



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

SL-0530

April 28, 2005

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

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 521<sup>st</sup> MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, April 7-8, 2005 AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 521<sup>st</sup> meeting, April 7-8, 2005, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following report and memoranda:

REPORT:

Report to Nils J. Diaz, Chairman, NRC, from Graham B. Wallis, Chairman, ACRS:

- Report on the Safety Aspects of the License Renewal Application for the Joseph M. Farley Nuclear Plant, Units 1 and 2, dated April 14, 2005

MEMORANDA:

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

- DRAFT NUREG "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications," dated, April 8, 2005
- Proposed Revision to Regulatory Guide 3.71, "Nuclear Criticality Safety Standards for Fuels and Materials Facilities," dated April 8, 2005
- Proposed Revision to Management Directive 6.4, "Generic Issues Program," dated April 8, 2005

HIGHLIGHTS OF KEY ISSUES

1. ACRS Meeting with the NRC Commissioners

The Committee met with the Commissioners on April 7, 2005 to discuss several items, including the following:

- PWR Sump Performance
- Risk-Informing 10 CFR 50.46
- Technical Basis for Revision of the pressurized thermal shock (PTS) Screening Criterion
- License Renewal / Power Uprates
- Differences in Regulatory Approaches Between U.S. and Other Countries

#### Committee Action

The Commission issued a Staff Requirements Memorandum (SRM) on April 25, 2005. The issues and requests included in this SRM will be addressed by the Committee.

#### 2. Final Review of the License Renewal Application for Joseph M. Farley Nuclear Plant, Units 1 and 2

The Committee met with NRC staff and representatives of the Southern Nuclear Operating Company, Inc. to discuss the license renewal application for the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2 and the associated final Safety Evaluation Report (SER). The applicant requested approval for continued operation of these units for 20 years beyond the current license expiration dates. The operating licenses for FNP Units 1 and 2 expire on June 25, 2017, and March 31, 2021, respectively. In the final SER, the staff has concluded that the applicant has satisfied the requirements of 10 CFR 54.29(a).

#### Committee Action

The Committee issued a report to the NRC Chairman, dated April 14, 2005, concluding that the programs established and committed to by the applicant will provide reasonable assurance that Farley, Units 1 and 2 can be operated in accordance with their current licensing basis for the period of extended operation without undue risk to the health and safety of the public. The Committee recommended that the application for renewal of the operating licenses for Farley, Units 1 and 2 be approved.

#### 3. NUREG-1792, "Good Practices for Implementing Human Reliability Analysis"

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the revised draft NUREG-1792. The draft NUREG report provides a set of good practices for implementing Human Reliability Analysis (HRA). According to the staff, good practices are those processes and individual analysis tasks and judgments that would be expected of a HRA in order for the HRA results to sufficiently represent the anticipated operator performance when making risk-informed decisions. The objective of the draft NUREG is not to explicitly provide questions a reviewer should ask, but rather to provide the technical basis for developing questions and potentially a regulatory guide and/or a standard review plan.

In its letter of May 13, 2004 to the NRC Executive Director for Operations, the ACRS recommended that the draft NUREG be peer-reviewed by domestic and international experts,

and commented that the omission of organizational issues from the draft report ignores an important determinant of human performance. The revised draft NUREG did not address these points. The staff plans to hold a workshop and have additional interactions with HRA experts as part of the next phase of the HRA guidance development. The staff expects that the ACRS recommendations and comment will be addressed during the next phase.

#### Committee Action

This briefing was provided for information only. The Committee plans to follow up on the progress of the staff's activities regarding this matter during future meetings.

#### 4. Subcommittee Report - Plant License Renewal

The Chairman of the Plant License Renewal Subcommittee provided a report summarizing the results of the April 6, 2005 Subcommittee meeting with the NRC staff and representatives of Dominion Nuclear Connecticut (Dominion) to review the license renewal application for the Millstone Power Station, Units 2 and 3 and the associated Safety Evaluation Report (SER) with Open Items. Dominion has requested approval for continued operation of both units for 20 years beyond the current license expiration dates. The current operating licenses for Units 2 and 3 expire on July 31, 2015, and November 25, 2025, respectively. During the meeting, Dominion described the plant's operating history and major equipment replacements. The staff identified six open items, six confirmatory items, and three proposed license conditions in the SER with Open Items. A representative of the Connecticut Coalition Against Millstone made a statement at the meeting, providing examples of degraded conditions at the plant.

