



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

June 8, 1999

The Honorable Shirley Ann Jackson  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Chairman Jackson:

SUBJECT: SUMMARY REPORT - FOUR HUNDRED SIXTY-FIRST MEETING OF THE  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, APRIL 7-10,  
1999, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 461st meeting, April 7-10, 1999, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and letters. In addition, the Committee authorized Dr. Larkins, Executive Director, to transmit the memoranda noted below:

REPORTS

- Proposed Final Revision to 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (Report to Shirley Ann Jackson, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated April 14, 1999)
- Status of Efforts on Revising the Commission's Safety Goal Policy Statement (Report to Shirley Ann Jackson, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated April 19, 1999)

LETTERS

- Reevaluation of the Generic Safety Issue Process (Letter to William D. Travers, Executive Director for Operations, NRC, from Dana A. Powers, Chairman, ACRS, dated April 19, 1999)
- SECY-99-017, "Proposed Amendment to 10 CFR 50.55a" (Letter to William D. Travers, Executive Director for Operations, NRC, from Dana A. Powers, Chairman, ACRS, dated April 19, 1999)

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- Status of Resolution of Steam Generator Tube Integrity Issues (Letter to William D. Travers, Executive Director for Operations, NRC, from Dana A. Powers, Chairman, ACRS, dated April 22, 1999)
- Proposed Revisions to the NRC Generic Communications Process (Letter to William D. Travers, Executive Director for Operations, NRC, from Dana A. Powers, Chairman, ACRS, dated April 23, 1999)

#### MEMORANDA

- Final Rule: "Respiratory Protection and Controls to Restrict Internal Exposures, 10 CFR Part 20" (Memorandum to William D. Travers, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS, dated April 14, 1999)
- Proposed Rule on AP600 Design Certification (Memorandum to William D. Travers, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS, dated April 15, 1999)

#### HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Draft Commission Paper on Proposed Improvements to the Generic Communications Process

The Committee heard presentations by and held discussions with representatives of the NRC staff, and the Nuclear Energy Institute (NEI) regarding the proposed improvements to the NRC generic communications process. The Committee discussed the staff's proposed resolution of concerns raised by the nuclear power industry concerning the staff's use of compliance exemptions of the Backfit Rule, 10 CFR 50.109, and the use of 10 CFR 50.54(f) in Bulletins (BLs) and Generic Letters (GLs) to request for licensee actions.

The Committee discussed the staff's proposal to implement a limited value-impact analysis for BLs and GLs, even for cases in which the initial screening indicated that an exemption to the Backfit Rule was justified. The proposed use of 10 CFR 50.54(f) language is restricted to cases where the Commission is actually contemplating modification, suspension, or revocation of a license. The GLs will not be used on an "Urgent" basis, will involve industry participation, will require public comment, and will not normally invoke 10 CFR 50.54(f). The Committee also discussed the proposed regulatory information letter as a new generic communications tool.

### Conclusion

The Committee issued a letter to the Executive Director for Operations, dated April 23, 1999, on this matter.

## 2. Steam Generator Tube and Reactor Pressure Vessel Integrity Issues

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the status of the proposed revision to 10 CFR 50.55a, "Codes and standards," and the status of staff activities concerning resolution of technical and regulatory issues associated with ensuring steam generator tube integrity. The Committee and the staff discussed the proposed elimination of the requirement for licensees to update their inservice inspection and inservice test programs every 120-months. The Committee and the staff also discussed the status of resolution of the technical differences between the Nuclear Energy Institute report NEI 97-06, "Steam Generator Program Guidelines," and draft Regulatory Guide (DG) 1074, "Steam Generator Tube Integrity;" and the options for resolving open regulatory issues.

### Conclusions

The Committee issued a letter to the NRC Executive Director for Operations, dated April 19, 1999, on the proposed amendment to 10 CFR 50.55a. The Committee issued a letter to the Executive Director for Operations dated April 22, 1999, on the status of resolving steam generator tube integrity issues. The Committee also decided to hear a presentation on NRC reactor pressure vessel integrity research activities associated with the pressurized thermal shock rule at the July 14-16, 1999 meeting.

