

March 3, 2006

Mr. Anthony R. Pietrangelo
Nuclear Energy Institute
1776 I Street, NW , Suite 400
Washington DC, 20006-3708

SUBJECT: NUCLEAR REGULATORY COMMISSION REQUEST FOR ADDITIONAL
INFORMATION TO PRESSURIZED WATER REACTOR LICENSEES
REGARDING RESPONSES TO GENERIC LETTER 2004-02.

Dear Mr. Pietrangelo:

This letter responds to your letter of February 28, 2006, on the same subject. As you are aware, the Nuclear Regulatory Commission (NRC) staff has reviewed pressurized water reactor (PWR) licensees' responses to Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors." The staff has provided requests for additional information (RAIs) to individual licensees to support the staff's disposition and eventual closure of Generic Safety Issue (GSI)-191, which relates to PWR sump performance. The staff requested in its correspondence that licensees respond and provide the requested information within 60 days. Your letter proposes an alternative approach and timetable for the staff to obtain this information.

The NRC staff has reviewed your letter, and we find your proposed alternative approach acceptable with the clarification of the time-frames provided in the following paragraph. We are agreeing to your proposed alternative because it is consistent with the staff's emphasis on early installation of modifications to address GSI-191. We understand the burden created by the design and installation of modified strainers within the schedule provided by GL 2004-02. In addition, we recognize that much of the information needed to address the RAIs will not be available until ongoing testing activities are completed. We appreciate your commitment to continue to work with NRC staff to resolve ongoing technical issues. Significant progress can be made through staff interaction with industry groups and sump screen vendors such that the staff may gain confidence that licensees are adequately addressing the remaining technical issues related to GSI-191.

We understand from your letter that for units completing their outage to incorporate strainer modifications in 2006, information needed to fully address GL 2004-02 will be provided to the staff by December 31, 2006. For units installing strainers after 2006, information needed to fully address GL 2004-02 will be provided to the staff within 90 days of outage completion but not later than December 31, 2007. The staff encourages licensees to provide the information at the earliest feasible date to provide for early resolution of any issues with the responses. Licensees who provide information later may find greater difficulty in reconciling any concerns the staff may have with the plans for modifying their strainers, including the need for additional plant modification.

In your letter, you state that in lieu of responding to the plant-specific RAI letters, licensees will provide a supplement to their GL 2004-02 responses. The letter also states that these supplemental responses will update the information previously provided to the NRC and will

describe the evaluation methodology that was used to address GSI-191 concerns, will include evaluation results, and will incorporate plant-specific details requested in the RAI letters. We expect these supplemental responses will fully address the issues identified in the RAIs. The staff will review these supplements and determine whether they provide adequate information to support issue closure. Should that be the case, we will consider the RAIs to have been addressed. If additional information is still needed, we will request it at that time.

Please also note that licensees requesting license amendments in support of their strainer modifications will need to provide sufficient information for the staff to determine the acceptability of the proposed amendment. Some licensees will also need to provide information to support staff audits of adequacy of the design bases for their modifications to address GSI-191. Such information may be of the same nature as that requested in the GL 2004-02 RAIs.

Your letter indicates you support the establishment of periodic meetings between Industry and NRC on GSI-191 resolution activities. We agree these meetings would provide a necessary forum for addressing known, as well as emerging areas of interest. The staff supports specific technical meetings, particularly those focused on resolving issues associated with the GL 2004-02 RAIs, to help ensure licensees are on a path to successful issue resolution. Your letter also identified several areas of interest (e.g., chemical effects, downstream effects, and coatings) where there is ongoing work by the industry and suggested it would be appropriate for industry organizations to work directly with NRC staff. We agree that this approach provides an initial method for the industry to explore staff questions and comments. The following provides staff's current high level issues in these areas. NRC expects industry will work with the staff regarding these technical issues and ensure an appropriate basis is incorporated into the plant specific evaluations that will be provided in the supplemental responses to GL 2004-02.

Chemical Effects

- The particle generator model from the WOG chemical effects testing should be sufficiently validated over the range of debris materials and containment pool conditions projected for the PWR plants.
- Plant specific testing and analysis should provide a technical basis for evaluation of chemical effects in areas not addressed by NRC and general industry test programs.
- A sound technical basis should be established for the use of "chemical surrogates" or chemical products to be used in plant specific testing by screen vendors.
- Justification should be provided for chemical effects testing performed in an environment (e.g., tap water) not representative of postulated plant specific post-LOCA containment pool.
- Uncertainties associated with chemical effects should be assessed sufficiently and accounted for with design margin.

Coatings

- Justification should be provided to show how coatings zone of influence (ZOI) test conditions simulate or correlate to actual plant conditions and ensure representative or conservative treatment in the amounts of coating debris generated by the interaction of coatings and a two-phase jet.
- Justification should be provided to show how coating assessment techniques demonstrate that qualified/acceptable coatings remain in compliance with plant licensing requirements for DBA performance.
- Exceptions taken to the staff approved methodology for sizing coating debris for transport analyses should be adequately justified.

Downstream Effects

- Debris interactions and potential concerns with chemical products should be addressed for their effects on downstream components, such as heat transfer surfaces.
- References, such as screen vendor test results and evaluations relevant to screen penetration, should be made available for staff review.
- The analytical approach described in WCAP-16406-P should be validated by correlation to testing or demonstrated acceptable through an established engineering practice in order to determine the need for additional confirmatory testing or analysis.
- Potential non-conservative assumptions should be validated or margin added to compensate.

If you would like to discuss the contents of this letter further, please contact me at (301) 415-1274.

Sincerely,

/RA/

Brian W. Sheron, Associate Director
for Engineering and Safety Systems
Office of Nuclear Reactor Regulation

Pietrangelo, A.

March 3, 2006

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