BULLETIN 2003-01,  
"POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY SUMP  
RECIRCULATION AT PRESSURIZED WATER REACTORS"  
(TAC NOS. MC9605 AND MC9606)

Dear Mr. Stall:

By letter dated August 8, 2003, the Florida Power and Light Company (FPL) responded to the U.S. Nuclear Regulatory Commission (NRC) Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," dated June 9, 2003. In a May 20, 2005, letter, FPL responded to a March 21, 2005, NRC request for additional information (RAI).

In Bulletin 2003-01, the NRC requested all pressurized-water reactor (PWR) licensees to provide a response, within 60 days of the date of the Bulletin, that contained the information requested in either of the following options:

- Option 1: State that the emergency core cooling system (ECCS) and containment spray system (CSS) recirculation functions have been analyzed with respect to the potentially adverse post-accident debris blockage effects identified in the Discussion section, and are in compliance with all existing applicable regulatory requirements.
- Option 2: Describe any interim compensatory measures that have been implemented or that will be implemented to reduce the risk which may be associated with potentially degraded or nonconforming ECCS and CSS recirculation functions until an evaluation to determine compliance is complete. If any of the interim compensatory measures listed in the Discussion section will not be implemented, provide a justification. Additionally, for any planned interim measures that will not be in place prior to your response to this bulletin, submit an implementation schedule and provide the basis for concluding that their implementation is not practical until a later date.

FPL provided an Option 2 response for St. Lucie Units 1 and 2.

Bulletin 2003-01 discussed six categories of interim compensatory measures (ICMs):

(1) operator training on indications of and responses to sump clogging; (2) procedural modifications, if appropriate, that would delay the switchover to containment sump recirculation (e.g., shutting down redundant pumps that are not necessary to provide required flows to cool the containment and reactor core, and operating the CSS intermittently); (3) ensuring that alternative water sources are available to refill the Refueling Water Tank (RWT) or to otherwise provide inventory to inject into the reactor core and spray into the containment atmosphere; (4) more aggressive containment cleaning and increased foreign material controls; (5) ensuring containment drainage paths are unblocked; and (6) ensuring sump screens are free of adverse gaps and breaches.

In its bulletin response of August 8, 2003, FPL stated that it had implemented the following interim compensatory measures for St. Lucie Units 1 and 2, or these measures are already in place:

- (1) Emergency Operating Procedures (EOPs), which monitor high pressure safety injection (HPSI) pump flow during recirculation to ensure core cooling and that damage to the pumps does not occur - ICM category #1;
- (2) A functional recovery procedure for the monitoring and restoration of critical plant safety functions (transitioned into from the EOPs upon events such as loss of sump recirculation during a loss-of-coolant accident (LOCA) - ICM category #1;
- (3) Initial operator training on root causes of, identification of and response actions to degraded pump performance, with periodic simulator-based pump degradation challenges - ICM category #1;
- (4) An Operations Information brief emphasizing the importance of monitoring ECCS and CSS pump performance during accident recirculation - ICM category #1;
- (5) EOP enhancements by November 10, 2003, to provide operators with more specific indications of sump blockage in the control room - ICM category #1;
- (6) Informational training on Bulletin 2003-01 to the technical support staff to be completed by the fourth quarter of CY 2003 - ICM category #1;
- (7) A Training Bulletin to the Engineering staff on Bulletin 2003-01 issues - ICM category #1;
- (8) Cooldown and depressurization of the reactor coolant system (RCS) to cold shutdown conditions during medium and small break LOCAs before the refueling water tank (RWT) is drained to the switchover level - ICM category #2;
- (9) An interim compensatory action to administratively control RWT level just below the high level alarm rather than simply above the Technical Specifications minimum limit - ICM category #2;

(10) Enhancements to the EOPs to initiate RWT refill upon switchover to sump recirculation by November 10, 2003 - ICM category #3;

(11) Detailed containment cleanliness procedures for unit restart readiness and for containment entries at power utilizing the latest industry guidance (including plant management and operating staff team walkdowns, deficiency reports and corrective actions, formal logs of nonpermanent equipment, material or tools under the Foreign Material Exclusion Program, with formal evaluation of those items to remain in containment, and controls for the surface preparation, procurement, application, surveillance, and maintenance activities for Service Level 1 protective coatings used inside the containment, with logs for and prior to restart inspection of unqualified coatings remaining in containment - ICM category #4;