## 3. Insights Gained from the Risk-Informed Pilot Applications

The Committee heard presentations by and held discussions with representatives of the NRC staff and NEI regarding insights gained from the processing of risk-informed pilot licensing applications, including those from the pilots for inservice inspection, extension of allowed outage times, and online maintenance. The staff stated that it has successfully completed many of the initial risk-informed licensing submittals. The staff added that completion of the risk-informed regulatory guides and Standard Review Plan (SRP) sections were successful in facilitating the completion of these reviews and will serve the NRC and industry well for future reviews.

The Committee discussed staff and NEI views on both successes and challenges associated with these reviews. Successes included: validation of methods described in the Regulatory Guides and SRP sections, enhanced understanding of plant safety, improved operational flexibility, and reduced regulatory burden for licensees, and clarified need for future licensee submittals. Areas of challenge included: greater than expected NRC review time and less than favorable cost-benefit as compared to other licensing actions. The staff plans to incorporate lessons-learned from these reviews into future revisions of the regulatory guides and SRP sections.

NEI stated that the industry was generally supportive of the staff's efforts to consider risk information in licensing decisions. NEI stated that Commission leadership is crucial to ensure the success of this effort, NEI added that the EDO Tasking Memorandum provides evidence of agency support for this effort.

#### Conclusion

The Committee plans to continue its review of the specific applications during future meetings.

4. Proposed Final Revision to 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and an Associated Draft Regulatory Guide

The Committee heard presentations by and held discussions with representatives of the NRC staff and NEI regarding the proposed final revision to 10 CFR 50.65 that would require licensees to perform safety assessments prior to performing maintenance activities, and an associated Draft Regulatory Guide. The staff stated that during the public-comment period a total of 34 comments were received from various utilities, NEI, and the members of the public. The majority of the utilities endorsed the NEI comments. Most of the respondents were concerned with the wording of the proposed new paragraph (a)(4). The staff revised the wording of paragraph (a)(4) of the proposed rule after considering the public comments. The revised paragraph reads as follows:

Before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective preventive maintenance) on structures, systems or components within the scope of this section, the licensee shall assess and manage the increases in risk that may result from the proposed maintenance activities.

The staff also discussed the associated draft Regulatory Guide, revision to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." The staff plans to issue the revised regulatory guide for industry use before implementing the revised rule.

Representatives of NEI suggested that the scope of the revised rule be limited to high-risk significant structures, systems, and components which are ranked using the guidance specified in NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance Rule at Nuclear Power Plants."

#### Conclusion

The Committee issued a report to Chairman Jackson dated April 14, 1999, on this matter.

#### 5. Proposed Approach for Revising the Commission's Safety Goal Policy Statement

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the status of efforts for revising the Commission's Safety Goal Policy Statement. The Committee discussed the staff's proposal to revise the Safety Goal Policy Statement for nuclear power reactors, as well as an "overarching" Policy Statement for all NRC regulated activities. The Committee extensively discussed the objectives, scope, utility, feasibility, and schedule for developing the overarching Policy Statement. The Committee considered Commission direction in the Staff Requirements Memorandum dated June 30, 1998, on this matter.

#### Conclusion

The Committee issued a report to Chairman Jackson dated April 19, 1999, on this matter.

#### 6. Report on Thermal-Hydraulic Phenomena Subcommittee Meeting

The Subcommittee Chairman briefed the Committee regarding matters discussed at the March 23, 1999 meeting of the Thermal-Hydraulic Phenomena Subcommittee. The meeting was held to continue the Subcommittee's review of the Electric Power Research Institute RETRAN-3D thermal-hydraulic (T/H) transient analysis code. The focus of this meeting was on the status of the NRC staff's review of the acceptability of this code. The staff is conducting a review of this code entirely in-house and is exercising RETRAN-3D as part of the review process. The Subcommittee noted that the staff lacks a set of guidelines/acceptance criteria to

guide its review of T/H codes. These guidelines are being developed by the staff, concurrent with its code review. The Subcommittee Chairman stated that the Subcommittee intends to maintain a close interaction with the staff during its development of the code review guidelines.

