



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

SL-0526

December 10, 2004

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

SUBJECT: SUMMARY REPORT - 517th MEETING OF THE ADVISORY COMMITTEE ON
REACTOR SAFEGUARDS, NOVEMBER 4-6, 2004 AND OTHER RELATED
ACTIVITIES OF THE COMMITTEE

Dear Chairman Diaz:

During its 517th meeting, November 4-6, 2004, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letters, and memoranda:

REPORTS:

Reports to Nils J. Diaz, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Draft Proposed Rule on Post-Fire Manual Operator Actions, dated November 19, 2004
- Report on "An Overview of Differences in Nuclear Safety Regulatory Approaches and Requirements Between United States and Other Countries," dated November 2, 2004

LETTERS:

Letters to Luis A. Reyes, Executive Director for Operations, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Lessons Learned from the ACRS Review of the AP1000 Design dated November 18, 2004
- Resolution of Certain Items Identified by the ACRS in NUREG-1740, "Voltage-Based Alternative Repair Criteria," dated November 17, 2004

MEMORANDA:

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

- Draft Regulatory Guide 1127, "Combining Modal Responses and Spatial Components in Seismic Response Analysis," dated November 8, 2004
- Proposed Rule: Fitness for Duty (FFD) Programs, 10 CFR Part 26, dated November 8, 2004

OTHER

Letter to Carl Paperiello, Director, Office of Nuclear Regulatory Research, from Mario V. Bonaca, Chairman, ACRS, Subject: ACRS Assessment of the Quality of Selected NRC Research Projects, dated November 18, 2004

HIGHLIGHTS OF KEY ISSUES

1. Proposed Rule Language for Risk-Informing 10 CFR 50.46

The Committee met with representatives of the NRC staff to review proposed rule language for a risk-informed alternative to 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors." The briefing focused on the proposed rule language and conforming changes, ECCS analysis requirements, and the process for approval of plant changes based upon the new design basis LOCA.

Committee Action:

The Committee decided to review and comment on the proposed rule in December 2004 after the NRC staff completes the associated Statement of Considerations and Regulatory Analysis.

2. Proactive Materials Degradation Assessment Program

The Committee heard presentations by and held discussions with the industry and the staff of the Office of Research (RES) regarding the status of the proactive materials degradation assessment program.

The NRC presentation was made by Joe Muscara, RES. The Industry presentations were made by Robin Dyle, Southern Nuclear Corporation for NEI and Robin Jones, EPRI.

The purpose of the presentations was to provide an update of the plans to develop programs that address proactively environmentally-assisted materials degradation in light-water reactors.

Materials degradation phenomena will continue to be an important factor in future operational safety issues. The approaches taken by the NRC and industry in developing capabilities to manage the materials degradation issues differ in timing and focus, but are complementary in achieving the same overall objective.

RES indicated that the objective of the NRC program is to provide a foundation for regulatory actions to help prevent materials degradation from adversely impacting safety. The work is being done in two phases. The first phase is to identify susceptible materials and locations where degradation can be expected in LWRs in the future. The second phase is to develop and implement an international cooperative program for the components and degradation of interest.

The industry described the policy and practices that they will follow in managing materials aging issues in NEI 03-08, "Guideline for the Management of Materials Issues." They gave a description of the technical approaches that will be taken to meet defined objectives and how these approaches will affect the year-by-year prioritization of materials degradation issues and the development of adequate mitigation and inspection strategies.

Committee Action

This was an information briefing and no Committee action was taken.

3. Proposed Rule on Post-Fire Operator Manual Actions

The Committee met with representatives of the NRC staff, the industry, and general public to review the proposed rule on post-fire operator manual actions. The staff discussed the development of the rule and key provisions that were included to ensure adequate safety. If promulgated, the proposed rule would codify the use of certain operator manual actions to satisfy the requirements of Appendix R to 10 CFR 50. To obtain credit for the use of operator manual actions under this rule, licensees would have to show that the manual actions meet certain acceptance criteria and the affected fire areas must be equipped with fixed detection and automatic suppression systems. The staff stated that this proposed rule should result in significant cost reductions for the NRC and licensees.

