



NUCLEAR ENERGY INSTITUTE

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October 20, 2010

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Mail Stop 016 C1
Rockville, MD 20852

Subject: Resolution of Generic Safety Issue 191, PWR Sump Performance

Project Number: 689

Dear Chairman Jaczko:

The purpose of this letter is to provide the Commission with additional perspectives on several issues and concerns raised in SECY 10-0113 and discussed during the September 29 Commission briefing on GSI-191.

Applicability of Risk-Informed Approach for Large-Break LOCAs

Efforts to resolve GSI-191 have focused on a bounding, deterministic approach to compliance with regulatory requirements. The industry believes this approach is suitable for analyzing the more likely smaller loss-of-coolant-accidents (LOCAs), which comprise about 99.999 percent of the total LOCA risk spectrum from a frequency standpoint. The industry also believes that a risk-informed approach for analyzing the larger LOCAs is warranted to address the remaining .001 percent.

Our observation is that the NRC staff has treated the full spectrum of breaks the same and believe they are constrained to that approach absent guidance from the Commission. We believe risk insights, like those documented in NUREG 1829, Volume 1, *Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process*, can and should be used to inform the NRC staff's determination of reasonable assurance of compliance with the current 10 CFR 50.46, an approach totally consistent with the Commission's Policy Statement on Probabilistic Risk Assessment. So far, this has not been the case. Thus, we urge the Commission to provide the staff with specific guidance that allows the assumptions, methods, analyses and test protocols associated with the larger LOCAs to be risk-informed in a realistic, practical manner consistent with the extremely low-risk significance of that spectrum of breaks.

There has been much discussion in SECY 10-0113 and at the Commission briefing about the possible use of 10 CFR 50.46a, or revised Section 6 of NEI 04-07, or application of General Design Criterion 4 to help resolve GSI-191. All of these approaches share the same technical basis, that is, the extremely low likelihood of larger break LOCAs. While we continue to believe that the application of GDC-4, with credit for enhanced mitigation measures, is a sound approach. The industry is prepared to work with the staff on a risk-informed approach under any of the frameworks noted above, to develop realistic, practical approaches to address the larger LOCAs.

Enhanced Mitigation through Better Water Management

Improved water management during a postulated LOCA is an option that has received little attention in the resolution of GSI-191, which has focused on the recirculation phase of emergency core cooling systems (ECCS). Many of the phenomena associated with GSI-191 are exacerbated by the operation of the containment spray system, including debris transport, timing of the injection and recirculation phases, and net positive suction head requirements at the sump. In summary, containment spray is detrimental in GSI-191 space in every imaginable way. Better water management could significantly enhance safety and even preclude the need to go to the recirculation phase for the more probable spectrum of breaks. We urge the Commission to direct the staff to assess and resolve constraints to greater use of water management as a mitigation strategy to help close GSI-191.

Regulatory Stability Post GSI-191 Closure

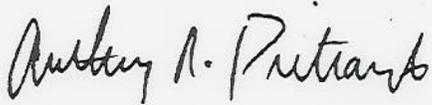
Concerns have been raised regarding the stability of the current deterministic approach going forward even after GSI-191 has been resolved. In his presentation during the Commission briefing, Pete Sena of FirstEnergy noted that risk-informed guidance could benefit operating margin. The importance of this point was recently highlighted following the discovery of previously unidentified fiber sources in the containments at North Anna Units 1 and 2. This "compliance issue" led to a voluntary shutdown of North Anna Unit 2.

The current deterministic closure process for GSI-191 prescribes a rigid "recipe" of debris with no ready means to evaluate the safety impact of even small changes to the assumed debris mix. This inability to assess the impact of changes to or deviations from conditions assumed in the analysis will continue to present a regulatory compliance problem. Under current processes, the experience of North Anna may be repeated at other plants. We urge the Commission to include direction to the NRC staff to provide assurance that actions taken in response to discovered conditions appropriately consider risk, consistent with the generic justification for continued operation that has been in place since 2003 which was acceptable before significant modifications that enhance safety were made at all PWRs.

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We believe the perspectives provided herein are consistent with the NRC's Principles of Good Regulation. Specifically relevant is the principle on Efficiency, which states in part: "Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted." In considering these perspectives and the alternatives for resolution of GSI-191, we trust that the Commission will want the staff to adhere to this principle, and we appreciate the Commission's efforts to bring finality to this long-standing issue.

Sincerely,



Anthony R. Pietrangelo

c: The Honorable Kristine L. Svinicki, Commissioner, U.S. Nuclear Regulatory Commission
The Honorable William D. Magwood, IV, Commissioner, U.S. Nuclear Regulatory Commission
The Honorable William C. Ostendorff, Commissioner, U.S. Nuclear Regulatory Commission
The Honorable George Apostolakis, Commissioner, U.S. Nuclear Regulatory Commission
Mr. R. William Borchardt, Executive Director for Operations, U.S. Nuclear Regulatory Commission