7. Impact of the Use of High Burnup or Mixed Oxide Fuel on the Revised Source Term

In response to a Staff Requirements Memorandum dated March 5, 1999, the ACRS discussed the impact on the revised source term if high burnup or mixed oxide (MOX) fuel were used in place of conventional uranium fuel. The Department of Energy (DOE) is proposing to dispose of some fraction of the Nation's excess weapons grade plutonium by converting it into MOX reactor fuel for use in commercial nuclear power plants. Existing NRC regulations does not include the use of MOX in commercial nuclear power plants.

The Committee discussed the technical issues that arise in the analysis of risk at nuclear power plants using MOX fuel. These issues include the vulnerability of fuel to core disruption and the different inventory of radionuclides available for release from the fuel during accidents. The difference in neutronics of MOX and conventional fuels also pose safety issues for consideration.

Conclusion

The Committee plans to continue its discussion of this matter during the May 5-8, 1999 ACRS meeting.

8. Relationship and Balance Between PRA Results and Defense-in-Depth

The Committee discussed its response to the Commission request, included in the Staff Requirements Memorandum dated March 5, 1999, that the ACRS consider the appropriate relationship and balance between probabilistic risk assessment results and defense-in-depth in the context of risk-informed regulation. The Committee considered its previous recommendation, concerning the need for a spray system in the AP600 containment, included in its June 19, 1997 report, that the NRC develop a policy statement on defense-in-depth. The Committee discussed a possible definition for defense in depth and the need to develop regulatory objectives regarding this matter. The Committee also discussed the potential for arbitrary appeals to defense in depth, impeding consideration of risk-informed initiatives, and strict implementation of risk-informed regulation without appropriate consideration of defense in depth.

Conclusion

The Committee plans to continue its discussion of this matter during the May 5-8, 1999 ACRS meeting.

9. NRC Safety Research Program

The Committee continued its discussion of the 1999 report to the Commission regarding the NRC Safety Research Program. The Committee discussed several research areas needed to support Commission programs, particularly risk-informed regulation and license renewal. Other selected areas where changes have occurred or external events may have influenced the nature of the research program were also discussed.

Conclusion

The Committee plans to continue its discussion of this matter during the May 5-8, 1999 ACRS meeting.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee discussed the response from the NRC Executive Director for Operations (EDO) dated March 31, 1999 to the ACRS comments and recommendations included in the ACRS letter dated February 23, 1999 concerning proposed improvements to the NRC inspection and assessment programs.

The Committee decided to continue its review of this matter during the May 5-8, 1999 ACRS meeting.

- The Committee discussed the response from the EDO dated March 26, 1999, to the ACRS comments and recommendations in the ACRS report dated February 18, 1999, concerning questions to be addressed for possible resolution of key issues associated with the proposed revision to 10 CFR 50.59 (Changes, Tests and Experiments).

The Committee decided to continue its review of issues related to the proposed final revision to 10 CFR 50.59 during the May 5-8, 1999 ACRS meeting.

- The Committee discussed the response from the EDO dated March 31, 1999, to the ACRS comments and recommendations in the ACRS letter dated February 19, 1999, concerning resolution of Generic Safety Issue B-61, "Allowable ECCS Equipment Outage Periods."

The Committee decided to continue its review of issues related to the assessment of risk in the GSI process during future ACRS meetings.

- The Committee discussed the response from the EDO dated March 26, 1999 to the ACRS comments and recommendations included in the ACRS letter dated February 19, 1999, concerning SECY-98-244, "NRC Human Performance Plan."

The Committee decided that it was satisfied with the EDO's response.

#### OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from March 11, 1999, through April 7, 1999, the following Subcommittee meetings were held:

- Thermal-Hydraulic Phenomena - March 23, 1999

The Subcommittee continued its review of the Electric Power Research Institute RETRAN-3D thermal hydraulic transient code.

