



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 that reads "Dana A. Powers". The signature is written in a cursive style with a large initial "D" and a long, sweeping underline.

Dana A. Powers
Chairman

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REPORTS, LETTERS, AND MEMORANDA

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)
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- 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)

MEMORANDA

- 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)

APPENDICES

- I. Federal Register Notice
- II. Meeting Schedule and Outline
- III. Attendees
- IV. Future Agenda and Subcommittee Activities
- V. List of Documents Provided to the Committee

CERTIFIED

MINUTES OF THE 470TH MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MARCH 1-4, 2000
ROCKVILLE, MARYLAND

The 470th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on March 1-4, 2000. Notice of this meeting was published in the *Federal Register* on February 17, 2000 (65 FR 8211) (Appendix I0). The purpose of this meeting was to discuss and take appropriate action on the items listed in the meeting schedule and outline (Appendix II). The meeting was open to public attendance. There were no written statements or requests for time to make oral statements from members of the public regarding the meeting.

A transcript of selected portions of the meeting was kept and is available in the NRC Public Document Room at the Gelman Building, 2120 L Street, N.W., Washington, D.C. [Copies of the transcript are available for purchase from Ann Riley & Associates, Ltd., 1025 Connecticut Avenue, N.W., Suite 1014, Washington, D.C. 20036, and on the ACRS/ACNW Web page at (www.NRC.gov/ACRS/ACNW).]

ATTENDEES

ACRS Members: Dr. Dana A. Powers (Chairman), Dr. George Apostolakis (Vice-Chairman), Mr. John Barton, Dr. Mario V. Bonaca, Dr. Thomas S. Kress, Dr. William J. Shack, Dr. Robert L. Seale, Mr. John D. Sieber, Dr. Robert E. Uhrig, and Dr. Graham B. Wallis. For a list of other attendees, see Appendix III.

I. Chairman's Report (Open)

[Note: Dr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

Dr. Dana A. Powers, Committee Chairman, convened the meeting at 1:00 p.m. and reviewed the schedule for the meeting. He summarized the agenda topics for this meeting and discussed the administrative items for consideration by the full Committee.

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

[Note: Mr. Michael T. Markley was the Designated Federal Official for this portion of the meeting.]

Dr. George Apostolakis, Chairman of the ACRS Subcommittee on Reliability and Probabilistic Risk Assessment, introduced this topic to the Committee. He stated that the purpose of this meeting is to review the staff's framework for risk informing 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." He noted that the primary purpose of this meeting was to review the staff's plan for implementing Option 3 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

NRC Staff Presentation

Mr. Mark Cunningham and Ms. Mary Drouin, Office of Nuclear Regulatory Research (RES), led the discussion for the NRC staff. Mr. Alan Kuritzky, RES, provided supporting discussion. Mr. Thomas King, RES, also participated. The staff discussed the status of developing risk-informed revisions to 10 CFR Part 50, including the results of a public workshop held on February 24-25, 2000. Significant points made during the presentation were as follows:

1. The staff solicited feedback from the individual ACRS members and noted that a report or letter would not be requested from the Committee at this time.
2. In a staff requirements memorandum (SECY-99-264) dated February 3, 2000, the Commission approved the staff's proposed Option 3 approach.
3. For this meeting, the staff discussed its framework document and an example of a proposed change to specific requirements in 10 CFR 50.44 concerning combustible gas control systems. The staff's framework document addresses, in part, a number of issues important to the Committee including the following:
 - top-down goals and objectives
 - adequate protection

- defense in depth, including the balance between prevention and mitigation and the structuralist versus the rationalist approaches
 - consideration of risk using “cornerstones” of the reactor oversight process
 - approaches for using quantitative goals and associated strategies for prevention and mitigation
 - risk criteria using core damage frequency and large, early release frequency
 - treatment of uncertainties
4. The staff's framework also discusses the linkage of these issues to the plant design basis and consideration of safety margins. The staff plans to utilize a two-phase approach:
- Phase 1: Identify and prioritize candidate design basis accidents (DBAs) and regulations, including regulatory guides and Standard Review Plan (SRP) sections, and trial implementation of candidate regulation.
- Phase 2: Develop guidelines for defense in depth and safety margins, trial implementation of risk-informed 10 CFR 50.44, and trial implementation of special treatment requirements.
5. Key implementation issues include the following:
- Application of single failure criterion
 - Application of quantitative goals
 - Implementation of risk-informed requirements
 - Consideration of uncertainties
 - Worker protection
6. The staff has developed a screening process for the selection and prioritization of candidate regulations and design basis accidents for possible revision. Preliminary evaluation for 10 CFR 50.44 has begun.

Nuclear Energy Institute Presentation

Mr. Adrian Heymer of the Nuclear Energy Institute (NEI) presented brief remarks to the Committee concerning the Option 3 initiative. He stated that the NRC staff and the industry are in general agreement on many of the issues associated with

making 10 CFR Part 50 risk informed. However, he stated that the industry has for a long time struggled with application of the principle of defense in depth and finds the single failure criterion confusing. He also noted that there may be some difference in the priority regarding which regulations to change first. Mr. Heymer informed the Committee that NEI sent a letter to the NRC dated January 19, 2000, expressing agreement with the staff's overall approach and listing industry priorities for regulatory change. Several ACRS members asked to review the subject letter, and Mr. Heymer agreed to provide a copy after the meeting.

Presentation by a Concerned Citizen

Mr. Bob Christie of Performance Technology, Inc., gave a brief presentation to the Committee. He stated that there is no general agreement in the industry on the Option 3 approach, that the single-failure criterion is not needed, that he does not understand why the quantitative health objectives cannot be used to set objectives, that adequate protection is demonstrated by meeting the regulations, and that the Commission's safety goals support the fact that the industry is safe enough. He also stated that the proposed revision to 10 CFR 50.44 should be expedited in accordance with the petition for rulemaking of January 12, 2000.

Dr. Powers stated that there is a lot of ongoing work in the area of fire protection and questioned why fire protection is not proposed for consideration under Option 3. The staff stated that parallel activities are underway in the Office of Nuclear Reactor Regulation (NRR) and suggested that fire protection is being considered under Option 2 related to special treatment requirements.

Dr. Powers stated that DBAs are orthogonal to risk. He questioned why DBAs are useful and whether they should be retained. The staff stated that DBAs represent a useful concept that served the NRC well during the early years of licensing of nuclear power plants. The staff added that DBAs provided a "design to" standard and noted that some aspects (e.g., containment) would be difficult to abandon, even in risk-informed regulation. Dr. Bonaca stated that there is a need for standards against which designs are developed.

Dr. Apostolakis questioned the relationship between the Option 3 initiatives and the "cornerstones" of the revised reactor oversight process. In particular, he questioned consistency with cornerstones if DBAs are exceeded. The staff stated that they would evaluate consistency with the cornerstones for each trial

initiative and noted that the key work is "limit." The staff stated that it plans to limit encroachment on the cornerstones.

Dr. Apostolakis questioned the use of quantitative goals. He stated that there will be certain classes of accidents in which only a top-level quantitative value can be met, and lower-tier values cannot be quantified. The staff acknowledged this concern and stated that it hopes to obtain stakeholder feedback on these types of issues during the public comment period.

At the conclusion of the meeting, Dr. Apostolakis suggested, and the staff agreed to hold a Subcommittee meeting in late May 2000 with full Committee review during the ACRS meeting on June 7-9, 2000.

Conclusion

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

III. ACRS Meeting With the NRC Commissioners

[Note: Mr. Sam Duraiswamy was the Designated Federal Official for this portion of the meeting.]

The Committee met with the NRC Commissioners on Thursday, March 2, 2000 and discussed risk-informing 10 CFR Part 50 and technical adequacy of performance indicators used in the revised reactor oversight process. The Committee is awaiting a Staff Requirements Memorandum to find out the Committee follow-up items resulting from this meeting.

IV. Technical Components Associated With the Revised Reactor Oversight Process

[Note: Mr. Michael T. Markley was the Designated Federal Official for this portion of the meeting.]

Mr. John Barton, Chairman of the ACRS Subcommittee on Plant Operations, introduced this topic to the Committee. He stated that the Committee last met during the ACRS meeting on February 2-5, 2000, to discuss the technical components of the reactor oversight process, including the performance indicators (PIs) and the significance determination process (SDP). He noted that the Subcommittee on Plant Operations met on January 20, 2000, to discuss this

matter. Mr. Barton also noted that the ACRS response to the Commission is due March 15, 2000.

NRC Staff Presentation

Mr. William Dean and Mr. Michael Johnson, NRR, led the discussion for the NRC staff. Messrs. Frank Gillespie, Alan Madison, and Gareth Parry, NRR, provided supporting discussion. Significant points raised during the staff presentation include the following:

- The focus of the staff presentation was on the SDP and planned future activities rather than PIs, which were extensively discussed during the ACRS meeting on February 2-5, 2000.
- The SDP is used to characterize inspection findings arising from deficient licensee performance and, where appropriate, apply risk metrics similar to those used to evaluate PIs.
- The SDP evaluates risk on a plant-specific basis using the individual plant examination (IPE) and/or probabilistic risk assessment (PRA). Plant-specific worksheets were developed from the IPEs for use by the inspection staff and senior reactor analysts in evaluating the risk significance of inspection findings.
- The revised reactor oversight process continues to be a work in progress. Ongoing work includes development of a containment SDP and screening tools for shutdown operations and external events in April 2000. The staff plans to continue to evaluate and modify the program, as appropriate.

Dr. Shack questioned the technical basis for the feasibility study that was conducted to validate the SDP. In particular, he questioned whether the process was based on the use of expert opinion. The staff affirmed that expert opinion was used in establishing criteria, particularly in areas in which risk metrics were unavailable.

Drs. Bonaca and Apostolakis questioned the rationale for making the SDP worksheets plant specific when the PIs are not. The staff stated that there are other benefits to the SDP beyond those associated with evaluating licensee performance. The staff stated that the SDP also serves as a training tool for

inspectors to better understand the plant IPE/PRA's, to identify critical components important to risk, and to make risk analysis part of the inspectors' inspection planning arsenal.

Dr. Bonaca questioned why there is not a PI for the licensee's problem identification and corrective action program (CAP). The staff stated that evaluating the licensee's CAP better fits the inspection program than it does a particular PI. The staff also stated that inspecting the CAP is now 15 to 20 percent of the baseline inspection program and noted that it is evaluated on a "sampling and roll-up" basis.

Dr. Apostolakis questioned the extent to which the staff had considered the system and reliability studies performed by the former Office for Analysis and Evaluation of Operational Data. The staff acknowledged that it had not considered the subject studies and suggested that the period of analysis would not be useful in the revised reactor oversight process. Dr. Apostolakis noted that some of the studies had been updated as recently as October 1999.

Conclusion

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

V. Oconee Nuclear Power Plant License Renewal Application

[Note: Mr. Noel F. Dudley was the Designated Federal Official for this portion of the meeting.]

Dr. Mario Bonaca, Chairman of the Plant License Renewal Subcommittee, noted that the Subcommittee visited the Oconee site on February 23, 2000, and held a Subcommittee meeting the next day in Clemson, South Carolina. He stated that representatives of the staff and Duke Energy Corporation would make presentations concerning the resolution of open and confirmatory items. He requested that the presenters comment specifically on the reliance of the license renewal process on the current licensing basis and the regulatory process, perspectives on one-time inspections, and the acceptability of inspecting buried pipes.

Mr. Greg Robison, Duke, explained how Duke evaluated 10 additional events, which were suggested by the staff, to validate the scoping process used to identify structures, systems, and components (SSCs) that are within the scope of the license renewal rule. He described the Insulated Cables Aging Management Program, which is intended to manage the aging effects of heat and radiation, and moisture environments. Mr. Jeff Gilreath, Duke, presented the processes and inspections Duke developed to resolve several open items concerning the management of possible aging effects on reactor vessel internals. Mr. Robison explained the intent of one-time inspections and described the inspection program for buried piping.

The ACRS members and Duke representatives discussed the unique designs of nuclear power plants licensed before 1970, the reason for the baffle plate holes, the reason for inspecting the reactor coolant pump oil system, and the installation of the buried piping.

Mr. Joseph Sebrosky, NRR, presented a broad overview of the resolution of open and confirmatory items. He described how the principle of license renewal relies on the existing regulatory process. Mr. Sebrosky presented the staff's perspective on one-time inspections. He explained why the staff found the Duke piping inspection program acceptable for resolving the associated open item.

The ACRS members and the staff discussed the fundamental philosophy of using the current licensing basis to identify the SSCs that are within the scope of license renewal and the lessons learned from reviewing the application of an older plant.

Conclusion

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

VI. Proposed Final Amendment to 10 CFR 50.72 and 50.73

[Note: Mr. Noel F. Dudley was the Designated Federal Official for this portion of the meeting.]

Dr. Mario Bonaca, Acting Chairman of the Regulatory Policies and Practices Subcommittee, explained that the staff met with the NEI on February 25, 2000,

to discuss the requirement to report 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. NEI raised concerns related to this new requirement.

Mr. Dennis Allison, NRR, stated that the staff agreed with the NEI concerns. He explained that the staff has not yet decided how to proceed. Mr. John Sieber, ACRS member, stated that the problems associated with the new requirement were process issues, which involved the clarity of the new requirement.

Conclusion

The Committee decided not to review this matter further.

VII. Proposed Final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants"

[Note: Mr. Amarjit Singh was the Designated Federal Official for this portion of the meeting.]

Mr. John J. Barton, Chairman of the Subcommittee on Plant Operations, introduced this topic to the Committee. He stated that the purpose of this session was to discuss with representatives of the NRC staff the proposed final regulatory guide, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," which was developed to supplement Regulatory Guide (RG) 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and the revised Section 11, "Assessment of Risk Resulting From Performance of Maintenance Activities," of NUMARC 93-01.

NRC Staff Presentation

Mr. Wayne E. Scott led the discussions for the staff. He stated that since the last briefing of the ACRS, the staff identified additional changes 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.

He 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 also proposed to add the following paragraph to the implementation section of RG 1.XXX:

The assessment does not relieve the licensee from obligations to its license or the regulations. The exemption requirements and 10 CFR 50.90 remain in effect. The intent is to eliminate overlapping requirements for assessments that could be considered to exist under 10 CFR 50.65 (a)(4) and 10 CFR 50.59. This clarification applies to temporary alterations [that are] directly related to and support the specific maintenance activity being assessed.

Conclusion

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

VIII. Phenomena Identification and Ranking Table for High-Burnup Fuel

[Note: Dr. Medhat El-Zeftawy was the Designated Federal Official for this portion of the meeting.]

Dr. Dana A. Powers, Chairman of the Reactor Fuels Subcommittee, stated that using reactor fuels to higher burnups is of significant economic advantage to the power production industry as well as to society. It has been found, however, that there are substantial changes in fuel behavior as burnup exceeds about 48 Gwd/t. The NRC will currently allow licensees to use fuel to burnups of about 62 Gwd/t. Safety concerns about these changes were raised by tests of fuel integrity during reactivity insertions conducted in France, Japan, and Russia. Analyses have suggested that there may be safety issues associated with other design basis accidents, such as loss-of-coolant accidents and anticipated transients without scram in boiling-water reactors (BWRs).

The nuclear industry believes that it is even possible to take fuels to burnups higher than 62 Gwd/t, perhaps as high as 75 Gwd/t. However, the NRC has indicated that the burden will be on the industry to provide data for burnups higher than 62 Gwd/t.

The ACRS has previously suggested that RES should develop technically defensible information requirements, including requirements for experimental data to validate analyses. RES has undertaken a Phenomena Identification and Ranking Table (PIRT) process using an impressive array of experts from around the world to define these requirements to ensure safe fuel performance at high levels of burnup.

Dr. Ralph Meyer, RES, stated that RES is developing a PIRT to identify and rank the phenomena occurring during selected transient and accident scenarios in both pressurized-water reactors (PWRs) and BWRs containing high-burnup fuels. RES has selected a panel of 22 experts for the PIRT process.

Dr. Meyer noted that the PIRT provides a structured way to obtain a technical understanding from elicitation of technical opinions from 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 RES staff has selected the Three Mile Island (TMI) Unit 1 plant and the LaSalle plant, respectively.

Conclusion

The ACRS will continue to follow up on this matter with the NRC staff.

IX. Proposed Resolution of Generic Safety Issue B-17, "Criteria for Safety Related Operator Actions"

[Note: Mr. Paul A. Boehnert was the Designated Federal Official for this portion of the meeting.]

Dr. Seale, Cognizant ACRS Member, introduced this topic to the Committee. He noted that Generic Safety Issue (GI) B-17 and GI-27 are being addressed as part of the NRC's drive to resolve generic issues on an expedited basis. Both issues have been extant for some time. Dr. Seale noted that in November 1995, the staff proposed to close out GI B-17 by reference to an American National

Standards Institute/American Nuclear Society standard. The Committee took strong exception to the use of this standard. The principal concern was a lack of adequate technical information to support its use; there was also concern that the supporting data were being held as proprietary and were not available to either the staff or the ACRS. Subsequently, the staff withdrew the use of this standard and is now taking another approach. Dr. Seale asked that the staff discuss any plans for future use of the above-noted ANSI/ANS standard.

NRC Staff Presentation

Mr. J. Persensky, RES, discussed the history, description, and justification for closeout of GIs B-17 and 27. The staff argument is that the regulatory actions that have been implemented since the 1979 TMI accident (GI B-17 was formulated 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 plant individual plant Evaluations. The argument is also made that any new or revised regulatory activities to address this issue (i.e., automation of human actions) would not be cost-effective or substantially increase public health and safety, given the existing regulations. Mr. Persensky noted that the ACRS concurred with this last issue in memorandum dated September 12, 1995.

Dr. Wallis asked questions relating to assurance that human error by the operators is addressed by the NRC. Mr. Persensky indicated that the agency and the industry evaluate this issue on a continuing basis. Mr. Sieber said that the Shift Technical Advisor worked on operating shifts in an attempt to counter operator errors during transient events. In response to an issue raised by Dr. Bonaca, Mr. Persensky noted that in response to licensee amendment requests to revert from automatic to manual actions, NRR has asked RES to develop risk-informed guidance for review of these amendments. Draft guidance under staff review would require that site-specific analyses be performed, and ANSI/ANS-58.8-1994 is cited as a source for checking site-specific data. Drs. Powers and Seale noted the Committee's concerns about the use of this ANSI/ANS guidance.

Conclusion

The Committee issued a report to the Executive Director for Operations (EDO), dated March 13, 2000, on this matter.

