



May 20, 2005

L-2005-124  
10 CFR 50.4

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

Re: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Response to Request for Additional Information Regarding  
Bulletin 2003-01 "Potential Impact of Debris Blockage on Emergency Sump Recirculation  
at Pressurized-Water Reactors" TAC Nos. MB9605 and MB9606

By letter dated August 8, 2003, Florida Power and Light Company (FPL) provided the 60 day response to the U. S. Nuclear Regulatory Commission (NRC) Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors," for St. Lucie Units 1 and 2. By letter dated March 21, 2005, the NRC issued a request for additional information regarding FPL's response to that Bulletin.

The requested information is provided in the attachment to this letter. Please contact George Madden at (772) 467-7155 if there are any additional questions.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W. Jefferson, Jr.', is written over a horizontal line.

William Jefferson, Jr.  
Vice President  
St. Lucie Plant

Attachment

A103

**St. Lucie Plant**  
**Responses to the NRC's Request for Additional**  
**Information Regarding Bulletin 2003-01 Responses**

**REQUESTED ADDITIONAL INFORMATION**

These responses address the NRC's Request for Additional Information regarding Bulletin 2003-01. The St. Lucie Plant response to this bulletin was provided to the NRC by letter L-2003-201, *NRC Bulletin 2003-01, Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors*, dated August 8, 2003. The NRC staff has completed its preliminary review of the St. Lucie response to that Bulletin, and has determined that more information is needed to complete its review. The NRC's requests are delineated in the enclosure to a letter from the NRC, *St. Lucie Plant, Units 1 and 2 – Request for Additional Information Regarding Bulletin 2003-01 Responses (TAC NO. MB9605 and MB 9606)*, dated March 21, 2005.

The following are the St. Lucie Plant responses to the four (4) items of requested information:

**Request 1:** On page 2 of Attachment 1 of your August 8, 2003, Bulletin 2003-01 response you stated that Florida Power and Light Company (FPL) would "enhance the applicable EOPs [emergency operating procedures] to provide the operators with more specific indications of sump blockage by utilizing all available instrumentation..." However, your response does not discuss any related operator training. Please provide a detailed discussion of the operating procedure changes to be implemented, the indications of sump clogging that the operators are instructed to monitor, and new response actions the operators may be instructed to take in the event of sump clogging and loss of emergency core cooling systems (ECCS) recirculation capability, if any.

**Response 1:**

Operator training (Licensed Operator Continuing Training, (LOCT) Section 03.6), which included both simulator and classroom sessions, was conducted from November 10, 2003 to December 17, 2003. Topics covered included a discussion of recent industry events dealing with containment recirculation sump clogging and the types of foreign materials that can adversely affect sump screen performance. Simulator demonstrations and practice scenarios were conducted featuring various pump failure modes and indications. The modeled pump failures included the appropriate indications for the condition. These scenarios required the crew to properly diagnose and respond to the failure.

Response 1 continued:

Procedural enhancements have been implemented by revisions to 1/2-EOP-03, Loss of Coolant Accident. The added guidance addresses potential blockage of the containment sump during recirculation by targeting Refueling Water Tank (RWT) inventory and pump performance during recirculation from the containment sump. The procedure directs makeup to the RWT which provides an additional source of water for injection in the event that sump blockage prevents continued recirculation. Initial RWT levels are also being administratively maintained higher than that required by the Technical Specifications to delay entry into recirculation. Delaying entry into recirculation allows for additional reductions in decay heat and therefore lower flow requirements during recirculation. The monitoring of pump performance is intended to identify erratic operation caused by increased sump blockage and to prompt action to secure an affected pump. This results in lower flow across the sump screens and ensures at least one pump remains operable. The specific procedure changes include: (1) an additional step for inventory makeup to the RWT from a list of potential makeup sources; (2) additional instructions for monitoring ECCS and spray pump performance during the sump recirculation phase of the event, and include operating amps, flow and discharge pressure as well as contingency actions to secure the pump if erratic performance is observed; (3) a specific "Note" was added explaining that erratic pump operation during recirculation from the containment sump may be indicative of sump blockage.

**Request 2:** On page 2 of Attachment 1 of your August 8, 2003, Bulletin 2003-01 response you stated that FPL would provide informational training to the technical support staff to provide awareness of the significance of the sump clogging issue and “proposed compensatory measures to the engineering staff involved in supporting the TSC [technical support center] and emergency operations facility (EOF).” The target date for this activity was the fourth quarter of 2003. Please provide a detailed discussion of the specific proposed sump clogging compensatory measures that have been briefed to the engineering staff for possible implementation during reactor events.

