

August 2, 2005

MEMORANDUM TO: Michael L. Marshall, Section Chief, LPD2-2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: David L. Solorio, Chief */RA/*
Balance of Plant Section
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: SHEARON HARRIS UNIT 1 - CLOSEOUT LETTER FOR BULLETIN
2003-01, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON
EMERGENCY SUMP RECIRCULATION AT PRESSURIZED-WATER
REACTORS"

The Plant Systems Branch (SPLB) has reviewed and evaluated the information provided in responses to Bulletin 2003-01 by the licensee for Shearon Harris Unit 1. SPLB has determined that the licensee's actions have been responsive to and meet the intent of Bulletin 2003-01. Attached to this letter is the proposed close-out letter for the above plant. If you have any questions, please contact Leon Whitney or Alan Wang. Please include Alan Wang and Leon Whitney on the distribution list.

Docket Nos: 50-400

Attachment: As stated

CONTACTS: Leon Whitney, SPLB/DSSA
415-3081
Alan B. Wang, DLPM, PD IV
415-1445

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DISTRIBUTION:

SPLB:r/f ADAMS LWhitney CPatel AWang

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DATE	08/ 02 /05	06/ 22 /05	07/ 15 /05

OFFICIAL RECORD

Progress Energy Carolinas, Inc.
Harris Nuclear Plant
P. O. Box 165
New Hill, NC 27562

SUBJECT: SHEARON HARRIS UNIT 1 - RESPONSE TO NRC BULLETIN 2003-01,
"POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY SUMP
RECIRCULATION AT PRESSURIZED WATER REACTORS (TAC NO. MB 9580)

Dear Mr. Morton:

This letter acknowledges receipt of your response dated August 8, 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 (PWR) 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

ATTACHMENT

alternative water sources are available to refill the 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 8, 2003, that you had implemented the following interim compensatory measures:

(1) procedural instructions to monitor containment and sump levels and to secure affected residual heat removal (RHR) and containment spray pumps on low sump levels, generic training on pump distress due to loss of net-positive suction head (NPSH) (such as erratic motor current, coolant flow or pump discharge pressure), GSI-191 specific mitigation strategies to address indications of and responses to sump clogging, classroom and simulator training on plant-specific sump clogging related indications and mitigating strategies, and revisions of applicable procedures to list indications of recirculation sump blockage and actions to take if a sump becomes blocked (procedures EOP-EPP-010 and EOP-EPP-011) - ICM category #1;

(2) revision to the EOPs to direct operators to refill the refueling water storage tank (RWST) upon switchover to recirculation, revision to the EOPs to refer to Severe Accident Management Guidelines (SAMGs) for identification of the valves needed to utilize demineralized water and Fire Service Water should the Reactor Water Makeup system and the fuel pool transfer canals provide insufficient RWST makeup, and revision to the EOPs to refer to the SAMGs to utilize the Volume Control Tank and the Boric Acid Tank as alternate makeup sources - ICM category #3;

(3) containment walkdowns and cleaning punch lists in addition to normal containment closeout surveillance procedures, revisions to containment closeout procedures to provide more specific guidance on containment cleanliness, revision to pre-job brief procedures to provide more specific guidance on containment cleanliness, containment cleanliness training for maintenance and contractor personnel in containment, robotic visual inspection of each low head safety injection and containment spray suction line - ICM category #4;

(4) verification that significant amounts of recirculation water will not be held up from returning to the recirculation sump, establishment of a preventive maintenance "route" to ensure that the seal table room floor drain is unobstructed, and a revision to surveillance procedures for containment closeout to ensure that the secondary shield wall scuppers are not blocked by equipment and that their associated wire mesh doors are not obstructed - ICM category #5; and

(5) verification that the sump screens are free of gaps and voids greater than specified criteria, and revision to a surveillance procedure for visual inspection of the sumps to document that gaps do not exist between the sump screens and the sump structure greater than standard screen pass-through size - ICM category #6.