X. Proposed Revision to the Commission's Safety Goal Policy Statement

[Note: Mr. Paul A. Boehnert was the Designated Federal Official for this portion of the meeting.]

The Committee continued its discussions on the NRC staff's proposed revision of the Commission's Safety Goal Policy Statement (SGPS) for reactors. During this meeting, the Committee discussed specific proposals relevant to risk informing of the SGPS.

Conclusion

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

XI. Executive Session (Open)

[Note: Dr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

A. Reconciliation of ACRS Comments and Recommendations

[Note: Mr. Sam Duraiswamy was the Designated Federal Official for this portion of the meeting.]

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

B. Report on the Meeting of the Planning and Procedures Subcommittee (Open)

The Committee heard a report from Dr. Powers and the Executive Director, ACRS, on the Planning and Procedures Subcommittee meeting held on February 29, 2000. The following items were discussed:

— Review of the Member Assignments and Priorities for ACRS Reports and Letters for the March 2000 ACRS Meeting

Member assignments and priorities for ACRS reports and letters for the March 2000 ACRS meeting were discussed. Reports and letters that would benefit from additional consideration at a future ACRS meeting were also discussed.

— Anticipated Workload of ACRS Members

The anticipated workload of the ACRS members through May 2000 was discussed. The objectives were (1) to review the reasons for the scheduling of each activity and the expected work product and to make changes, as appropriate; (2) to manage the members' workload for these meetings; and (3) to plan and schedule items for ACRS discussion of topical and emerging issues.

— Status of Selecting Candidates for Potential ACRS Membership

Three of the four best qualified candidates for ACRS membership were scheduled to be interviewed by ACRS Members during the March 2000 ACRS meeting.

— Meeting With Members of the German Reactor Safety Committee

On March 13, 2000, Lothae Hahn (Chairman of the German Reactor Safety Committee [RSK]), Edmund Kersting (Vice Chairman of the RSK), and Renzo Candeli (Executive Director of the RSK office) met with D. Powers, G. Apostolakis, M. Bonaca, T. Kress, G. Wallis, and J. Larkins to discuss several topics of mutual interest. The meeting was held at the Massachusetts Institute of Technology (MIT) and the suggested topics included Risk-Informed, Performance-Based Regulation; Generic Safety Issues; Decommissioning and Emergency Responses; and Reactor Regulatory Research.

— Change in NRC Travel Regulations Beginning March 1, 2000

A copy of the NRC Yellow Announcement, "Mandatory Usage of the Government-Sponsored Charge Card for Travel," dated February 8, 2000, was distributed to each member for his information.

— Compensation of ACRS Members

In a memorandum dated February 8, 2000, the ACRS Executive Director requested the NRC Chairman to continue the ACRS members' compensation at a rate equivalent to Executive Level IV.

— Proposed Rulemaking to Revise Federal Advisory Committee Act Regulations

The General Services Administration (GSA) is revising Federal Property Management Regulations' coverage on Federal Advisory Committee management. GSA is revising the implementation regulations for the Federal Advisory Committee Act (FACA) to make it consistent with legislative changes, shifts in Federal policy, and decisions issued by the Supreme Court and other Federal courts. This is the second time the NRC has commented on proposed changes to FACA, the first being on the advance notice of proposed rulemaking announced on June 10, 1997. The Office of the General Counsel discussed proposed agency comments with the ACRS/ACNW office and others before seeking the Commission's approval and forwarded comments to GSA.

• Member Issues

— Recommendation From Gus Cronenberg on NRC Staff Reviews of Power Uprates

Senior ACRS Fellow Gus Cronenberg has, in a memorandum dated February 7, 2000, expressed concern that the recommendation from the Maine Yankee lessons learned effort that there should be more comprehensive and consistent reviews of power

update applications that are not being followed. He sees continued inconsistency in the reviews and is concerned that they are not

- included in the safety evaluation report specifications on how the reviews were accomplished (a theme like that of Graham Wallis)
- included in the acceptance criteria for the conclusions reached, or
- included in the staff analyses of thermal hydraulics and core physics

The staff pleads that higher priority activities have kept it from formulating an SRP for power uprates. The Planning and Procedures Subcommittee should prepare a response. The Committee needs to give some thought to the following:

- Are we at all concerned about the potential synergism suggested in Cronenberg's report?
- Is any action taken by the ACRS in these matters interfering in the management of the agency?

— Meeting With NRC's EDO

The Planning and Procedures Subcommittee discussed a date and agenda for a meeting with the NRC's EDO on matters of concern. This meeting would include a discussion of administrative and procedural matters and, as such, would not be a public meeting.

— Meeting With Industry Representatives

An action coming out of the ACRS Calendar Year 2000 Retreat was the recommendation for a meeting with industry representatives (NEI, Utility Management, and the Institute of Power Operations). The Planning and Procedures Subcommittee will establish a date and agenda for this meeting and decide whether to use a subcommittee format or introduce it as part of a full Committee meeting. This meeting is part of a broader recommendation for enhanced ACRS and industry interactions, including members participating in NEI topical meetings and ANS activities.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the 471st ACRS Meeting on April 5-7, 2000.

The 470th ACRS meeting was adjourned at 12:00 p.m. on March 4, 2000.

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



March 30, 2000

MEMORANDUM TO: ACRS Members

FROM: Sherry Meador *Sherry Meador*
Technical Secretary

SUBJECT: PROPOSED MINUTES OF THE 470th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS -
MARCH 1-4, 2000

Enclosed are the proposed minutes of the 470th meeting of the ACRS. This draft is being provided to give you an opportunity to review the record of this meeting and provide comments. Your comments will be incorporated into the final certified set of minutes as appropriate.

Please note that these minutes are being issued in two parts: (1) main body (working paper form), and (2) appendices. The appendices are being sent only to those members who have requested them.

Attachment:
As stated



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

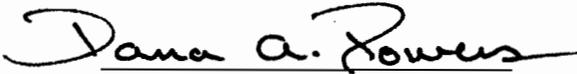
April 10, 2000

MEMORANDUM TO: Sherry Meador, Technical Secretary
Advisory Committee on Reactor Safeguards

FROM: Dana A. Powers, Chairman
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFIED MINUTES OF THE 470th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
(ACRS), MARCH 1-4, 2000

I certify that based on my review of the minutes from the 470th ACRS full Committee meeting, and to the best of my knowledge and belief, I have observed no substantive errors or omissions in the record of this proceeding subject to the comments noted below.


Dana A. Powers, Chairman

April 10, 2000

Date

would modify the permit to change the permit holder from Antarctic Support Associates to Raytheon Polar Services Company, 16800 E. CentreTech Parkway, Aurora, CO 80011-9646. All other permit conditions would remain the same.

Joyce A. Jatko,

Acting Permit Officer.

[FR Doc. 00-3704 Filed 2-16-00; 8:45 am]

BILLING CODE 7555-01-M

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards; Meeting Notice

In accordance with the purposes of Sections 29 and 182b. of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards will hold a meeting on March 1-4, 2000, in Conference Room T-2B3, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the *Federal Register* on Thursday, October 14, 1999 (64 FR 55787).

Wednesday, March 1, 2000

1:00 p.m.-1:15 p.m.: Opening Remarks by the ACRS Chairman (Open)—The ACRS Chairman will make opening remarks regarding the conduct of the meeting.

1:15 p.m.-3:15 p.m.: Development of Risk-Informed Revisions to 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the status of developing risk-informed revisions to 10 CFR part 50 and related matters.

3:30 p.m.-6:00 p.m.: Discussion of Proposed ACRS Reports (Open)—The Committee will discuss proposed ACRS reports on matters considered during this meeting. In addition, the Committee will discuss proposed ACRS reports on Low-Power and Shutdown Operations Risk Insights Report, and on Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors.

6:15 p.m.-7:15 p.m.: Discussion of Topics for Meeting with the NRC Commissioners (Open)—The Committee will discuss issues associated with risk-informed regulation, including impediments to the increased use of risk-informed regulation; use of importance measures in regulatory applications, impact of the scope and quality of the PRA on importance measures, and threshold values for

importance measures; and technical adequacy of performance indicators.

Thursday, March 2, 2000

8:30 a.m.-8:35 a.m.: Opening Remarks by the ACRS Chairman (Open)—The ACRS Chairman will make opening remarks regarding the conduct of the meeting.

8:35 a.m.-9:15 a.m.: Discussion of Topics for Meeting with the NRC Commissioners (Open)—The Committee will discuss matters scheduled for the meeting with the NRC Commissioners associated with risk-informed regulation and related matters.

9:30 a.m.-11:30 a.m.: Meeting with the NRC Commissioners (Open)—The Committee will meet with the NRC Commissioners, Commissioners' Conference Room, One White Flint North, to discuss matters associated with risk-informed regulation and related matters.

1:00 p.m.-2:30 p.m.: Technical Components Associated with the Revised Reactor Oversight Process (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the technical components associated with the revised reactor oversight process, including the updated significant determination process, technical adequacy of the current and proposed performance indicators, and related matters.

2:45 p.m.-4:00 p.m.: Oconee Nuclear Power Plant License Renewal Application (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff and Duke Energy Corporation regarding the license renewal application for the Oconee Nuclear Power Station and the associated NRC staff's Safety Evaluation Report.

4:15 p.m.-4:45 p.m.: Proposed Final Amendment to 10 CFR 50.72 and 50.73 (Open)—The Committee will hold discussions with representatives of the NRC staff regarding issues raised by the ACRS members during the February ACRS meeting, including the intent of the 10 CFR 50.73 requirement for reporting degraded components.

4:45 p.m.-5:15 p.m.: Proposed Final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants" (Open)—The Committee will hold discussions with representatives of the NRC staff, as needed, regarding the proposed final revision 3 to Regulatory Guide 1.160.

5:15 p.m.-6:15 p.m.: Break and Preparation of Draft ACRS Reports (Open)—Cognizant ACRS members will

prepare draft reports for consideration by the full Committee.

6:15 p.m.-7:15 p.m.: Discussion of Proposed ACRS Reports (Open)—The Committee will discuss proposed ACRS reports.

Friday, March 3, 2000

8:30 a.m.-8:35 a.m.: Opening Remarks by the ACRS Chairman (Open)—The ACRS Chairman will make opening remarks regarding the conduct of the meeting.

8:35 a.m.-10:15 a.m.: Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the use of PIRT process for high burnup fuel.

10:30 a.m.-11:30 a.m.: Proposed Resolution of Generic Safety Issue B-17, "Criteria for Safety Related Operator Actions" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the proposed resolution of Generic Safety Issue B-17.

11:30 a.m.-12:00 Noon: Report of the Planning and Procedures Subcommittee (Open)—The Committee will hear a report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business.

1:00 p.m.-1:15 p.m.: Future ACRS Activities (Open)—The Committee will discuss the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future meetings.

1:15 p.m.-1:30 p.m.: Reconciliation of ACRS Comments and Recommendations (Open)—The Committee will discuss the responses from the NRC Executive Director for Operations (EDO) to comments and recommendations included in recent ACRS reports and letters. The EDO responses are expected to be made available to the Committee prior to the meeting.

1:30 p.m.-2:30 p.m.: Break and Preparation of Draft ACRS Reports (Open)—Cognizant ACRS members will prepare draft reports for consideration by the full Committee.

2:30 p.m.-7 p.m.: Discussion of Proposed ACRS Reports (Open)—The Committee will discuss proposed ACRS reports.

Saturday, March 4, 2000

8:30 a.m.-1:30 p.m.: Discussion of Proposed ACRS Reports (Open)—The Committee will continue its discussion of proposed ACRS reports.

1:30 p.m.–2:00 p.m.: *Miscellaneous (Open)*—The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

Procedures for the conduct of and participation in ACRS meetings were published in the *Federal Register* on September 28, 1999 (64 FR 52353). In accordance with these procedures, oral or written views may be presented by members of the public, including representatives of the nuclear industry. Electronic recordings will be permitted only during the open portions of the meeting and questions may be asked only by members of the Committee, its consultants, and staff. Persons desiring to make oral statements should notify Mr. Sam Duraiswamy, ACRS, five days before the meeting, if possible, so that appropriate arrangements can be made to allow necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during this meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by contacting Mr. Sam Duraiswamy prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with Mr. Sam Duraiswamy if such rescheduling would result in major inconvenience.

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor, can be

obtained by contacting Mr. Sam Duraiswamy (telephone 301/415-7364), between 7:30 a.m. and 4:15 p.m., EST.

ACRS meeting agenda, meeting transcripts, and letter reports are available for downloading or viewing on the internet at <http://www.nrc.gov/ACRSACNW>.

Videoteleconferencing service is available for observing open sessions of ACRS meetings. Those wishing to use this service for observing ACRS meetings should contact Mr. Theron Brown, ACRS Audio Visual Technician (301-415-8066), between 7:30 a.m. and 3:45 p.m. EST at least 10 days before the meeting to ensure the availability of this service. Individuals or organizations requesting this service will be responsible for telephone line charges and for providing the equipment facilities that they use to establish the videoteleconferencing link. The availability of videoteleconferencing services is not guaranteed.

Dated: February 11, 2000.
Annette Vietti-Cook,
Acting Advisory Committee Management Officer.
[FR Doc. 00-3802 Filed 2-16-00; 8:45 am]
BILLING CODE 7590-01-P

OFFICE OF MANAGEMENT AND BUDGET

Discount Rates for Cost-Effectiveness Analysis of Federal Programs

AGENCY: Office of Management and Budget.

ACTION: Revisions to Appendix C of OMB Circular A-94.

SUMMARY: The Office of Management and Budget revised Circular A-94 in 1992. The revised Circular specified certain discount rates to be updated

annually when the interest rate and inflation assumptions used to prepare the budget of the United States Government were changed. These discount rates are found in Appendix C of the revised Circular. The updated discount rates are shown below. The discount rates in Appendix C are to be used for cost-effectiveness analysis, including lease-purchase analysis, as specified in the revised Circular. They do not apply to regulatory analysis.

DATES: The revised discount rates are effective immediately and will be in effect through January 2001.

FOR FURTHER INFORMATION CONTACT: Robert B. Anderson, Office of Economic Policy, Office of Management and Budget, (202) 395-3381.

Joseph J. Minarik,
Associate Director for Economic Policy, Office of Management and Budget.

Attachment

OMB Circular No. A-94
Appendix C

(Revised January 2000)

Discount Rates for Cost-Effectiveness, Lease Purchase, and Related Analyses

Effective Dates. This appendix is updated annually around the time of the President's budget submission to Congress. This version of the appendix is valid through the end of January, 2001. Copies of the updated appendix and the Circular can be obtained in an electronic form through the OMB home page, <http://www.whitehouse.gov/OMB/circulars/index.html>. Updates of the appendix are also available upon request from OMB's Office of Economic Policy (202-395-3381), as is a table of past years' rates.

Nominal Discount Rates. Nominal interest rates based on the economic assumptions from the budget are presented below. These nominal rates are to be used for discounting nominal flows, which are often encountered in lease-purchase analysis.

NOMINAL INTEREST RATES ON TREASURY NOTES AND BONDS OF SPECIFIED MATURITIES

[in percent]

3-year	5-year	7-year	10-year	30-year
5.9	6.0	6.0	6.1	6.3

Real Discount Rates. Real interest rates based on the economic assumptions from the

budget are presented below. These real rates are to be used for discounting real (constant-

dollar) flows, as is often required in cost-effectiveness analysis.

REAL INTEREST RATES ON TREASURY NOTES AND BONDS OF SPECIFIED MATURITIES

[in percent]

3-year	5-year	7-year	10-year	130-year
3.8	3.9	4.0	4.0	4.2



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

APPENDIX II

February 11, 2000

SCHEDULE AND OUTLINE FOR DISCUSSION
470TH ACRS MEETING
MARCH 1-4, 2000

WEDNESDAY, MARCH 1, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND

- 1) 1:00 - 1:⁰⁹15 P.M. Opening Remarks by the ACRS Chairman (Open)
1.1) Opening statement (DAP/JTL/SD)
1.2) Items of current interest (DAP/NFD/SD)
1.3) Priorities for preparation of ACRS reports (DAP/JTL/SD)
- 2) 1:⁰⁹15 - 3:³⁵45 P.M. Development of Risk-Informed Revisions to 10 CFR Part 50,
"Domestic Licensing of Production and Utilization Facilities" (Open)
(GA/MTM)
2.1) Remarks by the Subcommittee Chairman
2.2) Briefing by and discussions with representatives of the NRC
staff regarding the status of developing risk-informed revisions
to 10 CFR Part 50 and related matters.

Representatives of the nuclear industry will provide their views, as appropriate.

- ³⁵ 3:15 - ⁵⁰ 3:30 P.M. *****BREAK*****
- 3) ⁵⁰ 3:30 - 6:00 P.M. Discussion of Proposed ACRS Reports (Open)
Discussion of proposed ACRS reports on:
3.1) Low-power and Shutdown Operations Risk Insights Report
(GA/MTM)
3.2) Proposed Revision of the Commission's Safety Goal Policy
Statement for Reactors (TSK/GA/PAB)
Doonee License Renewal Application
- ~~6:00 - 6:15 P.M. *****BREAK*****~~

- 4) ~~6:15 - 7:15 P.M. Discussion of Topics for Meeting with the NRC Commissioners
(Open)
Discussion of issues associated with risk-informed regulation,
including:~~
- ~~4.1) Impediments to the increased use of risk-informed regulation
(TSK/MTM)
4.2) Use of importance measures in regulatory applications,
impact of the scope and quality of the PRA on importance
measures, and threshold values for importance measures
(GA/AS)
4.3) Technical Adequacy of Performance Indicators (JJB/NFD)~~

**THURSDAY, MARCH 2, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND**

- 5) ³⁵ 8:30 - ⁴⁰ 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (DAP/SD)
- 6) ~~8:35 - 9:15 A.M.~~ Discussion of Topics for Meeting with the NRC Commissioners (Open)
Discussion of topics listed under Item 4.
- ~~9:15 - 9:30 A.M. ***BREAK***~~
- 7) 9:30 - ^{12:00 PM} ~~11:30 A.M.~~ Meeting with the NRC Commissioners (Open) (DAP, et al./JTL, et al.)
Meeting with the NRC Commissioners, Commissioners' Conference Room, One White Flint North, to discuss topics listed under Item 4 and other items of mutual interest.
- ^{12:00 PM}
11:30 - 1:00 P.M. *****LUNCH*****
- 8) 1:00 - 2:30 P.M. Technical Components Associated with the Revised Reactor Oversight Process (Open) (JJB/MTM)
8.1) Remarks by the Subcommittee Chairman
8.2) Briefing by and discussions with representatives of the NRC staff regarding the technical components associated with the revised reactor oversight process, including the updated significant determination process, technical adequacy of the current and proposed plant performance indicators, and related matters.
- 2:30 - ⁴⁷ 2:45 P.M. *****BREAK*****
- 9) ⁴⁷ 2:45 - ^{3:43} 4:00 P.M. Oconee Nuclear Power Plant License Renewal Application (Open) (MVB/RLS/NFD)
9.1) Remarks by the Subcommittee Chairman
9.2) Briefing by and discussions with representatives of the NRC staff and Duke Energy Corporation regarding the license renewal application for the Oconee Nuclear Power Station and the associated NRC staff's Safety Evaluation Report.
- ^{3:43}
4:00 - 4:15 P.M. *****BREAK*****
- 10) 4:15 - ²⁵ 4:45 P.M. Proposed Final Amendment to 10 CFR 50.72 and 50.73 (Open) (MVB/NFD)
10.1) Remarks by the Subcommittee Chairman
10.2) Discussions with representatives of the NRC staff regarding issues raised by the ACRS members during the February ACRS meeting, including the intent of the 10 CFR 50.73 requirement for reporting degraded components.