**Response 2:**

As committed, FPL provided informational training to the Engineering Training Population (ETP) regarding Bulletin 2003-01 in the fourth quarter of 2003. The ETP includes the engineering staff supporting the TSC and EOF. The purpose of the training was to provide an overview of the history of industry issues with containment recirculation sump clogging, a discussion of Bulletin 2003-01 requirements, and a discussion of current plans for St. Lucie specific resolution. Specific topics covered included a discussion of recent industry events dealing with containment recirculation sump clogging and the types of foreign materials that can adversely affect sump screen performance.

With respect to St. Lucie specific compensatory measures, the ETP was briefed on the emergency operating procedure changes implemented in response to Bulletin 2003-01. Specifically, the staff was advised of the importance for the operators to monitor ECCS pump performance during the recirculation phase of a LOCA. Parameters such as pump amps, pump flow, and pump discharge pressure are now utilized by operators to verify pump performance. The importance of need to initiate makeup to the RWT after switchover to recirculation was included in the training. All available water sources described in the procedures were discussed during the training. It was also noted that the procedures now have a step for the operators to contact the TSC for support in refilling the RWT. In addition, the ETP staff was briefed on the plant-specific compensatory measure implemented that administratively controls the RWT level to maximize the contained volume above the Technical Specification limit. At the conclusion of the training, the ETP staff was given an exam on the material presented to ensure that the key learning objectives were effectively communicated to the target population.

**Request 3:** On page 3 of Attachment 1 of your Bulletin 2003-01 response you state "Any generic changes to the CEN-152 EPGs [Emergency Procedure Guidelines] concerning isolation of an operating ECCS or CSS [containment spray system] train during the injection phase of a LOCA [loss of coolant accident] will be evaluated by formal Owners Group specific maintenance programs. After any generic guidance is approved and issued, St. Lucie will evaluate incorporating the recommended guidance into plant operating documents and provide the required operator training." The Westinghouse Owner's Group (WOG) has developed operational guidance in response to Bulletin 2003-01 for Westinghouse and CE type pressurized water reactors (PWRs). Please provide a discussion of your plans to consider implementing this new WOG guidance. Include a discussion of the WOG recommended compensatory measures that have been, or will be, implemented at your plants, and the evaluations or analyses performed to determine which of the WOG recommended changes are acceptable at your plants. Provide technical justification for those WOG recommended compensatory measures not being implemented by your plants. Also, include a detailed discussion of the procedures being modified, the operator training being implemented, and the schedule for implementing these compensatory measures.

**Response 3:**

Revision 5.3 to CEN 152 contains additional guidance for monitoring Emergency Core Cooling System (ECCS) pumps during the sump recirculation mode including guidance for when early securing of these pumps is considered. Revision 5.3 also includes guidance for refilling the RWT which delays entry into the recirculation mode allowing additional time for decay heat to be reduced. The St Lucie EOPs have not yet been revised to incorporate Revision 5.3 to CEN 152, however, as provided in the response to Request 1 of this RAI, pump performance monitoring and RWT inventory actions related to these recommendations have already been incorporated into the EOPs. The implemented revisions to the EOPs do not currently include early securing of ECCS pumps. Securing of the pumps is based on the performance of the pumps and not on a preemptive action. The EOP revisions incorporating CEN 152 Revision 5.3 are scheduled to be completed prior to the Fall 2005 SL1-20 refueling outage. This revision will include consideration of any recommendations not already incorporated. Any deviations to the CEN 152 Revision 5.3 recommendations will be evaluated and documented in the Plant Specific Technical Guidance (PSTG) documentation.

**Request 4:** Bulletin 2003-01 provides possible interim compensatory measures licensees could consider to reduce risks associated with sump clogging. In addition to those compensatory measures listed in Bulletin 2003-01, licensees may also consider implementing unique or plant-specific compensatory measures, as applicable. Please discuss any possible unique or plant-specific compensatory measures you considered for implementation at your plants. Include a basis for rejecting any of these additional considered measures. As an example, the staff noted that FPL has implemented a new unique and plant-specific administrative control of each Unit's refueling water tank level to maximize the volume contained above the Technical Specification minimum limit.

**Response 4**

As noted in the above request, St. Lucie has implemented higher administrative limits on RWT level. The administrative limits were set at 32.5 feet minimum level on both units. This resulted in an increase from the previous limits, (28.3' – Unit 1, 30' – Unit 2), in available water inventory of approximately 63,000 gallons on Unit 1 and 37,500 gallons on Unit 2. Refueling Water Tank level is recorded each shift in the Operator Rounds on each unit. The Technical Specification limits are 27.5' on Unit 1 and 28.5' on Unit 2. The new administrative limits ensure compliance with Technical Specifications and an increase in available water volume of 75,000 gallons on Unit 1 and 60,000 gallons on Unit 2 over the Technical Specification minimum volume. There are no additional plant specific actions that have been evaluated.