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

July 9, 2003

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

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 503rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, JUNE 12-13, 2003, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 503rd meeting, June 12-13, 2003, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the report and memorandum listed below:

REPORT:

A report was issued on June 24, 2003, to Nils J. Diaz, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS, on Update to License Renewal Guidance Documents: Response to Staff Requirements Memorandum dated July 17, 2002.

MEMORANDUM:

A memorandum was issued to William D. Travers, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS, Revision 4 to Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," dated June 13, 2003.

HIGHLIGHTS OF KEY ISSUES

1. Workshop on Safety Culture

The ACRS held a workshop on June 12, 2003 regarding safety culture at nuclear power plants. Topics discussed by the industry and the NRC staff included: initiatives, methodologies, guidelines, and adopted approaches for safety culture; effective criteria for evaluating safety culture; assessing the rigors of safety culture programs; and the implications of safety culture on safe operation of nuclear power plants. Specific objectives of the workshop included gathering information on domestic and international activities, and determining the attributes of effective safety culture. The workshop was organized into two panels. One panel discussed the collective understanding of safety culture, and the other panel discussed the attributes of safety culture.

The morning panel presenters included Mr. Ashok Thadani, Director, NRC Office of Nuclear Regulatory Research; Mr. Charles Dugger, Vice President, Nuclear Operations- Nuclear Energy Institute; Dr. Thomas Murley, Safety Consultant; Mr. Howard Whitcomb, III, Attorney at Law; Mr. William N. Keisler, Nuclear Maintenance Integration Consultants; Mr. David Collins, Engineering Analyst; and Mr. Alan Price, Vice President, Dominion Nuclear, Connecticut.

The afternoon panel presenters included Mr. David Trimble, NRC staff; Ms. Clare Goodman, NRC staff; Mr. George Felgate, Institute of Nuclear Power Operations; Mr. Lew Meyers, Chief Operating Officer-First Energy Nuclear Operating Co.; Mr. Jack Grobe, NRC/Davis-Besse Oversight panel; Mr. Geoff Wright, NRC-Inspection Team Leader; Mr. William O'Connor, Vice President Nuclear Generation-Detroit Edison; and Ms. Sonja B. Haber, Human Performance Analysis Corporation.

Committee Action

The Committee plans to discuss its proposed report to the Commission on this matter during the July 9-11, 2003 ACRS meeting.

2. Update to Generic License Renewal Guidance Documents

The Committee heard presentations by and held discussions with representatives of the NRC staff and the Nuclear Energy Institute (NEI) with regard to the Interim Staff Guidance (ISG) process and selected ISGs, and gathered information for use in developing a response to the Staff Requirements Memorandum (SRM) dated July 17, 2002. In that SRM, the Commission stated that "The ACRS should consider providing a recommendation as to how license renewal guidance documentation should be updated to reflect supporting information, particularly with regard to time-limited aging analyses that should, as a minimum, be included in license renewal applications to maximize the efficiency of the review process and minimize requests for additional information." To date, the staff had developed 16 ISGs, except the one on Standardized Format for License Renewal Applications that was developed by NEI and approved by the staff. The staff discussed in detail certain ISGs, including ISG-16, "Time-Limited Aging Analyses Supporting Information for License Renewal Applications." This ISG was developed in response to the Committee concern that some of the license renewal applications (LRAs) do not include sufficient information on time-limited aging analyses (TLAAs). This ISG is responsive to the SRM, since it directly addresses the supporting information on TLAAs that should be included in LRAs. A representative of NEI stated that the ISG process is effective in addressing technical and process issues and providing timely guidance to the applicants.

Committee Action

The Committee issued a report to Chairman Diaz on this matter, dated June 24, 2003. The Committee stated that the ISA process is a major step toward improving the efficiency of the review process and reducing the need for requests for additional information (RAIs). ISG 16 is

directly responsive to the SRM issue. The Committee also stated that the staff should consider whether limits and guidance are needed on phosphate ion concentration in below-grade water.

3. Subcommittee Report on the Fort Calhoun License Renewal Application

The License Renewal Subcommittee Chairman, Dr. Bonaca, reported the results of the Subcommittee meeting on June 11, 2003, during which the Subcommittee discussed the Fort Calhoun LRA and the NRC staff's Safety Evaluation Report (SER) with open items. This application is the first one to be submitted in accordance with the Generic License Renewal Guidance document, and it appears that this new process worked well. The staff augmented its documentation review with an extensive on-site inspection/audit of the licensee's program, and this activity proved to be quite useful. The Subcommittee questioned the continuing economic viability of the plant, inasmuch as it is the only nuclear asset owned by the licensee. The licensee and the staff both reported that the material condition of the plant is good, and the licensee indicated its commitment to continued operation of the plant, noting that it has already decided to replace the reactor vessel head, the steam generators, and possibly other major components, in a future outage.

The staff review identified several areas where the licensee implementation of the aging management program was not consistent with the methodology described, but the problems have been almost completely resolved between the staff and the licensee. The remaining open items involve staff verification of licensee commitments, which are expected to be resolved before the next full Committee meeting in November 2003. Dr. Bonaca reported that the licensee has developed a reasonable program to deal with (1) "one-time" inspections and (2) Alloy-600 components.

Committee Action

The Committee decided not to write an interim report since there are no significant issues. The Committee plans to review the NRC staff's final SER during its November 2003 meeting and issue a report to the Commission.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the response from the EDO dated June 4, 2003, to the ACRS report dated April 21, 2003, concerning the Proposed Resolution of Public Comments on Draft Regulatory Guide (DG)-1122, "An Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities."

  The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the response from the EDO dated May 21, 2003, to the ACRS report dated April 21, 2003, concerning the Draft Final Risk-Informed Revision to 10 CFR 50.44, "Combustible Gas Control in Containment."

The Committee decided that it was satisfied with the EDO's response.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from May 8, 2003, through June 11, 2003, the following Subcommittee meetings were held:

- Safeguards and Security Subcommittee - May 21-23, 2003

The Subcommittee held a closed meeting at the Sandia National Laboratories, Albuquerque, New Mexico, to discuss safeguards and security matters. The entire meeting was closed to public attendance to protect information classified as national security information pursuant to 5 U.S.C. 552b(c)(1).

- Plant Operations Subcommittee - June 10, 2003

The Subcommittee heard presentations by and held discussions with representatives of the Region I staff and other interested persons regarding matters related to plant and region operations. The meeting was held in the Region I Office, King of Prussia, Pennsylvania.

- Plant License Renewal Subcommittee - June 11, 2003

The Subcommittee reviewed the license renewal application for the Fort Calhoun Station Unit 1 and the NRC staff's SER with open items. The Subcommittee heard presentations by and held discussions with representatives of the NRC staff, the Omaha Public Power District, and other interested persons regarding this matter.

- Planning and Procedures Subcommittee - June 11, 2002

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 review the NRC staff's final SER associated with the license renewal application for the Fort Calhoun Station Unit 1 during its November 6-8, 2003, meeting.

- The Committee plans to discuss safety culture of nuclear power plants during future meetings, as appropriate.

The Honorable Nils J. Diaz

PROPOSED SCHEDULE FOR THE 504th ACRS MEETING

The Committee agreed to consider the following topics during the 504th ACRS meeting, to be held on July 9-11, 2003:

- Safeguards and Security [Closed pursuant to 5 U.S.C. 552b(c)(1)]
- ESBWR Pre-Application Review
- Proposed Criteria for the Treatment of Individual Requirements in Regulatory Analyses
- Mixed Oxide Fuel Fabrication Facility
- Expert Elicitation in Support of Risk-Informing 10 CFR 50.46
- Report on Safety Culture

Sincerely,

Mario V. Bonaca
Chairman

CERTIFIED

Date Issued: 7/23/2003
Date Certified: 7/31/2003

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JUNE 12-13, 2003

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APPENDICES

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MINUTES OF THE 503rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS JUNE 12-13, 2003 ROCKVILLE, MARYLAND

The 503rd meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on June 12-13, 2003. Notice of this meeting was published in the *Federal Register* on May 27, 2003 (65 FR 28842) (Appendix I). 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 is available in the NRC's Public Document Room at One White Flint North, Room 1F-19, 11555 Rockville Pike, Rockville, Maryland. Copies of the transcript are available for purchase from Neal R. Gross and Co., Inc. 1323 Rhode Island Avenue, NW, Washington, DC 20005. Transcripts are also available at no cost to download from, or review on, the Internet at http://www.nrc.gov/ACRS/ACNW.

ATTENDEES

ACRS Members: ACRS Members: Dr. Mario V. Bonaca (Chairman), Dr. Graham B. Wallis (Vice Chairman), and Mr. Stephen L. Rosen, (Member-at-Large), Dr. George E. Apostolakis, Dr. F. Peter Ford, Dr. Thomas S. Kress, Mr. Graham M. Leitch, Dr. Dana A. Powers, Dr. Victor H. Ransom, Dr. William J. Shack, and Mr. John D. Sieber. 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. Mario V. Bonaca, Committee Chairman, convened the meeting at 8:30 a.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. Workshop on Safety Culture (Open)

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

The ACRS held a workshop on June 12, 2003 regarding safety culture at nuclear power plants. Topics discussed by the industry and the NRC staff included: initiatives, methodologies, guidelines, and adopted approaches for safety culture; effective criteria for evaluating safety culture; assessing the rigors of safety culture programs; and the implications on the safe operation of nuclear power plants. Specific objectives for the workshop included gathering information on domestic and international activities and determining the attributes of effective safety culture. The workshop was organized into two panels. One panel discussed the collective understanding of safety culture, and the other panel discussed the attributes of safety culture.

The morning panel presenters included Mr. Ashok Thadani, Director of the NRC Office of Nuclear Regulatory Research; Mr. Charles Dugger, Vice President, Nuclear Operations-Nuclear Energy Institute; Dr. Thomas Murley, Safety Consultant; Mr. Howard Whitcomb, III, Attorney at Law; Mr. William N. Keisler, Nuclear Maintenance Integration Consultants; Mr. David Collins, Engineering Analyst; and Mr. Alan Price, Vice President, Dominion Nuclear Connecticut.

The afternoon panel presenters included Mr. David Trimble, NRC staff; Ms. Clare Goodman, NRC staff; Mr. George Felgate, Institute of Nuclear Power Operations;
Mr. Lew Meyers, Chief Operating Officer-First Energy Nuclear Operating Co.; Mr. Jack Grobe, NRC/Davis-Besse Oversight panel; Mr. Geoff Wright, NRC-Inspection team leader; Mr. William O'Connor, Vice President Nuclear Generation-Detroit Edison; and Ms. Sonja B. Haber, Human Performance Analysis Corporation.

Committee Action

The Committee plans to continue following the progress of this matter during future meetings.

III. Update to Generic License Renewal Guidance Documents (Open)

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

Mr. Leitch, cognizant Subcommittee Chairman, provided a preamble, stating that in a Staff Requirements Memorandum (SRM) dated July 17, 2002, the Commission stated that "the ACRS should consider providing a recommendation as to how license renewal guidance documentation should be updated to reflect supporting information, particularly with regard to time-limited aging analyses that should, as a minimum, be included in license renewal applications to maximize the efficiency of the review process and minimize requests for

additional information." In order to gather information for use in responding to the SRM, the ACRS Subcommittee on License Renewal met with representatives of the Nuclear Energy Institute (NEI) to discuss the Standardized Format for License Renewal Applications that was prepared by NEI and approved by the NRC staff. Also, in coordination with NEI, the staff has been developing Interim Staff Guidances (ISG) to address issues raised by the ACRS and stakeholders. During this session, the staff and NEI were scheduled to brief the Committee on the ISG process and selected ISGs, especially ISG 16, "Time-Limited Aging Analyses Supporting Information for License Renewal Applications." This ISG, which was developed in response to the ACRS concern that certain license renewal applications (LRA) do not include sufficient information on time-limited aging analyses (TLAA), directly addresses the issue raised in the SRM.

Presentation by the NRC Staff - Introduction

Mr. P. T. Kuo, Office of Nuclear Reactor Regulation (NRR), provided a brief introduction, stating that Mr. Peter Kang, NRR, will brief the Committee on the ISG process and the contents of selected ISGs, specifically ISG 16.

ISG Process and Selected ISGs

Mr. P. Kang, NRR, discussed briefly the ISG process and related matters. Key points made by Mr. Kang include the following:

- The objective of the ISG process is to provide timely guidance to the applicants regarding staff positions on certain license renewal issues.
- The ISG process includes identification and implementation of ISGs for current and future license renewal applicants.
- Applicants must address all approved ISGs before the renewed license is issued.
- The staff will evaluate the applicability of ISGs for licensees holding renewed licenses.
- all final ISGs will be incorporated into the generic license renewal guidance documents.

In coordination with NEI, the staff had developed 16 ISGs to date, with the exception of the one on Standardized Format for License Renewal Applications that was developed by NEI and approved by the staff. The staff has two other ISGs under development; ISG 17 deals with insulation problems due to water intrusion in ducts for electrical bus bar, and ISG 18 deals with developing an aging management program for inaccessible medium voltage cables.

In response to a question from Mr. Leitch, Mr. Kang stated that most of the ISGs clarify the existing staff guidance and some ISGs deal with compliance issues such as the station blackout issue.

In response to another question from Mr. Leitch, Mr. Kuo stated that the staff does not plan to assess a plant which possesses a renewed license to see whether it has implemented the ISGs

that deal with clarification issues. However, the staff will assess such plants to determine whether they should be required to implement the ISGs that deal with compliance issues. Discussions among the staff are being held as to whether that would constitute a benefit.

In response to a question from Dr. Shack regarding the availability of draft ISGs for review by the public, Mr. Kuo stated that draft ISGs are sent to NEI and stakeholders for comment and are also posted on the NRC public website. Mr. Kuo added that the ISG process allows the public, applicants, stakeholders, and NRC staff to identify an issue for consideration through the ISG process.

Dr. Shack asked whether draft ISGs are issued for public comment. Mr. Kuo stated that there is no formal public comment period. However, after incorporating the ISGs into the generic license renewal guidance documents, they will be issued for public comment.

Standardized License Renewal Application Format

Mr. Kuo briefly discussed the Standardized License Renewal Application Format that was developed by NEI and approved by the staff. He said that license renewal applications to be submitted starting September 2003 are expected to use this format. This format will be incorporated into the next revision to NEI 95-10, "Industry Guidelines for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule." Mr. Leitch mentioned that NEI presented the contents of this Standardized Format to the License Renewal Subcommittee during its meeting on June 11, 2003.

ISG 16, Time-Limited Aging Analyses (TLAA) Supporting Information for License Renewal Applications

Mr. Kang stated that ISG 16 was developed in response to a concern expressed by the ACRS that some applications do not contain sufficient information on TLAAs. On April 23, 2003, the staff met with representatives of the nuclear industry to discuss supporting information on TLAAs that should be included in the license renewal applications. Subsequently, the staff issued the proposed ISG 16 which is being reviewed by NEI. As a result of inadequate information on TLAAs, the staff has found it necessary to submit similar requests for additional information (RAI) to several applicants in several areas, including the following:

- Identification of TLAAs
- Reactor vessel neutron embrittlement analysis
- Metal fatigue analysis
- Environmental qualification of electric equipment
- Concrete containment tendon prestress analysis
- Containment liner plate, metal containments, and penetration fatigue analysis

Mr. Elliott, NRR, discussed briefly what the staff expects of the applicant in the area of reactor vessel neutron embrittlement. The applicants should include necessary data in their applications for the staff to confirm that they meet the upper shelf energy requirements of Appendix G to 10 CFR Part 50. Also, the applications should include adjusted reference temperature calculations, reference temperature values for the pressurized thermal shock for the period of extended operation. Including the above information in the applications will reduce the number of RAIs.

Mr. Fair, NRR, discussed what information should be included in the applications on metal fatigue. The applicants should provide the details of a fatigue monitoring program that will track the number of operational transient cycles. This information should include the number of cycles, current number of operating cycles, and the number of cycles projected for 60 years of plant operation for each transient and how the cycle counts are determined.

Dr. Shack asked whether the licensees keep track of the number of cycles that they have been through. Mr. Fair responded that some licensees have been estimating the number of cycles. They keep a log in the control room of the major cycles, such as startup and shutdown, and reconstruct the number of cycles from that log. Some licensees have initiated monitoring programs since the startup of their plants which they use to count the number of cycles.

Mr. Ashar, NRR, briefed the Committee with regard to information that should be included in the license renewal applications on concrete containment tendon prestress analysis. Key points made by Mr. Ashar include the following:

- Pre-stressing provides pre-compression in concrete.
- Steel tendons provide required prestressing
- Time dependent losses (shrinkage of concrete) affect tendon forces.
- The proposed ISG 16 states that the applicant should pay special attention to the acceptance criteria of the GALL report in addressing the requirements of 10 CFR 54.21 (c)(1)(iii) with regard to effects of aging. Also, the applicant should plot the prestressing trend lines for each group of tendons from its past surveillance data and project it for the 60 years of operation.

NEI presentation

Mr. F. Emerson, NEI, presented their views on the ISG process. Key points made by Mr. Emerson include the following. The ISG process provides:

- Interim guidance to the applicants between updates to the generic license renewal guidance documents.
- Vehicle for generic resolution of process and technical issues.

Mr. Emerson stated that there has been good communications between the staff and the industry in addressing license renewal issues. NEI is in the process of reviewing four proposed ISGs:

- Housing for active components
- Fire protection scoping
- Seismic II/I piping system scoping
- TLAAs

In response to a question from Dr. Shack, whether there are any differing views between the staff and NEI with regard to the ISG on fire protecting scoping, Mr. Emerson stated that the issue is how it impacts the current licensing basis as well as the license renewal scoping. There are two Working Groups established to discuss this issue. Subsequent to receiving the recommendations of the Working Groups, NEI will provide its comments to the staff.

Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated June 24, 2003.

IV. Subcommittee Report on the Fort Calhoun License Renewal Application (Open)

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

The License Renewal Subcommittee Chairman, Dr. Bonaca, reported the results of the Subcommittee meeting on June 11, 2003, to consider the latest application for a License Renewal and the staff review. This application is the first one to be submitted in compliance with the Generic Aging Lessons Learned (GALL) report, and it appears that this new process worked well. The staff augmented its documentation review with an extensive on-site inspection/audit of the licensee's program, and this activity proved to be quite useful. The Subcommittee questioned the continuing economic viability of the plant, inasmuch as it is the only nuclear asset owned by the licensee, but the licensee and the staff both reported that the plant is in good material condition, and the licensee is strongly committed to continued operation of the plant, to the extent that it has already decided to replace the reactor vessel head, the steam generators, and possibly other major components, in a future outage.

The staff review identified several areas where the licensee implementation of the aging management program was not consistent with the methodology described, but the problems have been almost completely resolved between the staff and the licensee. The only open items involve staff verification of licensee commitments, and they are expected to be resolved before the full Committee meeting in November. Dr. Bonaca reported that the licensee has developed a reasonable program to deal with (1) "one-time" inspections and (2) alloy-600 components. The staff review of the application was expanded whenever the review identified discrepancies

in the application, which provides reasonable assurance that the staff review was thorough. Given the thorough nature of both the application and the staff review, and the appropriate level of attention that the licensee is devoting to aging management programs, the Subcommittee believes that there is reasonable assurance that the plant can operate safely for 60 years.

Committee Action

This was an information briefing and no Committee action was taken. There will be a final Committee meeting to consider this application in November, 2003, and a letter will be prepared to the staff.

V 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.]

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the response from the EDO dated June 4, 2003, to the ACRS report dated April 21, 2003, concerning the Proposed Resolution of Public Comments on Draft Regulatory Guide (DG)-1122, "An Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities."

  The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the response from the EDO dated May 21, 2003, to the ACRS report dated April 21, 2003, concerning the Draft Final Risk-Informed Revision to 10 CFR 50.44, "Combustible Gas Control in Containment."

  The Committee decided that it was satisfied with the EDO's response.

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

The Committee heard a report from the ACRS Chairman and the ACRS Executive Director regarding the Planning and Procedures Subcommittee meeting held on June 11, 2003. The following items were discussed:

- Review of the Member Assignments and Priorities for ACRS Reports and Letters for the June ACRS meeting

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

- Anticipated Workload for ACRS Members

  The anticipated workload for ACRS members through September 2003 were considered. The objectives were:

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

  During this session, the Subcommittee also discussed and developed recommendations on items included in the Future Activities List.

- 2004 ACRS Report on the NRC Safety Research Program

  The Committee recently completed its 2003 report on the NRC Safety Research Program (NUREG-1635, Vol. 5). The focus of this report was on the "Advanced Reactor Research Infrastructure Assessment" document prepared by the Office of Nuclear Regulatory Research.

  Dr. Powers has agreed to take the lead for preparing the 2004 ACRS report. Consistent in discussion with the Commission, the 2004 report should cover all RES safety research programs. As suggested by the Committee at the April 2003 ACRS meeting, Dr. Powers has prepared a proposed strategy for preparing the 2004 research report.

  In the April 28, 2003 SRM, resulting from the ACRS meeting with the Commission on April 11, 2003, the Commission stated that "the ACRS is welcome to propose changing the frequency and nature of its review and evaluation of the NRC Safety Research Program so that it is most useful to the Commission." It should be noted that SECY-03-0091, "Self-Assessments of ACRS and ACNW Performance," states that, "The ACRS currently plans to perform comprehensive program reviews every two years and to focus its attention between two-year reviews on topics of emerging importance."

