

March 10, 2009

MEMORANDUM TO: Donnie Harrison, Acting Chief
Safety Issues Resolution Branch
Division of Safety Systems
Office of Nuclear Reactor Regulation

FROM: Joe Golla, Project Manager **/RA/**
Generic Communications and Power Uprate Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF TELECON ON FEBRUARY 20, 2009, BETWEEN
NUCLEAR REGULATORY COMMISSION STAFF, WESTINGHOUSE,
THE PRESSURIZED WATER REACTOR OWNER'S GROUP AND THE
NUCLEAR ENERGY INSTITUTE ON LICENSEES CREDITING
REDUCED ZONES OF INFLUENCE BASED ON WESTINGHOUSE
TEST REPORTS

Participants:

Steve Smith - NRC
John Lehning – NRC
Joe Golla – NRC
Donnie Harrison – NRC

John Butler - NEI
Mo Dinger – PWROG/Wolf Creek
Tim Andreycheck – Westinghouse
Paul Pyle – Westinghouse
Brian Dunn – FP&L
Tim Croyle – Westinghouse
Matt Brandes - PWROG

The staff participated in a call regarding potential issues associated with licensee use of testing to credit reduced zones of influence (ZOIs) for debris generation during postulated loss of coolant accidents for various materials. The call was a follow up on staff questions and previous discussions regarding ZOI reductions credited by some licensees. The staff questions are based on a contractor review of documents that describe testing performed to justify the reduced ZOIs, and staff review of licensee supplemental responses for Generic Letter 2004-02. More specifically, the intent of the call was to determine actions required to address these issues.

Participants on the call included representatives from the Nuclear Regulatory Commission (NRC) staff, Nuclear Energy Institute (NEI), the Pressurized Water Reactor Owners Group (PWROG), Westinghouse, and individual licensees.

The staff and industry had previously discussed several items that should be completed to ensure that the best possible understanding of the ZOI issue is attained. The items are listed below.

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Industry

- 1) Provide specific examples how the staff position that the cold leg condition testing may not be conservative invalidates the safety evaluation (SE) (on NEI 04-07) position on use of the ANSI/ANS jet model. The staff considers that the SE specifically approved the use of the ANSI/ANS model for spherical resizing of ZOIs and not to calculate test conditions.
- 2) Investigate available debris generation tests to determine why there are significant differences among the results of the testing. Review the tests to determine if there are justifiable reasons for the differences in debris generation.
- 3) Determine mode of response to NRC staff questions on ZOI testing at Wyle (e.g., industry group, individual licensees who own reviewed test reports).
- 4) Provide responses to the staff questions on the ZOI testing at Wyle.

Staff

- 1) Investigate available debris generation tests to determine why there are significant differences among the results of the testing. Review the tests to determine if there are justifiable reasons for the differences in debris generation.
- 2) Identify graphs in WCAPs that indicate that subcooling of the fluid at the jet nozzle occurred such that the actual initial temperature at the nozzle was lower than the intended initial temperature for the test.
- 3) After reviewing industry responses to questions on ZOI testing at Wyle Laboratories, develop a staff position on the WCAP testing that was conducted.
- 4) Identify blast wave references and test reports that indicate that blast waves can result in damage.
- 5) Identify appropriate owner of proprietary material reviewed by NRC contractor (i.e., Westinghouse or client licensees) and then provide contractor report to information owner.
- 6) Review industry interpretations of SE and provide NRC staff clarification as to intent of SE concerning the ANSI model.

Representatives from industry are currently working on industry items 1 through 4. Licensees are working with the PWROG to answer as many of the issues as possible on a generic basis. However, some issues will have to be addressed by each licensee. The level of involvement of the PWROG will be determined at the next PWROG meeting which is scheduled for the latter part of March 2009. PWROG representatives believe that it will take about 3 months following the meeting to resolve the majority of the issues. This schedule results in initial response from the PWROG in the July 2009, time frame. The staff and industry agreed that periodic phone calls should be held so that progress can be tracked and feedback provided to ensure the most timely resolution of the issues.

The staff is working on staff items 1 through 6. The staff had provided a draft copy of the contractor technical evaluation to Westinghouse prior to the call. This evaluation provides the information requested in items 1 and 4. However, the staff will continue to evaluate various tests to determine how the test methodology could affect the results. The staff will provide the final contractor report to Westinghouse and the licensees whose testing was reviewed as soon as the report is finalized and transmitted to the NRC. (This resolves item 5 as all parties agreed that there was not information that should be withheld from each other, only outside entities.) The staff identified the information requested in item 2, which is also resolved.

The staff will complete items 3 and 6 as the required information is received from the industry.

There are some references from the contractor report that are not publically available. These references are desired by industry for review. The staff agreed that they will either make the documents public or determine why they cannot be made public and provide feedback to industry.

Industry representatives identified some examples of testing that they believe indicate that a blast wave did not occur during previous testing (air jet testing and Ontario Power Generation saturated steam testing). The potential for a blast wave and how the blast wave could be affected by varying test conditions is one of the issues raised by the contractor report. The staff did not agree that the observations negated the possibility that a blast wave occurred during testing, and also noted that the cited examples were a small subset of the overall test database, which experts had previously reviewed in an overall sense and considered as containing evidence of blast wave effects.

Industry representatives also noted that other test conditions, such as the enclosure surrounding the air jet test samples versus the open test conditions for other tests, could have affected the test results. The staff agreed that there were potential effects from differences in the test methodologies, but did not agree that the enclosure would likely result in a large difference in the outcome of the debris generation tests being compared.

Actions

Industry will attempt to answer as many of the staff issues as possible generically via the PWROG. This effort will be started once the PWROG membership approves the required funding. The staff will provide the finalized contractor report to the industry. In addition, the staff will make the contractor report references publically available if possible, or notify industry that the references cannot be made publically available. Both the staff and industry will continue to review the various test program methodologies and outcomes to determine why the results from some tests differ significantly. The staff and industry will continue to engage each other on this topic via telephone conferences as additional information becomes available, or as industry responses to the open items are drafted.

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