Representatives of the nuclear industry will provide their views, as appropriate.

11) ²⁵ 4:45 - ¹⁰ 5:15 P.M.

Proposed Final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants" (Open) (JJB/JDS/AS)

- 11.1) Remarks by the Subcommittee Chairman
- 11.2) Discussions with representatives of the NRC staff, as needed, regarding the proposed final revision 3 to Regulatory Guide 1.160.

Representatives of the nuclear industry will provide their views, as appropriate.

12) ¹⁰ 5:15 - ⁰⁰ 6:15 P.M.

Break and Preparation of Draft ACRS Reports

Cognizant ACRS members will prepare draft reports for consideration by the full Committee.

13) ⁰⁵ 6:45 - ⁴⁵ 7:15 P.M.

Discussion of Proposed ACRS Reports (Open)

Discussion of proposed ACRS reports on:

- 13.1) Technical Components Associated with the Revised Reactor Oversight Process/Technical Adequacy of the Current and Proposed Performance Indicators (JJB/MVB/MTM)
- 13.2) Proposed Final Amendment to 10 CFR 50.72 and 50.73 (MVB/NFD)
- 13.3) Proposed Final Revision 3 to Regulatory Guide 1.160 (JJB/JDS/AS) ^{7:20-7:45}
- 13.4) Oconee License Renewal Application (MVB/RLS/NFD) ^{6:00-6:45}

*Low Power Safety Goal -
6:52-7:20*

FRIDAY, MARCH 3, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

14) 8:30 - 8:35 A.M.

Opening Remarks by the ACRS Chairman (Open) (DAP/SD)

15) ^{9:45} 8:35 - 10:15 A.M.

Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel (Open) (DAP/MME)

- 15.1) Remarks by the Subcommittee Chairman
- 15.2) Briefing by and discussions with representatives of the NRC staff regarding the use of PIRT process for high burnup fuel.

Representatives of the nuclear industry will provide their views, as appropriate.

^{9:45}
10:15 - 10:30 A.M.

BREAK

16) 10:30 - 11:³⁰~~30~~ A.M.

Proposed Resolution of Generic Safety Issue B-17, "Criteria for Safety Related Operator Actions" (Open) (RLS/PAB)

16.1) Remarks by the Subcommittee Chairman

16.2) Briefing by and discussions with representatives of the NRC staff regarding the proposed resolution of Generic Safety Issue B-17.

Representatives of the nuclear industry will provide their views, as appropriate.

17) 11:³⁰~~30~~ - 12:¹⁰~~00~~ Noon

Report of the Planning and Procedures Subcommittee (Open) (DAP/JTL)

Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business.

¹⁰ 12:~~00~~ - ¹⁰ 1:~~00~~ P.M.

*****LUNCH*****

18) 1:²²~~00~~ - 1:²⁸~~15~~ P.M.

Future ACRS Activities (Open) (DAP/JTL/SD)

Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee.

1:10-1:22 Briefing on Naval Rx Trip on 4/4/00 - P. Boehnert

19) ~~1:15 - 1:30 P.M.~~

Reconciliation of ACRS Comments and Recommendations (Open) (DAP, et al./SD, et al.)

~~Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.~~

20) 1:30 - 2:30 P.M.

Break and Preparation of Draft ACRS Reports

Cognizant ACRS members will prepare draft reports for consideration by the full Committee.

21) 2:30 - ^{8:00}~~7:00~~ P.M.

Discussion of Proposed ACRS Reports (Open)

Discussion of proposed ACRS reports on:

21.1) Oconee License Renewal Application (MVB/RLS/NFD)

21.2) Proposed Resolution of Generic Safety Issue B-17 (RLS/PAB)

21.3) Low-power and Shutdown Operations Risk Insights Report (GA/MTM)

21.4) Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors (TSK/GA/PAB)

21.5) Technical Components Associated with the Revised Reactor Oversight Process/Technical Adequacy of the Current and Proposed Performance Indicators (JJB/MVB/MTM)

*1:30-2:25
3:07-3:30
3:55-4:50*

3:00-3:07 →

21.6) Proposed Final Amendment to 10 CFR 50.72 and 50.73 (MVB/NFD) (*Larkinsgram*)

21.7) Proposed Final Revision 3 to Regulatory Guide 1.160 (JJB/JDS/AS)

Re workload sheets Section II - Members will get as a package for Future Activities discussion, everything else will be on an "as requested" basis

**SATURDAY, MARCH 4, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND**

22) 8:30 - ^{12:00} 1:30 P.M.

Discussion of Proposed ACRS Reports (Open)

~~(12:00-1:00 P.M. - LUNCH)~~

Continue discussion of proposed ACRS reports listed under Item 21.

~~23) 1:30 - 2:00 P.M.~~

Miscellaneous (Open) (DAP/JTL)

~~Discussion of matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.~~

NOTE:

- **Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.**
- **Number of copies of the presentation materials to be provided to the ACRS - 35.**

APPENDIX III: MEETING ATTENDEES

470TH ACRS MEETING MARCH 1-4, 2000

NRC STAFF (March 1, 2000)

A. Levin, OCM/RAM
T. Hiltz, OCM/GJD
W. Ott, OEDO
S. West, NRR
T. Reed, NRR
S. Wong, NRR
M. Drouin, RES
S. Rubin, RES
J. Murphy, RES

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

R. Huston, Licensing Support Services
B. Christie, Performance Technology
A. Keymer, NEI
E. Lyman, Nuclear Control Institute

NRC STAFF (March 2, 2000)

C. Beardslee, OCM/GJD
R. Jasinski, OPA
F. Gillespie, NRR
B. Dean, NRR
A. Madison, NRR
D. Coe, NRR
T. Frye, NRR
G. Parry, NRR
A. Spector, NRR
S. Wong, NRR
D. Hickman, NRR
J. Sebrosky, NRR
J. Davis, NRR
D. LaBarge, NRR
S. Monarque, NRR
P. Shemanski, NRR
A. Hiser, NRR
J. Fair, NRR
D. Thatcher, NRR
S. Coffin, NRR

G. Hubbard, NRR
B. Elliot, NRR
J. Peralta, NRR
G. Bagchi, NRR
T. Eaton, NRR
S. Lee, NRR
D. Mathews, NRR
G. Gallett, NRR
C. Grimes, NRR
E. McKenna, NRR
W. Scott, NRR
T. Quay, NRR
J. Vora, RES
J. Wilcox, NRR
D. Allison, NRR

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

R. Huston, Licensing Support Services
G. Robison, Duke Energy
J. Fisicaro, Duke Energy
J. Gilreath, Duke Energy
L. Connor, DSA

NRC STAFF (March 3, 2000)

R. Meyer, RES
H. Scott, RES
R. Lee, RES
S. Basu, RES
E. Rossi, RES
H. Vandermolen, RES
J. Kramer, RES
J. Persensky, RES
J. Rosenthal, RES
P. Lewis, RES
N. Kadambi, RES
R. Caruso, NRR
M. Chatterton, NRR
J. Bongarra, NRR
G. Galleti, NRR
R. Jasinski, OPA

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC
F. Saba, NUSIS

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

March 14, 2000

**SCHEDULE AND OUTLINE FOR DISCUSSION
 471st ACRS MEETING
 APRIL 5-7, 2000**

**WEDNESDAY, APRIL 5, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
 ROCKVILLE, MARYLAND**

- 1) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open)
 1.1) Opening statement (DAP/JTL/SD)
 1.2) Items of current interest (DAP/NFD/SD)
 1.3) Priorities for preparation of ACRS reports (DAP/JTL/SD)
- 2) 8:35 - 10:30 A.M. Spent Fuel Pool Accident Risk for Decommissioning Plants (Open)
 (TSK/MME)
 2.1) Remarks by the Subcommittee Chairman
 2.2) 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.
- Representatives of the nuclear industry will provide their views, as appropriate.
- 10:30 - 10:45 A.M. *****BREAK*****
- 3) 10:45 - 12:15 P.M. Proposed Research Plan for Digital Instrumentation and Control (Open) (REU/AS)
 3.1) Remarks by the Subcommittee Chairman
 3.2) Briefing by and discussions with representatives of the NRC staff regarding the proposed research plan for digital instrumentation and control.
- 12:15 - 1:15 P.M. *****LUNCH*****
- 4) 1:15 - 2:45 P.M. Proposed White Paper on Risk-Based Performance Indicators (Open) (GA/MTM)
 4.1) Remarks by the Subcommittee Chairman
 4.2) Briefing by and discussions with representatives of the NRC staff regarding the proposed white paper on risk-based performance indicators.

Representatives of the nuclear industry will provide their views, as appropriate.

- 2:45 - 3:00 P.M. *****BREAK*****
- 5) 3:00 - 4:00 P.M. Human Performance Program (Open) (GA/NFD)
 5.1) Remarks by the Subcommittee Chairman
 5.2) Briefing by and discussions with representatives of the NRC staff regarding the revised version of the human performance program.
- 6) 4:00 - 5:00 P.M. Break and Preparation of Draft ACRS Reports
 Cognizant ACRS members will prepare draft reports for consideration by the full Committee.
- 7) 5:00 - 7:00 P.M. Discussion of Proposed ACRS Reports (Open)
 Discussion of proposed ACRS reports on:
 7.1) Spent Fuel Pool Accident Risk for Decommissioning Plants (TSK/MME)
 7.2) Proposed Research Plan for Digital Instrumentation and Control (REU/AS)
 7.3) Proposed White Paper on Risk-Based Performance Indicators (GA/MTM)
 7.4) Human Performance Program (GA/NFD)
 7.5) Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors (TSK/GA/PAB)
 7.6) ACRS/ACNW Joint Report on Defense in Depth in a Risk-Informed Regulatory System (TSK/JS/MTM)

THURSDAY, APRIL 6, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 8) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (DAP/SD)
- 9) 8:35 - 9:45 A.M. Special Studies for Risk-Based Analysis of Reactor Operating Experience (Open) (MVB/MTM)
 9.1) Remarks by the Subcommittee Chairman
 9.2) 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.
- 9:45 - 10:00 A.M. *****BREAK*****
- 10) 10:00 - 11:15 A.M. Operating Event at Indian Point Unit 2 (Open) (JJB/PAB)
 10.1) Remarks by the Subcommittee Chairman
 10.2) 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.

Representatives of the Indian Point Licensee will provide their views, as appropriate.

- 11) 11:15 - 11:45 A.M. Reports of the Materials and Metallurgy and Thermal-Hydraulic Phenomena Subcommittees (Open) (WJS/GBW/NFD/PAB)
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.

Representatives of the nuclear industry will provide their views, as appropriate.

11:45 - 1:00 P.M. *****LUNCH*****

- 12) 1:00 - 1:15 P.M. Future ACRS Activities (Open) (DAP/JTL/SD)
Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee.
- 13) 1:15 - 1:45 P.M. Report of the Planning and Procedures Subcommittee (Open) (DAP/JTL)
Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business.
- 14) 1:45 - 2:00 P.M. Reconciliation of ACRS Comments and Recommendations (Open) (DAP, et al./SD, et al.)
Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.
- 15) 2:00 - 3:00 P.M. Break and Preparation of Draft ACRS Reports
Cognizant ACRS members will prepare draft reports for consideration by the full Committee.
- 16) 3:00 - 7:00 P.M. Discussion of Proposed ACRS Reports
Discussion of proposed ACRS reports on:
- 16.1) Spent Fuel Pool Accident Risk for Decommissioning Plants (TSK/MME)
 - 16.2) Proposed Research Plan for Digital Instrumentation and Control (REU/AS)
 - 16.3) Proposed White Paper on Risk-Based Performance Indicators (GA/MTM)
 - 16.4) Human Performance Program (GA/NFD)
 - 16.5) Special Studies for Risk-Based Analysis of Reactor Operating Experience (MVB/MTM)

- 16.6) Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors (TSK/GA/PAB)
- 16.7) ACRS/ACNW Joint Report on Defense-in-Depth in a Risk-Informed Regulatory System (TSK/JS/MTM)

FRIDAY, APRIL 7, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 17) 8:30 - 2:00 P.M. Discussion of Proposed ACRS Reports (Open)
(12:00-1:00 P.M. LUNCH) Continue discussion of proposed ACRS reports listed under Item 16.
- 18) 2:00 - 2:30 P.M. Miscellaneous (Open) (DAP/JTL)
Discussion of matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTE:

- **Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.**
- **Number of copies of the presentation materials to be provided to the ACRS - 35.**

APPENDIX V
LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE
470th ACRS MEETING
MARCH 1-4, 2000

[Note: Some documents listed below may have been provided or prepared for Committee use only. These documents must be reviewed prior to release to the public.]

MEETING HANDOUTS

AGENDA
ITEM NO.

DOCUMENTS

- 1 Opening Remarks by the ACRS Chairman
 1. Items of Interest, dated March 1-4, 2000

- 2 Development of Risk-Informed Revisions 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"
 2. Risk-Informing the Technical Requirements in 10 CFR 50, presentation by Office of Research [Viewgraphs]
 3. Risk-Informing the Technical Requirements of 10 CFR 50, presentation by B. Christie, Performance Technology

- 8 Technical Components Associated with the Revised Reactor Oversight Process
 4. Revised Reactor Oversight Process, Pilot Program Results and Lessons Learned, presentation by W. Dean, A. Madison, G. Parry, NRR [Viewgraphs]

- 9 Oconee Nuclear Power Plant License Renewal Application
 5. Oconee License Renewal Project, presentation by Duke Power [Viewgraphs]
 6. Oconee Nuclear Station License Renewal Application, presentation by NRR [Viewgraphs]

- 11 Proposed Final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants"
 7. Maintenance Rule Guidance, presentation by NRR [Viewgraphs]

- 15 Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel
 8. Status of RES Activities on Phenomena Identification and Ranking Tables (PIRTs) for High Burnup Fuel, presentation by R. Meyer, RES

- 16 Proposed Resolution of Generic Safety Issue B-17, "Criteria for Safety Related Operator Actions"
 9. Resolution of Generic Issues B-17, "Criteria for Safety-Related Operator Actions" and GI-27, "Manual vs. Automatic Actions," presentation by RES [Viewgraphs]

- 17 Report of the Planning and Procedures Subcommittee
 10. Final Draft Minutes of Planning and Procedures Subcommittee Meeting - February 29, 2000 [Handout #17.1]

- 18 Future ACRS Activities
 11. Future ACRS Activities - 470th ACRS Meeting, April 5-7, 2000 [Handout #18-1]

MEETING NOTEBOOK CONTENTS

TAB

DOCUMENTS

Model

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

1. Table of Contents
2. Proposed Schedule
3. Project Status Report, dated March 1, 2000
8. Staff Requirements Memorandum dated February 3, 2000, concerning SECY-99-264, Proposed Staff Plan for Risk-Informing Technical Requirements of 10 CFR Part 50
9. Staff Requirements Memorandum dated January 31, 2000, concerning SECY-99-256, Rulemaking Plan for Risk-Informing Special Treatment Requirements.
10. Report dated October 12, 1999, from Dana A. Powers, Chairman, ACRS to Greta Joy Dicus, Chairman, NRC, Subject: Proposed Plans for Developing Risk-Informed Revisions to 10 CFR Part 50
11. Framework for Risk-Informing Regulations, Draft for Public Comment, Revision 1.0, dated February 10, 2000
12. Risk-Informing 10 CFR 50.44, "Standards for Combustible Gas Control System in Light Water-Cooled Power Reactors," draft for Public Comment, Revision 1.0, dated February 11, 2000

8 Technical Components Associated with the Revised Reactor Oversight Process

13. Table of Contents
14. Proposed Schedule
15. Status Report dated March 2, 2000
16. E-mail messages from ACRS Members: Kress, Shack, and Bonaca (Predecisional)
17. Note dated January 27, 2000, from John J. Barton, ACRS to Michael Johnson, NRR, Subject: Issues and questions for February 3 ACRS meeting
18. SRM dated December 17, 1999, Subject: Meeting with the ACRS
19. Letter dated November 23, 1999, from Samuel Collins, Director, NRR, Subject: Request for review of revised reactor oversight process
20. SRM dated June 18, 1999, Subject: SECY-99-007 and SECY-99-007A
21. Letter dated June 10, 1999, from Dana A. Powers, Chairman, ACRS, Subject: Inspection/assessment programs, Pis & performance-based initiatives
22. Letter dated August 9, 1999, from William D. Travers, EDO, NRC, to Dana

23. A. Powers, Chairman, ACRS, Subject: EDO response to ACRS letter
Report dated February 23, 1999, from Dana A. Powers, Chairman, ACRS,
to Shirley Ann Jackson, Chairman, NRC, Subject: Proposed Improvements
to the NRC Inspection and Assessment Programs
- 9 Oconee Nuclear Power Plant License Renewal Application
24. Table of Contents
25. Proposed Schedule
26. Status Report
27. Letter dated September 13, 1999, from Dana A. Powers, Chairman, ACRS,
to William D. Travers, Executive Director for Operations, NRC, Subject:
Interim Letter Related to the License Renewal of Oconee Nuclear
28. Note dated February 3, 2000, from Joseph M. Sebrosky, NRR, to Noel
Dudley, ACRS, Subject: Oconee Nuclear Station License Renewal Safety
Evaluation Report
- 10 Proposed Final Amendment to 10 CFR 50.72 and 50.73
29. Table of Contents
30. Proposed Schedule
31. Status Report dated March 2, 2000
32. Selected slides from the staff presentation to the ACRS on February 3, 2000,
Modification of Event Reporting Requirements, 10 CFR 50.72 and 50.73
33. Selected slides from the Nuclear Energy Institute presentation to the ACRS
on February 3, 2000, Licensee Event Reporting System
- 11 Proposed Final Revision 3 to Regulatory Guide 1.160 (DG-1082), "Assessing and
Maintaining Risk Before Maintenance Activities at Nuclear Power Plants"
34. Table of Contents
35. Proposed Schedule
36. Status Report dated March 2, 2000
37. Memorandum to John T. Larkins, Executive Director, ACRS, from Theodore
R. Quay, Chief, Quality Assurance, Vendor Inspection, Maintenance and
Allegations Branch, NRR, Subject: Request for Review of Regulatory
Guidance for 10 CFR 50.65, The Maintenance Rule, dated February 16,
2000
- 15 Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel
38. Table of Contents
39. Proposed Schedule
40. Status Report dated March 3, 2000
41. ACRS letter dated March 24, 1999