- ACRS Self Assessment Report for 2001-2002

  The ACRS staff has interviewed all of the NRC Commissioners, the EDO, Directors of NRR, RES, and NMSS, and other internal managers and staff to get their views on how well the ACRS has been performing over the last 12-14 months as input to the required periodic self-assessment paper. In addition, Dr. Savio has interviewed a number of stakeholders to assess their views on how well the ACRS has been performing. A draft Commission paper documenting the results of interviews was provided for review and comment by the Subcommittee and the full Committee at the May ACRS meeting. The final Commission paper on ACRS/ACNW Self-Assessment was sent to the Commission on June 3, 2003 (SECY-03-0091).

- Change of Dates for the July 2003 ACRS Meeting

  The July ACRS meeting is currently scheduled for Wednesday July 9 through Friday July 11, 2003. During the May ACRS meeting, the Committee decided to hold a meeting of the Safeguards and Security Subcommittee on July 9. The ACRS/ACNW Executive Director suggests that discussion of the safeguards and security matters be made part of the full Committee meeting on July 9. Since the Committee is scheduled to prepare four reports, including a report on Safety Culture, a decision should be made with regard to extending the July meeting through Saturday, July 12.

- A Critical Review of the PIRT Process

  The phenomena identification and ranking table (PIRT) process was originally formulated, as a major step in the code scaling, applicability and uncertainty (CSAU) evaluation methodology, to support a revised emergency core cooling system (ECCS) rule for light water reactors. This revised ECCS rule (10 CFR 50.46) was issued in September 1988 and allows, as an option, the use of best estimate plus uncertainty methods in safety analysis. The CSAU evaluation methodology was developed to demonstrate the feasibility of the best estimate plus uncertainty approach. The objective of the PIRT process was to define plant behavior in the context of identifying the relative importance of systems, components, processes, and phenomena.

  The PIRT process, with some variations, has been used in many more applications than was originally envisioned. These applications include development of experimental programs and safety analysis requirements for proposed advanced light water reactors, identification of thermal-hydraulic phenomena of importance to pressurized thermal shock (PTS) evaluation, assessment of the adequacy of the planned research programs in addressing the high burnup and new cladding alloy issues, support to resolution of Generic Safety Issues (GSIs) and providing technical guidance in allowing burnup credit (BUC) in the criticality safety analysis of spent fuel in transport and storage configurations. RES plans to use the PIRT process for identifying and prioritizing the

research needs to develop regulatory infrastructure including data, codes and standards, and analytical tools in support of regulatory review of advanced reactor applications.

In view of wide spread use of the PIRT process and its role in prioritization of research needs to address reactor safety technical issues, it is important to provide lessons learned from the past several years of experience with the PIRT process and to identify potential improvements for future PIRT development. Dr. Nourbakhsh plans to provide a presentation to the committee at the July 2003 ACRS meeting on this matter. The purpose of this presentation is to review the PIRT process and its prior applications and to provide some suggestions for enhancement of the process. Use of system dynamic techniques, such as influence diagrams, offers an attractive alternative for developing a phenomena identification and ranking table, which is the principal product of the PIRT process. The use of influence diagrams as a comprehensive framework to identify and prioritize the physical processes which need to be addressed for resolving a technical issue will also be discussed.

- Comments on NUREG/CR-6813, Issues and Recommendations for Advancement of PRA Technology in Risk-Informed Decisionmaking

NUREG/CR-6813, which was prepared by Mr. Fleming under a contract with the ACRS/NRC, was recently published. Mr. Lochbaum, Union of Concerned Scientists, has sent comments on this report to the NRC Office of Public Affairs (OPA). Mr. Fleming prepared a response to Mr. Lockbaum, addressing each comment that was made by Mr. Lockbaum and sent it to Dr. Nourbakhsh. Mr. Lockbaum's comments and Mr. Fleming's responses were e-mailed to all members by Dr. Nourbakhsh on May 5, 2003. The ACRS Executive Director e-mailed Mr. Fleming's response to OPA, NRR, and Mr. Lochbaum on May 5, 2003.

The NRC staff plans to submit comments on Mr. Fleming's report. RES has the lead in gathering the comments including those from NRR and provide them to the EDO for transmittal to Dr. Larkins. Drs. Bonaca and Larkins discussed this matter with the RES Director.

- Meeting with the Executive Director for Operations

The members of the Planning and Procedures Subcommittee were scheduled to meet with the EDO and his Deputies during lunch on Friday, June 13 to discuss items of mutual interest, including the following:

- Differing views between the ACRS and the NRC staff on Reactor Oversight Process.

- NRC staff process for tracking commitments made by the EDO/staff in response to ACRS comments and recommendations.

- Timely submittal of documents for ACRS review.

- Staff Requirements Memorandum on risk-Informing 10 CFR 50.46.

- Safeguards and Security matters.

This meeting has been postponed to July 11, 2003.

- Request by Mr. Robert H. Leyse, a Member of the Public, that Fouling and ultrasonic Cleaning be Studied by the ACRS

Mr. Leyse, a member of the public, submitted a petition for rulemaking to address the impact of fouling on the performance of heat transfer surfaces throughout licensed nuclear power plants. The new regulations must also require the inclusion of fouling considerations in the NRC-funded test programs such as the Rod Bundle Heat Transfer Program at Penn State University.

In letters dated March 31, 2003 and May 3, 2003, to Dr. Larkins, Mr. Leyse requested that the ACRS study the fouling and ultrasonic cleaning. Also, he suggested that the ACRS hear presentations by Mr. Loran D. Lukic and Mr. Jeffrey S. Schmidt, authors of the article on "Nuclear Plant Operations and Control - Taming the Crud Problem: A Utility Perspective." Mr. Leyse's letter and a copy of the above mentioned article were sent to the members on May 21, 2003.

On May 15, 2003, Mr. Roecklein, NRC, sent a letter to Mr. Leyse, informing him of the status of the NRC staff's review of four petitions submitted by Mr. Leyse. Subsequently, in response to a request by Mr. Leyse for copies of the staff's recommendations to the Commission regarding his petitions, Mr. Roecklein sent an e-mail stating that since the staff's recommendations are predecisional the staff is not permitted to release such information. On June 2, 2003, Mr. Leyse sent an e-mail to the NRC Chairman requesting copies of the staff's recommendations to the Commission on his petitions.

In SECY-03-0085, dated May 23, 2003, the staff recommended that the Commission deny two petitions for rulemaking submitted by Mr. Leyse, which are related to revising 10 CFR 50.46 and Appendix K to 10 CFR Part 50 to require licensees to address the impact on coolant flow of release and resuspension of crud buildup on fuel cladding during loss-of-coolant accident scenarios and during normal operations.

- Member Issues

  Travel Request - Dr. Ford requested the Committees' approval to attend the 11th International Conference on Environmental Degradation of Materials in Nuclear Power Systems -- Water Reactors to be held in Stevensore, Washington State on August 10-14, 2003.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the 504th ACRS Meeting, July 9-11, 2003.

The 503rd ACRS meeting was adjourned at 7:00 p.m. on June 13, 2003.

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

July 31, 2003

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

FROM: Mario V. Bonaca
Chairman

SUBJECT: CERTIFIED MINUTES OF THE 503rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS), JUNE 12-13, 2003

I certify that based on my review of the minutes from the 503rd 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.

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

July 23, 2003

MEMORANDUM TO: ACRS Members

FROM: Sherry Meador
Technical Secretary

SUBJECT: PROPOSED MINUTES OF THE 503rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS - JUNE 12-13, 2003

Enclosed are the proposed minutes of the 503rd 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, which will be distributed within six (6) working days from the date of this memorandum.

Attachment:
As stated

Covance a license for the Deming Way facility for in-vitro research and development utilizing tracer quantities of H–3 and C–14, and chemical analyses utilizing Ni-63 as a foil or plated source for gas chromatography. On November 22, 2002, Covance notified the NRC that it was ceasing operations at the Deming Way facility and requested release of this facility for unrestricted use. The NRC staff has prepared an Environmental Assessment (EA) in support of this licensing action in accordance with the requirements of 10 CFR part 51. The conclusion of the EA is a Finding of No Significant Impact (FONSI) for the proposed licensing action.

II. EA Summary

The proposed amendment would allow Covance to remove the Deming Way facility from its license and release the facility for unrestricted use. Covance provided survey results which demonstrate that the Deming Way facility is in compliance with 10 CFR 20.1402, "Radiological Criteria for Unrestricted Use."

The staff has examined Covance's request and the information that the licensee has provided in support of its request, to ensure that the NRC's decision is protective of the public health and safety and the environment.

III. Finding of No Significant Impact

The staff has prepared the EA (summarized above) in support of Covance's proposed license amendment to release the Deming Way facility for unrestricted use. On the basis of the EA, the staff has concluded that the environmental impacts from the proposed action would not be significant. Accordingly, the staff has determined that a FONSI is appropriate, and has determined that the preparation of an environmental impact statement is not warranted.

IV. Further Information

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," Covance's request, the EA summarized above, and the documents related to this proposed action are available electronically for public inspection and copying from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm.html*. These documents include Covance's letter to NRC dated November 22, 2002, with enclosures (Accession No. ML030640568); Covance's letter to NRC dated January 31, 2003, with enclosures (Accession No. ML030790430); Covance's letter to NRC dated March 13, 2003 (Accession No. ML030790430); and the EA summarized above (Accession No. ML031330660). Any questions with respect to this action should be directed to Dr. Peter J. Lee, Division of Nuclear Materials Safety, U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, Illinois 60532–4351; telephone (630) 829–9870 or by email at *pjl2@nrc.gov*.

Dated at Lisle, Illinois, this 12th day of May, 2003.

For the Nuclear Regulatory Commission.

Christopher G. Miller,

Chief, Decommissioning Branch, Division of Nuclear Materials Safety, RIII.

[FR Doc. 03–13144 Filed 5–23–03; 8:45 am]

BILLING CODE 7590–01–P

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 (ACRS) will hold a meeting on June 12–13, 2003, in Conference Room T–2B3, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the **Federal Register** on Monday, November 20, 2002 (67 FR 70094).

Thursday, June 12, 2003

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

8:35 a.m.—12:45 p.m.: Workshop on Safety Culture: Panel A—Collective Understanding of Safety Culture (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff, nuclear industry, private consultants, and public regarding collective understanding of safety culture.

1:45 p.m.—5 p.m.: Workshop on Safety Culture (continued): Panel B—Attributes of Safety Culture (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff, nuclear industry, private consultants, and public regarding attributes of safety culture.

5 p.m.—6 p.m.: Conclusions and Outcome of the Workshop (Open)—The Committee will discuss the conclusions resulting from the Workshop.

Friday, June 13, 2003

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 a.m.: Update to Generic License Renewal Guidance Documents (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding potential improvements to license renewal guidance documents (Generic Aging Lessons Learned Report; Regulatory Guide 1.188, Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses; Standard Review Plan for Review of License Renewal Applications; and NEI 95–10, Industry Guideline for Implementing the Requirements of 10 CFR part 54).

10 a.m.—10:30 a.m.: Subcommittee Report on the Fort Calhoun License Renewal Application (Open)—Report by the Chairman of the ACRS Subcommittee on License Renewal regarding the Subcommittee's review of the license renewal application for the Fort Calhoun Station Unit 1 and the associated NRC staff's Safety Evaluation Report.

10:45 a.m.—11:45 a.m.: Proposed Strategy for Preparing the 2004 ACRS Report on the NRC Safety Research Program (Open)—Report by the Chairman of the ACRS Subcommittee on Safety Research Program regarding a proposed strategy for preparing the 2004 ACRS report on the NRC Safety Research Program.

12:45 p.m.—1:45 p.m.: Future ACRS Activities/Report of the Planning and Procedures Subcommittee (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. Also, it will hear a report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

1:45 a.m.—2 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.

2:15 p.m.—6:30 p.m.: Preparation of ACRS Reports (Open/Closed)—The Committee will discuss proposed ACRS reports on matters considered during this meeting. In addition, the Committee will consider a proposed ACRS report on Safeguards and Security (Closed). *The discussian of the Safeguards and Security report will be held in Room T–8E8.*

6:30 p.m.—7 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 October 11, 2002 (67 FR 63460). In accordance with

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

May 19, 2003

SCHEDULE AND OUTLINE FOR DISCUSSION
503rd ACRS MEETING
JUNE 12-13, 2003

THURSDAY, JUNE 12, 2003, 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 (MVB/JTL/SD)
- 1.2) Items of current interest (MVB/SD)

2) 8:35 - 6:00 P.M. **WORKSHOP ON SAFETY CULTURE** (Open) (GEA/MWW/MME)

- 2.1) 8:35 - 8:45 A.M. - Introductory Statement - Remarks by the Subcommittee Chairman regarding the scope, outline, and anticipated outcome of the Workshop.
- 2.2) 8:45 - 12:45 P.M. **[10:00-10:15 A.M. BREAK]** - Panel A - Collective Understanding of Safety Culture (Open) Presentations by and discussions with representatives of the NRC staff, nuclear industry, private consultants, and public regarding collective understanding of safety culture.

12:40 - 1:40
~~12:45 - 1:45~~ P.M. ***LUNCH***
1:40

- 2.3) ~~1:45~~ - 5:00 P.M. **[3:20-3:35 P.M. BREAK]** - Panel B - Attributes of Safety Culture (Open) Presentations by and discussions with representatives of the NRC staff, nuclear industry, private consultants, and public regarding attributes of safety culture.
- 2.4) 5:00 - ~~6:00~~ 6:30 P.M. - Conclusions and Outcome of the Workshop (Open) - Discussion of conclusions resulting from the Workshop.

FRIDAY, JUNE 13, 2003, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

3) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (MVB/JTL/SD)

9:40
4) 8:35- ~~10:00~~ A.M. Update to Generic License Renewal Guidance Documents (Open) (GML/MVB/SD)

- 4.1) Remarks by the Subcommittee Chairman
- 4.2) Briefing by and discussions with representatives of the NRC staff regarding potential improvements to license renewal guidance documents (Generic Aging Lessons Learned Report; Regulatory Guide 1.188, Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses; Standard Review Plan for Review of License Renewal Applications; and NEI 95-10, Industry Guideline for Implementing the Requirements of 10 CFR Part 54).

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

5) 9:40 - 9:50 ~~10:00 - 10:30~~ A.M. Subcommittee Report on the Fort Calhoun License Renewal Application (Open) (MVB/GML/RC)
Report by the Subcommittee Chairman regarding the Subcommittee's review of the license renewal application for the Fort Calhoun Station Unit 1 and the associated NRC staff's Safety Evaluation Report.

9:50 - 10:15 **~~10:30 - 10:45~~ A.M.** *****BREAK*****

6) 10:20 - 11:50 ~~10:45 - 11:45~~ A.M. Proposed Strategy for Preparing the 2004 ACRS Report on the NRC Safety Research Program (Open) (DAP/RPS/HSN)
Report by the Chairman of the Safety Research Program Subcommittee regarding a proposed strategy for preparing the 2004 ACRS report on the NRC Safety Research Program.

12:20 - 1:20 **~~11:45 - 12:45~~ P.M.** *****LUNCH*****

7) 1:20 - 2:05 ~~12:45 - 1:45~~ P.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (MVB/JTL/SD)

7.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future ACRS meetings.

7.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

8) 2:05 - 2:07 ~~1:45 - 2:00~~ P.M. Reconciliation of ACRS Comments and Recommendations (Open) (MVB, 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.

~~2:00 - 2:15 P.M. ***BREAK***~~

9) 2:15 - 6:30 P.M. Preparation of ACRS Reports (Open)
Discussion of the proposed ACRS reports on:

11:50 - 12:20, 3:30 - 5:15

9.1) Safety Culture Report (GEA/MWW)

9.2) Update to Generic License Renewal Guidance Documents (GML/MVB/SD)

2:15 - 3:16

9.3) Safeguards and Security (Closed) (GEA/RPS). **This session will be held in Room T-8E8.**

10) 6:30 - 7:00 P.M. Miscellaneous (Open) (MVB/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.**

- **Thirty-Five (35) copies of the presentation materials should be provided to the ACRS.**

APPENDIX III: MEETING ATTENDEES

503rd ACRS MEETING
JUNE 12-13, 2003

NRC STAFF (June 12, 2003)

J. Persensky, RES
C. Goodman, NRR
G. Wright, RIII
D. Melendez, RIII
R. Eckenrode, NRR
L. Jarriel, NRR
D. Skay, NRR
J. Bongarra, NRR
D. Trimble, NRR
J. Costello, RES
J. Kara, RES
B. Musica, NRR
H. Nieh, OEDO
J. Cai, NRR
J. Mitchell, RES
F. Eltawila, RES
I. Schoenfeld, OEDO
T. Mensch, NRR
D. Spalding, NRR
J. Hopkins, NRR
H. Wagage, NRR
Z. Abdullahi, NRR
M. Sykes, NRR
C. Carpenter, NRR
T. Quay, NRR
M. Landou, OEDO

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

T. Murley, Safety Consultant
G. Felgate, INPO
D. Meindertsma, Winston & Strawn
A. Price, Dominion
A. Vemasteh, Dominion
W. O'Connor, Detroit Edison
N. Peterson, Detroit Edison
M. Woods, Pittsburgh Post Gazette
G. Twachtman, McGraw-Hill
R. Evalis, NEI
S. Koff, Cleveland Plain Dealer
C. Jones, Technidigm Org.
B. Haagensen, PSHA, Inc.
B. Poole, Winston & Strawn
A. Tabatabai, Link Tech.
S. Tizaiforoz, Link Tech.
S. Sterrett, Duke University
R. Janati, PADEP/BRP

NRC STAFF (June 13, 2003)
P. Kang, NRR
P. Shemanski, NRR
T. Koshy, NRR
J. Fair, NRR
S. Lee, NRR
B. Elliot, NRR
R. Arrighi, NRR
R. Anand, NRR
W. Burton, NRR
S. K. Mitra, NRR
H. Ashar, NRR
N. Dudley, NRR
G. Galletti, NRR
J. Calvo, NRR

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC
S. Traiforos, Link Tech
A. Tabatabaj, Link Tech
F. Emerson, NEI
R. Grumbir, AEP
D. Findlay, CNS Inc.
K. Ferguson, Agpen Systems
R. Janati, PADEP/BRP
J. Cameron, Canadian Nuclear Safety Commission

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

June 25, 2003

REVISED
SCHEDULE AND OUTLINE FOR DISCUSSION
504th ACRS MEETING
JULY 9-11, 2003

WEDNESDAY, JULY 9, 2003

[The meeting on Wednesday, July 9, 2003 will be closed pursuant to 5 U.S.C. 552b(c)(1)]

8:30 A.M. - 6:30 P.M. - Safeguards and Security (Closed) - The Committee will meet with representatives of the NRC staff, Nuclear Energy Institute (NEI), and their contractors to discuss safeguards and security matters, including Commission papers on risk-informed guidance for vulnerability assessment and on risk-informed decisionmaking, integration of the results of the vulnerability studies, potential vulnerability to sabotage of spent fuel storage facilities, and NEI-sponsored work in the area of safeguards and security. Also, the Committee will discuss a proposed ACRS report on safeguards and security matters.

THURSDAY, JULY 10, 2003, CONFERENCE ROOM T-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 (MVB/JTL/SD)
- 1.2) Items of current interest (MVB/SD)

2) 8:35 - 10:30 A.M. ESBWR Pre-Application Review (Open) (TSK/MME)
- 2.1) Remarks by the Subcommittee Chairman
- 2.2) Briefing by and discussions with representatives of the NRC staff and the General Electric Company regarding the design aspects of the Economic and Simplified Boiling Water Reactor (ESBWR) design and requests for additional information submitted by the staff.

10:30 - 10:45 A.M. ***BREAK***

3) 10:45 - 11:45 A.M. Proposed Criteria for the Treatment of Individual Requirements in Regulatory Analyses (Open) (TSK/MRS)
- 3.1) Remarks by the Subcommittee Chairman
- 3.2) Briefing by and discussions with representatives of the NRC staff regarding the proposed criteria for treatment of individual requirements in regulatory analyses and related matters.

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

11:45 - 12:45 P.M. ***LUNCH***

4) 12:45 - 2:45 P.M. Mixed Oxide Fuel Fabrication Facility (Open) (DAP/MWW)
- 4.1) Remarks by the Subcommittee Chairman
- 4.2) Briefing by and discussions with representatives of the NRC staff and the applicant [Duke Cogema Stone and Webster (DCS)] regarding DCS application to construct a mixed oxide fuel fabrication facility at the Savannah River Site, Aiken, SC., associated draft Safety Evaluation Report prepared by the staff, and the resolution of open items.

2:45 - 3:00 P.M. ***BREAK***

5) 3:00 - 4:30 P.M. Expert Elicitation in Support of Risk-Informing 10 CFR 50.46 (Open) (WJS/GBW/MRS)
- 5.1) Remarks by the Subcommittee Chairman
- 5.2) Briefing by and discussions with representatives of the NRC staff with regard to conducting an expert elicitation as directed by the Commission in the March 31, 2003 Staff Requirements Memorandum related to risk-informing 10 CFR 50.46.

4:30 - 4:45 P.M. ***BREAK***

6) 4:45 - 7:15 P.M. Preparation of ACRS Reports (Open/Closed)
Discussion of the proposed ACRS reports on:
- 6.1) Proposed Criteria for the Treatment of Individual Requirements in Regulatory Analyses (TSK/MRS)
- 6.2) Mixed Oxide Fuel Fabrication Facility (DAP/MWW)
- 6.3) ESBWR Pre-Application Review (Tentative) (TSK/MME)
- 6.4) Safety Culture Report (GEA/MWW)
- 6.5) Safeguards and Security Matters (Closed) (GEA/RPS). **This session will be held in Room T-8E8.**

FRIDAY, JULY 11, 2003, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

7) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (MVB/JTL/SD)

8) 8:35 - 9:30 A.M. Recent Operating Events (Open) (JDS/GML/MWW)
- 8.1) Remarks by the Subcommittee Chairman
- 8.2) Briefing by and discussions with representatives of the NRC Office of Nuclear Reactor Regulation on the South Texas Project Reactor Vessel Bottom Head Penetration Leakage.