Representatives of the nuclear industry and the general public expressed differing opinions regarding the effectiveness of the proposed rule change. The industry stated the proposed rule did not provide enough flexibility and few licensees would benefit from this rulemaking. The members of the public questioned the NRC's motives for pursuing the rulemaking and expressed concern that the staff was attempting to replace the clear and crisp language currently included in Appendix R with vague and unenforceable guidance. Other members of the public were concerned that the staff was sending the wrong message to those licensees that made the necessary investments in their plants to fully comply with Appendix R to 10 CFR 50.

Committee Action

The Committee issued a report to the NRC Chairman on November 19, 2004, recommending that the proposed rule be published in the Federal Register for public comment. The ACRS report was accompanied by additional comments from an individual ACRS member, Mr. Stephen Rosen. In his comments, Mr. Rosen suggested that the Commission pursue a more risk-informed and performance-based approach to the control of fire risk. He also suggested that the rule would be more effective if the requirement for automatic suppression in the area of the postulated fire was removed.

4. Grid Reliability Issues and Related Significant Operating Events

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding grid reliability and offsite power issues.

The NRC staff presentation was made by John Lamb and Tom Koshy of NRR, and Dale Rasmuson and Bill Raughley of RES. The purpose of the presentations was to hear the staff's views of issues associated with grid reliability and offsite power issues.

The NRC staff identified 48 concerns with the reliability of offsite power to nuclear power plants that needed to be resolved. These concerns are divided into three groups. Group One contains 10 concerns that the staff has determined need to be addressed in the short-term. Group Two has 21 concerns that are beyond NRC's statutory authority. They are within the purview of the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Council (NERC). Group Three has 17 remaining concerns not addressed by the other two approaches.

A three pronged approach was developed for the group one concerns. First, the staff raised awareness of the concerns by developing and issuing a Regulatory Issues Summary. Secondly, the staff assessed the licensees' readiness to manage any degraded or losses of offsite power through inspections and interviews. Lastly, the staff monitored and reviewed conditions and events through the summer of 2004 and determined that the operational readiness of offsite power systems for nuclear power plants would be assured.

Group three concerns were consolidated into four topical areas: (1) Offsite Power System Availability, (2) Station Blackout Review, (3) Risk Insights, and (4) Interactions with External Stakeholders. In the Offsite Power System Availability and the Station Blackout Review topical areas, the staff is considering a generic communication. In the Risk Insights topical area, the staff is reviewing the RES report, "Loss of Offsite Power Frequency and Duration Analyses." In the Risk Insights topical area, the staff will also review RES report "Loss of Offsite Power Risk Analyses and Emergency Diesel Generator Reliability. In the Risk Insights Topical area, RES is working on, (1) "Evaluation of Loss of Offsite Power Events at Nuclear Power Plants: 1986 – 2003," and (2) "Status of the Investigation of Grid Operating Data for Signs of Change and Potential Vulnerabilities."

In the Interactions with External Stakeholders topical area, the NRC staff signed Memoranda of Agreement (MOA) between the NRC and NERC and the NRC and FERC on August 27, and September 1, 2004, respectively.

Committee Action

This was an information briefing and no Committee action was taken.

5. Status of Early Site Permit Reviews

The Committee heard presentations by the NRC staff regarding the status of the review of the early site permit (ESP) applications. The NRC received three ESP applications in September and October 2003 from Dominion Nuclear North Anna, LLC (Dominion), for the North Anna ESP site; Exelon Generation Company, LLC (Exelon), for the Clinton ESP site; and System Energy Resources, Inc. (SERI), for the Grand Gulf ESP site.

The NRC staff has developed a review standard for ESP applications to provide guidance to the NRC staff on the process and criteria for reviewing an ESP application. Due to the absence of reactor types to be built on an ESP site, the applicants are proposing to use a plant parameters envelope (PPE) approach. The PPE is a set of design parameters that are expected to bound the characteristics of a reactor or reactors that might be deployed at a site. Currently, the NRC staff plans to issue draft safety evaluation reports (SERs) for Dominion, Exelon, and SERI on their ESP applications in late December 2004, February 2005, and April 2005, respectively.

Issues that have arisen from the NRC staff's review include tornado wind speed, seismic analysis, and emergency planning. The NRC staff plans to compile lessons learned for future reviews.

Committee Action

This briefing was provided for information only. The Committee plans to review the draft SERs when they are available.