(12) Numerous openings in the internal shield walls separating the reactor vessel and RCS piping from the outer containment leading to the sump, which will accommodate local blockage of some radial flowpaths while screening larger debris - ICM category #5;

(13) Engineering walkdowns of recirculation flowpaths during the 2004 refueling outages using Nuclear Energy Institute guideline NEI 02-01, Section 5.2.4.2 to identify issues - ICM category #5; and

(14) A detailed containment sump inspection procedure and inspection technique sheet to satisfy the requirements of the relevant Technical Specifications requiring visual inspections of the containment sumps at least once per 18 months for verification that the screens show no evidence of structural distress or corrosion - ICM category #6.

The response further stated that St. Lucie would not be implementing the following ICM preemptive operator actions to stop pumps or throttle flow solely for the purpose of delaying switchover to containment sump recirculation unless such action is incorporated in the Emergency Procedure Guidelines (EPGs) of CEN-152 (WCAP-16204, "Evaluation of Potential ERG [Emergency Response Guideline] and EPG Changes to Address NRC Bulletin 2003-01 Recommendations (PA-SEE-0085)" Volume III) through formal Owner's Group procedure maintenance programs.

In its May 20, 2005, response to a March 21, 2005, NRC RAI, FPL discussed the following considerations and actions:

(1) Licensed Operator Continuing Training including both simulator and classroom sessions conducted in late 2003, covering recent industry events dealing with containment sump clogging and the types of foreign materials that can adversely affect sump screen performance, pump failure modes and indications, and operator diagnoses and responses to recirculation sump failures - ICM category #1;

(2) Procedural enhancements to 1/2-EOP-03, Loss-of-Coolant Accident, which directs RWT makeup during recirculation from a variety of water sources, and additional monitoring of ECCS and CSS pump performance and associated contingency actions - ICM category #1;

(3) Plans to implement CEN-152, Revision 5.3 by the fall 2005 SL1-20 refueling outage, with any deviations evaluated and documented in the Plant Specific Technical Guidance documentation - ICM category #1.

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The NRC staff has considered the Option 2 response for compensatory measures that were, or were to have been, implemented at St. Lucie Units 1 and 2 to reduce the interim risk associated with potentially degraded or nonconforming ECCS and CSS recirculation functions. Based on the response, the NRC staff considers the actions to be responsive to, and meet the intent of, Bulletin 2003-01 for St. Lucie Units 1 and 2.

Should you have any questions, please contact me at 301-415-3974 or the lead PM for this issue, Alan Wang, at 301-415-1445.

Sincerely,

*/RA/*

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

Docket Nos. 50-335 and 50-389

cc: See next page

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Mr. J. A. Stall  
Florida Power and Light Company

cc:

Senior Resident Inspector  
St. Lucie Plant  
U.S. Nuclear Regulatory Commission  
P.O. Box 6090  
Jensen Beach, Florida 34957

Craig Fugate, Director  
Division of Emergency Preparedness  
Department of Community Affairs  
2740 Centerview Drive  
Tallahassee, Florida 32399-2100

M. S. Ross, Managing Attorney  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Marjan Mashhadi, Senior Attorney  
Florida Power & Light Company  
801 Pennsylvania Avenue, NW  
Suite 220  
Washington, DC 20004

Mr. Douglas Anderson  
County Administrator  
St. Lucie County  
2300 Virginia Avenue  
Fort Pierce, Florida 34982

Mr. William A. Passetti, Chief  
Department of Health  
Bureau of Radiation Control  
2020 Capital Circle, SE, Bin #C21  
Tallahassee, Florida 32399-1741

## **ST. LUCIE PLANT**

Mr. G. L. Johnston  
Plant General Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

Mr. Terry Patterson  
Licensing Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

Mark Warner, Vice President  
Nuclear Operations Support  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. Rajiv S. Kundalkar  
Vice President - Nuclear Engineering  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. J. Kammel  
Radiological Emergency  
Planning Administrator  
Department of Public Safety  
6000 Southeast Tower Drive  
Stuart, Florida 34997

Mr. William Jefferson, Jr.  
Site Vice President  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957-2000