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OTHER RELATED ACTIVITIES OF THE COMMITTEE

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D.C. 20555-0001

April 5, 2000

The Honorable Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT - 470TH MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS ON MARCH 1-4, 2000,
AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Dear Chairman Meserve:

During its 470th meeting, March 1-4, 2000, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and letter. In addition, the Committee authorized Dr. Larkins, Executive Director, ACRS, to transmit the memorandum noted below:

REPORTS

- Proposed Final Regulatory Guide 1.XXX, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants" (Report to Richard A. Meserve, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated March 10, 2000)
- Report on the Safety Aspects of the License Renewal Application for the Oconee Nuclear Station, Units 1, 2, and 3 (Report to Richard A. Meserve, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated March 13, 2000)
- SECY-00-0007, "Proposed Staff Plan for Low Power and Shutdown Risk Analysis Research to Support Risk-Informed Regulatory Decision Making" (Report to Richard A. Meserve, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated March 13, 2000)
- Revised Reactor Oversight Process (Report to Richard A. Meserve, Chairman, NRC, from Dana A. Powers, Chairman, ACRS, dated March 15, 2000)

LETTER

- Proposed Resolution of Generic Issue B-17, "Criteria for Safety-Related Operator Actions," and Generic Issue 27, "Manual vs. Automated Actions" (Letter to William D. Travers, Executive Director for Operations, NRC, from Dana A. Powers, Chairman, ACRS, dated March 13, 2000)

MEMORANDUM

- Proposed Final Amendment to 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," and 10 CFR 50.73, "Licensee Event Report System" (Memorandum to William D. Travers, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS, dated March 13, 2000)

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Development of Risk-Informed Revisions to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"

The Committee heard presentations by and held discussions with representatives of the NRC staff, the Nuclear Energy Institute (NEI), and Performance Technology, Inc., concerning the status of developing risk-informed revisions to 10 CFR Part 50 and related matters. In particular, the Committee and the staff discussed the staff's plan for implementing Option 3 (SECY-98-300, Options for Risk-Informed Revisions to 10 CFR Part 50) concerning changing specific requirements in the body of 10 CFR Part 50 and associated regulations, including possible reexamination of the design basis events and associated requirements. The Committee discussed the staff's proposed framework, including development efforts related to defense in depth, prevention versus mitigation, safety margins, single-failure criteria, redundancy, diversity, and emergency preparedness. The Committee and the staff discussed the screening, selection, and prioritization of candidate regulations related to design basis accidents. The Committee also discussed the preliminary results of the staff's evaluation of 10 CFR 50.44, "Standards for combustible gas control system in light-water-cooled reactors," as a trial regulation for piloting the proposed framework. The Committee considered comments offered by NEI concerning the NEI letter dated January 19, 2000, to Chairman Meserve, pertaining to the results of an NEI survey of priority regulations needing revision. The Committee also considered comments from Performance Technology concerning the possible revision of 10 CFR 50.44 and related matters.

Conclusion

The Committee plans to continue its review of this matter during future meetings.

2. ACRS Meeting With the NRC Commissioners

The Committee met with the NRC Commissioners on Thursday March 2, 2000, between 9:30 and 12:00 noon, and discussed risk-informing 10 CFR Part 50 including Importance Measures, Impediment to the Increased Use of Risk-Informed Regulation and technical adequacy of performance indicators used in the revised reactor oversight process. The Committee is awaiting a Staff Requirements Memorandum identifying Committee follow-up items resulting from this meeting.

3. Technical Components Associated With the Revised Reactor Oversight Process

The Committee heard presentations by and held discussions with representatives of the NRC staff concerning technical components of the revised reactor oversight process (RROP), including the technical adequacy of performance indicators (PIs) and the significance determination process (SDP). The Committee discussed the staff's proposal to issue the RROP for initial implementation at all power reactors. The Committee and staff extensively discussed the choice of PIs and associated thresholds; the need for revision after more experience is gained at a larger base of plants; incompleteness of the SDP; and the need for PIs to characterize the licensee's problem identification and corrective action program, human performance, safety culture, and low-power and shutdown operations.

Conclusion

The Committee issued a report to Chairman Meserve dated March 15, 2000, on this matter.