- 42. Summary from Dr. Powers
 - 43. Chart for BWR heat transport paths
- 16 Proposed Resolution of Generic Issues B-17 and 27
- 40. Table of Contents
 - 41. Presentation Schedule
 - 42. Project Status Report dated March 3, 2000
 - 43. Letter to J. T. Larkins from C. E. Rossi, Subject: Proposed Resolution of Generic Issue B-17, "Criteria for Safety-Related Operator Actions," and GI 27, "Manual vs Automated Actions"
 - 44. Letter to J. M. Taylor, EDO, from T. S. Kress, Chairman, ACRS, "Proposed Final Regulatory Guide 1.164, 'Time Response Design Criteria for Safety-Related Operator Actions', to Resolve Generic Safety Issue B-17"
 - 45. Excerpt from Minutes of 426th ACRS Meeting, "Proposed Final Regulatory Guide 1.164, 'Time Response Design Criteria for Safety-Related Operator Actions'"
 - 46. American National Standard: ANSI/ANS 58.8-1994, "Time Response Design Criteria for Safety-Related Operator Actions," dated August 23, 1994

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

470TH FULL COMMITTEE MEETING

MARCH 1-4, 2000

Date(s)

MARCH 2, 2000

Today's Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

NAME	BADGE #	AFFILIATION
Bob Vasinski	C-6624	OPA
Frank Giltospi	A-6876	NRR
Bill Dean	TB-6002	NRR
Alan Madison	B-8558	NRR
Doug Coe	B-8061	NRR
Tim Frye	B-8578	NRR
Garrett Pany	B-8060	NRR/DSSA
August Specter	B7120	NRR
See-Meng Wong	B-8181	NRR
Don Hickman	B-6244	NRR
CHERYL BEARDSLEE	A-7378	OCM
Joe Sebrasky	B-8157	NRR/DRIT/RLSB
Jim Davis	A-7111	NRR/DE/EMCB
Dave LaBarge	B-6620	NRR/DLPM/PDI-1
Stephen Monarque	C-6649	NRR/DLPM/PDI-1
PAUL SHERANSKI	B-7076	NRR/DE/EEIB
Allen Hiser	B6253	NRR/DE/EMCB
John Fair	A 7270	NRR/DE/EMEB

<u>Dale Thatcher</u>	<u>B-7164</u>	<u>NRR/DE/EEIB</u>
<u>Stephanie Coffin</u>	<u>B8074</u>	<u>NRR/DE/EMCB</u>
<u>George Hubbard</u>	<u>B6279</u>	<u>NRR/DSSA/SPLB</u>
<u>Fit VORA</u>	<u>B8426</u>	<u>RES DET MGB</u>
<u>BARRY ELLIOT</u>	<u>B 8038</u>	<u>NRR/DE/EMCB</u>
<u>Juan Peralta</u>	<u>A-7419</u>	<u>NRR/DIPH/IQMB</u>
<u>Steve Hoffman</u>		<u>NRR/DRIP/RLSB</u>
<u>GOUTAM BAGCHI</u>	<u>B8626</u>	<u>NRR/DE</u>
<u>Tanya Eaton</u>	<u>B 8086</u>	<u>NRR/DSSA/SPLB</u>
<u>SAM LEE</u>	<u>B-6667</u>	<u>NRR/DRIP/RLSB</u>

<u>DAVID MATTHEWS</u>	<u>A-6500</u>	<u>NRR/DRIP</u>
<u>Greg Galletta</u>	<u>B-6138</u>	<u>NRR/DIPM.</u>

<u>Chris Gomez</u>	<u>A 6139</u>	<u>NRR/RLSB</u>
<u>Eileen McKenna</u>	<u>B8226</u>	<u>NRR/RGEB</u>
<u>DAVE SCOTT</u>	<u>B 7020</u>	<u>NRR/IQMB</u>
<u>TED QUAY</u>	<u>A 6604</u>	<u>NRR/IQMB</u>

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

470TH FULL COMMITTEE MEETING

MARCH 1-4, 2000

Date(s)

MARCH 3, 2000

Today's Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

NAME	BADGE #	AFFILIATION
Ralph Meyer	B8408	RES
Harold Scott	B7012	RES
Richard Lee	B6666	RES
Sudhamay Basu	B7497	RES
RALPH CARUSO	B7988	NRR
Ernie Rossi	A-6663	RES
Bob Jasinski	C-6624	OPA
Muffel Chaffenton	B6465	NRR
J. BONGARRA	B6093	NRR
Harold Vandermolten	B7214	RES
Joel Kramer	B8401	RES
Greg Gellett	B-638	NRR
J PERSENSKY	B-8413	RES
J. Rosenthal	A6661	RES
PAUL LEWIS	B6680	RES
N. PKADAMBI	B6343	RES

ITEMS OF INTEREST

470TH ACRS MEETING

MARCH 1-4, 2000

**ITEMS OF INTEREST
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
470th MEETING
MARCH 1-4, 2000**

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OPERATING EVENT

1. "Alert" at Indian Point 2 Nuclear Power Station. 1

Enforcement Actions

2. \$110,000 Civil Penalty for Discrimination Against a Former Corporate Employee (TVA) 7
3. \$88,000 Civil Penalty for Engineering and Maintenance Violations That Result in an Unusual Event 8

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5. NRC to Relocate its Technical Training Center 11



NRC NEWS

UNITED STATES NUCLEAR REGULATORY COMMISSION

OFFICE OF PUBLIC AFFAIRS, REGION I

475 Allendale Road, King of Prussia, Pa. 19406

No. I-00-15

February 16, 2000

CONTACT: Diane Screnci, 610/337-5330/e-mail: dps@nrc.gov
Neil A. Sheehan, 610/337-5331/e-mail: nas@nrc.gov

NRC Returns to Normal Level of Oversight Following Exit from 'Alert' at Indian Point 2 Nuclear Power Plant

The Nuclear Regulatory Commission is returning to its normal level of oversight for the Indian Point 2 nuclear power plant in Buchanan, N.Y., following the facility's exit from a "Alert" declared there on Tuesday by its operator, Consolidated Edison Company of New York.

An "Alert" is the second-lowest emergency action level in the NRC-required emergency response plan for nuclear power plants.

Consolidated Edison workers have stabilized the plant, which was manually shut down at 7:29 p.m. Tuesday following indications of a steam generator tube leak in one of the plant's four steam generators. The steam generators are components that transfer heat from the reactor systems to the power-generating portion of a nuclear power plant. Plant safety systems performed as designed during the shutdown.

In addition to notifying the NRC of the event in accordance with pre-established emergency plans, Consolidated Edison notified designated state and local government officials, who responded to the event.

The company exited the Alert at 6:50 p.m. Wednesday, when the reactor coolant system was depressurized and cooled down, placing the plant in a state called "cold shutdown."

Consolidated Edison workers have performed radiological surveys on and off the plant site, located about 40 miles north of New York City, and have detected no radioactivity above normal background conditions. There may have been brief releases from the plant, but assessments at this point indicate that any releases were far below allowable limits and would not pose any threat to public health or safety. The company plans to continue to perform radiological surveys.

NRC monitored the situation continuously through the night Tuesday and all day Wednesday. Agency inspectors at the site followed events, and safety specialists monitored conditions from incident response centers in the Philadelphia-area Region I Office and NRC Headquarters in Rockville, Md., throughout the Alert period.

The NRC will continue to oversee Consolidated Edison's response to the event through inspectors on site. The agency will also determine in the next several days the appropriate level of follow-up response.

#

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Indian Point, Unit 2

Steam Generator Tube Failure

February 15, 2000

3

CONTACT

NRR: Eric Benner (301-415-1171)

**This Event Will Be Briefed in Greater Detail
in a Future Operating Reactor Events Brief**

Preliminary Sequence of Events

February 15, 2000:

7:17 pm: Operators identified increased leakage

7:30 pm: Operators tripped reactor and declared alert

8:31 pm: Operators isolated the leaking steam generator

9:04 pm: Operators initiated manual safety injection

11:35 pm: Stable hot condition with plant cooldown initiated

February 16, 2000

12:38 pm: Residual heat removal system in service

4:57 pm: Cold shutdown achieved

6:50 pm: Alert terminated

Followup

Licensee

- Dispatched Field Environmental Teams
- Initiated Significance Level 1 Event Evaluation Team
- Will meet with NRC in a public meeting on 3/1/2000 to discuss steam generator activities
- Responding to Congressional, State and Local Interest

NRC

- Incident Response Level: Standby
- Augmented Inspection Team (AIT) Sent on 2/18/2000
- NRR will review steam generator licensing basis and tube failure results
- Met with Congresswoman Kelly and toured site on 2/25/2000
- Briefed Congressman Lowey and special interest groups on 2/28/2000



NRC NEWS

UNITED STATES NUCLEAR REGULATORY COMMISSION

OFFICE OF PUBLIC AFFAIRS, REGION II

61 Forsyth Street, Suite 23T85, Atlanta, GA 30303

No. II-00-11

February 8, 2000

CONTACT: Ken Clark (Phone: 404/562-4416, E-mail: kmc2@nrc.gov)
Roger Hannah (Phone 404/562-4417, E-mail: rdh1@nrc.gov)

NRC Staff Proposes \$110,000 Fine Against TVA for Discrimination Against a Former Corporate Employee

The Nuclear Regulatory Commission staff has proposed a \$110,000 civil penalty against the Tennessee Valley Authority for discrimination against Gary L. Fiser, a former TVA corporate employee, for engaging in protected activities. The violation is characterized as the agency's second highest level violation. In addition, the NRC staff sent notices of violation to two TVA corporate managers who were directly involved in the employment decisions affecting Fiser.

The NRC determined that, in July 1996, TVA, as part of a corporate reorganization, eliminated Fiser's position and took subsequent actions to ensure that he was not selected for one of two new positions. The NRC investigation concluded that TVA took these actions, at least in part, in retaliation for Fiser's involvement in protected activities. Fiser's protected activities included identifying chemistry-related nuclear safety concerns in 1991-1993 and filing a U.S. Department of Labor complaint in 1993 based, in part, on those concerns.

NRC regulations prohibit a licensee from discriminating against any employee for engaging in certain protected activities such as providing a licensee with nuclear safety concerns or testifying at any Federal proceeding related to NRC requirements.

TVA has denied that discrimination against Fiser occurred.

TVA has 30 days from receipt of the Notice of Violation to either pay the fine or protest its imposition.

##

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NRC NEWS

UNITED STATES NUCLEAR REGULATORY COMMISSION

OFFICE OF PUBLIC AFFAIRS, REGION I

475 Allendale Road, King of Prussia, Pa. 19406

No. I-00-17

February 25, 2000

CONTACT: Diane Screnci, 610/337-5330/e-mail: dps@nrc.gov
Neil A. Sheehan, 610/337-5331/e-mail: nas@nrc.gov

NRC Proposes \$88,000 Fine Against Consolidated Edison of New York for Violations Stemming from Shutdown with Complications

The Nuclear Regulatory Commission has proposed an \$88,000 fine against Consolidated Edison Company of New York for violations associated with a reactor shutdown with complications that occurred at the Indian Point 2 nuclear power plant in Buchanan, N.Y., last August 31.

This fine is unrelated to the events which occurred on February 15, when an Alert -- the second lowest of four levels of emergency classification -- was declared due to steam generator tube leakage at the plant. The company immediately shut down the reactor, and exited the Alert the next day. The NRC has sent an Augmented Inspection Team to the site to review the event and its causes.

In response to the August event, the NRC conducted three inspections between September and November. The apparent violations were forwarded to the company in a letter dated January 5. Since then, the NRC has evaluated the apparent violations as part of its enforcement decision-making process and has determined that this fine is warranted.

At 2:30 p.m. on August 31, the Buchanan, N.Y., plant experienced an automatic shutdown. A few minutes after the shutdown, the plant's three emergency diesel generators, which provide power in the event of the loss of off-site power, automatically started after receiving a signal indicating that insufficient voltage was available to some safety systems. Once the emergency diesel generators began operating, they became the primary source of power to the plant rather than off-site power, the normal source.

One of the generators, however, failed to load properly, leading to the eventual draindown of one of four batteries that serve as a backup power source. In turn, the plant lost many of its control room annunciators, or alarm panels, for safety-related equipment. The plant also lost the use of some safety equipment, including part of the auxiliary feedwater system and one pressure-operated relief valve, reducing safety system redundancy.

Plant operators declared an Unusual Event -- the lowest of four levels of emergency classification -- at about 9:55 p.m. Power was restored to the affected safety equipment early on the morning of September 1.

In response to the event, NRC staff conducted three inspections at Indian Point 2 to review the causes and safety implications of the reactor trip, plant staff's actions related to the shutdown, Consolidated Edison's short-term corrective actions and self-assessment activities, and compliance with NRC rules and regulations relative to this event.

Three violations of NRC requirements have been identified. They involve:

- A failure to translate the plant's design basis requirements into procedures when a modification was made to some relays associated with power supplies for safety-related equipment. This contributed to the loss of off-site power during the event.
- Inadequate calibration of settings for one of the emergency diesel generators. If the settings had been correct, the supply of emergency power to some safety-related equipment most likely would not have been lost. Because of the miscalibration, the affected generator was inoperable from May 27 to August 31.
- A failure to correct and prevent recurrence of spurious activations of a reactor protection system instrument, which led to the initiation of the reactor shutdown.

NRC Region I Administrator Hubert J. Miller, in a letter to Consolidated Edison notifying it of the enforcement action, wrote that the "NRC review of this event, as well as your follow-up reviews, revealed three principal concerns, namely, 1.) the failure to adequately control the configuration of certain plant equipment; 2.) the failure to identify and correct several of these problems beforehand, despite prior opportunities to do so; and 3.) weaknesses in management's initial response to the event, and its oversight of the subsequent recovery of safety-related equipment."

Mr. Miller also noted that once the violations were identified, Consolidated Edison's corrective actions were prompt and comprehensive. Those actions included several comprehensive investigations and the establishment of long-term improvement plans. If not for those actions, the penalty would have been higher.

Consolidated Edison is required to respond to the proposed action. That response will be used, in part, to determine whether future enforcement action is necessary.

#

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs

Telephone: 301/415-8200

Washington, DC 20555-001

E-mail: opa@nrc.gov

Web Site: <http://www.nrc.gov/OPA>

No. 00-020

February 9, 2000

NRC Modifies Resident Inspector Staffing Policy

The Nuclear Regulatory Commission has approved the recommendations of its staff for modifying the resident inspector staffing policy at multi-unit nuclear power plant sites. The Commission's decision establishes a staffing policy until NRC completes a comprehensive review of inspector resources associated with the revised reactor oversight process. This review will be completed in June of next year.

The resident inspector staffing policy addresses the allocation of a portion of the agency's inspection resources -- namely, NRC resident inspectors. Adopted in 1988, that policy formerly required one more resident inspector at a site than the number of reactors at that site. As a result of the Commission's decision, two-unit sites will now have a minimum of two resident inspectors and three unit-sites will have a minimum of three resident inspectors. There will continue to be two resident inspectors assigned at all single-unit sites.

The Commission's action enhances the agency's flexibility in applying inspection resources. As a result of improved industry safety performance, the need for the current level of dedicated on-site inspection staff at multi-unit sites has lessened. The modified approach provides for more targeted use of the agency's inspectors by basing more of them in one of the four regional offices where Regional Administrators can deploy them when and where most needed.

NRC's total inspection resources are not affected by this modification, and the agency's ability to complete planned reactor inspection program requirements will not be compromised. Moreover, Regional Administrators, in consultation with the Office of Nuclear Reactor Regulation, will retain the authority to allocate additional resident inspectors to sites if circumstances warrant.

NRC will not reassign any resident inspectors solely to implement this policy until guidance is developed as a result of the broader staffing study. Thus, this action affects only those reactor sites where a resident inspector position becomes vacant before the comprehensive resource review is completed.

#####

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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

Announcement No. 012

Date: February 29, 2000

To: All NRC Employees

SUBJECT: RELOCATION OF THE TECHNICAL TRAINING CENTER

I want to inform you of a unanimous decision by the Commission concerning NRC's Technical Training Center in Chattanooga, Tennessee. After carefully considering the staff proposals contained in SECY-99-244 and the views of the staff of the Technical Training Center, the National Treasury Employees Union, the Chattanooga Chamber of Commerce, and representatives of the Tennessee Congressional delegation, the Commission has decided to move the Technical Training Center (TTC), including all four simulators, from its current location in Chattanooga, Tennessee, to a location in close proximity to the NRC headquarters.

The TTC is the primary training facility for the NRC and has been located at its current site since 1980. The 26 employees who are currently located at the site are responsible for conducting comprehensive technical training, including simulator training for our reactor program. When this facility was originally established, the Commission chose a location in Chattanooga for the TTC because of the site's proximity to reactor simulators owned by the Tennessee Valley Authority (TVA). Subsequently, the NRC has purchased simulators for this facility. We thus now have a capacity to co-locate the training operation with headquarters that we did not have when the Chattanooga facility was established.

In reaching this decision, the Commission recognizes that all four simulators, the TTC as an organization, and the TTC staff are valuable agency resources that will continue to be needed in the future as the industry and the NRC proceed with license renewal and other regulatory initiatives. The Commission also believes, however, that an already excellent NRC training program can be improved by locating the TTC in the headquarters area to ensure that these NRC assets are utilized to their fullest potential.