- Materials and Metallurgy - March 24-25, 1999

The Subcommittee met with representatives of the NRC staff, the Nuclear Energy Institute (NEI), and the Boiling Water Reactor Vessel Internals Project (BWRVIP) to discuss industry and NRC activities related to: steam generator tube integrity; BWRVIP; Pressurized Water Reactor Materials Reliability Project; reactor pressure vessel integrity; status of resolution of the differences between the staff and ASME regarding the use of 1994 Addenda to the ASME Section III Code for Class 1, 2, and 3 piping systems; and the proposed revision to 10 CFR 50.55a, "Codes and standards."

- Reliability and Probabilistic Risk Assessment and Regulatory Policies and Practices - April 7, 1999

The Subcommittee discussed the staff's proposed approach for revising the Commission's Safety Goal Policy Statement.

- Planning and Procedures - April 6, 1999

The Planning and Procedures 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 FOLLOW-UP MATTERS FOR THE EXECUTIVE DIRECTOR FOR OPERATIONS

- The Committee plans to hear a briefing on the NRC reactor pressure vessel integrity research activities associated with the pressurized thermal shock rule at the July 14-16, 1999 meeting.
- The Committee plans to continue its review of issues related to the proposed final revision to 10 CFR 50.59 during the May 5-8, 1999 ACRS meeting.
- The Committee plans to continue its review of issues related to the assessment of risk in the generic safety issue process at a future ACRS meeting.
- The Committee decided to continue its discussions of issues associated with the proposed improvements to the NRC inspection and assessment programs during the May 5-8, 1999 ACRS meeting.
- The Committee plans to review specific risk-informed pilot applications at future meetings.
- The ACRS Subcommittee on Thermal-Hydraulic Phenomena plans to maintain close interaction with the staff during the staff's development of acceptance criteria and guidelines for reviewing the thermal-hydraulic codes.

PROPOSED SCHEDULE FOR THE 462nd ACRS MEETING

The Committee agreed to consider the following during the 462nd ACRS Meeting, May 5-8, 1999:

Application of Electric Power Research Institute (EPRI) Risk-Informed Methods to Inservice Inspection of Piping

Briefing by and discussions with representatives of EPRI and the NRC staff on the proposed application of risk-informed methods to inservice inspection of piping (ISI).

Proposed Final Revision to 10 CFR 50.59 (Changes, Tests and Experiments)

Briefing by and discussions with representatives of the NRC staff regarding the staff's proposed final revision to 10 CFR 50.59.

Safety Evaluation for the Calvert Cliffs Nuclear Power Plant (CCNPP) License Renewal Application

Briefing by and discussions with representatives of the NRC staff and of the Calvert Cliffs licensee on the CCNPP license renewal application.

Proposed Resolution of Generic Safety Issue (GSI)-158, "Performance of Safety-Related Power-Operated Valves Under Design Bases Conditions"

Briefing by and discussions with representatives of the NRC staff regarding the proposed resolution of GSI-158.

Proposed Resolution of Generic Safety Issue (GSI)-165, "Spring-Actuated Safety Relief Valve Reliability"

Briefing by and discussions with representatives of the NRC staff regarding the proposed resolution of GSI-165. [Note: This item was deferred to the June 2-4, 1999 ACRS meeting at the request of the staff.]

Fire Protection Functional Inspection Program

Briefing by and discussions with representatives of the NRC staff regarding the staff's on the fire protection functional inspection program and other fire protection matters.

Westinghouse Owners Group (WOG) Proposal for Modification of Core Damage Assessment Guidelines (CDAG) and Post-Accident Sampling System (PASS) Requirements

Briefing by and discussions with representatives of the NRC staff and WOG regarding the WOG proposal for modification of CDAG and PASS requirements.

Sincerely,

A handwritten signature in black ink that reads "Dana A. Powers". The signature is written in a cursive style with a large, sweeping initial "D".

Dana A. Powers  
Chairman