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

April 7, 2008

The Honorable Dale E. Klein  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Chairman Klein:

SUBJECT: SUMMARY REPORT – 550<sup>TH</sup> MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, MARCH 6-7, 2008, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 550<sup>th</sup> meeting, March 6-7, 2008, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and letter.

REPORTS

Reports to Dale E. Klein, Chairman, NRC, from William J. Shack, Chairman, ACRS:

- Report on the Safety Aspects of the License Renewal Application for the Vermont Yankee Nuclear Power Station, dated March 20, 2008.
- Report on the Safety Aspects of the License Renewal Application for the James A. FitzPatrick Nuclear Power Plant, dated March 20, 2008.

LETTER

Letter to Luis A. Reyes, Executive Director for Operations, NRC, from William J. Shack, Chairman, ACRS:

- Interim Letter: Chapters 9, 10, 13, and 16 of the NRC Staff's Safety Evaluation Report with Open Items Related to the Certification of the ESBWR Design, dated March 20, 2008.

HIGHLIGHTS OF KEY ISSUES

1. Final Review of the License Renewal Application for the James A. FitzPatrick Nuclear Power Plant

The Committee met with representatives of the Entergy Nuclear Operations, Inc. (the applicant), and the NRC staff to discuss the license renewal application for the James A. FitzPatrick Nuclear Power Plant (JAFNPP) and the associated NRC staff's final Safety Evaluation Report (SER). The operating license for JAFNPP expires on October 17, 2014. The applicant has requested approval for continued operation for a period of 20 years beyond the current license expiration date.

In the final SER, the staff documented its review of the license renewal application and other information submitted by the applicant and obtained during the audits and inspections conducted at the plant site. The staff reviewed: the completeness of the applicant's identification of structures, systems and components that are within the scope of license renewal; the integrated plant assessment process; the applicant's identification of the plausible aging mechanisms associated with passive, long-lived components; the adequacy of the applicant's aging management programs; and the identification and assessment of time-limited aging analyses (TLAAs) requiring review.

The applicant addressed two open items which are related to reactor vessel neutron fluence and environmentally assisted fatigue. For resolving the reactor vessel neutron fluence issue, the applicant submitted a new fluence calculation to the staff for review. The staff reviewed this calculation and found it to be acceptable, as it adhered with the guidance of Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence." Regarding environmentally assisted fatigue issues, the applicant amended its license renewal application to bring it within the scope of the Fatigue Monitoring Program and to credit this aging management program as the basis for acceptance of the TLAA in accordance with 10 CFR 54.21 (c)(1)(iii). Other discussion topics included the applicant's drywell and torus monitoring program.

The staff described its review and inspection of the applicant's scoping, screening, and aging management programs; the program implementation at JAFNPP; and resolution of the open items. The staff also confirmed that the applicant has committed to follow the Generic Aging Lessons Learned Report, without exceptions, regarding monitoring of the cumulative usage factor for environmentally assisted fatigue.

#### Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated March 20, 2008. The Committee concluded that the programs established by the applicant to manage age-related degradation provide reasonable assurance that the JAFNPP can be operated in accordance with the current licensing basis for the period of extended operation without undue risk to the health and safety of the public and recommended that the Entergy Nuclear Operations, Inc., application for renewal of the operating license for JAFNPP be approved.

#### 2. Final Review of the License Renewal Application for the Vermont Yankee Nuclear Power Station

The Committee met with representatives of the Entergy Nuclear Operations, Inc. (the applicant), and the NRC staff to discuss the license renewal application for the Vermont Yankee Nuclear Power Station (VYNPS) and the associated NRC staff's SER; specifically, discussion focused on resolution of the environmentally assisted fatigue (EAF) issue. The applicant and the staff provided a recap of the EAF discussion from the February 7, 2008, ACRS meeting on the Vermont Yankee SER.

The applicant described the methodology used to evaluate EAF and how the methodology was bounding for calculating the cumulative usage factors for the feedwater (FW), core spray (CS), and reactor recirculation (RR) outlet nozzles. The applicant also described the conservatisms

used in the methodology, how thermal transients were calculated, and how chemistry effects were considered in the re-analysis. The staff discussed the review of the applicant's re-analysis for the FW, CS, and RR nozzles as well as the confirmatory analysis performed for the FW nozzle.

#### Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated March 20, 2008. The Committee concluded that the programs established and committed to by the applicant to manage age-related degradation provide reasonable assurance that VYNPS can be operated in accordance with its current licensing basis for the period of extended operation without undue risk to the health and safety of the public and recommended that the Entergy Nuclear Operation, Inc., application for renewal of the operating license of VYNPS be approved.

