

Applicability of the Seven Criteria for Generic Issues to GI-191

1. The issue affects public health and safety, the common defense and security, or the environment (with respect to radiological health and safety). For issues that are not amenable to quantification using risk assessment, qualitative factors may be developed and applied as necessary to assess safety/risk significance.

All licensed pressurized water reactor (PWR) nuclear plants have made modifications to increase the size of their strainers in the containment sumps to prevent loss of net positive suction head (NPSH) due to blockage from debris following a loss of coolant accident (LOCA). Therefore, it is far less likely that debris following a LOCA would cause significant strainer blockage that could lead to loss of NPSH to the emergency core cooling system (ECCS) pumps. Hence, there is no longer a significant risk to PWR nuclear plants from the issue originating from GI-191.

Related issues dealing with chemical effects and in-vessel effects from debris that bypasses the strainers were addressed by NRR in their Technical Evaluation Report (TER) dated June 13, 2019 (ADAMS Accession No. ML19073A044). In that report, NRR analyzed the in-vessel and chemical effects from debris bypassing the containment sump strainers and determined them to be of low risk/safety significance.

Therefore, this criterion is no longer met.

2. The issue applies to two or more facilities and/or licensees/certificate holders, or holders of other regulatory approvals.

This issue applies to all licensed PWR nuclear plants. As stated above, all plants have made modifications to increase the size of their strainers in the containment sumps to prevent loss of NPSH due to blockage from debris following a LOCA. Therefore, there are no longer any plants susceptible to strainer blockage leading to a significant loss of NPSH to ECCS pumps.

Related issues dealing with in-vessel effects from debris that bypasses the strainers and chemical effects were addressed by NRR in their Technical Evaluation Report (TER) dated June 13, 2019, which determined that these issues were of low risk/safety significance. Therefore, there are no longer any nuclear plants susceptible to these additional issues evaluated under GI-191.

Therefore, this criterion is no longer met.

3. The issue is not being addressed using other regulatory programs and processes; existing regulations, policies, or guidance.

As a direct result of GI-191, NRR issued Generic Letter (GL) 2004-02 "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004 (ADAMS Accession No. ML042360586), to all PWR licensees to address the effects of debris inside containment following a LOCA. Activities related to GL 2004-02 are still ongoing. Hence, there is another regulatory program (e.g., generic communications) that is addressing any remaining open issues with debris, in vessel effects, and chemical effects following a LOCA.

Therefore, this criterion is no longer met.

Enclosure

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4. The issue can be resolved by new or revised regulation, policy, or guidance.

The staff issued GL 2004-02 to address the issues for GI-191, and has used the guidance in RG 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," Revision 4, dated March 2012, to address this issue. However, there are no more issues to be resolved by new or revising regulations. All necessary physical modifications have been made and verified by NRC inspectors. Additionally, the in-vessel effects and chemical effects have been dispositioned by NRR as low safety significance. The NRC does not plan on issuing new or revised regulations, policy, or guidance to address this issue.

Therefore, this criterion is no longer met.

5. The issue's risk or safety significance can be adequately determined in a timely manner (i.e., it does not involve phenomena or other uncertainties that would require long-term study and/or experimental research to establish the risk or safety significance).

The issues in GI-191 are now understood and can be resolved in a timely manner. As background, the original issues identified in GI-191 were very complex and plant specific. The consequences varied based upon the size of the break, location, and the types of insulation used by individual licensees. As a result, the issue took years of evaluations and testing to fully understand the consequences and determine the risk and safety significance. After 20 years of long term studies, and experimental research, the industry and the NRC are now finally at a point that it can be concluded that the risk from in vessel effects and chemical effects are of low risk/safety significance.

Therefore, this criterion is met.

6. The issue is well defined, discrete, and technical.

The original issue in GI-191 was a concern about the debris generated from a LOCA on the strainers in the containment sump providing long term water supply to several safety systems. This issue has been thoroughly evaluated and numerous tests performed by both the nuclear industry and NRC, producing a multitude of studies and reports. The information gained has provided sufficient information to define the issue identified in GI-191. Subsequently, related issues regarding in vessel effects and chemical effects were identified. NRR issued a TER dated June 13, 2019, that determined that the in-vessel effects from debris that bypasses the strainers and the chemical effects are of low risk significance. Hence, the issues identified in GI-191 are now well defined, discrete, and technical, and are understood by industry and the NRC staff.

Therefore, this criterion is met.

7. Resolution of the issue may involve review, analysis, or action by the affected licensees, certificate holders, or holders of other regulatory approvals.

The original issue identified in GI-191 has been resolved by licensees modifying their plants with larger strainer sizes to prevent significant blockage and to ensure adequate flow to the ECCS pumps to provide long term cooling. In addition, NRR has issued a TER dated June 13, 2019, stating that the in-vessel effects from debris that bypasses the strainers and the chemical

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effects are of low risk significance. There may be additional reviews, analysis, or actions to close out GL 2004-02, which will be tracked by NRR's generic communication process.

Therefore, this criterion is met.