6. Assessment of the Quality of Selected NRC Research Projects

The Office of Nuclear Regulatory Research (RES) is required to have an independent evaluation of the quality of its research programs. This evaluation is mandated by the Government Performance and Results Act (GPRA) and needs to be in place during the next fiscal year. The Committee has agreed to assist RES in assessing the effectiveness and utility of the NRC research programs. The Committee has previously approved the strategy for the review of the quality of selected research projects. This strategy is to be tried during FY 2004 and refined in FY 2005. During the November 2-4, 2004 ACRS meeting, the Committee discussed its report on Assessment of the Quality of Selected NRC Research Projects.

Committee Action

The Committee approved the letter transmitting the report on Assessment of the Quality of Selected NRC Research Projects to the Director of RES. The Committee is now poised to undertake review of four additional research projects during fiscal year 2005.

7. Plant License Renewal Subcommittee Report

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the November 3, 2004, subcommittee meeting with the NRC staff and representatives of the Southern Nuclear Operating Company (SNC) to review the NRC staff's Draft Safety Evaluation Report (SER) related to the License Renewal Application for the Farley Units 1 and 2. The current operating licenses for Units 1 and 2 expire on June 25, 2017, and March 31, 2021, respectively. The applicant has requested approval for continued operation of each unit for a period of 20 years beyond the current license expiration dates. During the meeting SNC described Farley's operating history, major equipment replacements, their application of the GALL report, and other industry issues. The staff issued fewer request for additional information requests during the review of this application because of the new review process and on-site audits. The staff has determined that there are no open or confirmatory items regarding this application. The Draft SER listed 3 license conditions and concluded that the license renewal application meets the requirements of 10 CFR Part 54.

Committee Action

The Committee will review the final SER and hold discussions with the staff and applicant during the April 2005 ACRS meeting.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the response from the EDO dated October 7, 2004, to the ACRS report dated July 19, 2004, concerning the Proposed Draft Final Generic Letter on Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at PWRs. The Committee decided that it was satisfied with the EDO's response.

The staff committed to continue confirmatory research consistent with ACRS recommendations. The staff also committed to keeping the ACRS informed of the staff's activities relative to resolving GSI-191.

- The Committee considered the response from the EDO dated October 26, 2004, to the ACRS report dated September 16, 2004, concerning the Report on the Safety Aspects of the License Renewal Application for the Dresden 2 and 3 and Quad Cities 1 and 2 Nuclear Power Stations. The Committee decided that it was satisfied with the EDO's response.

The staff committed to further clarify that Extended Power Uprate (EPU) applications are reviewed for aging effects for their current license operating period. The staff also committed to discuss the status of improved guidance regarding the synergistic effects of plant operations at EPU levels on plant structures and components.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from October 7, 2004 through November 3, 2004, the following Subcommittee meetings were held:

- Fire Protection - October 27, 2004

The Subcommittee heard presentations from the staff on the proposed Fire Protection Rulemaking to allow for the use of operator manual actions in lieu of installed fire barriers. The staff intends to provide the proposed rule to the Commission December 2004. If accepted by the Commission, the proposed rule will be released for public comment.

- Regulatory Policies and Practices - October 28-29, 2004

The Subcommittee reviewed the proposed rule package for risk-informing 50.46.

- Plant License Renewal - Joseph M. Farley Nuclear Station - November 3, 2004

The Subcommittee reviewed the License Renewal Application and associated draft SER for the Joseph M. Farley Nuclear Station.

- Planning and Procedures - November 3, 2004

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

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee plans to review the proposed rule for risk-informing 10 CFR 50.46 during its December 2004 meeting.
- The Committee plans to review the draft final 10 CFR Part 26 on drug testing and worker fatigue.
- The Committee plans to review the license renewal application for the Farley Nuclear Plant and the associated staff's final SER in April 2005.
- The Committee plans to review the draft final rule on post-fire operator manual actions after reconciliation of public comments.
- The Committee plans to review the staff's draft SERs on early site permit applications when available.

PROPOSED SCHEDULE FOR THE 518th ACRS MEETING

The Committee agreed to consider the following topics during the 518th ACRS meeting, to be held on December 2-4, 2004:

- Expert Elicitation on Large-Break LOCA Frequencies
- Proposed Rule for Risk-Informing 10 CFR 50.46
- Technical Basis for Potential Revision of the Pressurized Thermal Shock (PTS) Screening Criteria in the PTS Rule
- Draft Commission Paper on Technology Neutral Framework for Future Plant Licensing - Policy Issues

Sincerely,

/RA/

Mario V. Bonaca
Chairman