The Commission is mindful that the TTC has a 20-year history of successful operation in Chattanooga and that moving the facility will cause some disruption in the personal lives of TTC employees. We have attempted to address this issue in fashioning an implementation plan that will minimize the impacts. TTC employees not directly associated with simulator support will be moved to the headquarters area by the end of FY 2001, while the simulators themselves and the remaining TTC personnel will remain in Chattanooga until at least mid FY 2003. Moreover, to ensure that the move does not impose any unnecessary personal burdens on the TTC staff, we have directed the NRC staff to take appropriate measures to meet the transitional needs of the TTC employees and their families

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(2)

Risk-Informing the Technical Requirements in 10 CFR 50

Presented to

Advisory Committee on Reactor Safeguards

March 1, 2000

Outline

- Status report on:
 - ▶ Scope, approach and progress in study to risk-inform 10CFR50 technical requirements
 - ▶ Results of public workshop on 2/24-2/25/00
 - ▶ Future plans

 - No letter requested from ACRS at this time
-

Background

- **SECY-99-264**
 - ▶ Plan and schedule

 - **Feb 3, 2000 SRM**
 - ▶ Approved plan

 - **Workshop**
-

Page 3

Scope

- Adding or modifying provisions to Part 50 allowing staff to approve risk-informed alternatives to current requirements, including
 - ▶ Revising specific requirements to reflect risk-informed considerations (regulations, regulatory guides, standard review plans)
 - ▶ Adding new requirements or expanding current requirements to address risk-significant issues not currently covered
 - ▶ Deleting unnecessary or ineffective regulations
 - Not covering Fire Protection or EP
 - Focus on requirements that have the most significant potential for improving safety and efficiency and reducing unnecessary burden
 - Focus on revising technical requirements (regulations, regulatory guides, standard review plan)
 - Retain design basis concept (i.e., risk-informed design basis)
-

Page 4

Approach Involves Two Phases:

- Phase 1: Identify and prioritize candidate design basis accidents (DBAs) and regulations (including their associated regulatory guides and standard review plans) for risk-informing, and identify proposed changes to requirements
- Phase 2: For proposed changes that are approved by the Commission, develop detailed technical basis and proceed with rulemaking

Page 5

Current Phase 1 Activities Include:

- Development of a framework for risk-informing regulations (including guidelines for defense-in-depth and safety margins)
- Selection of candidate regulations and DBAs
- Trial implementation: Risk-informing 10 CFR 50.44
- Trial implementation: Risk-informing special treatment requirements

Page 6

Framework for Risk-Informing 10CFR50

Framework Development:

- Maintain *goal* of “Protect Public Health and Safety”
- Develop an *approach* that builds upon defense-in-depth philosophy
- Implement *strategies* of defense-in-depth that maintain concept of prevention and mitigation and that are consistent with the safety goals and with the cornerstones
- Implement *regulations* that are risk-informed to ensure the strategies are met
- Define *tactics* for carrying out the strategies and defining the requirements in the regulations

Therefore,

⇨ *Need working definition for “defense-in-depth”* ⇨

Defense-in-Depth

- **Commission:** *“Defense-in-depth is an element of the NRC’s Safety Philosophy that employs successive compensatory measure to prevent accidents or mitigate damage if a malfunction, accident, or naturally caused event occurs at a nuclear facility. The defense-in-depth philosophy ensures that safety will not be wholly dependent on any single element of the design, construction, maintenance, or operation of a nuclear facility.”*
 - **ACRS: May 19, 1999 Letter to the Commission**
 - ▶ **Current view (structuralist)**
 - Defense-in-depth embodied in the structure of the regulations and facility designs
 - Requirements based on repeating the question, “what if this barrier fails?”
 - ▶ **Risk-based views (rationalist)**
 - Base regulations on risk information, with defense-in-depth employed only where necessary to compensate for uncertainty or incompleteness in knowledge
 - ▶ **Recommendation: Use a structuralist view at a high level and a rationalist view for implementation , that is:**
 - Maintain defense-in-depth principles
 - Use risk information to assess the effectiveness of defense-in-depth layers
-

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Defense-in-Depth: working definition

- *The application of multiple measures to prevent or mitigate accidents using the following four strategies to protect the public:*

Preventive

- (1) limit the frequency of accident initiating events
- (2) limit the probability of core damage given accident initiation

Mitigative

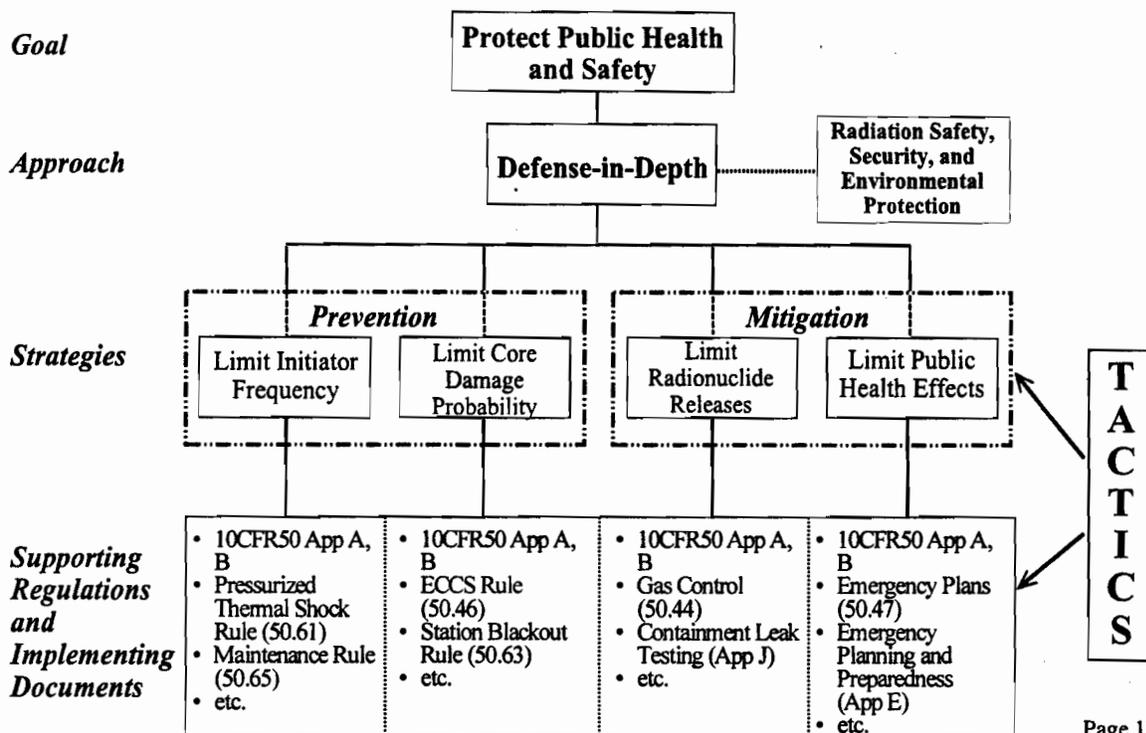
- (3) limit radionuclide releases during core damage accidents
 - (4) limit public health effects due to core damage accidents
-

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Defense-in-Depth Implementation Principles

- Contains deterministic and probabilistic elements
- Retain single failure criteria concept
 - Apply to active and passive components?
- Degree of defense-in-depth will be dependent upon degree of uncertainty
- Preserve a reasonable balance between the four strategies
- Maintain high integrity of barriers
- Maintain good engineering practices
- Maintain emergency planning

Framework:



Use of Tactics

Tactics are tools embodied in regulations that enable meeting the defense-in-depth strategies

- There are numerous tactics that can be employed
 - An optimum set, as opposed to a complete set, is desired
 - Many tactics are applicable to more than one of the defense-in-depth strategies
 - Current regulations employ most of the tactics to be considered, though not always in an optimal way
 - Generally, tactics are employed to:
 - ▶ Improve the reliability/availability of SSCs (or reduce uncertainties)
 - ▶ Improve the likelihood that the success criteria will be met (improved confidence)
 - One of the most important tactics is the use of *safety margins* to provide confidence in the regulations that are produced
-

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Examples of Tactics and Related Regulatory Documents

- | | |
|-----------------------------|------------------------|
| ■ Safety Margin | Embedded in many regs |
| ■ Single Failure Criteria | Pt. 50 App A |
| ■ Redundancy | GDC 34, 35, 41, 44, 55 |
| ■ Diversity | GDC 17, 55 |
| ■ Emergency Planning Drills | 50.47 |
-

Page 14

Safety Margin

- A measure of the conservatism employed in a design or process to assure a high degree of confidence that it will work to perform a needed function
 - Regulatory Requirements and Guidance
 - ▶ Acceptance Criteria (often qualitative)
 - ▶ Acceptance Methods for Demonstrating Compliance
-

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Safety Margin: Implementation

- Preserve key function goals, e.g.,
 - ▶ Prevent clad failure for AOOs
 - ▶ Prevent core melting and containment failure for DBAs
 - Apply safety margin to acceptance criteria and use best-estimate code calculations
 - Use quantitative approach for safety margin when possible (e.g., 95th percentile acceptance criteria based on best-estimate code calculations).
-

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Quantitative Goals for Risk-Informing Regulatory Requirements

Quantitative Health Objectives (QHOs)

Early Fatality Safety Goal
 $\leq 5E-7/\text{year}$

Latent Cancer Fatality Goal
 $\leq 2E-6/\text{year}$

(1) Prevention-Mitigation Assessment: Consider the Strategies in Pairs

Prevent	Mitigate
Core Damage Frequency $\leq 10^{-3}/\text{year}$	Conditional Probability of Individual Fatality $\leq 10^{-2}$

(2) Initiator-Defense Assessment: Consider the Strategies Individually (Preferred)

	Limit the Frequency of Accident Initiating Events (Initiators)	Limit the Probability of Core Damage Given Accident Initiation	Limit Radionuclide Release During Core Damage Accidents	Limit Public Health Effects Due to Core Damage Accidents
	Initiator Frequency	Conditional Core Damage Probability	Conditional Early Containment Failure Probability	Conditional Individual Fatality Probability
Anticipated Initiators	$\leq 1/\text{year}$	$\leq 10^{-4}$	$\leq 10^{-1}$	$\leq 10^{-1}$
Infrequent Initiators	$\leq 10^{-2}/\text{year}$	$\leq 10^{-2}$	$\leq 10^{-1}$	$\leq 10^{-1}$
Rare Initiators	$\leq 10^{-3}/\text{year}$	≤ 1	≤ 1	$\leq 10^{-1}$

Notes: The product across each row gives $\leq 10^{-6}/\text{year}$. Responding systems and procedures are not designed for rare events.

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Key Implementation Issues

- Application of single failure criterion
 - ▶ Active component
 - ▶ Passive components
 - ▶ Prevention versus mitigation
 - ▶ Reliability cutoff
- Application of quantitative goals
 - ▶ Initiating events
 - ▶ Accident scenarios
 - ▶ DBA
 - ▶ Consideration of LPSD and external event risk
 - ▶ Long term containment failure
 - ▶ Use of 10% of goals as guidelines for individual events/scenarios
- Implementation of risk-informed requirements
 - ▶ New requirement that would pass the backfit test would be mandatory
 - ▶ All other changes voluntary
 - ▶ Selective implementation, unless changes are related
- Consideration of uncertainties
- Consistent implementation of safety margin
- Other considerations
 - ▶ Worker protection
 - ▶ Relation to Option 2 scope

Page 18

Screening, Selection and Prioritization of Candidate Regulations (Requirements) and Design Basis Accidents

Selection Criteria for Candidate Regulations and DBAs

- Risk (safety) importance of regulation
 - Frequency of initiating events
 - CDF and LERF for event scenarios
 - Risk contribution of systems, structures or components
 - Regulation poses unnecessary burden to NRC or licensee relative to its risk significance
 - Methods, assumptions or acceptance criteria have excessive conservatism (e.g., excess safety margin)
-

Individual Criteria for Prioritizing Candidate Regulations

- Potential for improving safety; example:
 - ▶ High priority because substantial improvement is anticipated due to risk significance of the requirement and the large number of plants affected
- Complexity of the regulation; example:
 - ▶ High priority because minor change needed and no other related regulations impacted (i.e., easy to implement)
- Resources required for risk-informing the regulation; example:
 - ▶ High priority because small resources needed (both short and long term) and because of the large number of plants affected
- Potential for reducing licensee and NRC unnecessary burden; example:
 - ▶ High priority because implementation will significantly reduce unnecessary burden

Prioritization of Candidate Regulations -- Example

Candidate Requirements	Safety Significance of Regulation	Complexity of Potential Change	Resources Required to Implement	Unnecessary Burden Reduction	PRIORITY (preliminary)	
	High - HIGH	Small - HIGH	Small - HIGH	Large - HIGH	HIGH	
			Large - LOW	Small - LOW	HIGH	
		Large - LOW	Small - HIGH	Large - HIGH	HIGH	
			Large - LOW	Small - LOW	HIGH/LOW	
		Low - LOW	Small - HIGH	Small - HIGH	Large - HIGH	HIGH
				Large - LOW	Small - LOW	HIGH/LOW
	Large - LOW		Small - HIGH	Large - HIGH	HIGH	
			Large - LOW	Small - LOW	LOW	
	Small - HIGH		Small - HIGH	Large - HIGH	HIGH/LOW	
			Large - LOW	Small - LOW	LOW	
	Large - LOW	Small - HIGH	Large - HIGH	HIGH		
		Large - LOW	Small - LOW	LOW		

Preliminary Results

- High priority DBAs
 - ▶ Spectrum of pipe-breaks (50.46)
 - ▶ Rod-ejection accident (PWR)
 - ▶ Rod-drop accident (BWR)
 - ▶ ATWS power oscillations (BWR)
 - High priority 50.44 and 50.46
 - Other “prime candidates” from NEI survey
 - ▶ Codes and standards (50.55a)
 - ▶ Environmental and dynamic effects design bases (Appendix A, GDC 4)
 - ▶ Environmental qualification of electrical equipment (50.49)
 - ▶ Control room ventilation (Appendix A, GDC 19)
 - ▶ Electric power systems (Appendix A, GDC 17)
-

Page23

50.44 Preliminary Results

50.44: “Standards for Combustible Gas Control System in Light Water Cooled Reactors”

- Selected as a trial regulation for piloting the process of risk-informing Part 50
 - Promulgated to provide a means for the control of hydrogen gas that could evolve following a LOCA DBA and reduce the risk of a hydrogen deflagration or detonation that could threaten containment
 - Identified by licensees as a regulation containing non-risk significant requirements that pose unnecessary burden
 - Basis for staff’s approval of SONG’s exemption request, not plant-specific; application on a wider, generic bases
-

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50.44: Relationship to Framework

- Framework seeks to both *prevent* core damage accidents, and *mitigate* the public impact should a core damage accident occur
 - Rule promotes the mitigative strategy of “*containing fission products released in core damage accidents*”
 - regulation supports the strategy concerned with fission product containment by reducing the conditional probability of cotainment failure from hydrogen combustion
 - Rule fits framework by evolution, not by design:
 - Original rule emphasized mitigation of LOCA phenomena
 - Revisions focused on mitigation of degraded core accident phenomena
 - Assess rule to:
 - Eliminate any non-risk significant elements
 - Add missing risk-significant elements
 - Simplify to more effectively meet objective
-

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50.44: Technical Requirements

50.44 Requirement	Containment Type		
	Mark I and II	Mark III and Ice Cond	Large Dry
▪ Measure hydrogen concentration in containment	X	X	X
▪ Insure a mixed containment atmosphere	X	X	X
▪ Control combustible gas following LOCA (5% clad metal/water or 0.00023 in)	X	X	X
▪ Add high point vents	X	X	X
▪ Inert containment	X		
▪ Hydrogen control system to handle 75% clad metal/water reaction		X	

Page 27

50.44 -- Preliminary Evaluation

- Review requirements
- Identify licensee implementation
- Evaluate safety significance
- Identify options for consideration and evaluation

Page 28

50.44 -- Preliminary Evaluation (Cont'd)

- **Measure H2 in Containment:** safety grade instrumentation for H2 and O2 measurement
 - ▶ H2 measurement capability has safety value for tracking and managing an accident
 - ▶ Some relaxation of the STR imposed on the equipment used
 - ▶ Allow "grab" sampling, determine where safety grade imposed and allow commercial grade instrumentation
- **Ensure Well Mixed Containment Atmosphere:** atmospheric mixing systems (fan coolers, sprays, air return fans, etc.)
 - ▶ Keeping a well mixed containment atmosphere without hydrogen stratification important to safety
 - ▶ Systems used for mixing are generally used for other functions
 - ▶ No changes proposed
- **Add High Point Vents:** high point vents in RCS
 - ▶ Assuring that adequate core cooling is not precluded due to H2 accumulation in the reactor coolant system has a high safety significance
 - ▶ High point vents are in place
 - ▶ No changes proposed

Page 29

50.44 -- Preliminary Evaluation (Cont'd)

- **Control Combustible Gas Concentrations in Containment**
Following a LOCA: safety grade H2/O2 recombiners, and safety grade H2 vent and purge systems
 - ▶ The safety significance, in terms of CDF and LERF, of control systems designed to deal with slowly evolving H2 subsequent to a LOCA appears to be quite low
 - ▶ These systems are not able to deal with the rapid H2 generation which could occur during a severe accident
 - ▶ The burden of maintaining as safety systems appears unnecessary from a risk-informed perspective
 - ▶ The ability to control more slowly evolving combustible gases may be desirable in the later stages of a core damage accident
 - ▶ Control could be achieved by adapting equipment currently in place for post LOCA H2 control or by using new equipment instead
 - ▶ Unlikely that the equipment would need to be safety grade

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50.44 -- Preliminary Evaluation (Cont'd)

Control Combustible Gas Concentrations in Containment Following a LOCA

- ▶ Remove internal recombiners from operation
 - ▶ Remove internal recombiners from operation, and make provisions for portable external recombiners
 - ▶ Retain internal recombiners but drop safety grade classification
 - ▶ Remove internal recombiners from operation and replace with passive autocatalytic recombiners (PARs)
 - ▶ Remove internal recombiners from operation and rely on igniters for long term H₂ control (for Mark IIIs and Ice condenser containments only)

 - ▶ No change for H₂ vent and purge system
 - ▶ Remove H₂ vent and purge system from operation
 - ▶ Retain H₂ vent and purge system but drop safety grade classification
 - ▶ Remove H₂ vent and purge system from operation, but identify other possible vent and purge system (such as for containment pressure control) for H₂ control
-

Page 31

50.44 -- Preliminary Evaluation (Mark I and II)

- ***Inert Containment Atmosphere:*** inerting system, containment atmospheric dilution (CAD) system
 - ▶ The safety significance of an inerted containment atmosphere in the smaller BWR containments is generally acknowledged to be high
 - ▶ No changes proposed
-

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50.44 -- Preliminary Evaluation (Mark III and Ice Condensers)

- ***H2 control system to handle 75% clad metal/water reaction:*** AC powered igniter system
 - ▶ The safety significance of the existing H2 igniter systems is considered to be high
 - ▶ Greater emphasis on defense-in-depth and the uncertainties in PRAs could provide a rationale for maintaining all or some igniter operability during station blackout (SBO) accident sequences for one or both of these containment types
 - ▶ Ensure availability of all existing igniters during SBO
 - ▶ Ensure availability of a reduced set of existing igniters during SBO
-

Page 33

50.44 -- Current Status

- Accelerate schedule to evaluate different risk-informed options for the various technical requirements
 - Recommend to Commission (March 2000) to move forward on an expedited basis
 - Develop recommendations for a risk-informed 50.44 for Commission approval June 2000
-

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Workshop Summary

Stakeholder Feedback Received

- General agreement with approach and guidelines
- Approach also needs to consider
 - ▶ Consistency with plant oversight process
 - ▶ Impact on workers
 - ▶ Option 2 scope should be a key factor in deciding what a risk-informed part 50 should address
- Need to ensure good communication with owner's groups and industry programs
- Do not prohibit looking at emergency planning in the future
- Move ahead, on an expedited basis, with changes to 50.44
- Option 3 role with respect to "special treatment" rules needs clarification

Future Activities

Future Activities Include:

- Prepare status report, including any policy issues, to Commission (March 2000)
 - Public meeting (April/May) on 50.44
 - Recommendations to Commission on 50.44 (~June 2000)
 - Consider stakeholder feedback, completion of review to identify candidate regulations and DBAs and develop preliminary recommendations, beyond 50.44 (August 2000)
 - Hold additional public workshop (September 2000)
 - Meet with ACRS (October)
 - Provide final recommendations to Commission (December 2000)
-

ACRS Full Committee Meeting

Risk-Informing the Technical Requirements of 10CFR50

March 1, 2000
Two White Flint, Rockville, MD

Bob Christie

Performance Technology
P. O. Box 51663
Knoxville, TN 37950-1663
(865) 588-1444
FAX (865) 584-3043
performtech@compuserve.com

Framework for Risk-Informed Regulation

General approach

Eliminating requirements

PRA uncertainty

Single failure

Risk-Informing 10CFR50.44

Simplification of procedures

Glow-plug igniters for large dry containments

Hydrogen monitoring

Long term hydrogen

RJC
2/29/00

Comments of Bob Christie, Performance Technology, on document

"Framework for risk-informed regulations"
(handed out in public meeting 2/24/00)

1. It is very unclear what general approach is to be used to evaluate risk-informed regulations. My interpretation is that the proposal is a combination of risk-informed and performance-based approaches that depends on some form of goal allocation.

