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

SL-0532

June 29, 2005

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

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 523rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, June 1-3, 2005 AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 523rd meeting, June 1-3, 2005, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following report, letters, and memoranda:

REPORT:

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

- Draft Commission Paper on "Risk-Informed Alternatives to the Single Failure Criterion," dated June 10, 2005

LETTERS:

Letters to Luis A. Reyes, Executive Director for Operations, NRC, from Graham B. Wallis, Chairman, ACRS:

- Interim Report on the Safety Aspects of the License Renewal Application for the Point Beach Nuclear Plant, Units 1 and 2, dated June 9, 2005

- Draft Final NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," dated June 10, 2005

- Interim Letter: Draft Safety Evaluation Report on Grand Gulf Early Site Permit Application, dated June 14, 2005

- Draft Final Regulatory Guide, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," dated June 10, 2005

MEMORANDA:

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

- Proposed Bulletin Entitled, "Emergency Preparedness and Response Actions for Security-Based Events," dated June 3, 2005

- Draft Final Regulatory Guides on ASME Code Cases, dated June 7, 2005

HIGHLIGHTS OF KEY ISSUES

1. Interim Review of the License Renewal Application for the Point Beach Nuclear Plant, Units 1 and 2

The Committee met with NRC staff and representatives of the Nuclear Management Company, LLC to perform an interim review of the license renewal application of the Point Beach Nuclear Plant, Units 1 and 2 and the related Safety Evaluation Report (SER) with open items. The operating licenses for Units 1 and 2 expire on October 5, 2010, and March 8, 2013, respectively. The applicant has requested approval for continued operation of each unit for a period of 20 years beyond the current license expiration dates. The applicant presented its plan for sustaining improvement at the plant. The staff described the "Red" findings and the Confirmatory Action Letter (CAL) issued to the Point Beach Nuclear Power Plant. The five areas of concern outlined in the CAL are human performance, engineering design control, engineering/operations interface, emergency preparedness, and the Corrective Action Program. The staff stated that the applicant has made progress in all five areas, but the CAL remains open.

Committee Action

The Committee issued a letter to the NRC Executive Director for Operations, dated June 9, 2005, describing its concerns with the applicant's corrective action program and human performance that may affect the development and effective implementation of license renewal programs. The Committee recognizes that current operating performance is not a consideration in the license renewal rule, but is concerned that aspects of current performance may affect the development and effective implementation of license renewal programs. During its review of the final SER, the Committee would like to hear what additional actions the staff plans to take to increase confidence that the requirements of the license renewal rule have been met and there is reasonable assurance that aging degradation can be adequately managed.

2. Draft Commission Paper on Policy Issues Related to New Plant Licensing

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the draft Commission paper on policy issues related to new plant licensing. The Committee was briefed on two policy issues: the minimum level of safety that new plants need to meet to achieve enhanced safety; and how to account for the risk from multiple reactors at a single site.

The staff has defined four options for the level of safety issue. The staff recommends the option that would establish the Quantitative Health Objectives (QHOs) as the minimum level of safety and the regulatory framework will be designed to meet this level of safety. Such an approach goes beyond current practice in that compliance with the QHOs would be mandatory.

For the integrated risk issue, the staff has defined three options. The staff recommends the option that the integrated risk from all new units at the site satisfy the Commission's QHOs.

Committee Action

The Committee plans to continue its debate on these two policy issues during its July 6-8, 2005 meeting.

3. Fire Risk Requantification and Probabilistic Risk Assessment (PRA) Methodology for Nuclear Power Plants

The Committee met with representatives of the NRC staff and Electric Power Research Institute (EPRI) to discuss the final NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities." The ACRS Subcommittee on Fire Protection also reviewed this matter during its meeting on May 4, 2005. The Office of Nuclear Regulatory Research (RES) and EPRI have completed a cooperative program to consolidate the fire PRA research and development activities, conducted over the past few years, into a single state-of-the-art methodology for fire PRA. The results, documented in NUREG/CR-6850, provide a structured framework for the overall analysis as well as specific recommended practices to address key aspects of the analysis. This work was conducted under the terms of an EPRI/RES Memorandum of Understanding and an accompanying fire research addendum.

