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FINAL REPLY:

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TO:

Chairman Diaz

FOR SIGNATURE OF :

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Chairman

DESC:

ROUTING:

Regulatory Prudence and Bulletin 2003-01

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# Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

July 1, 2003

Dr. Nils J. Diaz, Chairman  
United States Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT: REGULATORY PRUDENCE AND BULLETIN 2003-01**

Dear Chairman Diaz:

The Union of Concerned Scientists (UCS) finds itself in the unaccustomed position of asking you to curb your staff's efforts on a nuclear safety issue. They have, as we have, the very best intentions on this matter. But we are extremely concerned that the NRC staff is "jumping the gun" on this matter and are pursuing actions that may be adverse to safety. We ask you to redirect them towards the prudent and proper resolution of this matter.

The issue is the containment sump screens for pressurized water reactors (PWRs). Generic Safety Issue (GSI-191) was opened years ago to address this issue. The matter was accelerated to the fast track recently by the discoveries at Davis-Besse that (a) there was ample debris inside containment to clog the containment sump screen following design basis loss of coolant accidents, (b) that sufficient debris would remain inside containment even after extensive foreign material exclusion (FME) efforts, and (c) gaps existed in the screen to allow passage of debris large enough to challenge functioning of the containment spray nozzles and high pressure injection pumps. The containment sump screen at Davis-Besse was made larger by more than an order of magnitude.

For the express purpose of reducing risk until formal containment sump screen evaluations could be completed for other PWRs, the NRC staff issued Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors," on June 9, 2003. The bulletin made PWR owners aware of the sump blockage issue and requested them to consider taking interim measures to reduce the risk while the necessary formal containment sump screen evaluations were completed and any applicable corrective actions implemented. The NRC staff met with industry representatives and other stakeholders on June 30, 2003, to discuss the bulletin.

I attended the June 30<sup>th</sup> meeting and was extremely troubled by the approach outlined by the NRC staff for the proposed interim measures. The staff is urging plant owners to implement the interim measures without doing the "homework" necessary to ensure that the net effect will not be increased risk. It is my considered opinion that many of the proposed interim measures can actually increase risk quite substantially. Even if the proposed interim measures reduce risk, the NRC staff is not requiring the "homework" needed to verify this desired outcome.

For example, the bulletin urges plant owners to consider providing alternative water sources for the reactor core cooling and containment spray pumps in event the containment sump becomes unavailable. In written responses to industry questions provided during the June 30<sup>th</sup> meeting, the NRC staff indicated that "non-qualified components and non-Regulatory Guide 1.97 instrumentation may be used." In oral answers to the same questions, the NRC staff indicated that plant owners need not apply the single failure criterion when selecting alternative water sources. In its written response to industry question #38, the NRC staff stated "Many PWRs have margin between the current maximum pool depth [inside containment] and the depth which could result in a loss of integrity or structural failure of the containment. Therefore, although containment overfill should be a concern, many plants would likely be able to provide some quantity of additional injection from alternative sources without jeopardizing containment integrity." The NRC staff is implicitly conceding that containment failure could result from overfilling the containment using alternative water sources. Yet, the NRC staff is not applying the protection necessary to prevent inadvertent overfilling. By using non-qualified components not subject to the single failure criterion, it is credible that injection using an alternative water source could be initiated and not stopped when necessary.

The bulletin also invites plant owners to adopt interim measures to preclude debris accumulation on things inside containment, like mesh doors, which could prevent adequate water inventory in the containment sump. In oral answers to questions at the June 30<sup>th</sup> meeting, the NRC staff suggested it might be advantageous to leave doors to high radiation areas open with the plant at power, contrary to many lessons learned from radiation over-exposure events in the past. As the staff indicated in its written response to industry question #16, "Given that the response period for Bulletin 2003-01 is 60 days, the staff is not expecting lengthy, detailed analysis." In other words, neither the plant owner nor the NRC inspectors will have sufficient grounds to determine if leaving radiation protection doors unlocked and open is necessary, yet along with the risk of personnel overexposure.

Perhaps the worst part of the bulletin is its suggestion that plant owners deliberately turn off one train of reactor core cooling and/or containment spray so as to minimize the potential for clogging the containment sump screens with debris. But as the staff stated in its written response to industry question #66, "these calculations [of sump screen clogging] are plant-specific and the actual results may be counterintuitive. As an example, for certain plants with partially submerged sump screens during a small-break LOCA, this accident may present the greatest NPSH margin challenge." It is dangerous and imprudent to direct operators to turn off a safety train without good reason. Absent the plant-specific calculation, such direction is wrong. It only becomes right when a plant-specific calculation indicates that it is necessary. When one licensee at the June 30<sup>th</sup> meeting reminded the NRC staff that his plant got approval for the alternate source term on the basis of having both containment spray loops operating, the NRC staff's oral response was, in essence, "it's only an interim measure, wing it."

The interim compensatory measures sought by the NRC staff in Bulletin 2003-01 will set up the operators at PWRs more than the "solid pressurizer avoidance" mindset prior to TMI if they are not backed by formal evaluations to verify overall risk is being reduced.

There are many more reasons why the proposed interim measures may have unintended adverse safety implications. UCS is troubled that the NRC staff is urging plant owners to take steps that may undermine safety.

UCS is also concerned that the NRC staff and industry resources devoted to Bulletin 2003-01 are themselves adverse to safety. If those efforts delay the proper resolution of GSI-191 by even a second, they will have been counter-productive. The prudent and proper way to address the containment sump screen issue is to devote full attention to the resolution of GSI-191. Bulletin 2003-01 is therefore a needless and counter-productive distraction for both the NRC staff and industry (and also for UCS, but we'll manage.)

UCS requests that the NRC staff terminate Bulletin 2003-01 now and redirect its efforts towards expeditious resolution of GSI-191. Resolution of GSI-191 entails the rigor and discipline necessary to prevent the correction of one problem from inadvertently creating another larger problem. It is the right way to handle the containment sump screen issue.

The NRC has four strategic goals: (1) maintain safety, (2) increase efficiency and effectiveness, (3) improve public confidence, and (4) reduce unnecessary regulatory burden. Continuing forward with Bulletin 2003-01 meets none of these goals. Stopping Bulletin 2003-01 now and accelerating resolution of GSI-191 meet all four. Please help the NRC staff to do the right thing.

Sincerely,



David Lochbaum  
Nuclear Safety Engineer  
Washington Office