It appears to me that the proposal starts with the NRC 1986 Safety Goals for the Operation of Nuclear Power Plants: Policy Statement, and tries to allocate goals starting from the Quantitative Health Effects Objectives (QHOs). This is done even though the proposal recognizes that the Quantitative Health Effects Objectives were a measure of how safe is safe enough and not as a measure of adequate protection of public health and safety. Page 14 has the following statements: "The quantitative health objectives are the highest level quantitative goals. The QHOs were originally set as a measure of 'safe enough,' and in that sense they go beyond adequate protection. Given this position of the Commission, there are no risk arguments for setting quantitative goals more stringent than the QHOs."

The process appears to sub divide the QHOs into a Prevent (Core Damage Frequency less than or equal $1E-4$ /year) and a Mitigate (Conditional Early Fatality Probability less than or equal 0.01). See page 10. As I stated in the meeting on February 25, such a sub division violates the statement on page 14 because a core damage frequency less than or equal $1E-4$ /year is more stringent than the QHOs. As I also stated in the meeting, I do not know whether a conditional early fatality probability of 0.01 would be more stringent than the QHOs. It would depend on the nuclear unit.

To summarize my thoughts on the overall approach in the framework document, I would have to say the overall approach is not clear and certainly needs a lot of work. Any approach taken to define regulations for commercial nuclear electric power units must start using the basis of "adequate protection of public health and safety." The Quantitative Health Effects Objectives of the NRC 1986 Safety Goals for Operating Nuclear Power Plants are clearly a useful tool in determining the effectiveness and efficiency of regulations but they can not be used as the basis for regulation because as noted in the framework document, the QHOs go beyond adequate protection.

In 1997 I recommended a "Whole Plant" approach to evaluating the effectiveness and efficiency of NRC regulations in 1997 through the use of pilot plants. The

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2/29/00

approach that was recommended in 1997 would have evaluated the impact of the pilot plants on the health and safety of the public using the parameters of immediate fatalities and latent cancer fatalities as done in the NRC 1986 Safety Goals for the Operation of Nuclear Power Plants. The "Whole Plant" pilot program would have identified performance with respect to these two parameters and considered where the performance was with respect to the QHOs, Emergency Response, Large Early Release Frequency (Release Categories), the Core Damage Frequency (Plant Damage States), system/train conditional probability of success/failure (Top Events), etc. In the Whole Plant pilot studies, there was to be no attempt to subdivide and allocate goals to lower measures but just to know the relationship of the actual performance of equipment and people to the overall impact, from the highest measure to the lowest measure. Plant personnel were to make decisions at the lowest level that was possible and still come up with an effective and efficient decision with respect to the overall impact. I believe the framework document discussed in the meeting last Thursday and Friday could make good use of the approach recommended in 1997.

2. The framework document could be rewritten to have more emphasis on the fact that by eliminating requirements we can have a positive impact on public health risk. Any effort where we can improve the effectiveness and efficiency of regulations by eliminating requirements should be a high priority effort no matter how "small" the improvement. Along these lines, we should have a priority on eliminating requirements that don't have much impact on public health and safety either way, positive or negative.

We should have regulations that focus on the most significant equipment and practices with respect to public health risk. Less significant equipment and practices do not need regulations and NRC oversight. Such less significant equipment and practices are best left to the owners of the nuclear unit who are in the best position to make effective and efficient benefit/cost decisions in this area.

3. There seems to be an attitude in the proposed framework document that there are a lot of uncertainties in Probabilistic Risk Assessment and that we therefore have to take "conservative" measures to make up for the uncertainties. The framework document uses the terminology defense-in-depth for this belief.

There have always been uncertainties in the safety evaluations of nuclear electric generating units. In the past, the deterministic, prescriptive evaluations ignored the uncertainties because the calculations were "conservative." The accident at Three Mile Island 2 in March 1979 demonstrated that the deterministic, prescriptive evaluations which ignored the uncertainties were not as complete as Probabilistic Risk Assessments.

Probabilistic Risk Assessments identify and quantify uncertainties. This is one of the major advantages of PRA. In my opinion, we would do better in the

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framework document to state that the evaluations should identify and quantify the uncertainties. The decision process could then proceed with full recognition of the uncertainties. In my opinion, to claim that there is some defense-in-depth philosophy that will always make "conservative" decisions which will account for the uncertainties in Probabilistic Risk Assessments, is technically flawed.

The only way to handle uncertainties is to know what factors account for the uncertainties, how large are the uncertainties, and how much impact the uncertainties have on the decision process. Probabilistic Risk Assessment enables decision makers to quantitatively balance competing criteria and make a decision in the context of the overall process. Probabilistic Risk Assessment is the best tool to evaluate public health and safety. One of the reasons that this is true is that Probabilistic Risk Assessment addresses uncertainties.

4. Just as Probabilistic Risk Assessment addresses uncertainties, it also addresses the number of failures that lead to top events. This can be single failures, double failures, triple failures, etc. These failures can be combinations of equipment failures and failures by humans. Probabilistic Risk Assessment also addresses dependent failures (support system failures, common cause failures, etc.). Probabilistic Risk Assessment can also evaluate the timing of sequences of failures/successes through such techniques as recovery actions or phased approaches. All of these failures/successes can be addressed in the Probabilistic Risk Assessment and the relative importance of each failure/success evaluated.

There should be no attempt to bring over the "single-failure" requirements from design basis accident analysis. In my opinion, any effort devoted to the use or modification of the "single-failure" requirements from design basis accident analysis in this task to risk-inform the regulations will detract from the overall effort.

In the past, redundancy and diversity requirements and the application of the "single-failure" rule served the nuclear plants well but they were an "overkill" in some areas and an "underkill" in other areas. It is time to move on to better techniques.

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2/29/00

Comments of Bob Christie, Performance Technology, on document

"Risk-Informing 10CFR50.44"
(handed out in public meeting 2/24/00)

1. The argument in the San Onofre submittal of September 10, 1998, that the simplification of the Emergency Operating Instructions, achieved by the removal of instructions for hydrogen recombiners and purge-repressurization systems would, by itself, increase safety by removing a distraction from more critical operator actions was made with deliberate consideration of all the all relevant material at San Onofre by qualified personnel. The NRC Safety Evaluation Report written for the submittal concurred that the changes in the submittal were risk beneficial. There should be no statement in the document handed out in the meeting that this argument is questionable.

The safety significance of the safety increase (risk reduction) from the simplification of the Emergency Operating Instructions due to elimination of hydrogen control requirements will vary from nuclear unit to nuclear unit. In the case of San Onofre, the safety significant was qualitatively evaluated by personnel at the plant. As a single stand alone item at San Onofre, in the overall context of adequate protection of public health and safety, the simplification is probably of "small" safety significance. However, as an indication of the ability of personnel at San Onofre to strive for continuous improvement in all aspects of plant operation, the safety significance is high.

The nuclear industry should not be in the position of ignoring changes to the NRC regulations that might have a positive impact on adequate protection of public health and safety just because the change has "small" safety significance. If the nuclear industry is to survive and prosper in an economically deregulated electric power industry, any regulation that distracts plant personnel from items of safety importance at the nuclear unit must be changed. NRC personnel and nuclear plant personnel must become accustomed to the process of "continuous improvement."

2. There should be no regulation with a requirement for large dry containments to withstand a hydrogen burn from an amount of hydrogen equivalent to that generated from a metal/water reaction involving 75% of the cladding surrounding the active fuel region. This is the requirement for "glow-plug igniters." This requirement has been evaluated for large dry containments per 10CFR50.109 and found to not meet the criteria necessary to impose the requirement.

The NRC Safety Evaluation Report for the San Onofre submittal of September 10, 1998, contains the following statement: "Although hydrogen igniter systems

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would provide added confidence that containment integrity can be maintained during hydrogen burns, Generic Issue (GI) - 121, 'Hydrogen Control for PWR (Pressurized Water Reactor) Dry Containments,' found that hydrogen combustion was not a significant threat to dry containments and concluded there was no basis for new generic hydrogen control measures (i. E., igniters).

If the staff of the Nuclear Regulatory Commission have specific concerns with any nuclear unit with respect to combustible gas control and wish to impose any new requirements, they should follow the directions contained in 10CFR50.109.

3. In my opinion, any existing regulations for hydrogen monitoring inside containment for the Mark I and Mark II BWRs should be deleted. These nuclear units have their containments inerted. To the best of my knowledge, there are no actions to be taken by the operators during severe accidents that would impact the course of the severe accident and which depend on knowing the hydrogen concentration inside the containment. Hydrogen concentration inside containment is, at best, of secondary importance with respect to the parameters that allow the operators to take appropriate action during severe accidents. Other parameters are used to instruct the operators what actions to take during severe accidents.

The existing regulations for hydrogen monitoring inside containment for large dry containments should be deleted. There are no glow-plug igniters to activate. The existing capability of the containments allows the containment to withstand hydrogen burns. The existing systems to mix the containment atmosphere and the existing systems to remove heat from the containment do not depend on the operators knowing the hydrogen concentration. To the best of my knowledge, there are no actions to be taken by the operators during severe accidents that would impact the course of the severe accident and which depend on knowing the hydrogen concentration inside the containment. Hydrogen concentration inside containment is, at best, of secondary importance with respect to the parameters that allow the operators to take appropriate action during severe accidents. Other parameters are used to instruct the operators what actions to take during severe accidents.

Without the existing regulations for hydrogen monitoring inside containment, the owners of the nuclear units will have the option of keeping and maintaining the existing hydrogen monitoring equipment, replacing the existing hydrogen monitoring equipment with more state of the art digital equipment, leaving the existing equipment in place, after proper precautions are taken, but not maintaining the equipment, or removing the existing equipment. The decision as to what course of action to pursue is with the owners of the nuclear unit who are in the best position to determine the benefit/costs of the options available. The existing hydrogen monitoring equipment has no impact on adequate protection of public health and safety. Decisions as to what to do with the existing hydrogen monitoring system is an operational decision, not a safety-related decision.

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4. The argument is made in the document that hydrogen monitoring and hydrogen recombiners could have some impact on long term hydrogen control in large dry containments following damage to the reactor core. Such equipment was used in the long term following the accident at Three Mile Island 2 in 1979.

Again, these concerns are operational concerns which have no impact on adequate protection of public health and safety. Decisions as to what to do with existing hydrogen monitoring systems, hydrogen recombiners, and hydrogen purge systems once the existing regulations are changed to make this equipment non-safety-related are best left up to the owners of the nuclear units.

ACRS PRESENTATION

Revised Reactor Oversight Process Pilot Program Results and Lessons Learned



**William Dean
Alan Madison
Doug Coe
Gareth Parry**

March 2, 2000

AGENDA

- **Introduction**
- **Significance Determination Process**
- **Future Initiatives**

SDP PRINCIPAL OBJECTIVES

- **Significance Characterization**

- To characterize the significance of inspection findings arising from deficient licensee performance, where appropriate, using similar risk metrics as those used for PIs

- **Communication**

- To clearly communicate the staff's bases for its characterization of the significance of deficient licensee performance

SDP DEVELOPMENT/REFINEMENT

Plant Specific Reactor SDP

- Plant-specific worksheets are developed from information directly available to the staff (e.g., IPEs)
- Site visits to be conducted with each licensee to obtain comments and any recommended worksheet changes
- Each reactor safety SDP should be tested against the licensee's PRA for general consistency of results

SDP DEVELOPMENT/REFINEMENT

All SDPs

- A feasibility review using actual issues is performed on all SDPs prior to initial implementation

SDP ONGOING WORK

- Site-visits and consistency testing for reactor safety SDP are expected to continue through May 2000
- Containment SDP expected to be developed and ready in April 2000
- Shutdown issues screening tool expected to be developed and ready in April 2000
- External events screening tool development in progress with target date of April 2000

**PROPOSED CHANGES TO
PERFORMANCE INDICATOR
GREEN-WHITE THRESHOLDS**

	<u>OLD</u>	<u>NEW</u>
Scrams With Loss of Normal Heat Removal	>4	>2
Unplanned Power Changes	>8	>6
Safety System Unavailability:		
EAC	>3.8%	>2.5%
PWR HPSI	>2.0%	>1.5%
BWR RHR	>2.0%	>1.5%
PWR RHR	>2.0%	>1.5%
Safety System Functional Failures		
BWR	>5	>6
Occupational Exposure Control	>5 in 3yrs	>2 in 1yr
White-yellow threshold	>11 in 3yrs	>5 in 1yr
Security Equipment Performance Index (yellow threshold deleted)	>0.050	>0.080

FUTURE INITIATIVES

- **Develop additional Performance Indicators (e.g., containment performance)**
- **Industry-wide assessment and trend evaluation**
- **Oversight process self-assessment**
- **Guidance for annual Agency Action Review Meeting and Commission briefing**



Oconee License Renewal Project



Meeting with the Advisory Committee on Reactor Safeguards

March 2, 2000



Topics

- Scoping Methodology
- Insulated Cables & Connections
- Reactor Vessel Internals
- One-time Inspections
- Buried Piping

- License renewal scoping methodology relied on the current licensing basis definition of design basis events for Oconee
- At issue was whether the set of events that are considered by the methodology are sufficient for scoping
- The methodology was validated by a case study of 10 additional events which did not identify any SSCs that were not included in the original scoping results

- SER OI 3.9.3-1 was initiated following the on-site inspection review of Oconee operating experience
- An Insulated Cables Aging Management Program will be developed and implemented to manage aging effects during the period of extended operation
- The focus of the program is on cables and connectors in adverse, localized environments which include applicable aging effects from thermal, radiation and moisture environments



Reactor Vessel Internals Safety Evaluation Report Open Items Resolution

■ SER Open Items

- ◆ 3.4.3.2-2 Changes in Dimensions Due to Void Swelling
- ◆ 3.4.3.3-3 Cracking in RV Internals in Non-CASS Internal Components
- ◆ 3.4.3.3-4 Cracking of Baffle Former Bolts
- ◆ 3.4.3.3-5 Embrittlement of CASS RVI Components
- ◆ 3.4.3.3-6 Thermal Embrittlement of Vent Valve
- ◆ 4.2.5.3-1 Reduction in Fracture Toughness (TLAA)

March 2, 2000

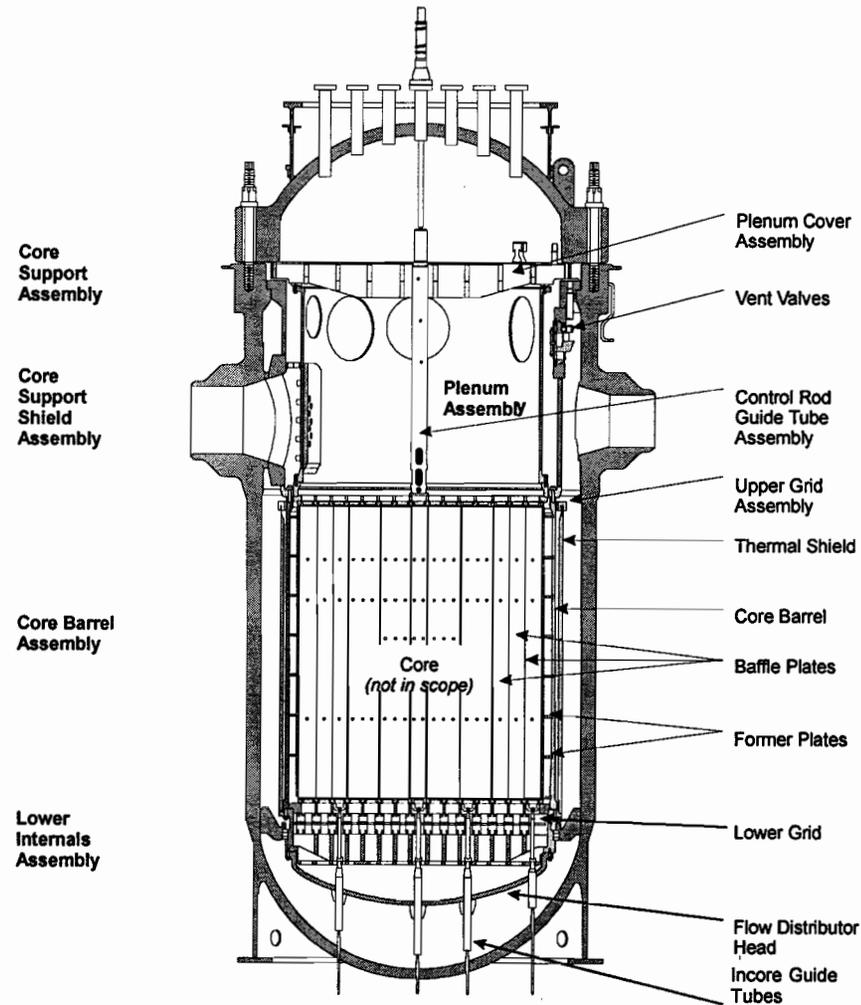
Oconee License Renewal Project

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Reactor Vessel Internals Description

Reactor Vessel Internals Description



March 2, 2000

Oconee License Renewal Project

- Duke proposed licensing a Reactor Vessel Internals Aging Management Program (process)
 - ◆ Included characterization of aging effects, analysis, development of any needed inspections (method, acceptance criteria, frequency, etc. .)
- As a result of staff reviews, an Inspection Program was developed which included:
 - ◆ Specific Timing of Inspections
 - ◆ Incorporated process within inspection program
 - ◆ Industry Participation
 - ◆ Reports
- Modifications of the Program will occur over time:
 - ◆ As Industry data and analysis are evaluated
 - ◆ Plant specific justification would be submitted for review if any inspection was determined not necessary

March 2, 2000

Oconee License Renewal Project

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- The Oconee Reactor Vessel Internals Inspection includes the following *three* interrelated inspections:
 - ◆ Baffle Bolts

Aging Effects – The aging effects of concern are (1) cracking due to irradiation assisted stress corrosion cracking, (2) reduction of fracture toughness due irradiation embrittlement, and (3) dimensional changes due to void swelling.
 - ◆ CASS

Aging Effects – The aging effects of concern for the reactor vessel internals items fabricated from CASS and martensitic steel are reduction of fracture toughness by thermal embrittlement and irradiation embrittlement.
 - ◆ Other Components

Aging Effects – The aging effects of concern are (1) cracking due to irradiation assisted stress corrosion cracking, (2) reduction of fracture toughness due irradiation embrittlement, (3) dimensional changes due to void swelling, and (4) loss of bolted closure integrity due to stress relaxation.

