



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

SL-0542

June 30, 2006

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 533rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, May 31—June 1, 2006, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 533rd meeting, May 31—June 1, 2006, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following letters and memoranda:

LETTERS:

Letters to Luis A. Reyes, Executive Director for Operations, NRC, from Graham B. Wallis, Chairman, ACRS:

- Draft Final Generic Letter 2006-XX, "Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems," dated June 15, 2006
- Draft Final Generic Letter 2006-XX: Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations, dated June 16, 2006

MEMORANDA:

Memoranda to Luis A. Reyes, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS:

- Results of the Staff's Initial Screening of Generic Issue-197, "Iodine Spiking Phenomena," dated June 21, 2006
- Draft Final Revision 1 to Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants," dated June 6, 2006

HIGHLIGHTS OF KEY ISSUES

1. Draft Final Generic Letter, "Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations"

The Committee met with representatives of the NRC staff, Nuclear Energy Institute (NEI), Duke Energy, and Progress Energy to discuss the draft final Generic Letter (GL) 2006-XX, "Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations." The staff provided presentations on the potential of spurious actuations due to fires, as well as a summary and objective of the GL. The GL requests that each licensee submit within 90 days, a description of the plant's licensing basis with respect to the regulatory requirement for protecting redundant safe shutdown trains from multiple simultaneous spurious actuations and maintaining one train free of fire damage including a conclusion regarding the compliance of the plant. If not in compliance, the licensees should submit a functionality assessment of systems, structures, and components (SSCs) that affect the ability to achieve and maintain safe shutdown and a description of compensatory measures put in place. Additionally within 6 months, they should submit a plan to return all affected SSCs to compliance with regulatory requirements. By complying with the GL, all risk-significant circuit situations will be identified and addressed. A representative of NEI stated that issuing a GL was not the best approach to address post-fire safe-shutdown circuit analysis spurious actuations. Representatives from Duke Power and Progress Energy stated that it was not reasonable to perform the requested analysis of multiple spurious actuations within the 90 days specified in the GL. The Committee agreed with the staff's objective to bring licensees into compliance with regulatory requirements expeditiously; however, the Committee recognized the magnitude of the effort required to provide the information requested within the GL. The staff agreed to clarify the scope of information to be provided at each milestone in the schedule and to provide additional time for the functionality assessment of affected SSCs.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated June 16, 2006, recommending that the GL be issued after the scope of the requested information is clarified and the submittal dates are made more realistic.

2. Draft Final Generic Letter 2006-XX, "Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems"

The Committee met with representatives of the NRC staff and NEI to discuss the draft final Generic Letter 2006-XX, "Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems." The staff described a concern that the failure of inaccessible power cables for safety-related equipment due to moisture exposure could disable multiple mitigation systems. The GL requests that licensees provide the following information: a description of failures of inaccessible or underground power cables that are within the scope of the maintenance rule; a description of all inspection, testing, and monitoring programs for these

power cables; and if such a program is not in place, an explanation why it is not necessary. Comments from the public and the Committee to Review Generic Requirements resulted in minor revisions to the GL. After reviewing the responses, the staff will determine what, if any, regulatory action should be taken. A representative from NEI commented that it is not clear what concern is being addressed by this GL and there is no cable monitoring technique that is available to industry that would be effective for all cases.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated June 15, 2006, recommending that Generic Letter 2006-XX, "Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems," be issued.

3. Interim Staff Guidance on Aging Management Program for Inaccessible Areas of Boiling Water Reactor (BWR) Mark I Containment Drywell Shell

The Committee met with representatives of the NRC staff and NEI to discuss the proposed license renewal Interim Staff Guidance (ISG) on a plant-specific aging management program for inaccessible areas of BWR Mark I containment drywell shells. The staff described a concern that water seepage could cause corrosion of the drywell shell in inaccessible areas. The ISG recommends a plant-specific aging management program be implemented to address this aging effect. As part of this program, applicants should do the following: develop a corrosion rate for the drywell shell; demonstrate that moisture accumulation does not exist in the exterior portion of the drywell; and identify actions that will be taken if moisture is detected in inaccessible areas. A representative from NEI commented that the staff's concern should be addressed on a plant-specific basis. The licensees had addressed this issue in response to Generic Letter 87-05, "Request for Additional Information Assessment of Licensee Measures to Mitigate and/or Identify Potential Degradation of Mark I Drywells." NEI plans to submit written comments to this proposed ISG.