#### 3. ESBWR Design Certification Review

The Committee met with representatives the NRC staff and General Electric – Hitachi Nuclear Energy Americas, LLC (GEH), to discuss Chapters 9, 10, 13, and 16 from the staff's SER with Open Items and Combined License (COL) Action Items related to the Economic Simplified Boiling Water Reactor (ESBWR) design certification application. During this meeting, the Committee identified several issues in the areas of auxiliary systems and technical specifications that merit further consideration. One issue relates to the need to more fully examine adverse inter-system interactions. A second issue relates to control room habitability and equipment operability in the 72-hour post-accident period when no alternating current power is available. A third issue relates to the effects of inadvertent injection of nitrogen gas during standby liquid control system operation on long-term cooling. A fourth issue relates to the need to develop a sound technical basis for testing passive safety systems.

#### Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated March 20, 2008, identifying several issues that merit further consideration by the staff and GEH. The Committee plans to review the staff's resolution of the open items in the SER Chapters during future meetings. The Committee will issue additional interim letters on other SER Chapters that have not been reviewed and plans to comment on potential safety implications of any system interactions in future interim letters and in the final report.

#### 4. Report of the Plant License Renewal Subcommittee

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the March 5, 2008, meeting with the NRC staff and representatives of the Wolf Creek Nuclear Operating Corporation (WCNOC) to discuss the draft SER with Open Items related to the license renewal application for the Wolf Creek Generating Station.

The current operating license for the Wolf Creek Generating Station expires on March 11, 2025. WCNOC submitted the license renewal application on September 27, 2006, and the staff's draft SER was issued on February 1, 2008, and contains five open items and no confirmatory items. Among the five open items, one is related to scoping boundary of station blackout recovery

paths and another is regarding aging management for inaccessible medium voltage cable. The remaining three open items are related to metal fatigue issues. The staff and WCNOG are in the process of resolving these open items.

#### Committee Action

The Committee plans to discuss the final SER related to the license renewal application for the Wolf Creek Generating Station in a future meeting.

#### 5. Meeting with Commissioner Lyons

The Committee met with Commissioner Lyons to discuss several items of mutual interest, including Digital I&C, long-term regulatory research, nuclear education, public communications on risk-informed matters, State-of-the-Art Reactor Consequence Analyses (SOARCA) Project, and the Next Generation Nuclear Plant (NGNP) Program.

Commissioner Lyons also discussed the anticipated increase in ACRS workload and stated that the ACRS should keep the Commission informed of the Committee's future resource needs to handle the increased workload.

#### RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

The Committee considered the EDO's response of January 17, 2008, to comments and recommendations included in the December 20, 2007, ACRS Report on the Susquehanna Steam Electric Station extended power uprate. The Committee decided that it was not satisfied with the EDO's response, and a reply to the EDO's response will be prepared at the April 10 - 12, 2008, Committee meeting.

#### OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from February 10, 2008, through March 5, 2008, the following Subcommittee meetings were held:

- Reliability and Probabilistic Risk Assessment – February 22, 2008

The Subcommittee reviewed the draft report on the International Human Reliability Analysis (HRA) Empirical Study.

- Planning and Procedures – March 5, 2008

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

- Plant License Renewal – March 5, 2008

The Subcommittee reviewed the license renewal application and the associated NRC staff's

Safety Evaluation Report with Open Items for the Wolf Creek Generating Station.

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee Plans to review the resolution of the open items identified in SER Chapters 9, 10, 13, and 16 associated with the ESBWR design certification application during a future meeting. Since many of the systems described in these chapters may interact with systems discussed in other chapters, the Committee plans to review the potential safety implications of any system interactions during future meetings.
- The Committee plans to discuss the final SER related to the license renewal application for the Wolf Creek Generating Station in a future meeting.
- The Committee would like an opportunity to review the staff's basis for withdrawing certain Regulatory Guides and/or Regulations.
- The Committee would like an opportunity to review the draft final versions of Regulatory Guide 3.11 (DG-3032), Revision 3, "Design, Construction, and Inspection of Embankment Retention Systems at Uranium Recovery Facilities," and Regulatory Guide 1.114, (DG-1194), Revision 3, "Guidance to Operators at the Controls and to Senior Operators in the Control Room of a Nuclear Power Unit," after reconciliation of public comments.

PROPOSED SCHEDULE FOR THE 551<sup>st</sup> ACRS MEETING

The Committee agreed to consider the following topics during the 551<sup>st</sup> ACRS meeting, to be held on April 10 - 12, 2008:

- Extended Power Uprate Application for the Hope Creek Generating Station
- Proposed Licensing Strategy for the Next Generation Nuclear Plant (NGNP)
- Digital Instrumentation and Controls (I&C) Interim Staff Guidance and Related Matters
- ACRS Response to the EDO's response dated January 17, 2008, to the December 20, 2007 ACRS Report on the Susquehanna Power Uprate Application

Sincerely,

/RA/

William J. Shack  
Chairman