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

9) 9:30 - 10:15 A.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (MVB/JTL/SD)

9.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future ACRS meetings.

9.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

10:15 - 10:30 A.M. ***BREAK***

10) 10:30 - 10:45 A.M. Reconciliation of ACRS Comments and Recommendations (Open) (MVB, 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.

11) 10:45 - 7:00 P.M. Preparation of ACRS Reports (Open)
(12:15-1:15 P.M. LUNCH) The Committee will continue discussion of the proposed ACRS reports listed under Item 6.

12) 7:00 - 7:15 P.M. Miscellaneous (Open) (MVB/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.**
- **Thirty-Five (35) copies of the presentation materials should be provided to the ACRS.**

APPENDIX V
LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE
RD ACRS MEETING
, 2002

[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 June 12-13, 2003
2	Wokshop on Safety Culture
4	Update to Generic License Renewal Guidance Documents
	2. Interim Staff Guidance (ISG) Process and Status and Time-Limited Aging Analyses (TLAAs) Supporting Information presentation by P. Kang, Project Manager, NRR [Viewgraphs]
	3. XI.M32, One-Time Inspection — Program Description, Evaluation and Technical Basis, Quality Assurance for Aging Management Programs [Handout]
	4. License Renewal ISG Process presentation by Fred Emergson, NEI
6	Proposed Strategy for Preparing the 2004 ACRS Report on the NRC Safety Research Program
	5. Presentation by Dana Powers [Viewgraphs]
7	Future ACRS Activities/Report of the Planning and Procedures Subcommittee
	6. Future ACRS Activities/Final Draft Minutes of Planning and Procedures Subcommittee Meeting - June 11, 2003 [Handout #7.1]
8	Reconciliation of ACRS Comments and Recommendations
	7. Reconciliation of ACRS Comments and Recommendations [Handout #8.1]

MEETING NOTEBOOK CONTENTS

TAB	DOCUMENTS

2 ACRS Workshop on Safety Culture - Panel A

Handout 1: Safety Culture Introduction, Collective Understanding of Safety Culture presentation by Ashok Thadani, Director Office of Regulatory Research

Handout 2: Safety Culture presentation by Chuck Dugger, Vice President, Nuclear Operations, Nuclear Energy Institute

Handout 3: Early Signs of Deteriorating Safety Performance presentation by Thomas E. Murley

Handout 4: Comments on Collective Understanding of Safety Culture presentation by Howard C. Whitcomb, III, Esq.; Organization Half-Life, The Un-Monitored Disintegration in Reactor and Public Safety presentation by William N. Keisler

Handout 5: Managing Safety Culture presentation by Dave Collins, Engineering Analyst

Handout 6: Safety Culture presentation by Alan Price, Vice President, Dominion Nuclear Connecticut

ACRS Workshop on Safety Culture - Panel B

Handout 7: NRC Staff Overview and Status presentation by Clare Goodman, Lisamarie Jarriel, J. J. Persensky, David Trimble

Handout 8: INPO Safety Culture Attributes presentation by George Felgate, Director, Analysis Division

Handout 9: Davis-Besse Nuclear Power Station presentation by Lew Myers, Chief Operating Officer, FENOC

Handout 10: Management & Human Performance Inspection at Davis-Besse presentation by Jack Grobe, Chairman, Davis-Besse Oversight Panel; Geoff Wright, Inspection Team Leader

Handout 11: Utility Service Alliance (USA) Nuclear Safety Culture Assessment presentation by William O'Connor, Vice President Nuclear Generation, Detroit Edison; Chairman of the Board, Utility Service Alliance

Handout 12: Attributes of Safety Culture presentation by Sonja B. Haber, Ph.D., Human Performance Analysis Corporation

4 Update to Generic License Renewal Guidance Documents

1. Proposed Agenda
2. Status Report
3. Staff Requirements Memorandum dated July 17, 2002
4. Interim Staff Guidance (ISG)
5. Proposed Staff Guidance on the position of the GALL report presetting one

acceptable way to manage aging effects for license renewal (ISG-1)

6. Staff guidance on scoping of equipment relied on to meet the requirements of the station blackout (SBO) rule (10 CFR 50.63) for license renewal (10 CFR 54.5(a)(3)) (ISG-2)
7. Proposed revision of Chapters 11 and III of generic aging lessons learned (GALL) report on aging management of Concrete Elements (ISG-3)
8. Interim Staff Guidance (ISG-4): Aging Management of Fire Protection Systems for License Renewal
9. Interim Staff Guidance (ISG-5) on the identification and treatment of electrical guse holders for license renewal
10. Standardized format for license renewal applications (ISG-10)
11. Proposed Interim Staff Guidance (ISG-16): Time-Limited Aging Analyses (TLAA) supporting information for license renewal applications

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
503RD FULL COMMITTEE MEETING
JUNE 11-13, 2003

JUNE 12, 2003
TODAY'S DATE

NRC STAFF PLEASE SIGN IN BELOW

PLEASE PRINT

NAME	NRC ORGANIZATION
J. PERSENSKY	RES/DSARE/REAHFS
C. Goodman	NRR/DIPM/IEHB
Geoffrey WRIGHT	RIII/DRP
Daneira Melendez	RIII/DRP
R. Eckenrode	NRR/DIPM
Lisa L. Jarriel	NRR/OD
D. SKOW	NRR/DRIP
J. BONGARRA	NRR/DIPM/IEHB
D. Trimble	NRR/DIPM/IEHB
JF Costello	NRC/RES/DET
J Kramer	NRC/RES/REAHFB
TS. Musico	NRR/EPHP
Ho NIEH	NRC/OEDO
J. Cai	NRC/NRR/DIPM
Jocelyn Mitchell	NRC/RES/DSARE
FAROUK ELTAWILA	NRC/RES/DSARE
Isabelle Schoenfeld	NRC/OEDO
Tanya Mensah	NRC/PMAS
Deirdre Spaulding	NRR/DLPM

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
503RD FULL COMMITTEE MEETING
JUNE 11-13, 2003

JUNE 12, 2003
TODAY'S DATE

NRC STAFF PLEASE SIGN IN BELOW

PLEASE PRINT

NAME	NRC ORGANIZATION
Jon Hopkins	NRR/DLPM
Harry A. Wagage	NRR / SPLB
Zena Abdullahi	NRR/SRXB
Marvin Sykes	NRR/SPSB
S. Tina Ghosh	ACNW
C Carpenter	NRR / DIPM
T. Quay	NRR / DIPM

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
503RD FULL COMMITTEE MEETING
JUNE 11-13, 2003

JUNE 12, 2003
Today's Date

ATTENDEES PLEASE SIGN IN BELOW
PLEASE PRINT

NAME	AFFILIATION
THOMAS MURLEY	SAFETY CONSULTANT
~~Geoffrey C. WRIGHT~~	~~NRC RIII~~
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Andy Vomastek	Dominion
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Stephen Koff	Cleveland Plain Dealer
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Brooke Poole	Winston & Strawn
ALI TABATABAI	LINK TECHNOLOGIES
SPYROS TRAIFOROS	LINK TECHNOLOGIES

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
503RD FULL COMMITTEE MEETING
JUNE 11-13, 2003

JUNE 12, 2003
Today's Date

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Susan G. Sterrett	Duke University
Rich Janati	~~PA~~ DEP/BRP

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
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ITEMS OF INTEREST

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No. S-03-015

"The Possession of Know-How, Technology, and Skill"

Remarks of Chairman Nils J. Diaz
United States Nuclear Regulatory Commission

before the

American Nuclear Society's National Meeting

San Diego, CA
June 2, 2003

Good morning. It is indeed my pleasure to address this distinguished group of nuclear engineering scientists and technologists, gathering one more time for the pursuit and dissemination of knowledge. You also gather and labor year-round to make a difference for your communities, and to improve and increase the global use of safe and beneficial nuclear technologies. I thank you and join you in these tasks, made even more important by these troubled times. At the outset, I want you to know that I am expressing my individual views, unless I state otherwise.

Today, our great nation needs to have assurance of supply of many commodities, and one of the most important is energy supply. In this respect, I would like to start my discourse with a quote:

> "In our time, in particular, there exists another form of ownership which is becoming more important than land: the possession of know-how, technology, and skill. The wealth of a nation is based much more on this kind of ownership than on natural resources."

I am sure you would not be surprised if I were to attribute this far-reaching statement to a 2003 philosopher, economist or entrepreneur. The statement is a lot older. It is a quote from the Encylic Rerum Novarum, published in 1891. As pertinent as it was then, it is more pertinent

now, when a microchip can be worth much more than gold, and when services are more important than the production of goods for the U.S. economy; when disease is being conquered by mapping the human genome, and when virtual reality is no longer a dream, but a useful tool.

The impressive scientific and technological achievements of the last century were not visualized in 1891, yet they have irrefutably confirmed the far reaching conclusion of that visionary document. There is no doubt that the world has been shaped by the socio-political revolutions of the last three hundred years, the American, French, the Bolshevik revolutions, and in our recent socio-political world, by the "Reagan Revolution". But it has also been shaped by the scientific and technological revolutions that spanned the 20th century, among great wars and massive economical developments.

As extraordinary as all these 20th century developments were, all is not well. I will quote first and then use a few thoughts from a wonderful article by George Gilder, who poignantly wrote regarding the early 20th century:

> "It was the survival of unprecedented multitudes of human beings at ever increasing standards of living, together with a new intolerance toward the persistence of conditions of poverty that had previously been accepted as inevitable."

I believe that Gilder stated what is a key and real crisis of the 20th and 21st centuries. In many ways, this succinct yet poignant statement expresses a fundamental social, political and economical issue confronting mankind, because it is a root cause of many of today's great problems, and it has to be addressed with urgency and with solutions.

It is obvious to me that real solutions to this global problem can be found in democratic systems of government, where the pursuit of happiness and free enterprise are rights and not gifts. Indeed, I believe that solutions are found in the exercise of the Rerum Novarum postulate: "the possession of know-how, technology and skill." In other words, education and technology in action, working synergistically to improve the survival and the standard of living of unprecedented multitudes, are enabling solutions, when anchored in democracy and free enterprise.

The possession of know-how, technology and skill and its use is the theme of this talk.

Nine years after Rerum Novarum, a transcendent discovery happened that changed the dimensions of human life: quantum mechanics. Our understanding of the nature of matter, and its associated view of the world, fundamentally changed. The universally-shared assumptions, based on sensory models and deterministic logic about materials, were forever altered. Our view of the physical world went from solid matter interacting through forces at a distance, to quarks and leptoms interacting through intermediate vector bosons. Again, Gilder's paper concludes that Max Planck, in 1900, "took the certainty out of matter, made the deterministic incomplete, inconclusive, and, yes, obsolete, when compared with the world of old, when quanta transport became far more important than movement with or against gravity; when the electron cannot be

defined in a particular space and time", and yet, this new understanding -- the quantum mechanics world view -- is usable. Many other quintessential discoveries joined in -- from relativity to making uncertainty predictable. The world has changed rapidly, and those changes accelerated and did so for the better, to where know-how and technology are abundant and are becoming even more valuable.

The impact of quantum mechanics and the accompanying scientific and technological breakthroughs cannot be overstated. They have a continuing and accelerating influence in mankind's progress, and specifically so in the increasing worth of know-how. Wealth, as measured by physical resources, is declining while the value of technological capabilities and innovation is increasing. For many nations, technological know-how and pressing societal needs ameliorated the many "crisises" we have encountered, like the population crisis, the energy crisis, the nuclear winter crisis, the environmental pollution crisis, etc. From a modest, in present terms, industrial revolution, the more developed nations accelerated into the automobile era, the airplane age, the nuclear age, the space age, the era of information technology and now the biogenetics era. In so many ways, quantum mechanics, and the other key scientific discoveries are essential components of this yet-to-be-appropriately- named period of mankind, a fact that somehow is being lost when it should not. It is the better understanding and use of the physical world and associated applications that has made possible or leads to the understanding and progress in other sciences, and therefore, is a major contributor to mankind's progress. For example, once, evolution was a very controversial theory; it is now a tool, a process to improve our world, to fight disease, to grow crops, and feed people. And so on, and so on.

Quantum mechanics enables so much: computation mapping, communicating, measuring, changing, improving, etc. -- it makes possible what is needed to achieve productivity and improve the quality of life in many areas. But it would not succeed without usable energy, and especially electricity.

It is a fact that without abundant, reliable, safe energy there would be little of what we enjoy today. We would be much poorer. Energy, well distributed and affordable, is one of the indispensable and enabling components of the know-how era. And, obscured by achievements and gadgets, we have the working atoms; the protons and neutrons, the electrons, and quantum mechanics in action. The energy from the nucleus, and uses of radiation, are integral and necessary components of this day and age. Unheralded, nuclear energy serves the needs of millions and millions of people worldwide, safely and reliably. From an overall energy and economical perspective, nuclear electricity supply can be a major stabilizing force in energy markets, and I believe especially so if coupled with hydrogen production.

How do we get there? Well, I have a "couple" of ideas in my areas of expertise.

First, we should realize that, unless the case is made by professionals in the field, governments and people will not have a full realization of how technology and energy got mankind to today's standard of living, and the particular role of nuclear energy and related technologies. It is not as obvious as we think. There are many making the opposite case. Do they have a better case or are they just more dedicated to their cause? Nothing will change in this

respect unless you change it, and are as dedicated. The price is your time and it has to be paid if you want results. This is an indisputable role of the American Nuclear Society: the pursuit and dissemination of nuclear know-how.

Second, the productive and interesting world of the working nucleus, and of radiation, needs to be brought to the classrooms, where young people need to be presented with balanced facts. There might not be a more important class of people in this respect than science teachers.

Max Planck, in "The Philosophy of Physics," said:

> "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die out, and a new generation grows up that is familiar with it."

Well, that probably worked for quantum mechanics, but the opponents of nuclear power and radiation technologies remain, and the task is for the ANS and others to educate a new generation that will grow familiar with nuclear science and technology.

Third, directly connected to all of the above, is the pressing need to bring state-of-the-art know-how to nuclear radiation technology and energy production, and to develop even newer and better techniques and applications. There is a need for better, more functional, more realistic and safer processes. If time keeps passing, lesser technologies than nuclear will fill the voids, with difficult-to-achieve claims of efficiency and economics -- but they would be there. Who would have thought 25 years ago that nuclear power and radiation technologies could be called obsolete? I see what is out there, and I am certain you believe that nuclear sciences have a good and vibrant song for our times. The tune has to be attractive and the lyrics factual.

It is also important that value be given to public service. In the USA, the land of technological know-how, there are far fewer technical people in government than needed. The ANS has had a role in encouraging the entry into public service by many qualified individuals. It should continue and grow by making public service a more important part of the ANS agenda.

Many positive factors are converging to make possible a renaissance of nuclear power, based on the real and well communicated fact of its safety and reliability. It is on improving the safety and reliability of nuclear power plants, viewed from the perspective of a regulator and former nuclear technologist, that I want to focus my concluding comments for this special occasion.

The viability, and the probable growth, of nuclear power is inextricably linked to its regulation. I want to be crystal clear in addressing this issue. There is no way, presently and in the foreseeable future, to maintain and to advance the use of nuclear power without a strong, predictable and credible regulator. Therefore, it is essential that regulatory infrastructures be all that they can be: safety-focused, with state-of-the-art know-how in every important safety aspect. As regulators we should make independent decisions, listening to and respecting different views, but without undue interference. We at the NRC should be willing to risk criticism by

communicating both the good and the not-so-good safety performance, as well as assessing and explaining potential risks with realistically conservative analysis, based in our assurance of protection of public health and safety, the environment and the common defense and security. I believe that the present needs in the U.S. and many other countries demand the use of a safety construct that embodies the best regulatory practices, from licensing, to rules, to oversight. A safety construct that interacts with the best design, operation, and maintenance practices of the industry, and utilizes the law, is a two-edged sword: to enable and to correct according to well established and transparent principles.

I will over-extend my welcome if I don't quit soon, but allow me to try a preliminary definition of a safety construct for you:

> A nuclear power plant safety construct is a hierarchical, techno-legal assembly of regulatory and operational safety systems ensuring the safe design, operation, and maintenance of nuclear power reactors for the benefit of the Nation.

The above definition is not complete, but is a good start for a much needed dialogue.

We have the know-how, the technology and the skill to improve nuclear technologies so they are even more useful to society and, definitely, to implement a safety construct that leaves little doubt about requirements and responsibilities, for regulators and regulated alike. A safety construct, although not a contract, is a working and dynamic instrument that will ensure predictable and credible safety performance, as well as being a vehicle to explain our actions. Its regulatory components will be bound by the rule of law, serving to assure safety, and to avoid the unnecessary intrusion into or disruption of licensed activities without a strong safety reason. It should have only the necessary prescriptive components, with probabilistic risk-insights and performance-based regulation, design, and operation replacing what has been made obsolete. It must result in safety being a driver, but also being an enabler. I firmly believe that these are compatible and beneficial to society. A safety construct, including the requisite regulatory components, is much more than a set of "don'ts": it should be a positive force, a roadmap, a pathway to helping the industry accomplish its proposed uses of nuclear technologies, tempered by the mission to achieve a better, safer and more secure existence for the American people.

As I said before, "[i]n our time, in particular, there exists another form of ownership which is becoming more important than land: the possession of know-how, technology and skill." You have them for nuclear and radiation technologies. In fact, many of the attributes and characteristics of a safety construct for the U.S.A. are well known, but not integrated. I have my own, but I do not want to spoil your fun: I challenge you to use your know-how, technology and skill and take safety to the next level, where safety is a dynamic instrument of change, and build a 21st Century safety construct.

I thank you for the opportunity to share my views with you.

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No. S-03-014

Looking Realistically at Energy Security: The Regulatory Perspective

Remarks of Chairman Nils J. Diaz
United States Nuclear Regulatory Commission

before the

Nuclear Energy Assembly
Santa Monica, California
May 21, 2003

It is a privilege to be here this morning to participate in the 2003 Nuclear Energy Assembly, celebrating many meaningful 50th anniversaries, including probably some kind of 50th anniversary of Joe Colvin. Joe, thank you for inviting me, congratulations on a great meeting.

I want to recognize that Commissioner Merrifield is here. Commissioner Merrifield brings tremendous value to the Commission.

As many have said before me, much has been accomplished in these 50 years, but much remains to be done, as the industry looks to a renaissance of nuclear power in this country and abroad.

This annual Nuclear Energy Assembly has always been valuable as an occasion for stocktaking, and reflecting on recent experience, and at the same time for looking forward to the issues confronting the industry and its regulators in the coming months and years. This year, the looking forward side of it is especially important, because so many factors augur positively for the nuclear option. The operating fleet is committing to license renewal and power upgrades, a commitment that among many benefits maintains the nuclear power infrastructure of suppliers and services. Also, an open national debate on new power plants has begun.

The title of this session, "Energy Security and Environmental Stewardship," was aptly chosen. Security, as applied to nuclear energy, has a double meaning. The country is concerned, and appropriately so, with ensuring the security of the critical infrastructure facilities against malevolent or hostile action. Though this issue has received heightened attention in the past two years, it is by no means a new one for the NRC or the nuclear industry. Literally decades ahead of other sectors of this nation's civilian infrastructure, this industry and its regulators have proceeded on the assumption that terrorism and sabotage were real threats, requiring adequate preparedness. Nuclear security, as a subset of nuclear safety, has been part and parcel of our operations from the early days of the NRC.

Energy security has a second meaning, as I need hardly tell this audience, and that is the need to ensure that this nation has a steady, dependable, safe, and abundant supply of energy. In the modern world, energy is the lifeblood of the nation, and those who imagine otherwise are deluding themselves. Mr. Rhodes eloquently made this point yesterday. Energy security, economic security, and national security in the traditional sense are bound together in a seamless web, and we cannot ignore our long-term energy needs without also imperiling other aspects of our security. Again, I believe that James Schlesinger made this point clear in his comments.

The phrase "environmental stewardship" refers to another value that is reflected in our obligation to take the long view. We need to bequeath our children and grandchildren not only a country that is secure, economically and otherwise, but also livable, where energy sufficiency goes hand in hand with environmental preservation. Energy security is vital to the United States of America, and nuclear energy is a vital component of energy security and of environmental stewardship. Nuclear power generation has served as an anchor of the U.S. electric power grid, and it has done so safely and securely, year after year.

Before I deal with the key issues on our plate, I would like to offer some more general observations on the relationship of the regulators, the industry, and the public. This audience knows, better than most, that the NRC's role, of course, is not to promote the nuclear industry but to regulate it. But that does not mean indifference to whether the regulated industry achieves its objectives. On the contrary, the purpose of regulation should be to allow the regulated industry to accomplish its goals with only as much of a burden as is necessary, consistent with the central and overriding obligation to ensure the public health and safety and the other goals established by law.

I stress "necessary" burden because eventually the public pays for it. Over-regulation does not benefit the American people, it harms them, because it means they are paying for something that confers no value on them in return. Nowhere is this clearer than in the case of an agency like the NRC, which operates on the basis of almost 100% fee recovery. The money that we require licensees to spend, and that we spend ourselves, comes overwhelmingly from the ratepayers, and we as regulators can not afford to lose sight of that fact. This is also stewardship, for we are working on behalf of the American people, and if we are doing our job right, we are spending no more of their money than we have to.