Committee Action

This was an information briefing. No Committee action was necessary.

4. Overview of New Reactor Licensing Activities

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the staff's activities associated with new reactor design certification (DC); early site permit (ESP); and combined license (COL) applications. The staff provided the Committee with a forecast of new reactor licensing activities and projected review schedules from 2005 through 2012. To the extent practical, they identified which COL applicants would be using which new reactor design (e.g., AP1000, ESBWR, EPR). The staff highlighted the COL safety review process which includes the development of draft safety evaluation reports (SERs) with open items; supplemental SERs; ACRS interactions and review; COL issuance with inspections, tests, analyses, and acceptance criteria (ITAAC); and NRC verification of ITAAC completion. The staff discussed its design-centered approach for reviewing the anticipated DCs and COL applications. These reviews may need to be done in parallel. The design-centered approach uses, to the maximum extent practical, a "one issue, one review, one

position” strategy in order to optimize the review effort, the resources needed to perform these reviews, and the review schedules. To clarify, the staff will conduct one technical review for each reactor design issue and use this one decision to support the decision on a DC and on multiple COL applications. In order for the design-centered review approach to be fully effective, it is important that the DC and COL applicants achieve a consistent level of standardization among related COLs. This approach clearly can not be used for site-specific design, construction, or operational issues. The staff described and provided the Committee with the status of the development of the draft COL regulatory guide (DG-1145). DG-1145 will provide application content and process guidance for COL applications submitted under 10 CFR 52. The staff also described its ongoing and coordinated efforts to update various regulatory guides and standard review plan sections in anticipation of COL applications. Finally, the staff briefed the Committee on its construction inspection program development efforts and highlighted some of the anticipated inspection resource needs.

Committee Action

This was an information briefing. No Committee action was necessary. The Committee will use the information obtained during the briefing to formulate its plans for the efficient and effective review of DC, ESP, and COL applications.

5. Subcommittee Report on Plant License Renewal

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the May 30, 2006 meeting with the NRC staff and the Nuclear Management Company (NMC) to review the license renewal application for the Monticello Nuclear Generating Plant and the associated draft SER. The current operating license expires on September 8, 2010. During the meeting, NMC described the plant design, operating history, the license renewal review methodology, and its commitment tracking system. The staff’s draft SER was issued on April 26, 2006 and contains no open or confirmatory items.

6. Quality Assessment of Selected NRC Research Projects

The Committee discussed the status of the quality assessment of the research projects on Containment Capacity Studies and on Molten Core Coolant Interaction, that were selected for FY 2006. The Committee agreed that the panel review of the research project on Containment Capacity Studies should be focused on draft NUREG/CR report entitled, “Containment Integrity Research at Sandia National Laboratory.” This report summarizes the work that has been performed over the past thirty years to improve the understanding of the response of containment structures and their capacity to withstand accidents beyond design basis loads, and identifies common themes that have emerged.

Committee Action

The Committee plans to discuss the draft report on quality assessment of these two projects during its September 7- 9, 2006 meeting.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO
COMMITMENTS

- The Committee considered the EDO's response of May 18, 2006, to comments and recommendations included in the April 20, 2006 ACRS letter concerning the Draft Final Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of April 27, 2006, to comments and recommendations included in the March 23, 2006 ACRS report on the Safety Aspects of the License Renewal Application for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of May 18, 2006, to comments and recommendations included in the April 14, 2006 ACRS letter on the Review of the 1994 Addenda to the ASME Code for Class 1, 2, and 3 Piping Systems and the Resolution of the Differences between the NRC staff and ASME. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of May 2, 2006, to comments and recommendations included in the March 24, 2006 ACRS report on the Final Review of the Exelon Generating Company, LLC, Application for Early Site Permit and the Associated NRC Staff's Final Safety Evaluation Report. The Committee decided that it was satisfied with the EDO's response.