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

In a December 6, 2004, response to a October 6, 2004, NRC request for additional information (RAI) you discussed your responses to 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)," and its recommended interim compensatory measures (termed "Candidate Operator Actions" or COAs), as follows:

(1) COA A1a-W "Operator Action to Secure One Spray Pump," concluding that the required dose and single failure analyses, along with the subsequent program and document changes, are not justified for this "risk neutral" (for the WOG WCAP - 16204 reference plant) interim compensatory measure, and that therefore this COA would not be implemented;

(2) COA A1b "Operator Action to Secure Both Spray Pumps," concluding that, as well as the rationales for COA A1a-W above, this COA is not intended for plants which use containment spray for pH control and that therefore this COA would not be implemented;

(3) COA A2 "Manually Establish One Train of Containment Sump Recirculation Prior to Automatic Actuation," concluding that this COA is recommended for plants which can secure one train of ECCS or can secure at least on CS pump as suggested in COA A1a-W, and that therefore this COA would not be implemented;

(4) COA A3-W "Terminate One Train of Safety Injection After Recirculation Alignment," concluding that, since HNP has two widely separated and independent sump structures (one per train), securing one RHR pump does not reduce flow to the running RHR pump, and also concluding that securing one train of safety injection after switchover to recirculation could place the plant in the configuration analyzed for the most limiting single failure, and that therefore this COA would not be implemented;

(5) COA A4 "Early Termination of One LPSI/RHR Pump Prior to Recirculation Alignment," concluding that, for the dual sump design reasons cited for COA A3-W above, and the fact that the limiting single failure at HNP is loss of a single running RHR pump, this COA is not risk beneficial and would not be implemented;

(6) COA A5 "Refill of Refueling Water Storage Tank," concluding that this COA has been implemented as discussed in the HNP Bulletin 2003-01 sixty day response of August 8, 2003, - ICM category #3;

(7) COA A6 "Inject More Than One RWST Volume From a Refilled RWST or By Bypassing the RWST," concluding that this COA has been implemented as discussed in the HNP Bulletin 2003-01 sixty day response of August 8, 2003 - ICM category #3;

(8) COA A7 "Provide More Aggressive Cooldown and Depressurization Following a Small Break LOCA," concluding that HNP EOPs already address maximizing cooldown rate up to the Technical Specification limit (which could potentially eliminate switchover to recirculation entirely for small or even medium break LOCAs) - ICM category #2;

(9) COA A8-W "Provide Guidance on Symptoms and Identification of Containment Sump Blockage," concluding that these actions have been implemented as discussed in the HNP Bulletin 2003-01 sixty day response of August 8, 2003 - ICM category #1;

Mr. Morton

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(10) COA A9-W "Westinghouse Plants Develop Contingency Actions in Response to: Containment Sump Blockage, Loss of Suction, and Cavitation," concluding that the seven recommended actions of this COA have been implemented - ICM category #1;

(11) COA A10 "Early Termination of One Train of HPSI/High-Head Injection Prior to Recirculation Alignment (RAS)," concluding that the most limiting LOCA analysis single failure is diesel failure leading to loss of a containment safety injection pump, and therefore this COA could have unacceptable consequences, and that therefore this COA would not be implemented; and

(12) COA A11 "Prevent or Delay Containment Spray for Small Break LOCAs (<1.0 Inch Diameter) in Ice Condenser Plants," concluding that this COA is not applicable to Harris Nuclear Plant with its dry containment design.

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-[xxxx] or the lead PM for this issue, Alan Wang at 301-415-1445.

Sincerely,

[Name], Project Manager, Section [1 or 2]
Project Directorate [I, II, III, or IV]
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

cc: See next page [Plant Mailing List]

ADD TO DISTRIBUTION: AWang, RArchitzel, DSolorio, MKowal, LWhitney, THafera