

December 14, 2005

Mr. L. M. Stinson  
Vice President - Farley Project  
Southern Nuclear Operating  
Company, Inc.  
P.O. Box 1295  
Birmingham, AL 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, 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. MB9575 AND MB9576)

Dear Mr. Stinson:

This letter acknowledges receipt of your response dated August 7, 2003, as supplemented October 29 and November 30, 2004, and July 22, 2005, to the Nuclear Regulatory Commission (NRC) Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors," dated June 9, 2003. The NRC issued Bulletin 2003-01 to all pressurized-water reactor licensees requesting that they provide a response, within 60 days of the date of Bulletin 2003-01, that contains either the information requested in following Option 1 or Option 2 stated in Bulletin 2003-01:

- 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.

You provided an Option 2 response.

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 storage tank (RWST) 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; (6) ensuring sump screens are free of adverse gaps and breaches.

You stated in your bulletin response of August 7, 2003, that you had implemented the following interim compensatory measures:

(1) initial and continuing operator training including the monitoring of operating ECCS and CSS pumps for indications of pump distress or loss of net-positive suction head (NPSH), operator guidance for the loss of the Safety Injection recirculation function entered in the event of sump blockage, enhancements to the ECCS logs to provide additional detail concerning the recognition and response to ECCS sump suction screen fouling (with annotated actions to be taken upon indications of pump cavitation or signs of sump screen blockage), and job performance measure exercises on the use of ECCS logs - ICM category #1;

(2) procedures to add makeup to the RWST upon loss of emergency coolant recirculation, and a severe accident management guideline detailing potential alternate un-borated sources of RWST makeup - ICM category #3;

(3) detailed and extensive procedural guidance for containment inspection to ensure that no loose debris is present in containment, and procedures to inventory and control items carried into containment during non-outage entries - ICM category #4;

(4) a procedure which checks that the cavity drain valves are open and their blind flanges removed after completion of refueling activities, double checked by the general containment inspection procedure - ICM category #5; and

(5) a procedure performed during refueling outages to ensure that ECCS sump suction screens are not restricted by debris, the sump components (trash racks, screens and inner cages) are properly installed and show no evidence of structural distress or corrosion, the wire mesh on the sump suction screens is not damaged, and gaps greater than 1/8 inch are not present in the mesh - ICM category #6.

You further stated in your response, including justifications, that you would not be implementing the following interim compensatory measure: procedural modifications, if appropriate, that would delay the switchover to containment pump recirculation.

In an October 29, 2004, response to an August 30, 2004, NRC request for additional information you stated that Southern Nuclear Company (SNC) would provide its response regarding Westinghouse Owners Group Bulletin 2003-01 operational guidance (potential interim compensatory measures) by November 30, 2004. In a letter dated November 30, 2004, you stated that SNC had received Westinghouse report WCAP-16204, Revision 1, "Evaluation of Potential ERG [Emergency Response Guideline] and EPG [Emergency Procedure Guideline] Changes to Address NRC Bulletin 2003-01 Recommendations (PA-SEE-0085)," and you

provided the results of your evaluation of this document and its Candidate Operator Actions (COAs) with respect to Farley as follows:

(1) COA 1A, "Operator Action to Secure One Containment Spray Pump Before Recirculation Alignment," concluding that because Farley Unit 1 A train and Unit 2 A and B trains of containment spray and residual heat removal (RHR) have separate, independent sumps, but Unit 1 B train core spray and RHR pumps share a common sump screen, SNC would implement COA for Unit 1 B train to reduce differential pressure across that sump - ICM category #2;

(2) COA 1B, "Operator Action to Secure Both Containment Spray Pumps Before Recirculation Alignment," concluding that for reasons of maintaining appropriate containment pH and providing required containment pressure and dose control during the injection and recirculation phases, this COA would not be implemented;

(3) COA 2, "Manually Establish One Train of Containment Sump Recirculation Prior to Automatic Recirculation Swapover," concluding that, for reasons of inadequate NPSH, establishing recirculation prior to reaching the current swap-over criteria would not be implemented;

(4) COA 3, "Terminate One Train of Safety Injection After Recirculation Alignment," concluding that, if the remaining operating train were to fail (single failure), peak cladding temperatures would rise rapidly and there would not be sufficient time for operators to perform effective mitigative actions, and that therefore this COA would not be implemented;

(5) COA 4, "Early Termination of One RHR Pump Prior to Recirculation Alignment," concluding that this COA, analyzed for Combustion Engineering (CE) designed plants, does not apply to Westinghouse designed plants such as Farley;

(6) COA 5, "Refill of RWST," concluding that current guidance exists at Farley to refill the RWST upon loss of emergency sump recirculation, ensuring that alternate water sources are available to refill the RWST (see below) - ICM category #3;

(7) COA 6, "Injection of More Than One RWST Volume or Alternate Water Source Bypassing the RWST," concluding that the former interim compensatory measure is addressed in Severe Accident Management Guidelines and that the latter is in a current Farley emergency procedure - ICM category #3;

(8) COA 7, "More Aggressive Cooldown and Depressurization Guidance for Small Break LOCA [Loss-of-Coolant Accident]," concluding that, as a Westinghouse plant, Farley currently has aggressive cooldown guidance up to the limits of Technical Specifications - ICM category #2;

(9) COA 8, "Provide Guidance on Symptoms and Identification of Containment Sump Blockage," concluding that specific indications of sump blockage will be added to three recirculation related emergency procedures (including pump flow, discharge pressure and motor amps), and that local monitoring of containment spray pump parameters would be directed as conditions allow during a LOCA event - ICM category #1;

(10) COA 9, "Develop Contingency Actions to Be Taken in Response to Containment Sump Blockage," concluding that explicit contingency action guidance will be included in new [Emergency Contingent Procedure] ECP-1.3, "Recirculation Sump Blockage" - ICM category #1;

(11) COA 10, "Termination of One Train of HPSI [High Pressure Safety Injection] Prior to Recirculation Alignment," concluding that this COA is applicable only to CE designed plants, unlike Farley's Westinghouse design; and

(12) COA 11, "Prevent or Delay Containment Spray for Small Break LOCAs," concluding that this COA is not applicable to non-ice condenser containment designed plants such as Farley.

In a July 22, 2005, letter SNC stated that in regards to COA 5, "Refill of RWST" at Farley, [Event Specific Procedure] ESP 1.3, "*Transfer to Cold Leg Recirculation*," guidance had been added to start filling the RWST when transfer to cold leg recirculation is complete.

The NRC staff has considered your Option 2 response for compensatory measures that were or were to have been implemented to reduce the interim risk associated with potentially degraded or nonconforming ECCS and CSS recirculation functions. Based on your response, the NRC staff considers your actions to be responsive to and meet the intent of Bulletin 2003-01. Please retain any records of your actions in response to Bulletin 2003-01, as the NRC staff may conduct subsequent inspection activities regarding this issue.

Should you have any questions, please contact me at 301-415-1493 or the lead PM for this issue, Alan Wang at 301-415-1445.

Sincerely,

/RA/

Robert E. Martin, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operator Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

cc: See next page

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