

March 28, 2006

Mr. Dennis L. Koehl
Site Vice President
Point Beach Nuclear Plant
Nuclear Management Company, LLC
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH 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. MB9599 AND MB9600)

Dear Mr. Koehl:

This letter acknowledges receipt of Nuclear Management Company, LLC's (NMC's), response dated August 8, 2003, as supplemented May 14, 2004, and August 19, October 18, and December 19, 2005, and February 24, 2006, to 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. 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 8, 2003, that you had implemented the following ICMs:

- (1) training on sump recirculation and loss of sump recirculation with annual reviews of associated shutdown emergency procedures - ICM category #1;
- (2) a revision to the Emergency Operating Procedures (EOPs) for indications and required actions for sump blockage, with associated training lesson plan - ICM category #1;
- (3) an OPS Notebook entry on Bulletin 2003-01 and sump blockage mitigation, with the information included in the Licensed Operator Requalification cycle - ICM category #1;
- (4) a lesson plan to address sump plugging - ICM category #1;
- (5) a pre-existing Simulator Guide on loss of containment recirculation - ICM category #1;
- (6) EOP network changes to prolong RWST inventory as well as reduce flow to the sump screens, and evaluate long-term plant status following a large break loss-of-coolant accident (LOCA) (directing operators and technical support center staff to monitor containment sump level, residual heat removal (RHR) operation, safety injection (SI) pump operation, low head injection flow and high head injection flow, and to take appropriate actions if sump blockage is observed - ICM category #1;
- (7) procedures to makeup to the RWST from alternate sources as well as depressurize the reactor coolant system (RCS) to minimize break flow (we note that you stated that RWST level is already required to be maintained at a minimum of 95 percent by the Technical Specifications) - ICM category #3;
- (8) procedure requirements for containment closeout and foreign materials control for post-outage and quarterly on-line inspections (containment entries), the purpose of which is to ensure that no materials are left in containment and that equipment left in containment are adequately secured - ICM category #4;
- (9) installation of metallic insulation in place of calcium silicate blocks in the refueling cavity - ICM category #4;

- (10) inherent design features which minimize potential for drainage path blockage to the sump - ICM category #5;
- (11) sump screen inspections every refueling outage, including removal and inspection for structural integrity/distress, cracking, corrosion, etc., and inspection for adverse gaps and breaches - ICM category #6.

You also stated in your response that you would be implementing the following ICM: the implementation of more aggressive containment foreign material control by January 14, 2004 - ICM Category 4. You also stated that you would develop an implementation schedule for revising plant EOPs, where appropriate, to stop or throttle redundant pumps that are not necessary to provide required flows to cool the containment and the reactor core within 30 days of the issuance of the generic guidance by Westinghouse Owners Group (then expected by March 31, 2004).

In your May 14, 2004, supplement to your August 8, 2003, Bulletin 2003-01 response, you stated that the WOG had formally transmitted WCAP-16204, Revision 1, "Engineering Evaluation and Analysis Report, Evaluation of Potential ERG [Emergency Response Guideline] and EPG [Emergency Procedure Guideline] Changes to Address the NRC Bulletin 2003-01 Recommendations," and that the WOG had evaluated 11 Candidate Operator Actions (COAs). You further stated that you had considered these COAs, and that for:

