

April 30, 2003

RECEIVED

49/1

APR 21 11 10 13

3/19/03

B.P. Jain
R.M. Lobel

Rules and Directives
Branch
11770

68 FR 13338

(2)

Rules and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Public Comment on Draft Regulatory Guide DG-1107 (Proposed Revision 3 to
Regulatory Guide 1.82)

Gentlemen:

The following comments and questions are offered for consideration in development of the
subject revision to Regulatory Guide 1.82:

- 1) The draft Regulatory Guide appears to prescribe a particular configuration of screens and trash racks (Regulatory Positions 1.1.1.3 and 1.1.1.7) to protect ECCS sump outlets. This same configuration also appears to be implicitly assumed throughout Appendix A to the draft Regulatory Guide. This formulation appears to preclude use of several strainer designs that have been used to resolve ECCS debris blockage concerns in Boiling Water Reactors and which appear to have promise for application to Pressurized Water Reactors.

Does the NRC intend to accept ECCS suction strainer designs that vary from the configuration outlined in these Regulatory Positions for use in PWRs?

- 2) The draft Regulatory Guide appears to prescribe trash racks to protect PWR ECCS debris screens from missiles and other large debris (Regulatory Position 1.1.1.6). In the case of BWRs, a torturous path through the containment to the suppression pool was deemed to preclude direct missile impingement on ECCS suction strainers; those strainers were still required to meet a variety of challenging hydrodynamic load conditions along with seismic and operational loads. The physical configuration of equipment and ECCS sump outlets in some PWRs may also impose a torturous path between piping/components containing high energy fluid and ECCS sump outlets that precludes direct missile impingement on ECCS sump outlet screens.

Will the NRC give consideration to the existence of torturous paths that would prevent direct missile impingement on ECCS suction screens for some PWRs?

Will the NRC develop and publish criteria that it deems adequate to establish whether a given ECCS sump screen is sufficiently remote from structures

Temp Ltr = ADM-013

E-RFDS = ADM-03
all = B. SAIN (BPS)
D. Clark (TLCL)

containing high energy fluid that such trash racks are not required to protect the ECCS sump screen from missile impact loads due to LOCAs or other HELBs?

- 3) The draft Regulatory Guide requires consideration of air ingestion and other adverse hydraulic effects (Regulatory position 1.1.1.14 and Appendix A). Some of the strainer designs that appear to have promise for application in PWRs, but which do not conform to the explicit screen and trash rack configuration noted above, may also enhance margin to air ingestion effects. The PWR design guidelines for air ingestion provided in Appendix A do not appear to address the potential benefits of these designs.

Does the NRC intend to update Appendix A guidelines for determining vulnerability to air ingestion effects in light of new strainer technology?

- 4) The draft Regulatory Guide requires consideration of the size and shape of the zone of influence in determining the quantity of debris generated for a PWR by (among others) postulated breaks in reactor coolant system piping, main steam piping, and main feedwater piping. The reactor coolant system of a PWR is normally at significantly higher pressure than the main steam and main feedwater systems; the specific total energy of a unit mass of reactor coolant will be greater than the specific total energy of an equal unit mass of 'main' steam, which in turn will be greater than the specific total energy of a unit mass of 'main' feedwater. This would seem to suggest that the zone of influence for a postulated break in the reactor coolant piping should be larger than the zone of influence for a postulated break in the main steam piping, which in turn should be larger than the zone of influence for a postulated break in the main feedwater piping.

Does the NRC intend to scale the size of the zone of influence for debris generation based on the operating pressure or design pressure for a particular system, or based on the specific total energy of the process fluid for that system?

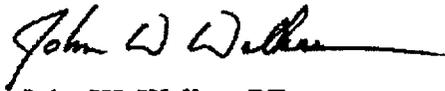
- 5) The draft Regulatory Guide requires consideration of debris in the form of precipitates generated by chemical reactions between high energy fluids released into the containment and other materials inside the containment (Regulatory Position 1.3.2.6). The draft Regulatory Guide does not appear to identify any published references pertinent to consideration of these chemical reactions.

Does the NRC intend to publish the results of its studies of chemical reactions between high energy fluids and containment materials?

Does the NRC intend to cite public domain references that provide an acceptable methodology for quantifying the amount of precipitates generated by chemical reactions inside containment?

- 6) The draft Regulatory Guide cites numerous NUREG references throughout the document (Part B, Discussion, pages 3-4, 6; Part C, Regulatory Position, pages 13-15; References, pages 23-25). Some of these references (e.g. NUREG / CR 6224) appear to be currently unavailable from either the Electronic Reading Room or the ADAMS sites. Returning key references to these sites would be helpful.

Does the NRC intend to provide internet access either via the Electronic Reading Room or via ADAMS to key NUREG references cited by draft Regulatory Guide 1.82 Revision 3, either before or in conjunction with final publication of the Regulatory Guide?



John W. Walker, PE
1414 Moonstone Dr.
Matthews, NC 28105