The key, of course, is knowing where to draw the line between sufficiency and excess. This is applicable across the board, but it is presently particularly important to policy-making. When policy is based on technical analysis, this line separates good policies from bad policies. In a recent talk at the NRC's Regulatory Information Conference, I described my own approach, of what I call "realistic conservatism." The NRC has traditionally been long on conservatism; what has been lacking, too often, is the essential qualifier, that it also be "realistic." In the early days of nuclear power, when our experience base was still slim, that was certainly understandable. Not only did we employ conservatism – and rightly so, like the defense-in-depth concept – we also relied on what were sometimes highly improbable worst-case assumptions. Worst-case assumptions could be usable for preliminary estimates of the importance of an issue, but they are not a good basis for policy or decision-making, and are especially bad when addressing consequences. We now recognize that we have the knowhow and operational experience, aided by risk-informed insights, to develop the quantitative tools of a regulatory framework based on realism, as well as realistic consequence analysis. I expect that we will soon move forward to ever greater use of performance-based regulation, since the real objectives are outcomes and not the check-lists.

In every respect, our policies need to be grounded in realism. Where events are well understood and well managed, we should treat them accordingly: not as a crisis, or an occasion for hand-wringing, but as part of the process of operating a complex technology. By the same token, extremely low probability events, which have never happened and are unlikely ever to happen, should not be driving policy.

These are the directions in which I believe we should be moving: away from prescriptive regulation, toward greater realism. In other words, we need to move beyond prescriptive rules, both in the substance of how we regulate and in how we communicate with the public. Compliance, as in checking the box, doesn't equate to safety. All of us involved with nuclear energy need to think in terms of the safety and risk of an issue rather than having "check-the-box" thinking. It is just not good enough. This applies equally to the industry and the NRC. This is also consistent with my long-held philosophy that it is not enough just to *find* the problem, you have to *solve* the problem. I am in favor of creating strong incentives for self-criticism, self-identification of problems, and self-correction of deficiencies. This carries with it an obligation to communicate effectively what we are doing and why; we should do a lot better in this area.

The Commission's plate today includes a series of hot issues, issues that have to be dealt with effectively and expeditiously. There are, of course, materials degradation issues and other important emerging issues. Today, I will first touch on nuclear security, emergency preparedness, and budget issues of importance to this assembly.

As you know, just in the past few weeks, the NRC has approved changes to the Design Basis Threat and revisions in the requirements for work hours, training, and qualification of security personnel. We have issued appropriate orders to all commercial nuclear power plants

and Category 1 fuel facilities. The regulatory base for these orders are the common defense and security and its strong association with public health and safety. This is intended to bring closure to an area that has been in flux too long. I believe that there is reason for confidence that we are now where we should be on issues of physical security. With the inherent robustness of the plants themselves, the revised DBT, improved training and work hours requirements for security personnel, and enhanced access authorization controls, we have now established a security construct responsive to the protection needs of the plants. We have a very strong story to tell to the Congress, the American people, including our detractors, and our international counterparts. The Commission believes that this DBT represents the largest reasonable threat against which a regulated private security force should be expected to defend under existing law. The Commission has made it very clear that so called "fatigue orders" are exclusively for the guard force and that no carryover will be allowed into other personnel working at the plants.

I look forward to a period of regulatory stability that will allow efficient implementation of these measures. The Commission is very concerned with effective implementation, one that allows our licenses to do what is required and to do it well. We know there will be times when enforcement discretion will be needed during transitions, and we are prepared to address your requests, especially in the guards working hours issue. Above all, the American people can be reassured that the nation's nuclear plants are well-secured against potential threats, and that the NRC, the Department of Homeland Security, other Federal agencies, and state and local law enforcement will continue to work closely together and with our licensees to ensure an integrated, coordinated system of protection. As the Commission stated, the steps we have ordered are *appropriate*, *practical*, and *implementable*. We are working closely with the Congress on legislation impacting nuclear security, and communicating the extensive security upgrades that have been, and are being, implemented.

Emergency preparedness, like security, has become a post-9/11 area of concern. The Commission believes that large and rapidly developing accident scenarios are covered by the extensive emergency preparedness plans in place prior to 9/11, and that the significant improvements in security, plant mitigation strategies, and in emergency plans and off-site communications are all contributors to robust and enhanced protective measures for our population. However, we continue to work aggressively with FEMA and stakeholders to ensure that the right plans are in place, and that the right messages are conveyed to the Congress and the public. We are dedicating resources to ensure that all the important issues are addressed.

The Commission is also aware that costs increased sharply for most licensees for the current fee assessment year. Most of these increased costs are mandated or due to increased security; the Commission unanimously requested General Funds appropriations for the increases in security-related costs but was not successful. We are going to try again. I am sure you are aware that there are several factors that could also weigh heavily on the oncoming budget increases, including the rate of incoming license renewal applications and the very diverse set of new reactor designs. The input from stakeholders on this and other relevant issues is important as we continue to balance the workload against the need for reasonable budgets. The

Commission wants to ensure that all important issues are completed in a timely manner, and this might require some prioritization.

I must emphasize that the attention we have given, appropriately, to security issues has not diverted us from our continuing focus on such key areas as early site review, license renewal, and power uprates. We are also ensuring our readiness to deal with any applications for new plants.

Furthermore, the agency continues to work on the important and everyday issues, without disruption, and in many cases in a very interactive manner. We appreciate the significant input we receive from stakeholders in a large variety of issues.

In the area of early site review, the NRC has been taking vigorous action to ensure that we are prepared to hit the ground running whenever an application is submitted. We have a process in place, ready to go; it's up to the licensees to decide whether to avail themselves of it, but I can assure you that, if and when they do, the NRC will do its regulatory job, efficiently and well.

Our license renewal process now takes approximately 22 months, unless there is a hearing. To date, 16 license renewals have been approved, and 14 more are being processed. The NRC continues to look for efficiencies and for improvements in scheduling the work in an optimized manner.

As to power uprates, the NRC has now completed over 94 reviews for a total of approximately 4050 MWe. As you know, that is the equivalent of more than three new large nuclear power plants -- a very substantial addition to our nation's energy supply, and energy security. The staff estimates that licensees will be submitting an additional 35 power uprate requests in the next five years, resulting in adding nearly 2270 MWe to the grid. Again, this area receives our continuing attention. Our activities in the area of license renewal and power uprates don't get a great deal of public attention, but I believe that they have resulted in substantial benefits for the American people. In both cases, they mean that this country obtains additional energy supplies without compromising safety or environmental protection. They continue to be an extremely high priority for the NRC.

As to new plants, there may well be significant opportunities for this country's nuclear power industry at this time, through a confluence of technical, economic, and political factors. The NRC, through Part 52 of its regulations and proposed revisions, is helping to ensure that the regulatory framework is in place to support the deployment of new reactors. The NRC has already a proven process for the review and approval of advanced reactor designs. In addition, the staff has now issued Revision 3 to the Advanced Reactor Research Infrastructure Assessment, to assist the regulatory framework for processing Advanced Reactor certification.

Congress is considering national energy policy as we speak. The President and Vice President have made clear their belief that nuclear power should play an expanding role in this country's energy portfolio. The Commission continues to interact with Congress on regulatory issues as they arise.

In sum, I see a convergence of positive factors in the nuclear area. I see progress and stability in the area of safety and security; progress in establishing the groundwork for new plant construction; progress in moving toward performance-based and risk-informed regulation; progress in communicating our message to the American people.

The NRC's job of regulation requires thoroughness, toughness, a willingness to set priorities, and the readiness to move forward expeditiously, as the nation needs. Regulation, in my view, is much more than a set of "don'ts": it is and should be a *positive* force, a pathway both to helping the industry accomplish its goals, and to achieving a better, safer, and more secure existence for the American people. Part of being a positive force means a willingness to take the initiative and press ahead to resolve issues. We are prepared to do our best. I look forward to working with the industry and all other stakeholders to further these objectives, for the benefit of all Americans.

Thank you.

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S-03-013

CROSSROADS AND CROSS-CUTTING

Chairman Nils J. Diaz
U.S. Nuclear Regulatory Commission

International Congress on Advances in Nuclear Power Plants

May 5, 2003
Cordoba, Spain

Sra. Presidente del Consejo de Seguridad Nuclear de España, doña Maria Teresa Estevan, distinguidos miembros del Comite Organizador de la Conferencia , distinguidos participantes en ICAAP, Señoras y Señores:

es para mi un verdadero placer el co-presidir esta sesión plenaria y el dirigirles unas breves palabras, tratando de captar lo que nos preocupa y la importancia del momento, y con su permiso, Sra. Presidente, cambio para el ingles:

The last 25 years of nuclear power operation and development have not been easy, and the path forward is not easy, but there is a light at the end of the tunnel and I believe it can be made into a bright light. A few months ago, in Salamanca, I said "today, there is nothing easy regarding nuclear energy." This fact is a challenge to be acknowledged, but in no way a deterrent. Besides, it is not new.

Why is the nuclear road so harsh, when those who understand the technology, its good points and its limitations, think nuclear energy is an indispensable component of the energy mix and should grow? Because public information is our greatest failure, and losing so many of those battles has made nuclear energy more a socio-political issue than an energy issue or a technology issue. Nuclear technologists and regulators have been lousy communicators, and we have failed to get the true perspective on nuclear energy to the classrooms of our countries. Nuclear energy

and radiation technologies are not "rocket science", they are understandable and manageable applications of a well-regulated mature technology, with its substantial benefits and low risks well established; the complete picture needs to reach the classroom. Attitudes, commitments and efforts of the users and regulators have to change to provide the public with the information they need so they can reach informed conclusions. I believe that the right conclusion is that safe nuclear energy is good for the nation that has decided to use it and good for the world.

We are at a crossroads. We could choose to continue past practices or choose to provide leadership individually and collectively, and make advances in technology, regulatory practices, and communications.

I think two parallel but correlated paths can be mapped now: advances in nuclear technology and advances in regulation and in regulatory processes. While the independence of these acuities at decision-making time is indispensable, their development can and should go hand-in-hand. The third path is more difficult: how do we actively communicate the safety and benefits of nuclear energy. There are four salient points on which to focus attention: safety, economics, strategic importance and the environment. With policy-makers, it is often better to do it one issue at a time. For regulators, safety is the issue. For industry, assuring a very competitive production cost advantage coupled with an impeccable safety record would be their focus.

We are at a crossroads, with many cross-cutting issues. Some could choose to ignore the later, to pursue a mono-faceted approach only to find that what you left behind will come back and bite you. There are no mono's in nuclear energy, only multi: (disciplinary, national, ...).

I believe it is now time to aggressively advance nuclear energy and radiation technologies to the next level of safety performance, and to have regulators move to a correspondingly more effective safety construct, where it is clear that the determining factor is the quality of life of our people, based on the assurance of public health and safety, the environment and the common defense and security, all in the context of the independence of national interests, but with the respect and consideration of global strategic and economic interests.

A safety construct should not be a passive, impassive or a plain set of safety rules and regulations, and especially not in the nuclear arena. It should be an active and interactive set that regulates, operates, informs and permits the lawful development of beneficial activities. The outcome of the safety construct is the implementation of the licensed activities, which through oversight becomes the major feedback to the construct itself. "Where the rubber meets the road," is where safety is most significant.

I see risk-informed and performance-based regulation as a pivotal component of a better safety construct to help us focus on what really matters, since radiation safety is the final consideration.

The NRC is doing its part in this regard.

I am pleased to say that the Commission has very recently approved, and directed the NRC staff to issue for public comment, voluntary risk-informed approaches to 10 CFR Part 50. A proposed rulemaking to risk-inform 10 CFR 50.46, the basic requirements for emergency core cooling systems, includes consideration of redefining the design basis loss of coolant accident (LOCA). This is a fundamental shift in reactor regulation. We know much more about the probability and consequences of LOCAs than we did in the 1970s and we are now acting on that knowledge. In addition, a new proposed rule, 50.69, which would allow licensees to use a risk-informed alternative to the current Special Treatment requirements (such as quality assurance requirements), would incorporate risk information into plant operations on a day-to-day basis. In both of these cases (50.46 and 50.69), the new risk-informed and performance based approaches would involve living processes which should automatically address new, pertinent information through updated PRA's and associated processes.

When we add these measures to the changes already made to the maintenance rule, 50.64, in the area of risk assessment and management, to the proposed changes to risk-inform the combustible gas control requirements of 50.44, to the hundreds of license amendment changes accomplished through Regulatory Guide 1.174, and to the new Reactor Oversight Process, we have the *foundation* for a risk-informed and performance-based regulatory program. Risk-informed regulation cannot and should not be expected to carry the whole load; it is time to pair it, where appropriate, with performance-based regulation, so that these two powerful and sometimes interdependent improvements to our regulatory processes can act synergistically. The result, I believe, will lead progressively to more safety-focused licensing and regulation, enabling licensees to achieve correspondingly greater safety focus in the design, construction, operation, and maintenance of nuclear power plants. I also believe that, for future reactor designs, the old design basis concept embodied in the current NRC regulations will ultimately be replaced with a new, risk-informed and performance-based framework which provides increased safety focus and increased design flexibility.

In the area of improved communication, I see the need for communication with clear, factual plain language without minimizing or exaggerating issues; and through our actions. The actions of strong and active regulators, and the actions of strong and responsible designers and operators carry a strong message. Yet, these actions need to be well communicated. I have said before, and I continue to believe that increasing public confidence is a goal that we achieve based upon our actions and the manner in which we communicate with our stakeholders.

You, at the front line of advances in nuclear energy, can not be shy: nuclear energy and radiation technologies are poised for a forward leap, with many near term advances in materials, instrumentation, controls, systems and risk-management ready for deployment, and many longer term advances holding the promise of the energy of the nucleus for a better world, as nuclear energy becomes an enabler of the future for many people. Energy is the multiplier of the labor of man; with abundant and economic energy it is possible to provide the food, the water, the hygiene, the environment, and the quality of life essential to the dignity and well-being of every human. Nuclear energy, safe and abundant, is and should be an important part of such a bright future.

EA-00-230 - Turkey Point 3 & 4 (Florida Power & Light Company)

June 5, 2003

EA-00-230

Florida Power & Light Company
ATTN: Mr. J. A. Stall
Senior Vice President of Nuclear Operations
PO Box 14000
Juno Beach, FL 33408-0420

SUBJECT: NOTICE OF VIOLATION (U.S. DEPARTMENT OF LABOR ALJ CASE NO. 2000-ERA-5, ARB CASE NO. 00-070)

Dear Mr. Stall:

This is in reference to a U.S. Department of Labor (DOL) proceeding involving a claim of discrimination by Florida Power and Light Company (FPL) against an FPL employee, Mr. Donald Duprey. On July 13, 2000, the presiding DOL Administrative Law Judge (ALJ), found, under a dual motive analysis, that complainant was demoted in violation of the Energy Reorganization Act (ERA), but that FPL had successfully shown that it legitimately would have demoted complainant even if he had not engaged in protected activity. For this reason, the complainant was denied the relief he sought and his complaint was dismissed. Subsequently, complainant appealed the ALJ's Recommended Decision and Order (RDO) to the Administrative Review Board (ARB). On February 27, 2003, the ARB issued a Final Decision and Order, affirming the ALJ's decision denying complainant any relief on his claim of discrimination.

By NRC letter of May 12, 2003, and via an exit teleconference, FPL was informed that escalated enforcement action was being considered for an apparent violation of 10 CFR 50.7, based on the NRC's review of the DOL findings. Additionally, FPL was informed that the NRC had sufficient information, regarding the apparent violation and associated corrective actions, upon which to make an enforcement decision without the need for a predecisional enforcement conference. By letter of May 14, 2003, FPL advised of its decision to decline a predecisional enforcement conference and also provided its response to the apparent violation. The NRC has reviewed this information and believes it has sufficient information upon which to make an enforcement decision.

In its response of May 14, FPL advised that NRC's letter of May 12, 2003, was in error when it asserted that DOL found that FPL discriminated against the complainant in violation of Section 211 of the ERA. In this regard, FPL asserted that the ALJ determined that complainant made a preliminary or *prima facie case* of discrimination requiring a response from FPL, but that both the ALJ and ARB concluded there was no violation of the Act and ruled in FPL's favor. In support of this conclusion, FPL noted that Section 211(b)(1)(B) of the ERA requires DOL to order abatement of a violation, including reinstatement and back pay whenever it determines that a violation of subsection (a) has occurred. FPL advised that no such remedy was ordered in this case because there was no violation of the ERA.

The NRC agrees that both the ALJ and ARB determined that no remedy would be awarded the complainant because FPL successfully demonstrated that it would have taken the same action against him even in the absence of his protected activity. The NRC does not agree, however, with

FPL's conclusion that there was no violation of the ERA. The ALJ, under Section II (Dual Motive) of the RDO, expressly found that in addition to his being legitimately and appropriately disciplined for continued, regular violation of Respondent's sick leave policy, "... complainant was also demoted for the illegitimate reason of retaliation for his protected activity." In a footnote to this finding, the ALJ concluded that "Complainant has thus established that Respondent's proffered reason for the adverse action taken against him, i.e., that he was demoted solely for violation of its sick leave policy, is pretextual." Similarly, the ARB, at page 10 of its Final Decision and Order, concurred that the record supported the ALJ's conclusion that FPL violated the Act when it demoted complainant, and that FPL successfully demonstrated that it would have demoted complainant in the absence of protected activity. Thus, it is clear that both the ALJ and ARB concluded that complainant's demotion was motivated, in part, by the illegitimate reason of complainant's protected activity, and these findings form the bases for the NRC's conclusion that a violation of its Employee Protection regulation occurred.

The violation is described in the enclosed Notice of Violation (Notice) and involves a violation of 10 CFR 50.7, Employee Protection. Specifically, the NRC has concluded that FPL demoted Mr. Duprey in January 1999, at least in part, because of his engagement in protected activity. The protected activity involved Mr. Duprey's reporting of nuclear safety violations and plant procedural issues to FPL supervisors and to the NRC. Discrimination against employees who engage in protected activity is of concern to the NRC because of the potential for creation of an unfavorable working environment where employees may be unwilling to raise safety concerns. Therefore, this violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" NUREG-1600, (Enforcement Policy) as a Severity Level III violation.

In accordance with the Enforcement Policy, a civil penalty with a base value of $60,000 is considered for a Severity Level III violation. Because your facility has not been the subject of escalated enforcement action within the last two years, the NRC considered whether credit was warranted for corrective action in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy.

On April 2, 2003, FPL provided NRC its response to the DOL findings. FPL supplemented its response by letter dated April 23, 2003. Although FPL continues to assert that its actions against Mr. Duprey were unrelated to his engaging in protected activity, the April 23rd letter summarized its anti-discrimination policy and discussed the other actions FPL has taken to maintain a safety conscious work environment (SCWE) at its nuclear sites. These actions included informing all FPL Nuclear Division managers and supervisors of company expectations regarding maintaining SCWEs, making nuclear counsel available to answer questions and to provide additional training on SCWE issues, issuance of a written memorandum to all Nuclear Division personnel reiterating company expectations regarding management receptivity to safety concerns, and emphasizing FPL's position on not tolerating discrimination, Site Vice President meetings with plant workers to emphasize his focus on nuclear safety and the importance of open communications, and developing safety culture training which will be provided to Nuclear Division managers and supervisors. Based on the foregoing actions, the NRC has determined that credit was warranted for corrective actions.

Therefore, to encourage prompt and comprehensive correction of violations, and in recognition of the absence of previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, to propose that no civil penalty be assessed in this case. However, you are on notice that significant violations in the future could result in a civil penalty.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken to correct the violation and prevent recurrence, and the date when full compliance will be achieved is adequately addressed on the docket in your letter of April 23, 2003, and in this letter. Therefore, you are not required to respond to the violation contained in this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if you choose to provide one) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

If you have any questions about this inspection, please contact Mr. Victor M. McCree, Director, Division of Reactor Projects, at (404) 562-4500.

Sincerely,

/RA/ LAR

Luis A. Reyes
Regional Administrator

Docket Nos. 50-250, 50-251
License Nos. DPR-31, DPR-41

Enclosure: Notice of Violation

cc w/encl:

E. Avella
Acting Plant General Manager
Turkey Point Nuclear Plant
Florida Power and Light Company
Electronic Mail Distribution

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Curtis Ivy
City Manager of Homestead
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Tallahassee, FL 32304

William A. Passetti
Bureau of Radiation Control
Department of Health
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NOTICE OF VIOLATION

Florida Power and Light Company
Turkey Point Nuclear Plant
Units 1 and 2

Docket Nos. 50-250, 50-251
License Nos. DPR-31, DPR-41
EA-00-230

Based on NRC review of a U.S. Department of Labor (DOL) Administrative Law Judge (ALJ) Recommended Decision and Order (ALJ Case No. 2000-ERA) issued on July 13, 2000, and a DOL Administrative Review Board (ARB) Final Decision and Order (ARB Case No. 00-070) issued on February 27, 2003, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, (Enforcement Policy), the violation is listed below:

> 10 CFR 50.7 prohibits discrimination by a Commission licensee against an employee for engaging in certain protected activities. Discrimination includes discharge or other actions relating to the compensation, terms, conditions, and privileges of employment. The activities which are protected are established in Section 211 of the Energy Reorganization Act of 1974, as amended, and in general are related to the administration or enforcement of a requirement imposed under the Atomic Energy Act or the Energy Reorganization Act. Protected activities include, but are not limited to, reporting of safety concerns by an employee to his employer or the NRC.
>
> Contrary to the above, Florida Power and Light Company (FPL) discriminated against Mr. Donald Duprey, an employee at the Turkey Point Nuclear Plant, for engaging in protected activity. Specifically, as determined by DOL, FPL demoted Mr. Duprey in January 1999, at least in part, because of his engagement in protected activity involving his reporting of nuclear safety violations and plant procedural issues to FPL supervisors and to the NRC.