#### Committee Action

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

#### 5. Accident Sequence Precursor (ASP) Program and Development of Standardized Plant Analysis Risk (SPAR) Models

The Committee met with representatives of the NRC staff to discuss the status of the ASP Program and the development of SPAR models. The staff briefed the Committee on recent ASP analyses and trends. The staff has screened and analyzed events for FY 2001-2004 to identify precursors. The staff has completed all event-related analyses for FY 2001 and 2002. The staff discussed the ASP analysis of the February 2002 Davis-Besse event, involving control rod drive mechanism cracking and reactor vessel head degradation. The staff presented recent improvements to the Revision 3 SPAR models based on comparisons with licensees' PRAs and plans for future improvements to include low power & shutdown models, external events models, and large early release models. Members complimented the staff on its progress over the past few years to make the SPAR models a useful agency tool.

#### Committee Action

This was an information briefing. The members requested a future briefing on the expert elicitation conducted in support of the ASP analysis of the February 2002 event at Davis-Besse.

## RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the EDO's March 16, 2003 response to the ACRS letter of February 24, 2005, concerning the Committee's review of the proposed Safety Evaluation (SE) regarding the construction authorization request for the Mixed Oxide (MOX) Fuel Fabrication Facility.

The EDO's response is satisfactory. The staff has agreed with all of the Committee's observations and suggestions, and will require the applicant to address them in a future license application submittal.

## OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from March 3, 2005 through April 6, 2005, the following Subcommittee meetings were held:

- Plant License Renewal - April 6, 2005

The Subcommittee met with representatives of the NRC staff and Dominion Nuclear Connecticut to discuss the Safety Evaluation Report with Open Items related to the license renewal application for the Millstone Power Station Units 2 and 3.

- Planning and Procedures - April 6, 2005

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

## LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee plans to follow-up on the progress of the staff's activities regarding the good practices in evaluating the strengths and weaknesses of human reliability analysis methods.
- The members requested a briefing on the expert elicitation conducted in support of the ASP analysis of an operational condition which was observed at the Davis-Besse Nuclear Power Station, Unit 1 in February 2002.
- The Committee plans to review the draft final NUREG, "Verification and Validation of Selected Fire Models for Nuclear Power Plants Applications," after reconciliation of public comments.
- The Committee plans to review the draft final revision to Regulatory Guide 3.71, "Nuclear Criticality Safety Standards for Fuels and Materials Facilities," after reconciliation of public comments.

- The Committee plans to review the application submitted by the U.S. Enrichment Corporation seeking NRC approval to enrich uranium using a gas centrifuge, after the staff has completed the integrated safety analysis. The ACRS Subcommittee on Reactor Fuels tentatively plans to hold a meeting in November 2005 to discuss this matter. The NRC staff has expressed concerns about the schedule impact of this planned review, given Commission direction to the staff on the duration of that review.

#### PROPOSED SCHEDULE FOR THE 522<sup>nd</sup> ACRS MEETING

The Committee agreed to consider the following topics during the 522<sup>nd</sup> ACRS meeting, to be held on May 5-6, 2005:

- Final Review of the License Renewal Application for Arkansas Nuclear One, Unit 2
- Draft Final Revisions to Standard Review Plan (SRP), Chapter 13, "Conduct of Operations"
- Advanced Reactor Designs for Hydrogen Production
- Significant Recent Operating Events
- Proposed Options for Addressing ACRS proactive initiative on safety management
- Steam Generator Tube Integrity Program
- Digital Instrumentation and Control Systems Research Plan

Sincerely,

**/RA/**

Graham B. Wallis  
Chairman

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