- (1) COA #1a, "Secure One Containment Spray Pump Before Recirculation Alignment," Point Beach EOPs already secures one containment spray pump during the verification of automatic action steps in EOP-0, Reactor Trip or Safety Injection, which prolongs RWST inventory and delays switchover to sump recirculation - ICM Category #2;
- (2) COA #1b, "Secure Both Containment Spray Pumps Before Recirculation Alignment," Point Beach EOPs do not secure both containment spray pumps during the verification of automatic action steps in EOP-0, Reactor Trip or Safety Injection, based on containment pressure, radiation levels and sump pH considerations;
- (3) COA #2, "Manually Initiate One Train of Containment Sump Recirculation Earlier," this action does not provide clear benefit over the RWST inventory preservation already accomplished under COA #1a (above) and will not be implemented at Point Beach;
- (4) COA #3, "Terminate One Train of HPSI [High-Pressure Safety Injection]/High-Head Injection After Recirculation Alignment," Point beach currently implements this strategy (leaving one ECCS train in standby) - ICM Category #1;
- (5) COA #4, "Terminate LPSI [Low-Pressure Safety Injection]/RHR Pump Prior to Recirculation Alignment," this Combustion Engineering-specific COA was not applicable to Point Beach's Westinghouse design and will not be implemented at Point Beach;
- (6) COA #5, "Refill Refueling Water Storage Tank (RWST)," NMC will implement this strategy at Point Beach by July 15, 2005, by providing instructions in the EOPs to refill the RWST following initiation of recirculation from normal or alternate water sources. In its October 18, 2005, and February 24, 2006, letters to the NRC, NMC elaborated that

directions exist in emergency contingency action (ECA) and EOP procedures to refill the RWST upon sump recirculation from a variety of sources - ICM Category #3;

- (7) COA #6, "Inject More Than One RWST Volume from Refilled/diluted RWST or By Bypassing the RWST," NMC declined to implement this COA, citing a number of concerns. However, in an October 16, 2005, letter to the NRC, NMC stated that it had implemented this strategy within ECA-1.3 (SI pump injection to the RCS from the re-filled RWST, and that the Point Beach Severe Accident Management Guidelines (SAG-3) list three potential SI pump suction sources and six related direct RCS injection paths bypassing the RWST. Further, NMC stated in its February 24, 2006, letter to the NRC that it had enhanced ECA 1.3 with two RCS injection paths from the RWST and two RCS injection paths bypassing the RWST - ICM Category #3;
- (8) COA #7, "Provide a More Aggressive Cooldown and Depressurization Following a Small Break LOCA (SBLOCA)," EOP 1.2 calls for cooldown at up to 100 EF/hour in such a situation. In an August 19, 2005, letter to the NRC, you stated that the background document for Point Beach EOP-1.2, "Small Break LOCA Cooldown and Depressurization," had been revised to state that the intent was to rapidly cool down the RCS at a rate as close to 100 EF/hour without exceeding that rate. You also stated that a lesson plan was developed and implemented for operator simulator training emphasizing the need to maximize the RCS cooldown rate during a SBLOCA - ICM Category #2;
- (9) COA #8, "Provide Guidance on Symptoms and Identification of Containment Sump Blockage," this strategy would be implemented at Point Beach by July 15, 2005, by adding a continuous action step immediately after establishing sump recirculation, to check indications of sump blockage and transition to the new sump blockage procedure, ECA 1.3, if blockage is indicated - ICM Category #1;
- (10) COA #9, "Provide Contingency Actions in Response to Containment Sump Blockage, Loss of Suction, and Cavitation," the new WOG SBCRG (Sump Blockage Control Room Guidance) generic guideline document (that seeks to prevent sump blockage or the maintenance of at least one train of ECCS in the presence of sump blockage indications) will be factored into the development of new procedure ECA-1.3 by July 15, 2005 - ICM Category #1;
- (11) COA #10, "Terminate HPSI/High-Head Injection Prior to Recirculation Alignment," that this COA was deemed not risk beneficial due to the risk of core damage considering the potential for single failures, and that therefore this COA will not be implemented at Point Beach;
- (12) COA #11, "Delay Containment Spray Actuation for Small Break LOCA in Ice Condenser Plants," that this COA is not applicable at Point Beach's dry containment design and therefore, will not be implemented at Point Beach.

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,

D. Koehl

-5-

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 301-415-2296 or the lead project manager for this issue, Alan Wang, at 301-415-1445.

Sincerely,

/RA/

Carl F. Lyon, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

cc: See next page

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-5-

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**Previously concurred

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*memo dated 12/2/2005

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November 2005