



NRC NEWS

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NRC DIRECTS STAFF TO RESOLVE POTENTIAL DEBRIS CLOGGING OF EMERGENCY COOLING WATER SOURCE

The Nuclear Regulatory Commission has instructed agency staff to resolve Generic Safety Issue 191(GSI-191), where the containment sump, an emergency long-term cooling water source, could be clogged by debris accumulating after a high-pressure coolant pipe break. The new directions set a near-term schedule for smaller loss-of-coolant-accident (LOCA) scenarios, and a longer-term schedule for the less-likely larger LOCAs. The Commission also directed the staff to develop additional risk-informed implementing guidance for GSI-191.

“While much has been done by the staff, and licensees have physically modified their sump screens, resulting in significant safety improvements, the agency needs to finally resolve this issue,” said Chairman Gregory B. Jaczko. “Nuclear power plants have installed larger sump strainers and taken steps to eliminate materials that could end up in the sump. We’re confident these first steps provide for continued safe operation, but we need to move forward in resolving the final technical issues and closing out this long-standing issue.”

Reactor building sumps are designed to collect water lost after a pipe break, providing a potential source of coolant for recirculation after a reactor’s other water sources are exhausted. The original technical issue involved pipe-break scenarios where large amounts of fibrous insulation could be knocked off coolant pipes and collect in the sump, blocking recirculation.

Sump strainer performance issues were first identified in 1979, in an NRC report, Unresolved Safety Issue A-43, “Containment Emergency Sump Performance.” Boiling-water reactors resolved the issue by installing much larger strainers, but in the late 1990s the staff identified new concerns for pressurized-water reactors, concerning debris generated following a design-basis LOCA. To address this issue, the staff developed GL 2004-02, “Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors.”

The new direction is the result of two Commission meetings in 2010 addressing GSI-191, and it updates previous Commission direction to staff following a 2006 meeting in which the staff was directed to look also at testing and schedules and make a concerted effort to look holistically at resolution of this issue.

Forty-eight of the 69 U.S. pressurized water reactors have already used the integrated resolution process to develop NRC-accepted analysis and testing to show that their sumps will not clog. The Commission has directed the agency's staff to continue working with industry representatives to perform additional testing—expected to be completed by the end of 2011—and formulate a path forward by mid-year 2012. In the interim, the Commission has directed the staff to defer further GSI-191 plant modification actions (such as fibrous material removal) until the tests and analyses are complete. The staff will report to the Commission in approximately 18 months, identifying proposed policy options for resolving GSI-191.

The Commission expects upcoming sump performance assessments to take into account data including the full range of possible pipe break sizes, plant-specific compensatory measures and other design features that could reduce clogging risk. The Commission is also interested in better understanding the radiation dose that workers might receive if plants had them remove additional materials that could contribute to sump clogging.

The Commission's directions to the staff are available under "SECY 10-0113" on the NRC's website at: <http://www.nrc.gov/reading-rm/doc-collections/commission/srm/2010/>. More information about the PWR containment sump issue is available on the NRC website at: <http://www.nrc.gov/reactors/operating/ops-experience/pwr-sump-performance.html>.

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