4. Oconee Nuclear Power Plant License Renewal Application

The Committee heard presentations by and held discussions with representatives of the NRC staff and the Duke Energy Corporation concerning the Final Safety Evaluation Report related to the license renewal of Oconee Nuclear Station, Units 1, 2, and 3. The staff provided an overview of the resolution of the open and confirmatory items. The ACRS members, the staff, and Duke representatives discussed the reliance of the license renewal process on the current licensing basis and the regulatory process, their perspectives on

one-time inspections, and the acceptability of inspecting buried pipes.

Conclusion

The Committee issued a report to Chairman Meserve dated March 13, 2000, on this matter.

5. Proposed Final Amendment to 10 CFR 50.72 and 50.73

Dr. Mario Bonaca, Acting Chairman of the Plant Operations Subcommittee, summarized the staff's activities associated with a new reporting requirement contained in the proposed final amendment to 10 CFR 50.72 and 50.73. The new requirement concerned any event or condition that required corrective action for a single cause or condition in order to ensure the ability of more than one train or channel to perform its specified function. The Committee members and the staff discussed the meeting on February 25, 2000, between the staff and NEI, concerning the clarity and intent of the new reporting requirement. The staff stated that it understood NEI's concerns and planned to clarify the requirement.

Conclusion

As authorized by the Committee, the ACRS Executive Director issued a memorandum dated March 13, 2000, to the NRC Executive Director of Operations informing him that the Committee decided not to review this matter further.

6. Proposed Final Regulatory Guide 1.XXX, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants"

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the proposed final Regulatory Guide 1.XXX, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," which was developed to supplement Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.XXX endorses the revised Section 11, "Assessment of Risk Resulting From Performance of Maintenance Activities," of NUMARC 93-01. The staff stated that since the last briefing of ACRS, additional changes have been proposed by NEI to Sections 11.3.2 and 11.3.8 of NUMARC 93-01. These changes were to address temporary alterations that are necessary for maintenance during power operations. For such temporary alterations, no review would be required under 10 CFR 50.59 unless the alterations are expected to be in effect more than 90 days during power operations.

The staff stated that temporary alterations, which are in effect less than 90 days, will be assessed under the requirements of 10 CFR 50.65 (a)(4). To clarify the need for these assessments, the staff has proposed to add a paragraph to the Implementation Section of Regulatory Guide 1.XXX.

Conclusion

The Committee issued a report to Chairman Meserve on this matter, dated March 10, 2000.

7. Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel

The NRC staff is developing a phenomena identification and ranking table (PIRT) to identify and rank the phenomena occurring during selected transient and accident scenarios in both pressurized-water reactors (PWRs) and boiling-water reactors (BWRs) containing high-burnup fuels. The Office of Nuclear Regulatory Research has selected a panel of experts for the PIRT process.

Membership of the PIRT panel has been drawn from the U.S. and international scientific community, and many of its 22 members are actively involved in experimental and analytical work related to the behavior of high-burnup fuel. The PIRT provides a structured way to obtain an understanding from the elicitation of technical opinions of the experts.

The PIRT phenomena identified by the expert panel were grouped into four categories: (1) plant transient analysis, (2) experimental testing, (3) transient fuel rod analysis, and (4) mechanical properties measurement. The importance of each phenomenon was judged relative to a primary evaluation criterion, namely, the impact of the phenomenon on substantial fuel dispersal and substantial flow blockages, either singly or in combination.

For the PWR and BWR PIRTs, the NRC staff selected the Three Mile Island, Unit 1 and the LaSalle plants, respectively. Although specific plants and fuel have been selected, the expert panel was charged with the responsibility of extending the applicability of the PIRT to address other fuel, cladding, and reactor types and fuel burnups to 75 Gwd/t.

Conclusion

This briefing was for information only. The Committee plans to continue its discussion of this matter at future meetings.

8. Proposed Resolution of Generic Issue B-17, "Criteria for Safety Related Operator Actions" and Generic Issue-27, "Manual Vs. Automated Actions"

The Committee heard presentations by and held discussions with representatives of the NRC staff concerning the proposed resolution of Generic Issue (GI) B-17, "Criteria for Safety-Related Operator Actions," and GI 27, "Manual vs. Automated Actions." The staff position is that the regulatory actions that have been implemented since the 1979 TMI accident (GI B-17 was established in 1978) provide adequate grounds for closing GIs B-17 and 27 (GI 27 was subsumed into GI B-17). These regulatory actions have included enhanced operator training and licensing requirements, including use of plant-specific simulators, improved training based on the Systems Approach to Training, establishment of minimum plant staffing levels, use of symptom-based emergency operating procedures, and completion of individual plant examinations (IPEs). The argument is also made that any new or revised regulatory activities to address this issue (i.e., automation of human actions) would be neither cost-effective nor substantially increase public health and safety, given the existing regulations.