This violation is characterized at Severity Level III (Supplement VII).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in your letter of April 23, 2003, and in cover letter transmitting this Notice of Violation (Notice). However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region II within 30 days of the date of the letter transmitting this Notice.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because any response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the

information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 5th day of June 2003

EA-03-053 - Nine Mile Point 1 (Nine Mile Point Nuclear Station, LLC)

May 23, 2003

EA-03-053

Mr. John T. Conway
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P.O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION - NRC SPECIAL INSPECTION REPORT 50-220/03-003 - FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION

Dear Mr. Conway:

The purpose of this letter is to provide you with the final results of our significance determination of the preliminary white finding identified in the subject inspection report dated April 15, 2003. This inspection finding was assessed using the significance determination process and was preliminarily characterized as white, i.e., a finding with low to moderate importance to safety, which may require additional NRC inspections. This white finding involved a failure to identify the cause, and to take appropriate corrective actions, to preclude repetitive leaks over the past several years in the Unit 1 reactor building closed loop cooling (RBCLC) system because of significantly degraded piping. As a result of this performance deficiency, degradation of certain sections of RBCLC piping continued until mid-December 2002, at which time you determined the cause and extent of condition of this significant condition adverse to quality, and implemented appropriate corrective actions to prevent repetition.

In a telephone conversation with Mr. James Trapp of NRC, Region I, on April 29, 2003, Ms. Denise Wolniak of your staff indicated that Nine Mile Point Nuclear Station, LLC, did not contest the characterization of the risk significance of this finding, declined an opportunity to discuss this finding in a Regulatory Conference and would not be providing a written response prior to issuance of this Final Significance Determination.

After considering the information developed during the inspection, the NRC has concluded that the inspection finding is appropriately characterized as white, i.e., a finding with low to moderate importance to safety, which may require additional NRC inspections.

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified white finding. Such appeals will be considered to have merit only if they meet the criteria given in NRC inspection Manual Chapter 0609, Attachment 2.

The NRC has also determined that this failure to identify the cause, and to take appropriate corrective actions, to preclude repetitive leaks in the Unit 1 RBCLC system is a violation of 10 CFR 50, Appendix B, Criterion XVI, as cited in the enclosed Notice of Violation (Notice). The circumstances surrounding the violation were described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, NUREG-1600, the Notice of Violation is considered escalated enforcement action because it is associated with a white finding. You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when

preparing your response.

Because plant performance for this finding has been determined to be in the regulatory response band, we will use the NRC Action Matrix to determine the most appropriate NRC response for this event. We will notify you by separate correspondence of that determination.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

If you have any questions please contact Mr. James Trapp of my staff at 610-337-5186.

Sincerely,

/RA/ James T. Wiggins Acting For

Hubert J. Miller
Regional Administrator

Enclosure: Notice of Violation

Docket No. 50-220
License No. DPR-63

cc w/encl:
M. J. Wallace, President, Nine Mile Point Nuclear Station, LLC
M. Wetterhahn, Esquire, Winston and Strawn
J. M. Petro, Jr., Esquire, Counsel, Constellation Power Source, Inc.
P. D. Eddy, Electric Division, NYS Department of Public Service
C. Donaldson, Esquire, Assistant Attorney General, New York Department of Law
J. V. Vinquist, MATS, Inc.
P. Smith, Acting President, New York State Energy Research and Development Authority
Supervisor, Town of Scriba
C. Adrienne Rhodes, Chairman and Executive Director, State Consumer Protection Board
T. Judson, Central NY Citizens Awareness Network

NOTICE OF VIOLATION

Nine Mile Point Nuclear Station, LLC
Nine Mile Point Nuclear Station, Unit 1

Docket No. 50-220
License No.: DPR-63
EA-03-053

During an NRC inspection conducted between February 10, 2003 - March 7, 2003, the results of which were discussed at an exit meeting on March 7, 2003, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

> Title 10 to CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.
>
> Contrary to the above, when significant conditions adverse to quality occurred involving degraded reactor building closed loop cooling (RBCLC) system piping, the licensee did not determine the cause of the condition and failed to take appropriate corrective actions to preclude repetition. Specifically, the cause of substantial leaks in the Unit 1

RBCLC system on December 5, 2002, and on May 15, 2002, and numerous leaks prior to May 2002, was not determined, and as a result, corrective actions that were implemented at those times were not effective in precluding repetitive leaks. It was not until another substantial leak occurred on December 12, 2002, that the licensee determined the cause of this significant condition adverse to quality to be notable and widespread wall thinning attributed to a combination of general corrosion, flow-assisted corrosion, and galvanic corrosion, and implemented appropriate corrective actions to preclude repetition.

This violation is associated with a White Significance Determination Process finding.

Pursuant to the provisions of 10 CFR 2.201, Nine Mile Point Nuclear Station, LLC, is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region I, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation - EA-03-053" and should include for the violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/_adams.html (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 23rd day of May 2003

NOED-03-2-005 - Catawba 1 (Duke Energy Corporation)

May 13, 2003

NOED 03-2-005

Duke Energy Corporation
ATTN: Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
4800 Concord Road
York, SC 29745

SUBJECT: NOTICE OF ENFORCEMENT DISCRETION (NOED) FOR DUKE ENERGY CORPORATION REGARDING CATAWBA UNIT 1

Dear Mr. Peterson:

By letter dated May 10, 2003, you formally documented a verbal request made earlier that day for discretionary enforcement concerning Catawba Nuclear Station Unit 1 Technical Specification (TS) 3.6.6, Containment Spray System (CSS). Your letter addressed the information previously discussed with the NRC during a telephone conference on May 10, 2003, at 4:00 p.m. The principal NRC staff members who participated in that telephone conference included: L. Reyes, Regional Administrator, Region II (RII); L. Marsh, Deputy Director, Division of Licensing Project Management (DLPM), Office of Nuclear Reactor Regulation (NRR); S. Moore, Acting Director, Project Directorate II (PD2), NRR; L. Plisco, Director, Division of Reactor Projects (DRP), RII; R. Haag, Chief, Branch 1, DRP, RII; J. Nakoski, Section Chief, PD2-1, NRR; L. Olshan, Project Manager, PD2-1, NRR; S. Weerakkody, Section Chief, Plant Systems Branch, NRR; E. Guthrie, Senior Resident Inspector - Catawba, DRP, RII; and R. Bernhard, Senior Reactor Analyst, Division of Reactor Safety, RII.

Because CSS train 1A was inoperable due to fouling of the 1A CSS heat exchanger, you stated that on May 11, 2003, at 9:18 a.m., Catawba Unit 1 would not be in compliance with TS 3.6.6, Limiting Condition for Operation (LCO) Action A.1, which requires restoration of an inoperable CSS train to operable status within 72 hours. As such, per TS 3.6.6, Actions B.1 and B.2, Unit 1 would be required to be in Mode 3 (Hot Standby) in 6 hours (3:18 p.m., on May 11, 2003) and in Mode 5 (Cold Shutdown) within 84 hours (9:18 p.m., on May 14, 2003). You requested that a Notice of Enforcement Discretion (NOED) be issued pursuant to the NRC's policy regarding exercise of discretion for an operating facility, set out in Section VII.C, of the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, and be effective for an additional 168 hours (from 9:18 a.m., on May 11, 2003) to support remaining inspection, chemical cleaning, and testing activities necessary to restore the 1A CSS heat exchanger and return CSS train A to operable status. This letter documents our verbal issuance of the NOED (for an additional 168 hours) during the telephone conference on May 10, 2003. As of the date of this letter, we understand that the condition causing the need for this NOED has not yet been corrected.

Catawba Unit 1 was in Mode 1 (Power Operations) when CSS heat exchanger 1A was declared inoperable on May 8, 2003, at 9:18 a.m., for performance testing to verify acceptable flow through the heat exchanger. During this performance testing, a lower than required flow resistance factor for the 1A CSS heat exchanger was identified; thereby, necessitating corrective actions (i.e., inspection, chemical cleaning, and subsequent testing) to restore operability to the 1A CSS heat exchanger and its associated train. The safety basis in your NOED request letter

included a discussion of interim compensatory measures and an evaluation of the potential impact on the public health and safety and the environment. Your evaluation concluded that the request for an additional 168 hours to restore the 1A CSS heat exchanger and return the 1A CSS train to an operable status was overall safety and risk neutral and represented no net increase in radiological risk. In addition you concluded that no significant hazard consideration was involved. The interim compensatory measures you have put in place until the 1A CCS heat exchanger can be returned to service are integral to your no net increase in risk determination. These interim compensatory measures include: (1) mitigating the dominant risk of turbine building flood by controlling work on associated systems and increasing turbine building rounds by plant operators; (2) precluding discretionary maintenance or testing on the offsite power system and maintaining operability of required offsite circuits; (3) precluding discretionary maintenance on the Unit 1 and Unit 2 emergency diesel generators and nuclear service water system; (4) precluding discretionary maintenance on the Unit 1 standby shutdown system, instrument air system, emergency core cooling systems, and hydrogen igniters; and (5) precluding maintenance on CSS train 1B, which was re-tested satisfactorily on May 10, 2003.

We have reviewed your request and agree that maintaining the plant stable in Mode 1 for an additional 168 hours (240 hours total) is preferable to the potential for a plant transient that could occur during a plant shutdown to Mode 3 in this instance. Also, we agree that your interim compensatory measures, risk analysis, and safety basis considerations were adequate to demonstrate that the additional 168 hours would not involve a net increase in radiological risk and would not adversely affect public health and safety. Our decision was based primarily on the request being overall safety and risk neutral, and your agreement to re-verify acceptable flows through the 1B CCS heat exchanger before exceeding the original 72 hours of TS 3.6.6, LCO A.1.

On the basis of the staff's evaluation of your request and the information provided in your letter dated May 10, 2003, we conclude that issuance of this NOED is consistent with the Enforcement Policy and staff guidance, and has no adverse impact on public health and safety. Therefore, it is our intention to exercise discretion not to enforce compliance with TS 3.6.6 for inoperable CSS heat exchanger 1A for the period from May 11, 2003, at 9:18 a.m. until May 18, 2003, at 9:18 a.m. However, as stated in the Enforcement Policy, action will be taken, to the extent that violations are involved, for the root cause or causes that led to the request for this NOED.

Sincerely,

/RA by Bruce S. Mallett Acting for/

Luis A. Reyes
Regional Administrator

Docket No.: 50-413
License No.: NPF-35

cc:

G. D. Gilbert (CNS)
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Duke Energy Corporation
Electronic Mail Distribution

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Assistant Attorney General
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Duke Energy Corporation
526 S. Church Street
Charlotte, NC 28201-0006

EA-03-030 - Clinton (AmerGen Energy Co., LLC)

May 6, 2003

EA-03-030

Mr. John L. Skolds, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION
NOTICE OF VIOLATION - NRC INSPECTION REPORT 50-461/03-02

Dear Mr. Skolds:

This refers to the inspection conducted on January 24, 2003, at the Clinton Power Station. The purpose of the inspection was to review the circumstances surrounding your staff's failure to provide complete and accurate information to the NRC regarding pre-existing medical conditions of two initial reactor operator license candidates. On October 16, 2002, during a phone conversation between acting Operator Licensing Branch Chief, Mr. D. Pelton, and Mr. M. Helton, and following your submission on September 24, 2002, of additional medical information for the two reactor operator license candidates, your staff was notified of the need to take corrective action. In response to that telephone call, your staff generated Condition Report 127688. Inspection Report 50-461/03-02, which discussed the details of the inspection into this apparent violation, was issued on February 28, 2003.

In the letter transmitting the inspection report, we provided you the opportunity to address the apparent violation identified in the report by either attending a predecisional enforcement conference or by providing a written response before we made our final enforcement decision. In a letter dated March 21, 2003, your staff provided a response to the apparent violation.

Based on the information developed during the inspection and the information that you provided in your response to the inspection report dated March 21, 2003, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. On June 26, 2002, your staff provided information to the NRC regarding the medical status of two individuals applying for an NRC reactor operator's license. This information was incomplete and inaccurate in a respect material to the NRC since it did not include medical information already available to your staff that potentially disqualified the two individuals applying for a reactor operator's license. As a result, on August 30, 2002, the NRC issued a reactor operator license that did not contain required medical restrictions to each individual. During an audit of licensed operator medical records on August 30, 2002, your staff identified that these two operators had medical conditions that warranted contacting the NRC. On September 24, 2002, additional medical information was submitted for the two individuals; however, no restriction to their licenses was requested. Based on the additional information provided, the NRC determined that a restriction to each license was necessary and the licenses were modified accordingly on October 17, 2002.

The failure to provide accurate and complete information to the NRC regarding pre-existing medical conditions of two initial reactor operator license candidates is a significant regulatory

issue. If the information had been complete and accurate at the time provided, the NRC would have taken a different regulatory position and would not have issued licenses to the individuals without restriction. Therefore, this violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 at Severity Level III.

In accordance with the Enforcement Policy, a base civil penalty in the amount of $60,000 is considered for a Severity Level III violation. Because your facility has not been the subject of escalated enforcement actions within the last two years, the NRC considered whether credit is warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. The NRC has concluded that credit is warranted for your corrective actions that included, but were not limited to: (1) medical personnel were retrained on the regulatory requirements at all the Exelon sites; (2) contracts between the medical personnel and the utility were altered to specifically require the physician to evaluate medical testing results using applicable NRC requirements and American Nuclear Standards Institute/American Nuclear Society (ANSI/ANS) 3.4-1983, when performing licensed operator medical examinations; (3) medical reporting process procedure was changed to ensure the NRC is notified when a reportable medical condition is identified and site medical personnel were trained on the procedure; and (4) medical records at all Exelon sites were audited to attempt to identify any additional problems with medical conditions that were not reported.

Therefore, to encourage prompt and comprehensive correction of violations, and in recognition of the absence of previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, not to propose a civil penalty in this case. However, significant violations in the future could result in a civil penalty.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed in Inspection Report 50-461/03-02. Therefore, you are not required to respond to this letter unless the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. Should you chose to respond, your response, to the extent possible, should not include any personal privacy, proprietary, or safeguards information so that the response can be made available to the Public without redaction. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do**, **Enforcement**, then **Significant Enforcement Actions**.

Sincerely,

/RA/

J. E. Dyer
Regional Administrator

Docket No. 50-461
License No. NPF-62

Enclosure: Notice of Violation (VIO 50-461/03-02-01)

cc w/encl:
Site Vice President - Clinton Power Station
Clinton Power Station Plant Manager
Regulatory Assurance Manager - Clinton
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group

Vice President - Mid-West Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing - Mid-West Regional Operating Group
Manager Licensing - Clinton and LaSalle
Senior Counsel, Nuclear, Mid-West Regional Operating Group
Document Control Desk - Licensing

NOTICE OF VIOLATION

AmerGen Energy Company, LLC
Clinton Power Station

Docket No.461
License No. NPF-62
EA 03-030

During an NRC inspection conducted on January 24, 2003, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR 50.9 requires, in part, that information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

10 CFR 55.23 requires that to certify the medical fitness of the applicant, an authorized representative of the facility licensee shall complete and sign Form NRC - 396, "Certification of Medical Examination by Facility Licensee."

Form NRC - 396, when signed by an authorized representative of the facility licensee, certifies that a physician conducted a medical examination of the applicant as required in 10 CFR 55.21, and that the guidance contained in American Nuclear Standards Institute/American Nuclear Society (ANSI/ANS) 3.4-1983 was followed in conducting the examination and making the determination of medical qualification.

ANSI/ANS 3.4-1983, Section 5.3.2(1), provides, in part, that certain medical conditions preclude solo operation of a nuclear power plant.

Contrary to the above, on June 26, 2002, a senior licensee representative submitted to the NRC Form NRC - 396 for two individuals, each applying for an operator's license, that were not complete and accurate in all material respects. Specifically, the NRC Form 396 certified that each applicant met the medical requirements of ANSI/ANS 3.4-1983 and that neither applicant would require any restrictions to their license. In fact, each applicant had a pre-existing medical condition which did not meet the minimum standards of ANSI/ANS 3.4-1983, Section 5.3.2(1) and required that their individual licenses be amended to include restrictions for "no solo" operation. This information is material to the NRC because the NRC relies on this certification to determine whether the applicant meets the requirements to operate the controls of a nuclear power plant pursuant to 10 CFR Part 55.

This is a Severity Level III violation (Supplement VII).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved, is already adequately addressed on the docket in Inspection Report No. 05000261/2003-002(DRS). However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation, EA-03-030" and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region III, Suite 255, 801 Warrenville Road, Lisle, IL 60532-4351, and a copy to the NRC Resident Inspector at the Clinton Power Station, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 6th day of May 2003.

S. Tina Ghosh

I joined the ACRS/ACNW office as a summer intern on June 9, 2003. I am working for the ACNW on the Yucca Mountain repository KTI (key technical issue) resolution agreements between the DOE and NRC. I am a PhD candidate in the Nuclear Engineering Department at MIT, working under the supervision of Prof. George Apostolakis. I received my B.S.E. in Civil Engineering and Operations Research, concentration in Environmental Engineering, from Princeton University in 1995. My senior thesis evaluated options for the disposition of excess weapons-grade plutonium, with emphasis on comparing different waste forms, i.e., glass or Synroc, for the disposal option. After working for a couple of years on various environmental issues with public interest organizations, I started graduate school at MIT. I received an S.M. in the Technology and Policy Program in 2000, while working with Prof. George Apostolakis on issues surrounding Performance Assessment methods and regulatory requirements for high-level waste repositories in different countries, as well as risk-informed and performance-based regulatory initiatives for US DOE facilities. My doctoral thesis sub-topics are under the broad umbrella of risk-informed and performance-based decision making. One sub-topic addresses how to make decisions given significant uncertainty in the conceptual models used in Performance Assessments for complex nuclear waste systems. I spent about a year working on model uncertainty issues, including three months at Lawrence Livermore National Laboratory looking at model uncertainties in the Yucca Mountain TSPA (total-system performance assessment); I was supported in part by the DOE's Office of Civilian Radioactive Waste Management fellowship. The other sub-topic of my thesis relates to NPP organizational learning through incident investigation -- more specifically, a method of identifying organizational issues through extended root-cause analyses of events and/or inspection findings found through performance monitoring in the NRC's ROP (reactor oversight process).

ACRS BRIEFING

on

Interim Staff Guidance (ISG) Process and Status
and
Time-Limited Aging Analyses (TLAAs) Supporting Information

June 13, 2003

Peter J. Kang, Project Manager

License Renewal and Environmental Impacts (RLEP)
Division of Regulatory Improvement Program (DRIP)

Introduction

- The purpose of the ISG process is to provide timely guidance to applicants for new staff positions.

- The ISG process includes identification and implementation of the ISGs for current and future applicants.

Implementation: Applicants

- Applicants must address all approved ISGs before the renewed license is issued.
- Applicants may address ISGs before they are approved.

Implementation: Licensees Holding a Renewed License

- Staff tracks ISGs for licensees holding renewed licenses.
- Staff will evaluate the ISGs for applicability to licensees holding a renewed license.

Summary

- The ISG process:
  - Captures lessons learned from staff reviews and ACRS comments,
  - Provides timely guidance to applicants for license renewal,
  - When finalized, all ISGs will be incorporated into the license renewal guidance documents (SRP-LR, GALL, and Regulatory Guide 1.188).

Interim Staff Guidance (ISG) Status Update

ISG Status

No.	Approved ISG No. ISG Issue	Purpose	Status Issuance Date
1	ISG-01 GALL report contains one acceptable way, not only way	To clarify that GALL report contains one acceptable way, not only way	Completed 11/23/01
2	ISG-02 Station Blackout Scoping (SBO)	To add SBO scoping	Completed 4/1/02
3	ISG-03 Concrete Aging Management Program	To clarify the acceptable aging management programs (AMPs) in GALL and SRP	Completed 11/23/01
4	ISG-04 Fire Protection System Piping	To clarify AMPs X1.M26 and M27	Completed 12/3/02
5	ISG-05 Identification and Treatment of Electrical Fuse Holders	To include fuse clips and fuse block for fuse holders and to add a new AMP for fuse clips (i.e., metallic)	Completed 3/10/03
6	Identification and Treatment of Housing of Active Components	To clarify a need for AMR for housing of fans, dampers, and H/C coils	Awaiting NEI response
7	Scoping Guidance for Fire Protection Systems, Structures, and Components	To clarify fire protection scoping	Awaiting NEI response

ISG Status (continued)

No.	ISG Issue	Purpose	Status
8	Updating the Improved Guidance Documents, ISG Process	To establish ISG process. Appeal will be a part of ISG process	Deleted from ISG list (non-technical issue)
9	Scoping Criteria 10 CFR 54.4 (a) (2)	To clarify the scoping criteria in 10 CFR 54.4 (a) (2)	Awaiting NEI response
10*	Class of '03 Standard License Renewal Application Format * Response to ACRS Comments	To standardize license renewal format for 2003 applicants to make the LR process efficient.	Completed 4/7/03
11	Aging Management of Environmental Fatigue for Carbon/Low Alloy Steel	To review this fatigue issue as an ISG process, as agreed by 9/18/02 meeting	Under staff review
12*	Cracking of Class 1 Small Bore Piping and one-time inspection * Response to ACRS Comments	To capture experience related to cracking of Class 1 small bore piping and one-time inspection	Under staff review
13	Management of Loss of Preload on Reactor Vessel Internals Bolting Using the Loose Parts Monitoring System	To review use of Loose Parts Monitoring System for management of loss of preload on reactor vessel internals bolting	Under staff development
14	Operating Experience with Cracking on Bolting	To capture experience related to cracking of bolting	Under staff development

ISG Status (continued)

No.	ISG Issue	Purpose	Status
15	Revision to Generic Aging Lessons Learned (GALL) aging management program (AMP) XI.E2	To incorporate NEI's proposed revision to GALL AMP XI.E2	Under staff review
16*	Time-Limited Aging Analyses (TLAA) supporting information for license renewal applications * Response to ACRS Comments	To maximize the efficiency of the LRA review process and minimize RAIs	Awaiting NEI response
17	Bus ducts (Iso-phase and Non-segregated) for electrical bus bar	To review bus bar Insulation problem due to water intrusion in bus ducts and develop AMP	Under staff development
18*	Revision to GALL AMP XI.E3 for inaccessible cable (medium voltage) * Response to ACRS Comments	Develop AMP to prevent moisture collection in man hole.	Under staff development

Standard License Renewal Application (SLRA) format

- NEI developed the SLRA format for future applicants
- The staff reviewed and concurred
- The license renewal applicants to be submitted starting in September are encouraged to use this format
- The format will be incorporated into NEI 95 0

Time-Limited Aging Analyses (TLAAs) Supporting Information

- Discussed TLAA supporting information in a meeting with the industry on April 22, 2003.