Committee Action

The Committee issued a letter to the NRC Executive Director for Operations, dated June 10, 2005, recommending that NUREG/CR-6850 be issued. The Committee also recommended that full-scope pilot fire PRAs based on the procedures and methods in NUREG/CR-6850 be completed, and the insights provided by these applications be used to enhance the methodology. The Committee further recommended that efforts be continued to further identify, quantify, and document remaining fire PRA uncertainties.

4. Draft Commission Paper on "Risk-Informed Alternatives to the Single Failure Criterion"

The Committee met with representatives of the NRC staff to review the draft Commission Paper, "Risk-Informed Alternatives to the Single Failure Criterion." The staff developed the alternatives in response to a Staff Requirements Memorandum (SRM), dated March 31, 2003. The staff described the three proposed alternatives included in the draft Commission paper and stated that it is premature to select any particular alternative at this time. The RES staff provided a brief summary of the comments received from the Office of Nuclear Reactor Regulation (NRR) and the efforts being taken to address these comments.

Committee Action

The Committee issued a report to the NRC Chairman on June 10, 2005, concluding that the staff has conducted a useful review of the role of the single failure criterion in the current regulatory system, defined desirable attributes of risk-informed alternatives, and developed some potential alternatives to the single failure criterion. The Committee recommended that additional input from stakeholders be sought to determine if there is sufficient benefit to justify the resources that will be required to proceed with the development of a risk-informed alternative.

5. Draft Final Regulatory Guide, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants"

The Committee met with representatives of the NRC staff to review the draft final Regulatory Guide, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," which endorses, with certain exceptions, the Nuclear Energy Institute (NEI) document NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48 (c))." The ACRS Subcommittee on Fire Protection also met with representatives of the NRC staff and NEI on May 17, 2005 to review this matter. 10 CFR 50.48(c) allows licensees to voluntarily adopt and maintain a fire protection program that meets the requirements of National Fire Protection Association Standard 805 (NFPA 805). NEI has worked with representatives of the industry and the NRC staff to develop implementing guidance, NEI 04-02, for the specific provisions of NFPA 805 and 10 CFR 50.48(c). The Regulatory Guide endorses NEI 04-02, with certain exceptions, and offers guidance to licensees in meeting the Commission's requirements.

Committee Action

The Committee issued a report to the NRC Executive Director for Operations, dated June 14, 2005, recommending that the Regulatory Guide not be issued in its present form. The Committee recommended that the acceptability of changes in the fire protection program, that is based on NFPA 805, be determined using methods consistent with Regulatory Guide 1.174. The Committee concluded that NEI 04-02 contains many statements that are inconsistent with the Commission's policy of promoting the use of PRA methods. The Committee recommended that the staff make it clear in the regulatory guide that it does not endorse such statements. The Committee further recommended that the staff ensure that the parts of NEI 04-02 that it endorses use correct methodology and language. The Committee would like to review the revised Regulatory Guide.

6. Status Reports on the Quality Assessment of Selected Research Projects

RES has been charged by the Executive Director for Operations to establish a process to evaluate the effectiveness (quality) and utility of its research programs. This evaluation is mandated by the Government Performance and Results Act. The Committee is assisting RES in assessing the effectiveness and utility of the NRC research programs. The Committee previously selected four specific projects from the list of nine candidate projects provided by RES for quality review for FY 2005. The Committee discussed the status of the quality assessment of two of the selected research projects; (1) thermal-hydraulic test program at the

Penn State University, and (2) containment capacity study by the Sandia National Laboratory (SNL). The Committee concluded that additional documentation on the test results were needed. RES has agreed to provide such documentation at the end of June 2005. Also, since relevant documentation on the SNL containment capacity study will not be made available to the Committee in a timely manner, the Committee and RES have agreed not to evaluate the quality of this project at this time.