Conclusion

The Committee issued a letter to the Executive Director of Operations dated March 13, 2000, on this matter.

9. Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors

The Committee continued its discussions of the proposed revision of the Commission's Safety Goal Policy Statement (SGPS) for reactors. During this meeting, the focus of the Committee's efforts was on providing formal comments on the specifics of the proposed revisions to the SGPS.

Conclusion

The Committee will continue its discussion of this matter during its April 2000 meeting.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

No EDO responses were available for reconciliation during the March 2000 meeting.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from February 3 through February 29, 2000, the following Subcommittee meetings were held:

- Plant License Renewal - February 23, 2000, (P.M.) Oconee Visitors Center (Closed)

The Subcommittee met with representatives of the Duke Energy Corporation to discuss proprietary information pertinent to the Oconee license renewal application.

- Plant License Renewal - February 24, 2000, Clemson Conference Center, South Carolina

The Subcommittee met with representatives of the NRC staff and Duke Energy Corporation to discuss the resolution of open items identified in the staff's Safety Evaluation Report associated with the Oconee License renewal application.

- Planning and Procedures - February 29, 2000

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 decided to review the status of proposed revisions to 10 CFR Part 50 during the June 7-9, 2000 ACRS meeting. In particular, the Committee plans to review the status of Option 2 related to special treatment requirements and issues in the Nuclear Energy Institute letter dated January 19, 2000. The Subcommittee on Reliability and PRA plans to hold a meeting in late May 2000 to review this matter.
- The Committee would like to review the staff's evaluation of ANSI/ANS 58.8-1994 Standard, which may be endorsed by the staff to resolve Generic Issue B-17, "Criteria for Safety-Related Operator Actions."
- The Committee plans to work with the staff as they proceed with resolving important issues associated with the low-power and shutdown operations.

- The ACRS Chairman decided that there is no need for the EDO to respond to the March 13, 2000, ACRS report on the Oconee licensee renewal application.

PROPOSED SCHEDULE FOR THE 471st ACRS MEETING

The Committee agreed to consider the following during the 471st ACRS Meeting, April 5-7, 2000:

Spent Fuel Pool Accident Risk for Decommissioning Plants

Briefing by and discussions with representatives of the NRC staff regarding the proposed final report of a technical study associated with the spent fuel pool accident risk for decommissioning plants, public comments received on the proposed report, and the staff's resolution of public comments.

Proposed Research Plan for Digital Instrumentation and Control

Briefing by and discussions with representatives of the NRC staff regarding the proposed research plan for digital instrumentation and control.

Proposed White Paper on Risk-Based Performance Indicators

Briefing by and discussions with representatives of the NRC staff regarding the proposed white paper on risk-based performance indicators.

Human Performance Program

Briefing by and discussions with representatives of the NRC staff regarding the revised version of the human performance program.

Special Studies for Risk-Based Analysis of Reactor Operating Experience

Briefing by and discussions with representatives of the NRC staff regarding special studies of the staff associated with the risk-based analysis of reactor operating experience.

Operating Event at Indian Point Unit 2

Briefing by and discussions with representatives of the NRC staff regarding the findings and recommendations of the Augmented Inspection Team, which investigated the reactor trip and partial loss of AC power event that occurred at Indian Point Unit 2 on August 31, 1999.

Reports of the Materials and Metallurgy and Thermal-Hydraulic Phenomena
Subcommittees

Discussion of the reports by the Chairmen of the ACRS Subcommittees on Materials and Metallurgy and on Thermal-Hydraulic Phenomena regarding the status of activities associated with the development of a revised Pressurized Thermal Shock Screening Criterion.

Sincerely,

A handwritten signature in black ink, reading "Dana A. Powers". The signature is fluid and cursive, with the first name "Dana" being the most prominent part.

Dana A. Powers
Chairman