- On May 12, 2003, the staff issued "Proposed Interim Staff Guidance (ISG) 16: Time Limited Aging Analyses (TLAAs) Supporting Information for License Renewal Applications"

List of Staff's Repeated RAI questions

- Identification of Time-Limited Aging Analyses
- Reactor Vessel Neutron Embrittlement Analysis
- Metal Fatigue Analysis
- Environmental Qualification of Electric Equipment
- Concrete Containment Tendon Prestress Analysis
- Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis
- Other Plant-Specific TLAAs

TLAA Examples:

1.) Reactor Vessel Neutron Embrittlement

Provide necessary data for the staff to confirm: Upper Shelf Energy (USE) and Adjusted Reference Temperature (ART) calculations, and RT values for Pressurized Thermal Shock for the period of extended operation.

2.) Metal Fatigue Analysis

Provide the details of a fatigue monitoring program (FMP) that tracks the number of operational transient cycles. This information should include the number of cycles, current number of operating cycles, and the number of cycles projected for 60 years of plant operation for each transient and how these cycle counts are determined.

TLAA Examples (continued):

3.) Concrete Containment Tendon Prestress Analysis

Plot the prestressing trend lines for each group of tendons from its past surveillance data and project it for the 60 years of operation.

Plant	Appendix B	Non Appendix B
Calvert Cliffs	X	
Oconee	x	
ANO-1		x
Hatch	x	
Turkey Point	x	
McGuire/Catawba	x	
North Anna/Surry		x
Peach Bottom		x
St. Lucie	x	
Fort Calhoun	x	
Robinson	x	
Ginna	x	
Summer	x	
Dresden/Quad Cities		x

FALL REPORT

XI.M32 ONE-TIME INSPECTION

Program Description

The program includes measures to verify the effectiveness of an aging management program (AMP) and confirm the absence of an aging effect. For example, for structures and components that rely on an AMP, such as water chemistry control, this program verifies the effectiveness of the AMP by confirming that unacceptable degradation is not occurring and the intended function of a component will be maintained during the extended period of operation. One-time inspection is needed to address concerns for the potential long incubation period for certain aging effects on structures and components. There are cases where either (a) an aging effect is not expected to occur but there is insufficient data to completely rule it out, or (b) an aging effect is expected to progress very slowly. For these cases, there is to be confirmation that either the aging effect is indeed not occurring, or the aging effect is occurring very slowly as not to affect the component or structure intended function. A one-time inspection of the subject component or structure is an acceptable option for this verification. One-time inspection is to provide additional assurance that either aging is not occurring or the evidence of aging is so insignificant that an aging management program is not warranted. For exarnple, for structures and components, such as Class 1 piping with a diameter less than nominal pipe size (NPS) 4 inch that do not receive volumetric examination during inservice inspection, the program confirms that crack initiation and growth due to stress corrosion cracking (SCC) or cyclic loading is not occurring and, therefore, there is no need to manage an aging related degradation for the period of extended operation.

The elements of the program include (a) determination of the sample size based on an assessment of materials of fabrication, environment, plausible aging effects, and operating experience; (b) identification of the inspection locations in the system or component based on the aging effect; (c) determination of the examination technique, including acceptance criteria that would be effective in managing the aging effect for which the component is examined; and (d) evaluation of the need for follow-up examinations to monitor the progression of any aging degradation.

When evidence of an aging effect is revealed by a one-time inspection, the routine evaluation of the inspection results would identify appropriate corrective actions.

As set forth below, an acceptable verification program may consist of a one-time inspection of selected components and susceptible locations in the system. An alternative acceptable program may include routine maintenance or a review of repair records to confirm that these components have been inspected for aging degradation and significant aging degradation has not occurred and thereby verify the effectiveness of existing AMPs. One-time inspection, or any other action or program, is to be reviewed by the staff on a plant-specific basis.

Evaluation and Technical Basis

1. ***Scope of Program:*** The program includes measures to verify that unacceptable degradation is not occurring, thereby validating the effectiveness of existing AMPs or confirming that there is no need to manage aging-related degradation for the period of extended operation. The structures and components for which one-time inspection is to verify the effectiveness of the AMPs (e.g., water chemistry control, etc.) have been identified in the Generic Aging Lessons Learned (GALL) report. Examples include small bore piping in the reactor coolant system or the feedwater system components in boiling water reactors (BWRs) and pressurized water reactors (PWRs).

2. ***Preventive Actions:*** One-time inspection is an inspection activity independent of methods to mitigate or prevent degradation.

3. ***Parameters Monitored/Inspected:*** The program monitors parameters directly related to the degradation of a component. Inspection is performed in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Code and 10 CFR 50, Appendix B, by using a variety of nondestructive examination (NDE) methods, including visual, volumetric, and surface techniques.

4. ***Detection of Aging Effects:*** The inspection includes a representative sample of the system population, and, where practical, focus on the bounding or lead components most susceptible to aging due to time in service, severity of operating conditions, and lowest design margin. For small-bore piping, actual inspection locations are based on physical accessibility, exposure levels, NDE techniques, and locations identified in Nuclear Regulatory Commission (NRC) Information Notice (IN) 97-46.

   Combinations of NDE, including visual, ultrasonic, and surface techniques, are performed by qualified personnel following procedures consistent with the ASME Code and 10 CFR 50, Appendix B. For small-bore piping less than NPS 4 in., including pipe, fittings, and branch connections, a plant-specific destructive examination of replaced piping due to plant modifications or NDE that permits inspection of the inside surfaces of the piping is to be conducted to ensure that cracking has not occurred. Follow-up of unacceptable inspection findings includes expansion of the inspection sample size and locations.

   The inspection and test techniques prescribed by the program verify any aging effects because these techniques, used by qualified personnel, have been proven effective and consistent with staff expectations. With respect to inspection timing, the one-time inspection is to be completed before the end of the current operating license. The applicant may schedule the inspection in such a way as to minimize the impact on plant operations. However, the inspection is not to be scheduled too early in the current operating term, which could raise questions regarding continued absence of aging effects prior to and near the extended period of operation.

5. ***Monitoring and Trending:*** One-time inspection does not provide specific guidance on monitoring and trending. However, evaluation of the appropriateness of the techniques and timing of the one-time inspection improve with the accumulation of plant-specific and industry-wide experience.

6. ***Acceptance Criteria:*** Any indication or relevant conditions of degradation detected are evaluated. The ultrasonic thickness measurements are to be compared to predetermined limits, such as design minimum wall thickness.

7. ***Corrective Actions:*** Site quality assurance (QA) procedures, review and approval processes, and administrative controls are implemented in accordance with the requirements of 10 CFR Part 50, Appendix B. As discussed in the appendix to this report, the staff finds the requirements of 10 CFR Part 50, Appendix B, acceptable in addressing the corrective actions, confirmation process, and administrative controls.

8. ***Confirmation Process:*** See Item 7, above.

9. ***Administrative Controls:*** See Item 7, above.

10. ***Operating Experience:*** One-time inspection is a new program to be applied by the applicant. The elements that comprise these inspections (e.g., the scope of the inspections and inspection techniques) are consistent with years of industry practice and staff expectations.

References

10 CFR 50.55a, *Codes and Standards*, Office of the Federal Register, National Archives and Records Administration, 2000.

ASME Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components*, ASME Boiler and Pressure Vessel Code, 1995 edition through the 1996 addenda, American Society of Mechanical Engineers, New York, NY.

NRC Information Notice 97-46, *Unisolable Crack in High-Pressure Injection Piping*, U.S. Nuclear Regulatory Commission, July 9, 1997.

GALL REPORT

QUALITY ASSURANCE FOR AGING MANAGEMENT PROGRAMS

The license renewal applicant must demonstrate that the effects of aging on structures and components subject to an aging management review (AMR) will be adequately managed to ensure that their intended functions will be maintained consistent with the current licensing basis (CLB) of the facility for the period of extended operation. Therefore, those aspects of the AMR process that affect the quality of safety-related structures, systems, and components are subject to the quality assurance (QA) requirements of Appendix B to 10 CFR Part 50. For non-safety-related structures and components subject to an AMR, the existing 10 CFR Part 50, Appendix B, QA program may be used to address the elements of corrective actions, confirmation process, and administrative controls on the following bases:

- Criterion XVI of 10 CFR Part 50, Appendix B, requires that measures be established to ensure that conditions adverse to quality, such as failures, malfunctions, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected. In the case of significant conditions adverse to quality, measures must be implemented to ensure that the cause of the nonconformance is determined and that corrective action is taken to preclude repetition. In addition, the root cause of the significant condition adverse to quality and the corrective action implemented must be documented and reported to appropriate levels of management.

- Because Criterion XVI of 10 CFR Part 50, Appendix B, requires that measures be taken to preclude repetition of significant conditions adverse to quality, follow-up actions must be taken to verify effective implementation of the proposed corrective action. This verification comprises the confirmation process element for aging management programs for license renewal. For example, in managing internal corrosion of piping, a mitigation program (water chemistry) may be used to minimize susceptibility to corrosion. However, it may also be necessary to have a condition monitoring program (ultrasonic inspection) to verify that corrosion is indeed insignificant. When corrective actions are necessary for significant conditions, follow-up activities are to confirm that the corrective actions implemented are effective in preventing recurrence.

- Administrative controls are the provisions associated with organization and management, policies, orders, instructions, procedures, record keeping, and designations of authority and responsibility that are necessary to ensure operation of the facility in a safe manner. 10 CFR 50.34(b)(6)(ii) and 10 CFR 50.36(c)(5) require that nuclear power plant license applicants include in the final safety analysis report information on the managerial and administrative controls to be used to ensure safe operation. 10 CFR 50.34(b)(6)(ii) and 10 CFR 50.36(c)(5) also stipulate that Appendix B to 10 CFR Part 50 sets forth the requirements for these managerial and administrative controls. Accordingly, programs consistent with the requirements of 10 CFR Part 50, Appendix B, also satisfy the administrative controls element necessary for aging management programs (AMPs) for license renewal.

Notwithstanding the suitability of its provisions to address quality-related aspects of the AMR process for license renewal, 10 CFR Part 50, Appendix B, covers only safety-related structures, systems, and components. Therefore, absent a commitment by the applicant to expand the scope of its 10 CFR Part 50, Appendix B, QA program to include non-safety-related structures and components subject to an AMR for license renewal, the AMPs applicable to such structures and components are to provide alternative means to address corrective actions, confirmation process, and administrative controls. Such alternate means would be subject to review by NRC on a case-by-case basis.

III Structures and Component Supports
A9. Group 9 Structures (BWR Unit Vent Stack)

Item	Structure and/or Component	Material	Environment	Aging Effect/ Mechanism	Aging Management Program (AMP)	Further Evaluation
A9.1-e	Concrete: Below grade; foundation	Reinforced concrete	Exposure to aggressive environment	Cracking, loss of bond, loss of material (spalling, scaling) / Corrosion of embedded steel	A plant-specific aging management program is required only if the below-grade environment is aggressive (pH <5.5, chlorides >500 ppm, or sulfates >1500 ppm). Examination of representative samples of below-grade concrete, when excavated for any reason, is to be included as part of a plant-specific program. If the below-grade environment is not aggressive, this aging effect is not significant. Periodic monitoring of below-grade water chemistry (including consideration of potential seasonal variations) is an acceptable approach to demonstrate that the below-grade environment is not aggressive.	Yes, if an aggressive below-grade environment exists
A9.1-f	Concrete: Above grade	Reinforced concrete	Exposure to aggressive environment	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) / Aggressive chemical attack	Chapter XI.S6, "Structures Monitoring Program" As described in NUREG-1557, aggressive chemical attack on interior and above-grade exterior reinforced concrete is not significant if the concrete is not exposed to an aggressive environment (pH <5.5), or to chloride or sulfate solutions beyond defined limits (>500 ppm chloride, or >1500 ppm sulfate). Therefore, if these conditions are satisfied, aging management is not required.	No, if within the scope of the applicant's structures monitoring program

SAL REPORT

TLAA for Tendon Prestressing Force

- Prestressing Provides Pre-Compression in Concrete
- Counteracts Tension due to Internal Pressure
- Steel Tendons Provide Required Prestressing
- Time Dependent Losses Affect Tendon Forces
- ISIs to Track the Losses – Subsection IWL
- 10 CFR 54.21(c)(1) Applicable for LR
- SRP-LRA 4.5 Delineates Review Rquirements

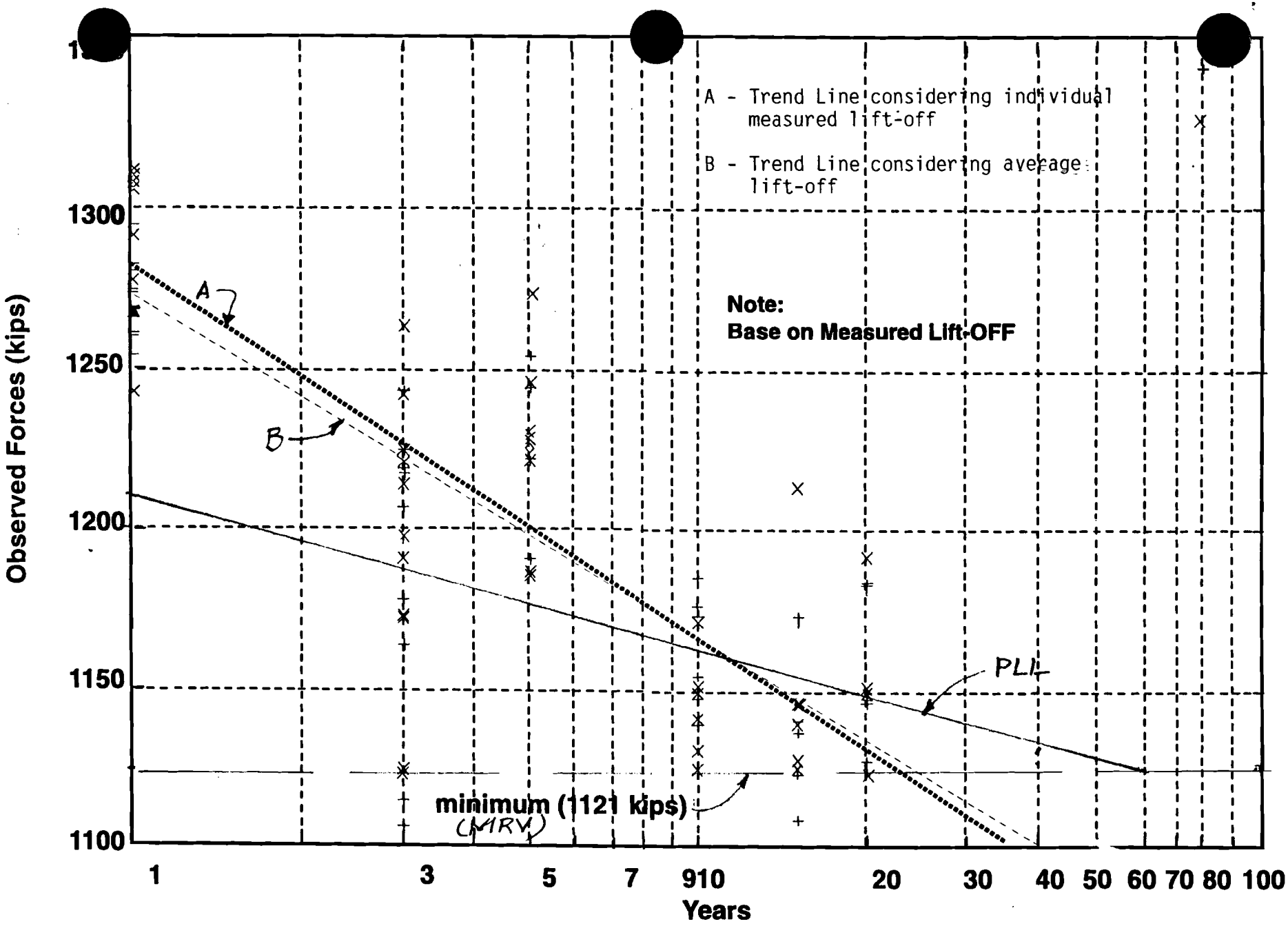

Fig 3 Trend of Prestressing Forces in Horizontal Tendons

Licensee Needs from ISG Process

- Focus on safety
- Clear staff expectations
- Timely resolution of issues
- RAI reductions
- Schedules maintained/improved
- Recognition of industry bases
- Process improvement capability

ISG Comment Status

ISG Number	ISG Content	Expected Submittal of Industry Comments
ISG - 6	Housing for Active Components	Early July
ISG - 7	Fire Protection Scoping	June 20
ISG – 9	Seismic II/I Piping System Scoping	Mid July
ISG - 16	TLAAs	Late July

(5)

Two Topics

- **ACRS report on NRC Research**
- **Report to Commission on Divergences in safety regulation between USA and other countries**

Issues

- **Do we want to include divergences in the RES report or create a separate report ?**

- **Do we want to create a "divergences" report at all or just formulate the basis for an oral presentation to the Commission ?**

Note: *The Europeans seem very concerned about the divergences and have offered us their help in formulating a description of the issues.*

Categorization of Topics

- **Safety Goals**
  - Land contamination
- **Future Reactors**
  - Imposition of EPR findings on current reactors
- **Accident Consequences**
  - ICRP 60 versus 30
  - Injuries
  - LNT
- **License Renewal**
  - 10 year safety appraisal
- **Risk-informed Regulation**
- **Safety Culture**
- **Severe Accident Management Guidelines**
- **Quantification of Severe Accidents**

Needs

- Accumulate divergences

- We have a lot of issues where EU is doing something NRC is not. Aren't there more items of the inverse type ?

RESEARCH REPORT

- Agree that we want a full report
- Agree with a strategy
- Agree that the report is a "critical" review and not some sort of an advocacy document
- Agree with the limits of the report

Topical Areas

- Integrity of the reactor system
- PRA
- Reactor and System Codes
  - Thermal hydraulics
  - severe accidents
  - reactor kinetics
  - DBA
- Assessment of Operations (AEOD function)
- Aging
- Digital Technology
- Regulatory Initiatives
- Mixed Oxide Fuel Regulation
- Health Effects

Omissions

- **ACNW Topics**

  - What about transportation ?

- **Safeguards and Security Research**

- **Advanced Reactor Research**

STRATEGY

- Minimize staff time
- Minimize members time
- **Report team**
    - collects data
    - draft summary, conclusions and recommendations
    - assemble tables of projects within each area
- **Cognizant members**
    - reviews, revises draft
    - adds research needs

NEED

What subcommittee meetings will be held between now and December that will review research activities

ISSUE

Should we examine recommendations of Rogers' report and see how RES has responded ?

Evaluation Criteria

- Essential (how?) to current regulatory activities
- Promise of increased regulatory effectiveness or efficiency. Why?
- Anticipation of future industry steps. Why do we think this is probable ?
- Preserves needed technical capabilities. Why do we think the capabilities are needed?
- Enough done for regulatory decisionmaking?
- Should have never been initiated
- No promise of achieving useful results
- Not technically defensible work

- Why is NRC researching corrosion issues ? These issues are clearly issues for owner/operators.

- Why is NRC researching digital systems? NRC resourses cannot keep pace with developments in the field.

- Why isn't NRC doing more with Fire Safety if it claims to be risk infomed by IPE[3] results ?

- What are NRC's aspirations for its capabilities to estimate specific plant risk ? Generic plant risk ?

Cognizant Members
(Option 1)

- Integrity of the reactor system **(Ford)**
- PRA **(Rosen)**
- Reactor and System Codes
  - Thermal hydraulics **(Ransom)**
  - severe accidents **(Kress)**
  - reactor kinetics**(Sieber)**
  - DBA **(Powers)**
- Assessment of Operations (AEOD function) **(Leitch and Apostolakis)**
- Aging **(Bonaca)**
- Digital Technology **(Sieber)**
- Regulatory Initiatives **(Shack)**
- Mixed Oxide Fuel Regulation **(Powers)**
- Health Effects **(Wallis)**

Cognizant Member
(Option 2)

- Integrity of the reactor system **(Powers)**
- PRA **(Wallis)**
- Reactor and System Codes
  - Thermal hydraulics **(Shack)**
  - severe accidents **(Powers)**
  - reactor kinetics **(Apostolakis)**
  - DBA **(Sieber)**
- Assessment of Operations (AEOD function) **(Kress)**
- Aging **(Apostolakis)**
- Digital Technology **(Rosen)**
- Regulatory Initiatives **(Ransom)**
- Mixed Oxide Fuel Regulation **(Leitch)**
- Health Effects **(Ford)**

(6)

G:PPHandout

ACRS MEETING HANDOUT

Meeting No.	Agenda Item	Handout No.:
503	7	7.1

Title **PLANNING & PROCEDURES/ FUTURE ACRS ACTIVITIES**

Authors
JOHN T. LARKINS

List of Documents Attached

PLANNING & PROCEDURES MINUTES

7

Instructions to Preparer	From Staff Person
1. Paginate Attachments 2. Punch holes 3. Place Copy in file box	JOHN T. LARKINS/

INTERNAL USE ONLY

G:PlanPro(ACRS):ppmins.503
June 12, 2003

SUMMARY MINUTES OF THE
ACRS PLANNING AND PROCEDURES SUBCOMMITTEE MEETING
June 11, 2003

The ACRS Subcommittee on Planning and Procedures held a meeting on June 11, 2003, in Room T 2 B3, 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 4:30 p.m. and adjourned at 6:00 p.m.