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Oconee License Renewal Project

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One Time Inspections

- One time inspections are aimed at verifying aging effects are not occurring. Any aging effects identified will require engineering evaluation and could result in further programmatic action.

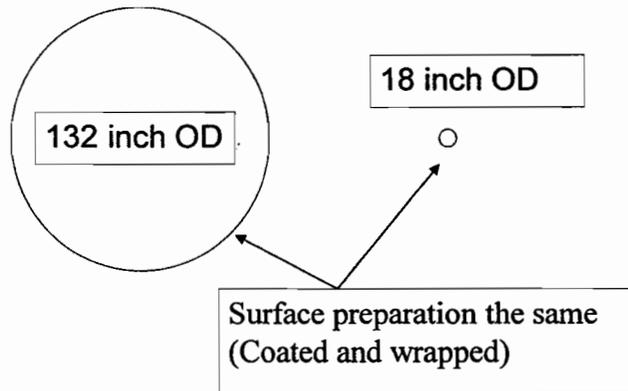
1. Cast Iron Selective Leaching Inspection
2. Galvanic Susceptibility Inspection
3. Keowee Air and Gas Systems Inspection
4. Steam Generator Upper Lateral Support Inspection
5. Pressurizer Examinations
6. Reactor Building Spray System Inspection
7. Reactor Coolant Pump Motor Oil Collection Tank Inspection
8. Small Bore Piping Inspection
9. Treated Water Systems Stainless Steel Inspection

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Oconee License Renewal Project

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Buried Piping



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Oconee License Renewal Project

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Buried Piping

- Aging management by internal surface inspections
- Approximately 460,000 square feet (surface area of 10 football fields) covered by inspections
- Operating experience review identified very limited number of through-wall leaks
- Behavior of Oconee and Keowee buried piping is managed by existing inspections



Oconee Nuclear Station License Renewal Application

**Advisory Committee on Reactor Safeguards
March 2, 2000**

Oconee License Renewal Application

Agenda

- ▶ Resolution of open and confirmatory items
- ▶ Reliance on current licensing basis and the regulatory process
- ▶ Perspective on one-time inspections
- ▶ Acceptability of inspections of buried pipe

Resolution of OIs and CIs

Open Item Number	Description
2.1.3.1-1	Scoping issue
2.2.3-1	Recirculated cooling water system should be within scope
Section	Updated discussion in this section regarding ECCS piping insulation based on Duke letter dated January 7, 2000
2.2.3.3.3.2.1	
2.2.3.4.3.2.1-1	Chilled water system should be within scope
2.2.3.4.3.2.1-2	Sealant materials for the control room pressurization and filtration system
2.2.3.4.8.2.1-1	Portions of the SSF Diesel fuel oil system, starting air system, and jacket water heat exchangers
2.2.3.6.1.2.1-1	Structural sealants – water stops, caulking, expansion joints
2.2.3.6.4.2.1-1	Turbine building and Keowee building roofs
2.2.3.7-1	Fire detection cables
2.2.3.7-2	Active equipment in storage
3.0-1	Content of FSAR Supplement
3.1.1-1	Aging effect inconsistencies in the license renewal application
3.1.3.1.7.4-1	Buried piping
3.2.3.3-1	Appendix B commitment
3.2.12-1	SSF HVAC coolers
3.2.12-2	SSF heat exchangers

Resolution of OIs and CIs

Open Item Number	Description
3.2.13-1	Service water piping corrosion program loss of material
3.2.13-2	Carbon steel inspection "indicator" of the condition of non-carbon steel components
3.2.13-3	Service water piping corrosion program relationship to Keowee
3.2.13-4	UT inspections capability to detect localized degradation
3.3.3.1-1	Tendon anchorages
3.4.3.2-1	Spray head aging effect (CASS item)
3.4.3.2-2	Void swelling (Reactor Vessel Internals)
3.4.3.3-1	Pressurizer heater bundle
3.4.3.3-2	Heater-sleeve-to-heater-bundle diaphragm plate inspection
3.4.3.3-3	Identify limiting Reactor Vessel Internals component items and incorporate into the ISI program
3.4.3.3-4	Baffle former bolts inspection (Reactor Vessel Internals)
3.4.3.3-5	For loss of fracture toughness from synergistic thermal and neutron embrittlement, perform supplemental examinations/evaluations of CASS items (Reactor Vessel Internals)
3.4.3.3-6	Vent valve bodies and retaining rings (CASS items) (Reactor Vessel Internals)
3.4.3.3-7	Evaluate CASS components to criteria in EPRI TR-106092 (RCP Casing)
3.4.3.3-8	Letdown coolers thermal fatigue
3.4.3.3-9	Reactor Vessel monitoring pipes (not part of original SER added to track B&WOG issue)
3.6.1.3.1-1	Aging effects of HVAC sub-component parts of isolators
3.6.2.3.2-1	RCP oil tank inspection plan

Resolution of OIs and CIs

Open Item Number	Description
3.8.3.1-1	Spent fuel pool temperature
3.8.3.1-2	Experience database should consider results of Oconee baseline inspection and instances of reported unusual events
3.8.3.1.9-1	Aging effects for cable trays
3.8.3.2.5-1	Secondary shield wall prestressing tendons
3.9.3-1	Insulated cables and connections (not part of original SER added due to inspection findings)
4.2.1.3-1	Provide discussion of cumulative effects of all possible cycles in the containment fatigue analysis
4.2.2.3-1	Trend lines for containment tendons
4.2.3-1	Provide information regarding the Section XI flaw evaluations for identified locations
4.2.3-2	GSI-190
4.2.5.3-1	Plan to develop data to demonstrate that the Reactor Vessel Internals will meet the deformation limit
4.2.5.3-2	Applicability of flaw growth acceptance in accordance with the ASME B&PV code, Section XI ISI requirements (Reactor Vessel Internals)

SER Confirmatory Items

Confirmatory Item Number	Description
2.2.3.6.9-1	Pipe segments that provide structural support
3.5.3.2-1	Reactor Building spray system inspection
3.6.1.3.2-1	Auxiliary service water system operating experience
3.6.3.3.2-1	Basis for Keowee oil sampling program
4.2.1.3-1	Containment pressure tests
4.2.3-1	Fatigue Management Program analyses commitments

License Renewal Principles

Reliance on Regulatory Process

- The regulatory process is adequate to maintain safety, with the possible exception of the detrimental effects of aging
- The licensing basis must be maintained during the renewal term

Perspectives on one-time inspections

- Oconee LRA contains 9 one-time inspections
- Purpose of the one-time inspections is to verify that aging effects are not occurring such that an aging management program would be required
- Staff finds approach acceptable because, if present, the aging effects are expected to be slow acting and can be resolved by the established corrective action process

Buried Piping

- Aging managed by two preventative maintenance activities
 - ▶ Condenser circulating water system internal coating inspection
 - ▶ Standby shutdown facility diesel fuel oil tank inspection
- Condenser circulating water system 11-foot diameter pipe accounts for 80 percent of the buried pipe

ACRS BRIEFING

MAINTENANCE RULE GUIDANCE

March 2, 2000

Contacts:

Wayne E. Scott, NRR/DIPM/IQMB, (301) 415-1020, WES@NRC.GOV

Dr. See-Meng Wong, NRR/DSSA/SPSB, (301) 415-1125, SMW1@NRC.GOV

ACTIVITY SINCE THE NOVEMBER 4, 1999, ACRS BRIEFING

- **November 10 -- Commission briefing**
- **November 30 -- Provide guidance package to the Commission for information**
- **January 10 ----- Completed 30-day public comment period on draft guidance**

Public Comments:

- **Comments received from 7 utilities, one state agency, Winston & Strawn, and NEI**

- **Specific Comments:**
 - **Extension of 120-day implementation period**
 - **(a)(4) interaction with 50.59**
 - **Minor technical/editorial clarifications**

Schedule:

- **03/31 -- Provide final guidance package to Commission for review and approval.**
- **120 days after Commission approval of guidance -- revised 10 CFR 50.65 becomes effective.**



United States Nuclear Regulatory Commission

STATUS OF RES ACTIVITIES ON PHENOMENA IDENTIFICATION AND RANKING TABLES (*PIRTs*) FOR HIGH BURNUP FUEL

**Ralph Meyer
Office of Nuclear Regulatory Research**

**ACRS Presentation
March 3, 2000**

OUTLINE

1. What is a PIRT and Why are We doing this?
2. Organization and Status of PIRT Activities
3. Some Results from the PWR-RIA PIRT
4. Comments on Application of the PIRT Results

PART 1. WHAT IS A PIRT AND WHY ARE WE DOING THIS?

WHAT IS A *PIRT*?

“Phenomenon Identification and Ranking Table”

PIRTs provide a structured way to get a technical understanding from elicitation of technical opinions from experts. In the present case, the issue is “What are the phenomena and the processes that are important to assess fuel behavior; are the existing data suitable to assess or modify regulatory fuel damage limits and evaluation models (codes) for application to high-burnup fuel?”

- **SCENARIOS**

PWR-RIA, BWR-ATWS, LOCA (PWR & BWR), and Source Term (later)

- **PHENOMENA**

For each event, identify main “phenomena” that affect fuel behavior and rank their importance as high, medium, or low

- **RANKING CRITERIA**

Phenomena will be ranked according to their impact on fuel integrity, fuel dispersal, long-term coolability, and pressure pulses that threaten structures

INTENDED *PIRT* USAGE BY NRC

- Is there Enough Information to Assess High-Burnup Fuel Behavior?
- Do we need Different Fuel Damage Criteria for Different Cladding Alloys (Zirc-4, Zirlo, M5, Zirc-2, Zirc-liner)?
- Can you do Integral Tests with One Cladding Alloy and Calculate the Behavior of Others Using Measured Mechanical Properties?
- Do Transient Tests in a Sodium Loop or a Stagnant Water Capsule represent enough of the Important Phenomena to be Satisfactory?
- Is Pulse Width a Critical Parameter for Transient Testing?
- Are Hot-Cell Test Conditions Adequate for representing LOCA Phenomena?
- If Mechanistic Codes are used to predict Fuel Behavior, do they describe the Important Phenomena?
- What Kind of Testing is needed for BWR Power Oscillations?

PART 2. ORGANIZATION AND STATUS OF PIRT ACTIVITIES

LIST OF *PIRT* PARTICIPANTS

Brent Boyack (Panel Facilitator), Los Alamos National Laboratory

Carl Aalexander, Battelle

Jens Andersen, General Electric Company

Richard Deveney, Framatome Cogema Fuels

Bert Dunn, Framatome Technologies

Toyoshi Fuketa, Japan Atomic Energy Research Institute

Keith Higar, Northern States Power

Lawrence Hochreiter, Pennsylvania State University

Gene Jensen, Siemens Nuclear Power

Siegfried Langenbuch, Gesellschaft fuer Anlagen und Reaktorsicherheit

Fred Moody, Consultant

Arthur Motta, Pennsylvania State University

Mitchell Nissley, Westinghouse Electric

Joelle Papin, Caderache Research Center

Kenneth Peddicord, Texas A&M University

Gerald Potts, General Electric

Douglas Pruitt, Siemens Nuclear Power

Y. (Joe) Rashid, Anatech International

Daniel Risher, Westinghouse Electric

Richard Rohrer, Northern States Power

Franz Schmitz (deceased), Caderache Research Center

James Tulenko, University of Florida

Keijo Valtonen, Finnish Center for Radiation and Nuclear Safety

Nicolas Waeckel, Electricite de France

Wolfgang Wiesenack, Halden Reactor Project

SCHEDULE OF MEETINGS

PWR Rod-Ejection Accident

August 31-September 2, 1999

October 27-29, 1999 (after NRC's WRSM)

December 7-9, 1999

BWR ATWS-Related Power Oscillations

February 8-10, 2000

April 4-7, 2000 (before Park City ANS meeting)

LOCA (PWR and BWR)

May 31-June 2, 2000

To be determined

www.nrc.gov/RES/PIRT

“This web site will be maintained for the duration of PIRT activities and will be updated frequently. The main purpose of the web site is to provide access to the verbatim transcripts that are being kept of the PIRT meetings. PIRT meetings are conducted by NRC’s Office of Nuclear Regulatory Research and are open for public attendance. At the end of the PIRT activities, NUREG reports will be published with the results of the PIRTs.”

- What is a PIRT?
- List of PIRT Participants
- Schedule and Agenda for PIRT Meetings
- Background Information for Forthcoming Meetings
- Transcripts of PIRT Meetings
- Working Drafts of NUREG Reports

Part 3. SOME RESULTS FROM THE PWR-RIA PIRT

PRACTICAL ADJUSTMENTS

Ranking Criteria

“Phenomena will be ranked according to their impact on fuel integrity, fuel dispersal, long-term coolability, and pressure pulses that threaten structures”

Changed to: An Outcome Related to Substantial Fuel Dispersal or Substantial Flow Blockage

Definition of Phenomena

Phenomena, Processes, Conditions, and Properties

Grouping of Phenomena

- A. Plant Transient Analysis
- B. Experimental Testing
- C. Transient Fuel Rod Analysis
- D. Mechanical Properties Measurement

A. Plant Transient Analysis

Phenomena in this category were ranked in relation to the question “Is the code-calculated outcome sensitive to this input parameter or model?” in relation to substantial fuel dispersal or flow blockage. The following stand out as having high importance.

- Ejected control rod worth
- Fuel cycle design
- Pin peaking factors
- Fuel temperature feedback
- Delayed neutron fraction
- Heat capacities of fuel and cladding

B. Experimental Testing

Phenomena in this category were ranked in relation to their effect on the outcome of pulse reactor tests with regard to substantial fuel dispersal or flow blockage. The list of phenomena was long and only those of high importance that have major implications are shown below. Others address more specific aspects of selecting test rods and performing the tests, and they will be valuable to the experimenter.

- Burnup of test rod
- Hydrogen distribution in cladding of test rod
- Agglomerates in test rod (MOX only)
- Coolant heat transfer conditions during the test
- Pulse width during the test

C. Transient Fuel Rod Analysis

As with plant transient analysis, phenomena in this category were ranked in relation to the question “Is the code-calculated outcome sensitive to this input parameter or model?” in relation to substantial fuel dispersal or flow blockage. This category of phenomena addresses fuel rod code improvement and validation. High ranked input phenomena such as gap size, power distribution, and condition of oxidation (spalling) seem rather obvious. Some of the rankings for the analytical models were not so obvious, however.

- Pellet-cladding contact (gap closure) models are clearly important, yet current models may have been derived to optimize temperature predictions rather than the mechanical loading.
- The stress-strain response of the cladding was found to be of high importance, but strain rate effects, anisotropy, and biaxiality were found to be of medium to low importance.
- The mechanical properties of fuel pellets were found to be of only moderate importance in relation to the loading applied to the cladding.

D. Mechanical Properties Measurement

Phenomena in this category were ranked for specimen selection and test conditions, and the rankings did not contain surprises. For specimen selection, the rankings again emphasize the condition of the cladding oxide (spalling or delamination) and the hydrogen distribution rather than just the amount of oxygen or hydrogen. For test conditions, the rankings emphasize stress state imposed on the specimen, tensile specimen design, and burst specimen design.

PART 4. COMMENTS ON APPLICATION OF THE PIRT RESULTS

A method to resolve the high-burnup issues related to postulated PWR rod-ejection accidents has been drafted. It is supported by findings of this PIRT, and several new ideas resulted from discussions with the PIRT panel. This draft has had only limited review within RES and will be discussed with ACRS after it has been given sufficient review and internal approval.



