

December 23, 2010

MEMORANDUM TO: R. W. Borchardt
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary **/RA/**

SUBJECT: STAFF REQUIREMENTS – SECY-10-0113 – CLOSURE
OPTIONS FOR GENERIC SAFETY ISSUE - 191, ASSESSMENT
OF DEBRIS ACCUMULATION ON PRESSURIZED WATER
REACTOR SUMP PERFORMANCE

The Commission recognizes the importance of resolving GSI-191 using a sound technical basis. The Commission approves moving forward with the resolution of GSI-191 through a combination of Options 1.b and 2, subject to the additional comments and clarifications noted below.

Stakeholders and staff have agreed upon the tests and analyses that remain to be completed regarding in-vessel effects, which could be the controlling factor in resolving GSI-191. Industry representatives indicated at the Commission meeting held on September 29, 2010, that this testing, as well as tests regarding zone-of-influence for debris generation and vendor-specific strainer performance, are expected to be completed by the end of 2011 and that the test results would be used to formulate a path forward by mid-year 2012. Completion of these tests and analyses is critical in order to better understand and address the uncertainties associated with the successful resolution of GSI-191. Given the timing of the completion of the tests and analyses and their necessity in effectively resolving GSI-191, it would be prudent to defer further GSI-191 plant modification actions (such as fibrous material removal) until the tests and analyses are complete.

The staff should continue with the integrated resolution process described under Option 1 for those licensees who wish to continue with that approach. The implementation schedule for those licensees should be risk-informed and take into account the amount of planning time and effort required for licensees to implement any resulting actions. The staff should be receptive to plant-specific implementation schedules for the execution of required GSI-191 actions in consideration of the cumulative effects of other required regulatory actions, licensee planned outages, critical modifications, maintenance activities and occupational dose.

The staff should take the time needed to consider all options to a risk-informed, safety conscious resolution to GSI-191. While they have not fully resolved this issue, the measures taken thus far in response to the sump-clogging issue have contributed greatly to the safety of U.S. nuclear power plants. Given the vastly enlarged advanced strainers installed, compensatory measures already taken, and the low probability of challenging pipe breaks, adequate defense-in-depth is currently being maintained.

The operative words for Option 2 are innovation and creativity. The staff should fully explore the policy and technical implications of all available alternatives for risk informing the path forward. These alternatives include, but are not limited to, how 50.46a might impact this issue, and how the application of a “no-transition-break-size” approach might work.

Using a no-transition-break-size approach, staff can assess whether debris fouling can be treated as a beyond design basis event. This approach would allow for the practical assessment of plant design features and operator actions (including human reliability evaluation) that could not only reduce the likelihood of sump clogging (e.g., strainer backwashing) but also reduce plant dependence on sump recirculation for long-term cooling through better water management (e.g., refill of the refueling water storage tank (RWST), cross tie to another RWST, and manual operation of containment spray). Furthermore, under this approach, existing plant-specific B.5.b equipment, which is already captured in each plant’s licensing basis, could be credited¹ to mitigate the potential consequences of sump-clogging scenarios. As an element of this assessment, the staff should consider licensee PRA information, if available, that assesses the full spectrum of pipe break sizes, plant-specific compensatory measures, and design features that could reduce sump clogging risk. The Commission was recently informed that one such study is being planned by a licensee².

The resolution of this complex issue calls for careful weighing of its safety significance, occupational dose, and other relevant risk-informed considerations. On the issues of safety significance and public risk, in order to highlight NRC’s openness, clarity, and reliability, the draft press release and letters announcing the Commission’s decision should be updated to reflect the Commission’s rationale. On the subject of occupational dose, the staff should provide the Commission with the best possible estimate of the occupational dose that would be realized if the remaining plants were to undertake plant modifications to remove insulation. Staff should also provide better understanding of the differences between staff and industry estimates.

The Commission has disapproved the use of 50.54(f) letters to licensees for GSI-191 matters without prior Commission approval.

The staff should keep the Commission informed of their progress via routine (every 6 months) Commission Assistants briefings and send a report to the Commission in approximately 18 months after issuance of this SRM identifying proposed policy options for resolving GSI-191.

(EDO)

(SECY Suspense:

6/25/12)

¹ Regulatory Issue Summary 2008-15, “NRC Staff Position on Crediting Mitigating Strategies Implemented in Response to Security Orders in Risk-Informed Licensing Actions and in the Significance Determination Process,” June 25, 2008 (ML080630025)

² Letter from E. Halpin, President and CEO STPNOC, to G.B. Jaczko, NRC Chairman, dated December 9, 2010.

cc: Chairman Jaczko
Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff
OGC
CFO
OCA
OPA
PDR