ATTENDEES

MEMBERS

M. Bonaca
S. Rosen

ACRS STAFF

J. T. Larkins
S. Bahadur
H. Larson
S. Duraiswamy
R. P. Savio
R. Caruso
H. Nourbakhsh
S. Meador

NRC Staff

I. Schoenfeld

1) Review of the Member Assignments and Priorities for ACRS Reports and Letters for the June ACRS meeting

Member assignments and priorities for ACRS reports and letters for the June ACRS meeting are attached (pp. 8-10). 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 June ACRS meeting be as shown in the attachment (pp. 8-10).

2) Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through September 2003 is attached (pp. 8-10). 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
- Plan and schedule items for ACRS discussion of topical and emerging issues

During this session, the Subcommittee also discussed and developed recommendations on items included in Section II of the Future Activities List (pp. 11-12).

RECOMMENDATION

The Subcommittee recommends that the members provide comments on the anticipated workload. Changes will be made, as appropriate. The Committee should decide on the Subcommittee's recommendations on items in Section II of the Future Activities List.

3) 2004 ACRS Report on the NRC Safety Research Program

The Committee recently completed its 2003 report (NUREG-1635, Vol. 5) on the NRC Safety Research Program. The focus of that report was on the "Advanced Reactor Research Infrastructure Assessment" document prepared by the Office of Nuclear Regulatory Research.

Dr. Powers has agreed to take the lead for preparing the 2004 ACRS report. Consistent with discussion with the Commission, the 2004 report should cover all RES safety research programs.

As suggested by the Committee at the April 2003 ACRS meeting, Dr. Powers has prepared a proposed strategy for preparing the 2004 research report (pp. 13-16).

In the April 28, 2003 SRM, resulting from the ACRS meeting with the Commission on April 11, 2003, the Commission stated that "the ACRS is welcome to propose changing the frequency and nature of its review and evaluation of the NRC Safety Research Program so that it is most useful to the Commission." It should be noted that SECY-03-0091, "Self-Assessments of ACRS and ACNW Performance," states that, "The ACRS currently plans to perform comprehensive program reviews every two years and to focus its attention between two-year reviews on topics of emerging importance."

RECOMMENDATION

The Subcommittee recommends that the members provide feedback on the strategy proposed by Dr. Powers.

4) ACRS Self Assessment Report for 2001-2002 (JTL/RPS)

The ACRS staff has interviewed all of the NRC Commissioners, the EDO, Directors of NRR, RES, and NMSS, and other internal managers and staff to get their views on how well the ACRS has been performing over the last 12-14 months as input to the required periodic self-assessment paper. Dr. Savio has interviewed a number of stakeholders to assess their views on how well the ACRS has been performing. A draft Commission paper documenting the results of interviews was provided for review and comment by the Subcommittee and the full Committee at the May ACRS meeting. The final Commission paper on ACRS/ACNW Self-Assessment was sent to the Commission on June 3, 2003 (SECY-03-0091). It was also sent to the members on June 4, 2003.

RECOMMENDATION

The Subcommittee recommends that the ACRS Executive Director keep the Committee informed of the Commissioners' feedback.

5) Change of Dates for the July 2003 ACRS Meeting

The July ACRS meeting is currently scheduled for Wednesday July 9 through Friday July 11, 2003. During the May ACRS meeting, the Committee decided to hold a meeting of the Safeguards and Security Subcommittee on July 9. The ACRS/ACNW Executive Director suggests that discussion of the safeguards and security matters be made part of the full Committee meeting on July 9. Since the Committee is scheduled to prepare four reports, including the one on Safety Culture, a decision should be made with regard to extending the July meeting through Saturday, July 12.

RECOMMENDATION

The Subcommittee recommends that the Committee decide on the need to have a four-day meeting (July 9-12, 2003) in July.

6) A Critical Review of the PIRT Process

The phenomena identification and ranking table (PIRT) process was originally formulated, as a major step in the code scaling, applicability and uncertainty (CSAU) evaluation methodology, to support a revised emergency core cooling system (ECCS) rule for light water reactors. This revised ECCS rule (10CFR 50.46) was issued in September 1988 and allows, as an option, the use of best estimate plus uncertainty methods in safety analysis. The CSAU evaluation methodology was developed to demonstrate the feasibility of the best estimate plus uncertainty approach. The

objective of the PIRT process was to define plant behavior in the context of identifying the relative importance of systems, components, processes, and phenomena.

The PIRT process, with some variations, has been used in many more applications than was originally envisioned. These applications include development of experimental programs and safety analysis requirements for proposed advanced light water reactors, identification of thermal-hydraulic phenomena of importance to pressurized thermal shock (PTS) evaluation, assessment of the adequacy of the planned research programs in addressing the high burnup and new cladding alloy issues, support to resolution of Generic Safety Issues (GSIs) and providing technical guidance in allowing burnup credit (BUC) in the criticality safety analysis of spent fuel in transport and storage configurations. The NRC Office of Nuclear Regulatory Research also plans to use the PIRT process for identifying and prioritizing the research needs to develop regulatory infrastructure including data, codes and standards, and analytical tools in support of regulatory review of advanced reactor applications.

In view of wide spread use of PIRT process and its role in prioritization of research needs to address reactor safety technical issues, it is important to provide lessons learned from the past several years of experience with the PIRT process and to identify potential improvements for future PIRT development. Dr. Nourbakhsh plans to provide a presentation to the committee at the July 2003 ACRS meeting on this matter. The purpose of this presentation is to review the PIRT process and its prior applications and to provide some suggestions for enhancement of the process. Use of system dynamics techniques, such as influence diagrams, offers an attractive alternative for developing a phenomena identification and ranking table, which is the principal product of the PIRT process. The use of influence diagrams as a comprehensive framework to identify and prioritize the physical processes which need to be addressed for resolving a technical issue will also be discussed.

RECOMMENDATION

The Subcommittee recommends that Dr. Nourbakhsh provide a presentation to the full committee during the July 2003 ACRS meeting.

7) Comments on NUREG/CR-6813, Issues and Recommendations for Advancement of PRA Technology in Risk-Informed Decisionmaking

We recently published NUREG/CR-6813 prepared by Mr. Fleming under a contract with the ACRS/NRC. Mr. Lochbaum, Union of Concerned Scientists, has sent some comments (pp. 24-25) on this report to the NRC Office of Public Affairs (OPA). Mr. Fleming prepared a response to Mr. Lockbaum, addressing every comment made by Mr. Lockbaum and sent it to Dr. Nourbakhsh. Mr. Lockbaum's comments and Mr. Fleming's response were e-mailed to all members by Dr. Nourbakhsh on May 5, 2003. The ACRS Executive Director e-mailed Mr. Fleming's response to OPA, NRR, and Mr. Lochbaum on May 5, 2003.

We understand that the NRC staff plans to submit comments on Mr. Fleming's report. RES has the lead in gathering the comments including those from NRR and provide them to the EDO for transmittal to Dr. Larkins. Drs. Bonaca and Larkins discussed this matter with the RES Director.

RECOMMENDATION

The Subcommittee recommends that the ACRS Executive Director keep the Committee informed of any comments from the staff and others on NUREG/CR-6813. Also, the ACRS Executive Director should discuss this matter with the EDO

8) Meeting with the Executive Director for Operations

The members of the Planning and Procedures Subcommittee were scheduled to meet with the EDO and his deputies during lunch on Friday, June 13 to discuss items of mutual interest, including the following:

- Differing views between the ACRS and the NRC staff on Reactor Oversight Process.
- NRC staff process for tracking commitments made by the EDO/staff in response to ACRS comments and recommendations.
- Timely submittal of documents for ACRS review.
- Staff Requirements Memorandum on risk-Informing 10 CFR 50.46.
- Safeguards and Security matters.

This meeting has been postponed to July 11, 2003.

RECOMMENDATION

The Subcommittee recommends that the ACRS Chairman and other members of the Subcommittee provide a report to the Committee on the results of this meeting.

9) Request by Mr. Robert H. Leyse, a Member of the Public, that Fouling and ultrasonic Cleaning be Studied by the ACRS

Mr. Leyse, a member of the public, submitted a petition for rulemaking to address the impact of fouling on the performance of heat transfer surfaces throughout licensed nuclear power plants. The new regulations must also require the inclusion of fouling considerations in the NRC-funded test programs such as the Rod Bundle Heat Transfer Program at the Penn State University.

On February 10, 2003, Mr. Leyse transmitted copies of his petition for rulemaking and associated documents for evaluation by the ACRS. During its March 2003 meeting, the

Committee considered Mr. Leyse's request and asked the ACRS Executive Director to respond to Mr. Leyse. Accordingly, the Executive Director sent a response on March 14, 2003, stating that if Mr. Leyse desires to discuss his concerns with the ACRS Subcommittee on Reactor Fuels during a future meeting of that Subcommittee he will be kept informed of the schedule for that meeting.

In letters dated March 31, 2003 and May 3, 2003, to Dr. Larkins (pp. 17-19) Mr. Leyse requested that the ACRS study the fouling and ultrasonic cleaning. Also, he suggested that the ACRS hear presentations by Mr. Loran D. Lukic and Mr. Jeffrey S. Schmidt, authors of the article on "Nuclear Plant Operations and Control - Taming the Crud Problem: A Utility Perspective." Mr. Leyse's letter and a copy of the above mentioned article were sent to the members on May 21, 2003, (p. 20).

On May 15, 2003, Mr. Roecklein, NRC, sent a letter (p 21) to Mr. Leyse, informing him of the status of the NRC staff's review of four petitions submitted by Mr. Leyse. Subsequently, in response to a request by Mr. Leyse for copies of the staff's recommendations to the Commission regarding his petitions, Mr. Roecklein sent an e-mail stating that since the staff's recommendations are predecisional the staff is not permitted to release such information (p. 22). On June 2, 2003, Mr. Leyse sent an e-mail (pp. 23-24) to the NRC Chairman requesting copies of the staff's recommendations to the Commission on his petitions.

In SECY-03-0085, dated May 23, 2003, the staff recommended that the Commission deny two petitions for rulemaking submitted by Mr. Leyse, which are related to revising 10 CFR 50.46 and Appendix K to 10 CFR Part 50 to require licensees to address the impact on coolant flow of release and resuspension of crud buildup on fuel cladding during loss-of-coolant accident scenarios and during normal operations. A copy of SECY-03-0085 along with a proposed letter to Mr. Leyse from the Secretary of the Commission is attached (pp. 25-32).

RECOMMENDATION

The Subcommittee recommends that Drs. Powers and Wallis propose a course of action regarding Mr. Leyse's request that the ACRS review the fouling and ultrasonic cleaning and also hear presentations from Mr. Yoram D. Lukic and Mr. Jeffrey S. Schmidt.

10) Member Issues

1. Scheduling two subcommittee (PRA and T-H) meetings on the same day creating some problems for members who want to attend both meetings.

   RESPONSE

   The Planning and Procedures Subcommittee will monitor the scheduling of Subcommittee meetings to preclude this problem.

2. Issuance of the Research report.

RESPONSE

The research report has been sent for publication as NUREG-1635, Vol. 5. It will be published soon

3. Reporting of member time

RESPONSE

This issue was discussed and the Subcommittee felt that the process is working well and there is no need to change it.

4. Travel Request

Dr. Ford has requested the Committee approval to attend the 11th International Conference on Environmental Degradation of Materials in Nuclear Power Systems -- Water Reactors to be held in Stevensore, Washington State on August 10-14, 2003 (p. 33)

RECOMMENDATION

The Subcommittee recommends approval of Dr. Ford's travel request subject to the availability of resources.

Members are allowed to travel 2 times per fiscal year domestically outside of Fed & SC meetings

ANTICIPATED WORKLOAD
SEPTEMBER 11-13, 2003

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	--	Snodderly	Draft final Regulatory Guide DG-1122 on PRA quality	Report as needed	--	--
Bonaca	Leitch	Duraiswamy	Final review of St. Lucie license renewal application	A	To meet the CTM schedule	--
Kress		El-Zeftawy	Draft 10 CFR Part 52 Construction Inspection Program Framework	A	To provide early feedback	--
		El-Zeftawy	Interim review of the AP 1000 design	A	To identify issues of concern to the ACRS	--
		Snodderly	Framework for future nuclear power plant licensing **[Information Briefing]**	--	--	--
Powers	--	Weston	Mixed Oxide Fuel Fabrication Facility **[If not Completed in July]**	A	To provide early feedback to the Commission	--
Wallis	Ransom	Caruso	Draft final NRC review standard for review of core power uprate requests	A	To meet the CTM schedule	--
	Ransom	Caruso	Draft final Reg. Guide DG-1107, Water Sources for Long-Term Recirculation Cooling Following a LOCA and Draft final Generic Letter 2003-xx, Potential Impact of Debris Blockage on Emergency Recirculation Design-Basis Accidents at PWRs	A	To support staff schedule	--

ANTICIPATED WORKLOAD
JULY 9-11, 2003

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	--	Weston	Safety Culture Report	A	To provide committee's views to the Commission	**Draft 10**
		Savio	Safeguards and Security	A	To provide early feedback to the Commission	
Kress	--	Snodderly/ Duraiswamy	Proposed Criteria for Treatment of Individual Requirements in a Regulatory Analysis	A	To provide feedback to the staff	
		El-Zeftawy	ESBWR pre-application review	Report as needed	--	--
Leitch	--	Weston	Significant recent Operating events	--	--	--
Powers	--	Weston	Mixed Oxide Fuel Fabrication Facility **[Possible Interim Report]**	A	To provide early feedback to the Commission	--
Shack	Wallis	Snodderly	Expert Elicitation as directed by the Commission in the March 31, 2003 SRM related to risk-informing 10CFR 50.46.	Report as needed	--	--

ANTICIPATED WORKLOAD
JUNE 12-13, 2003

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	--	Savio	Safeguards and Security Letter Report	Report to be completed in July	--	--
		Weston/El-Zeftawy	Workshop on Safety Culture	--		--
		Weston	Safety Culture Report	**[Report to be completed in July]**	--	**Draft 10**
Bonaca	Leitch	Caruso	Interim review of the Ft. Calhoun license renewal application - **SUBCOMMITTEE REPORT**	--	--	--
Leitch	Bonaca	Duraiswamy	Update to Generic License Renewal Guidance Documents	A	To respond to SRM	**Draft 1**
Powers	--	Savio/Nourbakhsh	Strategy for preparing the 2004 ACRS report on the NRC Safety Research Program	--	--	

II. ITEMS REQUIRING COMMITTEE ACTION

1. Proposed Revision to Section 9.5.1, "Fire Protection Program," of the Standard Review Plan (Open) (SR/MRS)

Purpose : Determine a Course of Action

Review requested by the NRC staff [D. Frumkin, NRR]. In a May 13, 2003 memorandum, NRR requested agreement that re-review of a proposed revision to Section 9.5.1, "Fire Protection Program," of the Standard Review Plan (SRP) and Branch Technical Position SPLB 9.5-1 is not necessary since these documents are based on previously reviewed NRC practices and are consistent with Regulatory Guide 1.189, "Fire Protection for Operating Nuclear Power Plants." Section 9.5.1 was last revised in July 1981. The revision gathers existing review guidance into one document for shutdown or decommissioned reactors, advanced reactors, license renewal, review criteria for PRA, and power uprates.

The Committee has made some observations regarding fire PRA models. In a December 20, 2002 letter, to the EDO, the ACRS found that the ANS External Events PRA Methodology Standard does not address seismically induced fires. Such fires could be significant risk contributors and must be considered in risk assessments needed to support risk-informed regulation concerning external events. ANS is currently working on a standard for fire PRA. The Committee found that the interface between the fire PRA and external events PRA will need attention. The EDO's response of January 28, 2003 states that the staff will make sure that the subject of seismically induced fires is addressed and the interfaces between the fire and external events standards, such as walkdown requirements, are clearly defined. The Committee may wish to hear how the review criteria for PRA in the SRP address these issues.

Mr. Rosen recommends that the Fire Protection Subcommittee review this matter during its next meeting. The Planning and Procedures Subcommittee agrees with Mr. Rosen's recommendations.

2. Proposed Final Revision 4 to Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors" (Open) (JDS/MRS)

Purpose : Determine a Course of Action

Review requested by the NRC staff [T. Blount, NRR]. In a May 14, 2003 memorandum, NRR provided Regulatory Guide (RG) 1.101, Revision 4, "Emergency Planning and Preparedness for Nuclear Power Reactors." This proposed RG endorses NEI's guidance for developing emergency action levels contained in NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels." During the 475th meeting in September 2000, the Committee reviewed the proposed RG and had no objections to its publication. The proposed RG was placed on hold primarily because of the impact of a zirconium fire on emergency preparedness exemptions at decommissioned

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plants storing fuel in their spent fuel pools. In a memorandum to the Commission dated August 16, 2002, the staff discussed the status of regulatory exemptions for decommissioning plants. In the memorandum, the staff identified no immediate safety concerns and no need for immediate regulatory action at decommissioning plants storing fuel in a spent fuel pool.

In September 2002, NEI submitted a modified NEI 99-01 document and requested staff endorsement. The significant change to NEI 99-01 incorporated the modification to "security" emergency action levels which were agreed to in a letter from NRC to NEI dated February 4, 2002. In January 2003, NEI submitted a further revised NEI 99-01 document that incorporated minor editorial enhancements to correct typographical errors. The January 2003 request initiated an assessment of the current status of the proposed RG and NEI 99-01.

Mr. Sieber recommends that the Committee not review this matter. The Planning and Procedures Subcommittee agrees with Mr. Sieber's recommendation.

RESEARCH REPORT PLAN

I. Objective of the Report

A. Primary Objective

Provide the Commission with a readable report on ACRS views of the current and planned research program at NRC including:

- merits of ongoing research
- current research that has reach sufficient fruition to meet regulatory needs
- research that is no longer aimed at meeting important regulatory needs
- research needs

In approaching this objective the ACRS will recognize that the research program at NRC is intended to:

- support current licensing and regulatory activities
- provide a reliable technical foundation for regulatory requirements and regulatory decisions
- anticipate regulatory needs that will arise because of evolution in the nuclear industry and changes in technology
- maintain expertise to support anticipated licensing and regulatory activities
- search for opportunities for cost-effective improvements in safety and improvements in the effectiveness and efficiency of safety regulation of nuclear power plants

B. Secondary Objective

The secondary objective is to develop the report in such a way that minimizes the demands on the NRC staff and on the ACRS members. The strategy outlined below does not involve epic presentations by the RES staff of their program that we can better understand from the written word, nor does it involve development of the draft report material piecemeal by individual cognizant members.

II. Strategy

A. Divide the research program into segments that parallel in some way the segmentation presented to the Commissioners by other offices. Functions that were the responsibility of the former AEOD will have to constitute one segment regardless of the segmentation preferred by RES, so that ACRS can comment on the efficacy of pulling AEOD into RES.

B. Elect not to address research dealing with:

- Waste disposal and other topics traditionally the domain of ACNW
- Safeguards and security issues in the post 9-11 environment
- Advanced reactor research that has been recently addressed by ACRS

C. Develop for each of the segments of the research program a brief (1-2 pages) synoptic account of the :

- needs for the research
- research objectives
- accomplishments
- continuing challenges

D. Include where possible graphics that will the text more readable and that will emphasize points made in the text.

E. Develop ACRS conclusions and recommendations in each research area using the NAS format:

Conclusion: .....

Justifying and explanatory text

Recommendation

F. Provide a table for each research area that lists comprehensively research activities underway and planned in the area together with brief comments on these activities

G. Develop an Introduction and Executive Summary for the report

H. Develop a Table of Contents and an Index for the report

I. Consider marginalia to summarize discussions

J. Identify cognizant members for each segment of the research. As segments of the draft report are prepared, provide them to the cognizant member to review and to review with the NRC staff.

K. Complete segment reviews prior to the end of the December ACRS meeting and provide complete, revised report for review by the ACRS members and the NRC staff

L. Hold a subcommittee meeting for 2 days in January to further revise and improve the report

M. Finalize the report and submit to the Commissioners following the February meeting

III. Immediate Tasks

A. Decide on an appropriate segmentation of the research program

- examine segmentation used by RES for input to the 'blue book' which is used by the Commissioners in their examination of the research program

B. Develop a data base

- collect 189s or equivalents for all ongoing and planned research activities
- collect research plans for areas that are already prepared such as the plans for fire research and digital I&C
- collect conference papers and other publications prepared by the RES staff and management that provide an overview and justification of the research program in whole or in part
- collect user need letters for research; ascertain if user needs were withheld because of budgetary limitations and determine what these unfulfilled needs are

C. Identify important RES successes in very recent years such as

- can we milk the important example of management of interdisciplinary research demonstrated by the PTS project another time?
- SPAR models for Senior Reactor Analysts in Regions

D. Identify graphics that can be used to make the reading easier and will emphasize points to be made in the text.

E. Examine ACRS subcommittee meeting schedules to see when discussions of various research activities are already planned

F. Determine what would make the report more readable, more useful and more persuasive to the Commissioners

G. Identify ways to accelerate the schedule for the production of the report so that it can be submitted following the December ACRS meeting rather than after the February meeting.

IV. Questions to Consider

o Should we go back and look at the recommendations of the Rogers report and see if they have been addressed by RES ?