The staff plans to discuss proposed revisions to Regulatory Guide 1.165, "Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motion," with the ACRS during a future meeting.

- The Committee considered the EDO's response of May 18, 2006, to comments and recommendations included in the April 14, 2006 ACRS letter on the Grand Gulf Early Site Permit Application: Evaluation of Transportation Accidents on the Mississippi River. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of May 2, 2006, to comments and recommendations included in the April 10, 2006 ACRS report on Generic Safety Issue-191 - Assessment of Debris Accumulation on PWR Sump Performance. The Committee decided that it was not satisfied with the EDO's response, and it will consider a further response following a staff's presentation to the Thermal-Hydraulic Phenomena Subcommittee on June 13-14, 2006.

The staff plans to develop integrated plans to acquire sufficient technical bases to evaluate the proposed PWR sump modifications. This will include continuing to participate in industry efforts to address sump performance issues as well as incorporating the information obtained into the staff's issue resolution strategy. The staff plans to review the approaches used by each of the five vendors

selected by licensees to support them in addressing GSI-191. The staff plans to develop and update guidance needed in some areas such as chemical effects and water management strategies. The ACRS Subcommittee on Thermal-Hydraulic Phenomena and/or the full Committee plans to discuss the above activities as progress has been made by the staff.

- The Committee considered the EDO's response of March 30, 2006, to the February 15, 2006 memorandum which forwarded an anonymous letter concerning the TRACE code that was received by Dr. Wallis and Dr. Ransom. The Committee decided that it was satisfied with the EDO's response.

The staff has committed to discuss these comments in the context of a meeting with the Thermal-Hydraulic Phenomena Subcommittee later in the year regarding the status of the TRACE code.

- The Committee considered the EDO's response of May 15, 2006, to comments and recommendations included in the April 19, 2006 ACRS letter on Standard Review Plan, Section 14.2.1, "Generic Guidelines for Extended Power Uprate Testing Programs." The Committee decided that it was not satisfied with the EDO's response, but it will arrange for a future meeting to discuss the issue again with the staff.

The staff committed to meet with the Committee to further discuss the respective points of view and reach a common understanding of this issue.

- The Committee considered the EDO's response of May 22, 2006, to the April 21, 2006 ACRS letter on the Application of the TRACG Computer Code to Evaluate the Stability of the Economic Simplified Boiling Water Reactor (ESBWR). The Committee decided that it was satisfied with the EDO's response.

The staff plans to discuss with the ACRS the results of the application of this code during ACRS review of the ESBWR design certification.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from May 4, 2006 through May 30, 2006, the following Subcommittee meetings were held:

- Planning and Procedures — May 30, 2006

The Subcommittee discussed proposed ACRS activities, practices, and procedures for conducting Committee business and organizational and personnel matters relating to ACRS and its staff.

- Plant License Renewal — May 30, 2006

The Subcommittee reviewed the license renewal application for the Monticello Nuclear Generating Plant and the associated draft Safety Evaluation Report prepared by the NRC staff.

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The staff agreed to clarify the scope of information to be provided in response to GL 2006-XX, "Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations," and to provide additional time for the functionality assessment of affected SSCs.
- The Committee plans to review the final Safety Evaluation Report related to the license renewal of the Monticello Nuclear Generating Plant during a future meeting.
- The Committee plans to discuss the draft report on quality assessment of the research projects on Containment Capacity Studies and Molten Core Coolant Interaction during its September 7-9, 2006 meeting.

PROPOSED SCHEDULE FOR THE 534th ACRS MEETING

The Committee agreed to consider the following topics during the 534th ACRS meeting, to be held on July 12-14, 2006:

- Final Review of the License Renewal Application for the Nine MilePoint Nuclear Station
- Results of the Study to Determine the Need for Establishing Limits for Phosphate Ion Concentration
- Integrating Risk and Safety Margins
- Safeguards and Security Matters

Sincerely

/RA/

Graham B. Wallis
Chairman