

August 26, 2005

Mr. D. E. Grissette  
Vice President  
Southern Nuclear Operating  
Company, Inc.  
P.O. Box 1295  
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING 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. MB9625 AND MB9626)

Dear Mr. Grissette:

This letter acknowledges receipt of the Southern Nuclear Company (SNC) response dated August 7, 2003, to 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.

SNC's letter 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; and
- (6) ensuring sump screens are free of adverse gaps and breaches.

SNC's letter stated in the bulletin response of August 7, 2003, that it had implemented the following interim compensatory measures:

- (1) training on integrated plant computer indications needed to ensure adequate ECCS flow through both the injection and recirculation phases, new training materials and simulator scenarios addressing the need for long-term monitoring of the recirculation phase, how to recognize that sump blockage is taking place, and actions to be taken if blockage is encountered - ICM category #1;
- (2) guidance to reduce depletion of the RWST and initiate makeup to the RWST from normal and alternate sources during efforts to restore normal ECCS flowpaths - ICM category #3;
- (3) sump screen and rack inspections for cleanliness, damage, corrosion and stability upon containment entry, containment exit inspections with logged material accounting procedures, and comparable controls for emergency entries into containment, and post-outage emergency sump cleanliness and material control procedures to ensure the sumps are free of debris such as trash, rags, tools or protective clothing - ICM category #4;
- (4) post-refueling and heat-up procedures to inspect that reactor cavity drains are properly restored with their blind flanges removed - ICM category #5; and
- (5) inspections to ensure ECCS subsystem inlets are free of debris and show no evidence of abnormal corrosion or structural distress, and that the sump screens are correctly configured and securely bolted in place - ICM category #6.

SNC further stated in its response, including justifications, that it 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:

(1) elaborated on operator training on Bulletin 2003-01 issues, including a sump blockage simulator training exercise addressing symptoms and operator responses/recovery actions, such as attempts to restore ECCS, increase/conservate RWST inventory, initiate cooldown to cold shutdown, reactor coolant system (RCS) depressurization, RCS makeup from alternate sources, steam generator depressurization to cool down the RCS, and maintenance of RCS heat removal - ICM category #1 and ICM category #2; and

(2) provided the results of SNC's consideration of the potential interim compensatory measures of Westinghouse Owners Group (WOG) report WCAP-16204, Revision 1, "Evaluation of Potential ERG and EPG Changes to Address NRC Bulletin 2003-01 Recommendations (PA-SEE-0085)."

In SNC's October 29, 2004, review of the WOG Candidate Operator Actions (COAs) SNC discussed:

(1) COA 1A "Operator Action to Secure One Containment Spray Pump Before Recirculation Alignment," concluding that, by design, both trains of spray and residual heat removal have separate independent sumps so that this action would have no effect on the differential pressure across the other sumps and would not be implemented;

(2) COA 1B "Operator Action to Secure Both Containment Spray Pumps Before Recirculation Alignment," concluding that, in addition to the basis for rejecting COA 1A, at least one train of containment spray is required for containment pressure and radiological dose control, so this COA would not be implemented;

(3) COA 2 "Manually Establish One Train of Containment Sump Recirculation Prior to Automatic Recirculation Swapover," concluding that this COA may interfere with other time critical actions and, therefore, would not be implemented;

(4) COA 3 "Terminate One Train of Safety Injection After Recirculation Alignment," concluding that should the remaining train of safety injection fail it is possible that the peak cladding temperature acceptance criterion could be exceeded, so this COA would not be implemented;

(5) COA 4 "Early Termination of One RHR Pump Prior to Recirculation Alignment," concluding that this combustion engineering (CE) reactor plant focused COA does not apply Westinghouse designed plants;

(6) COA 5 "Refill of RWST," concluding that this guidance currently exists and would be incorporated in a new sump blockage specific procedure (see below) - ICM category #3;

(7) COA 6 "Injection of More Than One RWST Volume or Alternate Water Source Bypassing the RWST," concluding that more than one RWST volume is already considered in severe accident management guidelines, and that the use of an alternate source bypassing the RWST is already in the loss of emergency coolant recirculation procedure - ICM category 3;

(8) COA 7 "More Aggressive Cooldown and Depressurization Guidance for Small Break LOCA," concluding that Vogtle currently uses aggressive cooldown within Technical Specifications limits in the current loss of emergency coolant recirculation procedure (and will include it in the new sump blockage procedure) - ICM category #2;

(9) COA 8 "Provide Guidance on Symptoms and Identification of Containment Sump Blockage," concluding that this interim measure has been accomplished through existing, revised and new procedures at Vogtle - ICM category #1;

(10) COA 9 "Develop Contingency Actions to Be Taken in Response to Containment Sump Blockage," concluding that such contingency action guidance will be included in the new sump blockage procedure at Vogtle (in effect July 8, 2005) - ICM category #1;

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

(12) COA 11 "Prevent or Delay Containment Spray for Small Break LOCAs," concluding that this COA is applicable only to ice condenser containment designed plants, unlike Vogtle's dry containment design.

In a letter dated July 22, 2005, SNC stated that for COA 5, "Refill of RWST" at Vogtle ES 1.3 "*Transfer to Cold Leg Recirculation*," guidance had been added to start filling the RWST when transfer to cold leg recirculation is complete - ICM category #3.

SNC's response dated October 29, 2004, also described that the only location inside containment where water may be trapped and prevented from returning to the containment emergency sumps is the reactor cavity (which has normally open 12 inch drain lines), and that all other zones around the refueling cavity are open to the emergency sumps via large areas of grating or open areas around the outside edge of containment.

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.

D. E. Grissette

- 5 -

Should you have any questions, please contact me at 301-415-1055 or the lead PM for this issue, Alan Wang at 301-415-1445.

Sincerely,

*/RA/*

Christopher Gratton, Sr. Project Manager, Section 1  
Project Directorate II  
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Office of Nuclear Reactor Regulation

cc: See next page

D. E. Grissette

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