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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)

Dear Sir or Madam:

ENERCON Services respectfully submits the attached comments on the subject draft regulatory guide. ENERCON and our subcontractor, Innovative Technologies Solutions (ITS), prepared the attached list of comments based upon our prior design and analysis experience in resolving long term cooling issues for ECCS systems in Boiling Water Reactors and recent experiences with a Pressurized Water Reactor. The attached list of comments were derived from lessons-learned and questions/comments that may continue to surface based upon the proposed regulatory guide. It is our overall opinion that this draft guide is a very good proposed revision, but may need additional clarification and guidance in some areas.

Should you have any questions, I may be contacted at (770) 919-1931 ext. 280.

Sincerely,

J. Aaron Smith

J. Aaron Smith, PE
Enercon Project Manager

Attachment

Template = ADM-013

E-RIDS = ADM-03
Add = B. Sain (BPS)
IT Clerk (TLC1)

Comments on Draft Regulatory Guide DG-1107 (Proposed Revision 3 to Regulatory Guide 1.82)

These comments specifically pertain to the Pressurized Water Reactors Sections of the subject document.

1. Section 1.1.1.6, states that trash racks should be adequate to protect the debris screens from missiles and other large debris. This is assuming the use of a standard "screen box" design using conventional wire screening material. The strainer/screen could be fabricated of perforated plate material of a thickness that is not easily damaged by large debris or missiles. In addition, with a strainer design of more complex geometry that maximizes surface area, it is important that the surrounding trash rack structure not become blocked with debris thus preventing water flow to the strainer. The trash rack structure should not be the limiting component for the quantity of debris handled by the strainer. This is also true for debris interceptor "gates" that are located away from the sump but in the main flow paths to the sump. These debris interceptor "gates" could be used to stop or reduce the quantity of tumbling debris along the containment floor, but should not become blocked to the point of preventing water flow to the sump. Thus placement of trash racks and the selection of the grating material as presented in Tables A-1 through A-6 may not always be the best choice. The type of debris may affect the placement of trash racks and the selection of grating material. These Tables are for simple standard "screen box" design whereas future PWR strainers may need a more complex geometry to maximize strainer surface area in the smallest footprint.

2. Section 1.1.1.7, states that the top of the debris interceptor structures should be a solid cover plate that is designed to be fully submerged after a LOCA and completion of the ECC injection. We would recommend that the words be stated more like the statement in the Discussion section on page 5, "For certain sump designs, it is preferable that the top of the interceptor structure is a solid cover plate ...". This design feature is more for a standard "screen box" and may not be needed with strainers of more complex geometry. Further clarification for the need of the solid cover plate may be needed.

3. Section 1.1.1.8 states that the debris interceptors should be designed to withstand the vibratory motion of seismic events without loss of structural integrity. This section should clarify the possible seismic event with the containment flooded in a post LOCA environment. Though a seismic event concurrent with a LOCA is typically not postulated, during the thirty days following a LOCA, a seismic event may be possible. This event would create the sloshing and hydrodynamic loads on the strainer assembly.

4. Section 1.1.1.12 addresses the size of openings in the screen/strainer material to protect the downstream component from clogging or damage. This section addresses one dimension of a particle of debris. The second dimension should also be addressed. Long thin slivers of paint, insulation material, and other debris theoretically could pass through

the strainer but then not pass through the downstream component thus clogging or damaging the component. This should be addressed in this Regulatory Guide.

5. Section 1.1.1.15 recommends that drains from the upper regions of the containment building not discharge downstream of the sump screen. In addition, any floor drain opening in the sump area that is connected to the existing floor drain system, should be covered with strainer/screen material to prevent backflow of debris from the drain system during containment flood up.

6. For Sections 1.3.1.1 and 1.3.1.2, these sections should acknowledge that for PWR's the water that is flowing onto the containment floor that will eventually flood up to form the containment sump water level is very hot. The containment water temperature will be in excess of 212°F and would be boiling if it were not for the over-pressure of containment. By definition, the water level calculations take credit for the vapor pressure of the water at the elevated temperatures resulting in liquid water accumulating on the containment floor. The NPSH calculations should also credit this same vapor pressure. To have a statement in Section 1.3.1.1 stating no increase in containment pressure from that present prior to the postulated LOCA's is not appropriate. For the containment water level calculations and the NPSH calculations, using the predicted containment water temperatures and then selecting the conditions for saturated water would be appropriate. No sub-cooling of the water would be credited.

7. Section 1.3.1.6 addresses calculating the minimum static head of water above the pump suction. This section gives general guidance on not including the amount of water in enclosed areas which cannot readily be returned to the sump. However, more guidance could be included. Other items that might need to be considered are condensation on surfaces, vapor/steam in the atmosphere, and water in transient. It is recommended that more guidance be given for developing this calculation to insure consistent methodology between the PWR facilities.

8. In Section 1.3.2.3, the last bullet addresses the "thin bed" effect. This section should also acknowledge that large strainers of complex geometry and/or low approach velocities, if experimentally demonstrated, may not be susceptible to this described "thin bed" effect.