Committee Action

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

7. Draft Safety Evaluation Report Related to Grand Gulf Early Site Permit Application

The Committee heard presentations by and held discussions with representatives of System Energy Resources, Inc. (SERI), the applicant, and the NRC staff regarding the Grand Gulf early site permit (ESP) application and the associated draft safety evaluation report (DSER).

On October 16, 2003, SERI submitted an ESP application for the Grand Gulf site. The Grand Gulf site is in Claiborne County near Port Gibson, Mississippi, approximately 25 miles south of Vicksburg, Mississippi, and is adjacent to the existing nuclear power reactor operated by Entergy Operations, Inc. The ESP site identified in the application is collocated with the Grand Gulf Nuclear Station, Unit 1. In its application, SERI seeks approval of an ESP that could support a future application to construct and operate additional nuclear unit(s) at the Grand Gulf site, with a total nuclear generating capacity of up to 8,600 megawatts thermal (Mwt), with maximum 4,300 Mwt per unit.

The DSER summarizes the results of the staff's technical evaluation of the suitability of the proposed site for a nuclear power plant(s) falling within the plant parameter envelope that SERI specified in its application.

Committee Action

The Committee issued an interim letter to the NRC Executive Director for Operations regarding this matter dated June 14, 2005. The Committee stated that the NRC staff is preparing a quality safety evaluation report. However, the DSER needs to be augmented with a more complete exposition on threats posed by transportation accidents on the river adjacent to the proposed site.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- There were no EDO responses made available to the Committee for reconciliation.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from May 4, 2005 through June 1, 2005, the following Subcommittee meetings were held:

- Early Site Permits - May 16, 2005

  The Subcommittee met with representatives of the NRC staff and System Energy Resources, Inc., to review the draft Safety Evaluation Report related to early site permit application for the Grand Gulf site.

- Fire Protection - May 17, 2005

  The Subcommittee met with representatives of the NRC staff and NEI to review the draft final Regulatory Guide, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants."

- Plant License Renewal - May 31, 2005

  The Subcommittee met with representatives of the NRC staff and the Nuclear Management Company, LLC to review the license renewal application for Point Beach Nuclear Plant Units 1 and 2 and the related SER with open items prepared by the staff.

- Planning and Procedures - May 31, 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 hold additional discussions with the staff on issues related to the licensing of new plants such as the appropriate measures of societal risk, frequency-consequence expressions of acceptance values, and dealing with the prevention goal for multiple modules on a site.

- The Committee plans to review the revised Regulatory Guide, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants."

- The Committee plans to review the proposed Bulletin, "Emergency Preparedness and Response Actions for Security-Based Events," after the staff has reconciled the industry responses.

- During its review of the final SER, related to the license renewal application for the Point Beach Nuclear Plant Units 1 and 2, the Committee would like to hear about additional actions, such as an expanded review of the license renewal commitments and a focused review of the effectiveness of the corrective action program, before the Point Beach Nuclear Plant enters the period of extended operation.

- The Committee continues to question the defensibility of the methods used by the staff and the applicant to prognosticate the weather at the Grand Gulf site over the next 65 years based just on historical frequencies of severe weather events. At the very minimum, the staff should review current literature on possible changes in weather in the upper Gulf of Mexico to be confident that the methods used for weather predictions are defensible.

PROPOSED SCHEDULE FOR THE 524th ACRS MEETING

The Committee agreed to consider the following topics during the 524th ACRS meeting, to be held on July 6-8, 2005:

- Final Review of the License Renewal Application for Donald C. Cook Nuclear Plant, Units 1 and 2

- Final Safety Evaluation Report Related to North Anna Early Site Permit Application

- Draft Final Regulatory Guide, DG-1137, “Guidelines for Lightning Protection for Nuclear Power Plants”

- Draft Final Revision 2 to Regulatory Guide 1.152, “Criteria for Use of Computers in Safety Systems of Nuclear Power Plants”

- Status Report/Interim Results of the Quality Assessment of Selected NRC Search Projects

Sincerely,

/RA/

Graham B. Wallis
Chairman

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