**Resolution of Generic Issues B-17,
“Criteria for Safety-Related Operator Actions” and
GI-27, “Manual vs. Automatic Actions”**

ACRS

March 3, 2000

**J. Persensky
Harold J. Vandermolen
Paul Lewis
RES/DSARE/REAHFB**

History

- **B-17 identified in 1978**
- **Proposed solution was endorsement of ANSI/ANS 58.8 -“Time Response Design Criteria for Safety-Related Operator Actions”**
 - **Staff monitored development of the standard until 1995**
 - **In 1995 staff proposed to endorse ANSI/ANS 58.8 (1994) with RG 1.164**
 - **ACRS did not support endorsement of ANSI/ANS 58.8 by RG 1.164**
 - **Staff agreed to consider alternatives**
- **Review of post-TMI regulatory actions**
 - **Intent of B-17 addressed by several regulatory actions**
 - **B-17 should be closed with no new or revised requirements**

Description of B-17

- **Current plant designs are such that reliance on the operator to take action in response to certain transients is necessary. NRC was to develop a time criterion for safety-related operator actions.**

- **GI B-17 states that NRC should determine whether certain safety-related operator actions (SROAs) must be automated.**

- **Issue 27 - Manual vs. Automated Actions**
 - **Identified in 1983**
 - **Subsumed in B-17**

Justification for Close-Out

- **NRC has requirements in place to assure that operator actions can be performed in time.**
 - **Training program (10CFR50.120 and 10CFR55.4,55.31,55.59)**
 - **Operator licensing program (10CFR55)**
 - **Plant specific simulators (10CFR55.45)**
- **EOP inspection program (NUREG- 1358)**
- **The Staffing Rule (10 CFR 55.54) sets minimum staffing levels.**
- **IPE program (Gen. Let. 88-12)**
 - **Identify vulnerabilities using PRA techniques**
 - **Licensees identified and considered time-critical SROAs.**
 - **Important human actions identified in NUREG-1560**

Cost/Benefit Analysis

- **Maximum benefit expected for automating ECCS switchover.**
- **Costs and benefits were already investigated in Generic Issue 24, “Automatic ECCS Switchover to Recirculation.”**
- **Analysis can be found in NUREG/CR-6432, “Estimated Net Value and Uncertainty for Automating ECCS Switchover at PWRs.”**
- **Conclusion “...backfitting from manual to a semiautomatic system (automatic LPSI switch-over) or a fully automatic system (both LPSI and HPSI automatic switchover) is not justified on a cost/benefit basis.” (Memorandum Morrison to Taylor, Oct. 31, 1995)**
- **ACRS concurred on September 12, 1995.**

Conclusion

- **There is a technical and regulatory basis for closure of GI B-17 and Issue-27.**
- **Regulatory actions promulgated since the GIs were identified satisfy the intent of the GIs**
- **Plant-specific vulnerabilities associated with human error were addressed by the IPE Program**
- **A related Cost/Benefit analysis concluded that new requirements are not justified**
- **Performance-Based approach used to close-out the GIs**
- **Staff requests a letter of agreement from the ACRS**

ACRS MEETING HANDOUT

Meeting No. 470th	Agenda Item 17	Handout No: <u>17</u> - <u>1</u>
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Title **MINUTES OF PLANNING & PROCEDURES
SUBCOMMITTEE MEETING - FEBRUARY 29,
2000**

Authors **JOHN T. LARKINS**

List of Documents Attached

17

- Instructions to Preparer**
1. Punch holes
 2. Paginate attachments
 3. Place copy in file box

From Staff Person

JOHN T. LARKINS

March 2, 2000

MINUTES OF THE
PLANNING AND PROCEDURES SUBCOMMITTEE MEETING
TUESDAY, FEBRUARY 29, 2000

The ACRS Subcommittee on Planning and Procedures held a meeting February 29, 2000, in Room 2B1, Two White Flint North Building, Rockville, Maryland. The purpose of the meeting was to discuss matters related to the conduct of ACRS business. The meeting was convened at 8:30 a.m. and adjourned at 4:30 p.m.

ATTENDEES

D. A. Powers, Chairman
G. E. Apostolakis, Vice Chairman
M. V. Bonaca, Member-at-Large

ACRS STAFF

J. T. Larkins
H. Larson
R. P. Savio
S. Duraiswamy
C. Harris
S. Meador

DISCUSSION

1) Review of the Member Assignments and Priorities for ACRS Reports and Letters for the March ACRS Meeting

Member assignments and priorities for ACRS reports and letters for the March ACRS meeting are included in a separate handout. Reports and letters that would benefit from additional consideration at a future ACRS meeting were discussed.

RECOMMENDATION

The Subcommittee recommends that the assignments and priorities for the March 2000 ACRS meeting be as shown in the handout. The Committee should consider issuing a Larkinsgram on the proposed final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants."

2) Anticipated Workload for ACRS Members

The anticipated workload of the ACRS members through May 2000 is included in a separate handout. The objectives are to:

Review the reasons for the scheduling of each activity and the expected work product and to make changes, as appropriate,

Manage the members' workload for these meetings, and

Plan and schedule items for ACRS discussion of topical and emerging issues.

RECOMMENDATION

The Subcommittee recommends that the members provide comments on the anticipated workload. Changes will be made, as appropriate. The Subcommittee also recommends that the Committee not review the Proposed Regulatory Guide and associated guidance in NEI 96-07, "Guidelines for 10 CFR 50.59 Safety Evaluations."

3) Status of Selecting Candidates for Potential ACRS Membership

Three of the four best qualified candidates for ACRS membership are scheduled to be interviewed by the members during the March ACRS meeting. The remaining candidate is scheduled for interview on March 15, 2000 during the ACRS Subcommittee meetings or during the April ACRS full Committee meeting..

RECOMMENDATION

The Subcommittee recommends that the members provide feedback to the ACRS Executive Director for use by the ACRS Member Candidate Screening Panel in formulating a recommendation to the Commission.

4) Meeting with Members of the German Reactor Safety Committee

On March 13, 2000 Lothae Hahn (Chairman of the RSK), Edmund Kersting (Vice Chairman, RSK) and Renzo Candeli (Executive Director of RSK office) will meet with D. Powers, G. Apostolakis, M. Bonaca, T. Kress, G. Wallis, and J. Larkins to discuss several topics of mutual interest. The meeting will be held at MIT and suggested topics include: Risk-Informed/Performance Based-Regulation; Generic Safety Issues; Decommissioning and Emergency Responses, and Reactor Regulatory Research.

RECOMMENDATION

The Subcommittee recommends that the members attending this meeting provide a report to the ACRS at the April meeting.

5) Change in NRC Travel Regulations Beginning March 1, 2000

A copy of the February 8, 2000 NRC Yellow Announcement, "Mandatory Usage of the Government Sponsored Charge Card for Travel," has been distributed to each member for his information.

RECOMMENDATION

The subcommittee recommends that each member familiarize himself with the new requirements for use of the government sponsored charge card stated in the yellow announcement. Members should direct any questions on the memorandum to Tanya Winfrey or Carol Harris.

6) Compensation of ACRS Members

On February 8, 2000, the ACRS Executive Director requested the NRC Chairman to continue the ACRS members' compensation at a rate equivalent to Executive Level IV. As a result of a recent SES pay increase, the daily rate equivalent to Executive Level IV is now \$469.12, up from \$453.84.

7) Proposed Rulemaking to Revise FACA Regulations

The General Services Administration (GSA) is revising Federal Property Management Regulations coverage on Federal Advisory Committee Management. GSA is revising the implementation regulations for FACA to make it consistent with legislative changes, shifts in Federal policy, and decisions issued by the Supreme Court and other Federal Courts. This is the second time the NRC has commented on proposed changes to FACA, the first being on the Advance Notice of Proposed Rulemaking issued on June 10, 1997. Copies of the ACRS/ACNW Office and Office of Human Resources comments are attached (pp 1-3). The Office of the General Counsel will discuss proposed agency comments with the ACRS/ACNW Office and others prior to seeking Commission approval to send forward comments to GSA. The ACRS/ACNW Executive Director will discuss any potential impacts on Committee operations.

RECOMMENDATION

The Subcommittee recommends that the Executive Director provide the ACRS with the agency comments following transmittal to GSA. Subsequent to the issuance of the final revision to FACA, the ACRS should revise its Bylaws, as needed, to ensure consistency with the revised FACA requirements as well as with other applicable rules and regulations.

8) Member Issues(a) Recommendation from Gus Cronenberg on NRC Staff Reviews of Power Uprates

Senior ACRS Fellow, Gus Cronenberg has, in a memorandum dated February 7, 2000, expressed concern that the recommendation from the Maine Yankee Lessons Learned effort that there should be more comprehensive and consistent reviews of power uprate applications is not being followed. He sees continued inconsistency in the reviews and is concerned that there are not:

- included in the SERs specifications of how the reviews were accomplished (a theme not different than that of Graham Wallis)
- the acceptance criteria for the conclusions reached, or
- staff analyses of thermal hydraulics and core physics

Staff pleads higher priority activities have kept them from formulating a Standard Review Plan for power uprates. The Planning and Procedures Subcommittee should come up with a response. The Committee needs to give some thought to the following:

- are we at all concerned about the potential synergism suggested in Cronenberg's report?
- is any action taken by the ACRS in these matters interfering in the management of the agency?

RECOMMENDATION

The Subcommittee recommends that a presentation by Mr. Cronenberg and the NRC staff be scheduled for a future meeting.

(b) Meeting with NRC's EDO

The Planning and Procedures Subcommittee should establish a date and agenda for a meeting with the NRC's EDO on matters of concern. This would be a discussion of administrative and procedural matters and as such not a public meeting.

RECOMMENDATION

The Subcommittee recommends that the Planning and Procedures Subcommittee meet with the EDO during a future meeting (April or May) to discuss items of mutual interest, including areas where the EDO and ACRS have differing views, EDO's views on the ACRS research report, etc. If the members have any issues that they believe should be discussed with the EDO, they should provide them to the ACRS Executive Director. The ACRS staff should develop a list of issues where the EDO differs with the ACRS for discussion during the meeting with the EDO.

(c) Meeting with Industry Representatives

An action coming out of the ACRS CY 2000 Retreat was the recommendation for a meeting with industry representatives (NEI, Utility Management and INPO). The Planning and Procedures Subcommittee needs to establish a date and agenda for this meeting and decide whether to use a subcommittee format or as part of a full Committee

meeting. This meeting is part of a broader recommendation for enhanced ACRS and industry interactions, including members participating in NEI topical meetings and ANS activities.

RECOMMENDATION

The Subcommittee recommends that Dr. Savio develop a proposal for this meeting, including meeting participants and topics for discussion and submit to the Planning and Procedures Subcommittee for discussion during its April meeting.

(d) **Member Travel**

Dr. Apostolakis requests ACRS endorsement to visit Siemens in Germany (p.), along with Drs. Uhrig, Wallis, Bonaca, and Mr. Sieber.

RECOMMENDATION

The Subcommittee recommends that the Committee approve Dr. Apostolakis' travel request.

9) **Future Activities**

See separate handout



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

February 15, 2000

MEMORANDUM FOR: Trip Rothschild, OGC

FROM: John T. Larkins, Executive Director
John T. Larkins
ACRS/ACNW

SUBJECT: PROPOSED RULE: FEDERAL ADVISORY COMMITTEE
MANAGEMENT, 41 CFR PARTS 101-6 AND 102-3

I have reviewed the General Services Administration's (GSA) proposed rule covering implementation of the Federal Advisory Committee Act (FACA) and have no major problems regarding the proposed rule. It is worth noting that some of our comments provided on the Advance Notice of Proposed Rulemaking (ANPR) (62 FR 31550, June 10, 1997), were addressed in the proposed rule, but not all.

Some issues related to implementation of FACA would benefit from additional guidance and this proposed rule does raise issues as to how the NRC manages its Advisory Committees. Both types of issues are discussed below.

The proposed rule includes some significant revisions and one which could impact us significantly is the applicability of procedural requirements contained in FACA regarding the role of subcommittees. The proposed rule clarifies GSA's current FACA regulations to emphasize that a subcommittee which reports to a parent committee is not an advisory committee under FACA, and there is no legal basis for applying FACA's requirement to such a subcommittee. The utilization of this clarified position facilitates our being able to have closed subcommittee discussions with NRC staff on predecisional issues or other matters which have not been approved by the EDO or the Commission. Although we plan to continue our policy of openness with the public, this clarification in the proposed rule does remedy a problem which occurs occasionally in interactions between NRC staff and the ACRS and ACNW.

The proposed rule is purported to reflect GSA's desire to streamline the process associated with managing advisory committees by leveraging advances in telecommunications and computer technologies, including the internet. However, as noted in our earlier comments on the ANPR, there is no guidance or specificity on public participation and record keeping recommendations in the context of modern communications technology, e.g., videoconferencing, conference calls, and e-mail exchanges. We would like to see specific language which endorses the use of videoconferencing to enhance public participation and enhance committee efficiency. Also the use of electronic storage devices to maintain and keep records should have been included in the proposed rule.

On a procedural matter, I note that the section 102-3.80 requires a notice to the public in the Federal Register when a discretionary advisory committee is established, reestablished or renewed, however, there is no guidance on notices for revisions to the charter and whether we need to issue a Federal Register notice each time we revise the charter.

Subpart D, section 102-3.110(e) requires periodic feedback from advisory committee members and the public regarding effectiveness of the committee's activities and feedback from the Agency as to how its advice has affected their programs and decisionmaking. Annually, the ACRS/ACNW Office provides the Commission with a self-assessment of its performance using criteria based on the Government Performance and Results Act and similar to those disseminated by GSA. We believe that our self-assessment and the Commission's response to our self-assessment satisfy this subpart of the rule. We would appreciate your views on this particular matter.

Section 102-3.140 defines the role assigned by FACA to the Designated Federal Officer. Essentially, we follow that guidance except that the committee chairman or subcommittee chairman approves the agendas and runs the meeting. I am assuming this is allowed, since there is a discussion in this subpart which says that the Agency head should develop agency guidelines implementing FACA, including clear operating procedures. The ACRS/ACNW Office does have written and reviewed operating procedures. However, we may need to have some guidance or some formal delegations of responsibilities from the Chairman of the NRC to the ACRS/ACNW Office in implementing operating procedures for the Committee and staff.

Section 102-3.145 states that consultants may be appointed as staff to an advisory committee. I am assuming that this means as a personal services consultant, which is the way we have generally handled consultant appointments. One of the things that is clear to me as I reviewed this proposed rule, is the need for the agency to have some documentation which defines the process for delegating responsibilities for managing the Committees to the ACRS/ACNW Executive Director and appointing the Designated Federal Official(s). In this regard, we need to revise the agency's Management Directive on Advisory Committees.

The Subpart E, Meeting and Recordkeeping Procedures under Section 102-3.190 uses both the terms "certify" and "finalize." One paragraph states that the chairperson of the advisory committee must certify the accuracy of the minutes of the advisory committee meetings and later in the subpart that minutes must be finalized within 90 calendar days of the meeting. I presume we are interpreting finalized to be synonymous with certified, but it should be clarified.

Additionally, Section 102-3.190 should make reference to using certified transcripts for minutes.

I note in reviewing this document that nowhere are committee members referred to as special government employees. It appears there should be some reference to Committee members as Special Government Employees as the term is used in FACA and NRC regulations.

Finally, we note that the proposed rule does a good job of clarifying what types of advisory committees or groups are excluded from FACA and the difference between advisory committees whose sole function is advisory versus an operational committee.

cc: A. Bates, ACOMO

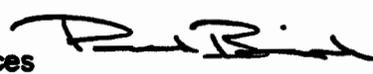


UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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February 16, 2000

MEMORANDUM TO: Trip B. Rothschild
Assistant General Counsel for Legal Counsel,
Legislation and Special Projects
Office of the General Counsel

FROM: Paul E. Bird, Director 
Office of Human Resources

SUBJECT: GSA PROPOSED FACA REGULATIONS

The Office of Human Resources offers the following comments and observations regarding GSA's proposed regulations on the Federal Advisory Committee Act.

Section 102-3.150(d): OGC may want to review whether advisory committee members in the NRC actually are governed by 5 U.S.C. 3109. A definitive determination is needed in that regard, and these proposed regulations may require such a determination. Currently, our advisory committee members (MD 10.12) are given "Member Appointments," which are similar to, but not under, 5 U.S.C. 3109. These proposed regulations would require that our ACRS/ACNW members be given consultant appointments under 5 U.S.C. 3109. Historically, we have chosen not to do that. The rest of the section seems to comport with our current practices. The first sentence in the section should be changed to read "... equivalent of a rate of the General Schedule in 5 U.S.C. 5332 (or equivalent agency system) unless"

Section 102-3.150(e): The parenthetical in the first sentence should be changed to read "... (5 U.S.C. Chapter 51 (or equivalent agency system),)...." If the proposed language assumes that the SES members of ACRS/ACNW are "staff," we would not want to have "this determination ... reviewed annually by the agency head each year." The language in the proposed regulation in that regard should probably be changed.

Section 102-3.150(g): Again, check the appropriateness of the 5 U.S.C. 3109 reference.

There may be a need to add a section documenting that NRC's ACRS/ACNW members are allowed miscellaneous expenses, as appropriate to committee members who are appointed pursuant to Section 29 of the Atomic Energy Act, as amended. In view of the fact that that is our policy, these regulations may need to so reflect.

cc: P. Norry.
J. Larkins

ACRS SPECIAL TRAVEL ENDORSEMENT FORM

THIS FORM IS TO BE USED TO REQUEST ACRS ENDORSEMENT OF SPECIAL TRAVEL REQUESTS BY MEMBERS WHEN NRC SUPPORT FOR PARTIAL OR FULL REIMBURSEMENT OF EXPENSES AND/OR TIME IS DESIRED. THIS PROCEDURE IN NO WAY LIMITS THE FREEDOM OF A MEMBER TO PARTICIPATE IN A MEETING AS AN INDIVIDUAL AT PERSONAL EXPENSE. PLEASE SUBMIT THIS FORM TO THE PLANNING AND PROCEDURES SUBCOMMITTEE AT LEAST 60 DAYS PRIOR TO THE MEETING, IF POSSIBLE. SUPPLEMENTAL INFORMATION MAY BE ADDED AS DETAILS DEVELOP.

Member Name: G. APOSTOLAKIS Date Submitted: March 2, 2000

Dates of Planned Trip: June 24, 2000 to July 1, 2000

Destination: Germany

Meeting or Facility to be Visited: To visit Siemens and a nuclear plant that has implemented its ^{digital} ITC system

Purpose/Relevance to ACRS Business: Digital ITC is a long-standing ACRS concern

Participation (Invited Speaker, paper presented, etc.): N/A

Justification (Foreign Travel Only): The Siemens ITC system is one of the major ones in the world. It is important for the ACRS to understand its principles and implementation and the German approach to regulating digital ITC.

NRC SUPPORT REQUESTED

Air Fare: Yes No Per Diem: Yes No Days 6
Registration: None Compensation: Yes No Days 6