P. O. Box 2850
Sun Valley, ID 83353

March 31, 2003

John T. Larkins, Executive Director
ACRS
USNRC
Washington, DC 20555-0001

SUBJECT: FOULING AND UTRASONIC CLEANING SHOULD BE STUDIED BY ACRS

Enclosed are several documents that should be studied by ACRS. I am not requesting to make a presentation to the ACRS. What I am requesting is that the ACRS hear presentations by the inventors that are listed on the enclosed patent. It would also be appropriate for the ACRS to hear presentations from the power reactor licensees that are in the other attachments; the LER and the EPRI Press Release. The ACRS may also choose to review its Fuels Subcommittee transcript of April 23-24, 1998. It may be necessary to consider these matters in meetings that are at least partially closed so that ACRS may collect **all** of the facts.

The following admonishment of the ACRS by a nuclear industry representative is from the transcript of the Reactor Fuels Subcommittee of the Advisory Committee on Reactor Safeguards (ACRS) of the United States Nuclear Regulatory Commission, April 23 and 24, 1998. **"And as long as we stay within the tech spec, the operational limit, there shouldn't be any safety concern. I think experience has shown that has been the case. So, you know, it is really -- it is great to be on top of things. But some of those issues like AOA, they are really not safety issues, they are operational issues."**

It turns out that at the same time that ACRS was thus being misled, heavy deposition of crud was underway at the River Bend Station during its Cycle 7. See Licensee Event Report 50-458/99-016-00 (enclosed). It is significant that Licensee Event Report 50-458/99-016-00 was filed voluntarily and was not submitted in a timely manner. It is also incomplete. The flavor of the LER is that, **"...they are really not safety issues."**

Item 9 (c)
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Moving to the matter of employing ultrasonic energy to remove deposits from nuclear fuel elements, the ACRS is directed to United States Patent Number US 6,396,892 B1 that was filed as Application Number 09/545,354 on April 7, 2000 (enclosed). Now with that filing date, it is likely that there was a substantial amount of related R&D taking place at operating nuclear power reactor sites. This document is worthy of review by the ACRS since EPRI is the owner of the patent and the patent is not unwarranted. (Patents are not issued if they are explicitly unwarranted. In contrast, the recent EPRI report on the impact of burnup on RIA's is explicitly unwarranted).

Further disclosure of AOA and the use of ultrasonic energy to remove deposits from nuclear fuel elements is in EPRI News Release dated March 19, 2003. (enclosed. The second set has a photograph of the ultrasonic cleaning assembly.) The press release reveals that for the seven of the most recent eight cycles, AmerenUE's Calloway plant has been plagued by AOA. The patented EPRI process was employed prior to a recent cycle that had no AOA. As is clear from the press release, EPRI is promoting the application of this equipment (and what is not explicit is that EPRI is thus promoting the acceptance of fouling. **"But some of those issues like AOA, they are really not safety issues, they are operational issues."**)

In repetition of my opening request, ACRS should hear testimony from the inventors and users of the equipment for ultrasonic fuel cleaning. ACRS should also learn about the River Bend experience. I live comfortably distant from a power reactor near Richland, WN that is similar to River Bend. But Sun Valley is too close to escape potential evacuees.

Robert H. Leyse

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P. O. Box 2850
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May 3, 2003

John T. Larkins, Executive Director
ACRS
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Washington, DC 20555-0001

SUBJECT: FOULING AND UTRASONIC CLEANING SHOULD BE STUDIED BY ACRS

Further to my letters and requests of March 27, 2003, and March 31, 2003, I am requesting that you forward this letter to the full ACRS. I am not requesting time to make a presentation to the ACRS. What I am requesting is that the ACRS hear presentations by the authors who are listed on the reference below:

Nuclear Technology
Volume 142, Number 3
June 2003

Nuclear Plant Operations and Control

Taming the Crud Problem: A Utility Perspective

Yovan D. Lukic, Jeffrey S. Schmidt

Models of crud and oxide deposition were developed to allow prediction of the magnitude of crud and oxide deposits on nuclear fuel cladding. Adjustable parameters for each model were quantified through regression analysis using eddy-current measured crud/oxide thickness for the dependent variable and selected calculated thermal-hydraulic coefficients for independent variables. Insights gained during model development together with the newly acquired ability to predict crud thickness have enabled us to redesign the fuel lattice so as to minimize the adverse impact of crud deposition. The lattice redesign reclaims the benefit of cost efficient ring-type loadings without challenging plant operations and fuel pin integrity.

Robert H. Leyse

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

May 21, 2003

Mr. Robert H. Leyse
P. O. Box 2850
Sun Valley, ID 83353

SUBJECT: FOULING AND ULTRASONIC CLEANING SHOULD BE STUDIED BY ACRS

Dear Mr. Leyse:

Thank you for your letter of May 3, 2003, which describes an article in the June 2003 edition of Nuclear Technology entitled "Nuclear Plant Operations and Control," which relates to reactor fuel crud. Your letter and a copy of the article are being distributed to the members of the Advisory Committee on Reactor Safeguards for their information. I will notify you if the members decide to invite the authors of the article to make a presentation to the Committee.

Sincerely,

John T. Larkins
Executive Director

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May 15, 2002

Mr. Robert H. Leyse
P.O. Box 2850
Sun Valley, ID 83353

Dear Mr.Leyse:

I am writing to inform you of the status of four petitions for rulemaking that you submitted concerning the effects of crud deposition and fouling on the performance of heat-transfer surfaces in nuclear power plants.

The first two petitions, Docket Nos. PRM-50-73 and PRM-50-73A, were received by the NRC on September 3, 2001, and November 4, 2001, respectively. They were merged together and evaluated by the staff, and a recommendation to the Commission has been written. A letter will be sent to you regarding disposition of the petitions as soon as the Commission has voted on the staff recommendation.

The third petition for rulemaking, Docket No. PRM-50-76, dated May 1, 2002, requested changes to the regulations and guidance on evaluating emergency core cooling system (ECCS) performance. In the staff review process, a decision was made to request review of the petition by the NRC Office of Research (RES) relative to ongoing work on ECCS performance. The Program Office staff will develop recommendations to the Commission upon completion of the RES review.

With respect to the fourth petition for rulemaking, Docket No. PRM-50-78, dated September 2, 2002, requesting that fouling of heat transfer surfaces in nuclear power plants be addressed by rule changes, a staff working group has been convened and analysis of the petition is ongoing. The target for providing a recommendation to the Petition Review Board is September 2003.

If you have any questions or comments, please contact me at 301-415-3883.

Sincerely,

/RA/

Alan K. Roecklein
Policy and Rulemaking Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

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From: "Alan Roecklein" <AKR@nrc.gov>
To: <Bobleyse@aol.com>
Date: 5/27/03 1:10PM
Subject: PRN-73 & 73A

I received your phone request for copies of the staff recommendations to the Commission regarding the subject petitions. Because the staff action is pre-decisional we are not permitted to release the Commission paper or the Federal Register Notice to the public. Once the Commission has made a decision, the FR Notice is usually published within a few days. You will receive a letter at that time with a copy of the FR Notice.

CC: "David Skeen" <DLS.owf4_po.OWFN_DO@nrc.gov>

Stev 71

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From: <Bobleyse@aol.com>
To: <chairman@nrc.gov>
Date: 6/2/03 1:20AM
Subject: Fwd: PRN-73 & 73A

Sir:

My plan is to include a discussion of the NRC's evaluation of these petitions for Rulemaking at the 2003 RELAP5 International Users Seminar, West Yellowstone Meeting. The abstract of my forthcoming presentation is copied below. I do not understand why I am not allowed to quote the NRC's findings in advance of a decision by the Commissioners. Please allow me to have access to this information. Clearly, my Petitions have been in the system for a long enough time to justify release of the findings

Robert H. Leyse bobleyse@aol.com
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(208) 622-7740

Abstract for 2003 RELAP5 International Users Seminar, West Yellowstone Meeting

Deficiencies in Calculations of Core Damage Progression in SCDAP/RELAP5-3D

The SCDAP/RELAP5-3D series of codes do not evaluate the impact of severe fouling of fuel elements on the path of severe accidents such as Reactivity Insertion Accidents, Loss of Coolant Accidents and the recently identified Loss of Cooling at Full Power. Operation of nuclear power reactors with significant fouling deposits is commonplace. In fact, patented systems are in use for ultrasonic fuel cleaning.(1,2) Thus it is vital to not employ SCDAP/RELAP5-3D in evaluating the accident sequences of these power reactors.

For example, a licensed boiling water reactor has operated with unusually heavy crud deposits within several fuel bundles.(3) These deposits were found and partially classified during a refueling outage. If the deposits had continued to build during normal reactor operation at power, the unusually heavy crud deposits would have become severe crud deposits. Blockage of the flow channels within the fuel bundles would likely have developed. Severe crud deposits within the fuel bundles can lead to a loss of coolability with consequent overheating of zirconium cladding within fuel bundles, autocatalytic zirconium-water reactions of the fuel cladding, chemical reactions between the fuel cladding and the uranium oxide fuel pellets, initiation of zirconium water reactions involving zirconium core structures such as fuel bundle spacer grids and channel boxes, melting of certain control element materials, melting of braze materials in certain fuel bundle spacer grids, metallurgical reactions between certain fuel bundle spacer grid springs and the zirconium cladding on the fuel pins, and, very likely, additional sources of structural degradation. These factors can initiate substantial and rapid localized core melting while the LWR is at power. Even if the LWR is then shut down, the core meltdown will rapidly propagate among the fuel bundles and core structures with sequential and parallel destruction of the barriers that constitute defense in depth. Thus, the single entity, unusually heavy crud depcsits on the fuel pins, is only one step before the unusually heavy crud deposits thicken and become severe crud deposits. Severe crud deposits then threaten the integrity of all of the barriers that in total constitute the classical defense in depth. This sequence, a Loss

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of Coolant Accident at Full Power, cannot be tracked with the current SCDAP/RELAP5-3D.

Right now, SCDAP/RELAP5-3D unfortunately relies on early test results from LOFT, SEMISCALE, TLTA, etc. More recent work by Shumway, Ransom, Oh, Hochreiter and others is likewise useless in modeling the heat transfer conditions in fouled cores prior to and during severe accidents..

Currently the Nuclear Regulatory Commission is evaluating several related Petitions for Rulemaking(4,5,6) that have been initiated by Leyse regarding these matters and the results of those studies should be available at the 2003 RELAP5 International Users Seminar, West Yellowstone Meeting. In addition, Leyse(7) and Leyse, Meduri, Warrier, and Dhir(8) have produced microscale heat transfer data at very high heat fluxes to water under a range of pressures. The results appear significant in reactor accident analyses, especially Reactivity Insertion Accidents, and these factors are under study.

REFERENCES

1. United States Patent, US 6,396,892, Robert D. Varrin, May 28, 2002.

2. Ultrasonic Fuel Cleaning Process, EPRI Press Release, March 19, 2003.

3. USNRC Licensee Event report 50-458/99-016-00, March 1, 2000.

4. Leyse, Petition for Rulemaking to USNRC, PRM 50-73, September 3, 2001.

5. Leyse, Petition for Rulemaking to USNRC, PRM 50-73A, November 4, 2001.

6. Leyse, Petition for Rulemaking to USNRC, PRM 50-76, May 1, 2001.

7. Leyse, R., 2001, Microscale Heat Transfer to Subcooled Water, 200-6000 Psia, 0-3500 W/CM2, Annals of the New York Academy of Sciences, Microgravity Transport Processes in Fluid, Thermal, Biological Sciences II, 974, 260-273.

8. Leyse, R., Meduri, P., Warrier, G. and Dhir, V., Microscale Phase Change Heat Transfer at High Heat Flux, Proceedings of the 5th International Conference Boiling Heat Transfer, Montego Bay, Jamaica, May 4-8, 2003.

CC: <AKR@nrc.gov>

POLICY ISSUE
(Notation Vote)

May 23, 2003 SECY-03-0085

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: DENIAL OF PETITIONS FOR RULEMAKING ON REVISING 10 CFR 50.46 AND APPENDIX K TO 10 CFR PART 50 TO REQUIRE LICENSEES TO ADDRESS THE IMPACT ON COOLANT FLOW OF RELEASE AND RESUSPENSION OF CRUD BUILDUP ON FUEL CLADDING DURING LOSS-OF-COOLANT ACCIDENT SCENARIOS AND DURING NORMAL OPERATIONS (PRM 50-73 AND PRM 50-73A)

PURPOSE:

To obtain Commission approval for denial of two related petitions for rulemaking on 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and Appendix K to Part 50, "ECCS Evaluation Models."

BACKGROUND:

10 CFR 50.46 specifies the performance criteria against which the emergency core cooling system (ECCS) must be evaluated. Appendix K to Part 50 provides the required and acceptable features of ECCS evaluation models. The criteria include the peak cladding temperature that cannot be exceeded, the maximum cladding oxidation thickness, the maximum total hydrogen generation, and requirements to assure a core geometry that can be cooled and abundant long term cooling. The regulations also state that calculated cooling performance following postulated loss-of-coolant accidents (LOCAs) must be calculated in accordance with an acceptable evaluation model and that in applying the model, comparisons

CONTACT:
Alan K. Roecklein, NRR/DRIP
301-415-3883

to applicable experimental data must be made. The petitioner contends that these sections of the Commission's regulations are inadequate because they do not address the effect of crud on the cooling of the reactor, both under the turbulent coolant flow conditions of a LOCA and during normal operations. Crud is a colloquial term for corrosion and wear products (rust particles, etc.) that become radioactive (i.e., activated) when exposed to neutron irradiation. The petitioner states that crud detachment and resuspension during a LOCA could lead to obstructed flow of coolant, inadequate cooling, and ultimately to meltdown. In addition, the petitioner contends that crud buildup during normal operations could result in severe fuel damage. The petitioner identified numerous elements of the specified ECCS evaluation procedures and the evaluation model that he believed need to include comparisons to applicable experimental data.

The petition for rulemaking (PRM) designated PRM-50-73 addressing potential crud interference with coolant flow during a fast-moving (large-break) LOCA was received by the NRC on September 4, 2001, and the notice of receipt of the petition and request for public comment was published in the *Federal Register* (FR) on October 12, 2001 (66 FR 52065). The public comment period ended on December 26, 2001. On November 5, 2001, the NRC received a second, supplemental petition, designated PRM-50-73A, from the same petitioner alleging crud interference with core cooling during normal operations. The staff determined that the two petitions should be addressed as one action. The notice of receipt of the second petition was published in the FR on January 29, 2002 (67 FR 4214). The public comment period ended on April 15, 2002. Five letters of public comment were received in response to PRM-50-73, and seven letters addressed PRM-50-73A.

DISCUSSION:

PRM-50-73

In PRM-50-73, the petitioner stated that §50.46 and Appendix K to Part 50 do not address the impact of crud on core cooling during a fast moving (large-break) LOCA. The petitioner noted that a licensed power reactor had operated with heavy crud deposits on many of the fuel rods. The petitioner stated that had a fast-moving (large-break) LOCA occurred before shutdown for refueling, extensive blockage of flow channels within the fuel bundles would have developed, leading to a degradation of core cooling and compromising defense in depth. The petitioner further stated that significant crud deposits could lead to extensive fuel failure during full-power operation and that the amount of failed fuel would then lead to a decision to shut down the reactor as the inventory of radioactive material in the reactor coolant reached the limits allowed by the technical specifications. However, the petitioner also stated that operating experience indicates that it is possible to continue to operate a reactor within technical specification limits with unusually heavy crud deposits present.

The petitioner requested that §50.46 and specific paragraphs in Appendix K to Part 50 be revised to include comparisons to applicable experimental data that address the impact of crud deposits on fuel rods.

Five letters of public comment were received on PRM-50-73, all opposed to the action requested in the petition. The commenters were Framatome ANP, Exelon Nuclear, Westinghouse Electric Company LLC, General Electric Nuclear Energy, and the Nuclear Energy Institute (NEI). Two commenters stated that existing regulations and guidance are already adequate to address crud buildup and its potential impact on coolant flow during a LOCA. Three of the commenters stated that the postulated release of crud would not create flow blockage because the consistency of crud was powdery. Another commenter noted that in 30 years of monitoring fuel performance in numerous plants, only one plant ever experienced severe crud buildup, and in that case the buildup was quickly noticed and remediated. Subsequently crud deposits have been effectively controlled using Electric Power Research Institute (EPRI) Chemistry Guidelines.

One commenter noted that in the worst case crud release event that has occurred, River Bend, the core remained in a configuration that could be cooled and the licensee was able to maintain a substantial margin to the 2200°F peak cladding temperature criterion specified by 10 CFR 50.46. In addition, this commenter stated that fuel performance and coolant activity levels are monitored routinely to ensure that core evaluation models accurately reflect real conditions. Another commenter noted that existing regulations are not overly prescriptive in terms of specifying phenomena to be addressed in evaluating core cooling capability, which allows for advances in the technical database and updating of the evaluation procedures without the need for rulemaking. In addition, this commenter stated that the extensive data collected on crud deposits and their impact on coolant flow do not support the petitioner's contentions.

PRM-50-73A

In addition to the petition regarding the effect of crud on reactor cooling during a LOCA, the petitioner submitted a supplemental petition for rulemaking, PRM-50-73A. The supplemental petition stated that §50.46 and Appendix K to Part 50 do not address the impact of severe crud deposits on fuel bundle cooling during normal operations of a light-water-cooled reactor at (full) power. The petition stated that a licensed power reactor had operated with unusually heavy crud deposits, which, had they been allowed to build up, would likely have blocked flow channels, interfered with core cooling and led to significant damage to structural components of the core. The petitioner asked that §50.46 and Appendix K be revised to consider the impact of crud deposits on fuel bundles during normal operations.

Of the seven letters of public comment, two were submitted by the petitioner to provide additional information and related technical support for the assertions in PRM-50-73 and PRM-50-73A. The other five letters opposed the request for rulemaking as discussed in PRM-50-73A, and were submitted by Strategic Teaming and Resource Sharing (STARS), General Electric Nuclear Energy, Tennessee Valley Authority, Westinghouse Electric Company, and NEI. The comments included the observation that the NRC Standard Review Plan (SRP) specifies acceptance criteria that specifically address the impact of fuel crud deposits during normal operation. This commenter also pointed out that pressure drop monitoring for reactor coolant flow is required, implying that this monitoring would detect any interference with coolant flow resulting from crud deposition. Another commenter stated that the monitoring of coolant chemistry indicators and core power distribution measurements would provide indication of

possible heavy crud deposition or movement. The same commenter stated that visual inspection of fuel assemblies during refueling outages has found no evidence of heavy crud deposits.

One commenter stated that the petitioner's postulated scenario leading to rapid core melt is not supported by any technical or scientific data. Another commenter asserted that the single high crud event at River Bend was the only event of this type in over 1,000 reactor-years of boiling water reactor operation and that, even with the unusual crud buildup in that case, the core would have remained in a configuration that could be cooled.

ANALYSIS OF REQUESTED ACTION:

The staff has evaluated the advantages and disadvantages of the rulemaking requested by the petitions with respect to the four NRC Strategic Performance Goals as follows:

1. Maintaining Safety: The NRC staff believes that the requested rulemaking would not make a significant contribution to maintaining safety because current regulations and regulatory guidance already address consideration of crud-related parameters for core cooling, because no existing data suggests that the crud normally present on reactor fuel can significantly interfere with coolant flow, and because the cause of the single event noted by the petitioner is known and has been corrected.

2. Enhancing Public Confidence: The proposed revisions would not enhance public confidence. First, the NRC staff has concluded that the petitioner's contentions lack an adequate technical basis. Second, current regulations and guidance already address the effects of crud on core cooling. The petitioner's request in effect would require that consideration be given to abnormally heavy crud deposits as a potential source of coolant flow obstruction, which is a condition that has never been observed. The staff does not believe that such unnecessary regulatory action, without technical justification, would enhance public confidence in the safety of nuclear power.

3. Improving Efficiency, Effectiveness, and Realism: The proposed revisions would decrease efficiency, effectiveness, and realism because licensees would be required to generate additional information as part of the development of their ECCS evaluation models and the NRC staff would need to evaluate the licensee's data and analysis. The NRC staff believes that this additional consideration is of marginal safety value because the petitioner's scenarios are not supported by a technical basis. The additional NRC staff and licensee effort would not improve efficiency or effectiveness. In addition, the NRC resources expended to promulgate the rule and supporting regulatory guidance would be significant with little return of value.

4. Reducing Unnecessary Regulatory Burden: The requested rule would increase licensee burden by requiring significant additional testing and analysis of ECCS effectiveness with little expected benefit.

Section 10 CFR 50.46 already requires a nuclear power plant applicant/licensee to address the impacts of the core geometry change on cooling in ECCS analyses and transient analyses. The staff does not believe that crud buildup to the levels postulated by the petitioner are reasonable. The petitioner's hypothetical discussion of fuel clad performance with severe levels of crud was not supported by modeling, experimental results or operational data sufficient to demonstrate that fuel with high crud levels will actually behave in the manner postulated by the petitioner. The staff believes that there are other phenomena the petitioner failed to consider that would tend to reduce metal-water reactions and counteract autocatalytic reactions even if the extreme conditions postulated by the petitioner could be reached. The operating experience at several nuclear power plants that have experienced fuel failures shows that fuel degradation has progressed in a manner which is controllable. The one event (River Bend) identified by the petitioner as evidence of the likelihood of high crud levels occurred only once at that plant and has not been repeated there, or at any other plant in the United States. Finally, technical specifications for monitoring of reactor coolant activity and the requirements in 10 CFR Part 20 to maintain occupational exposures as low as reasonably achievable (ALARA) have resulted in licensee operational practices for early identification of coolant activity increase due to crud deposits before they build to the levels postulated by the petitioner. The staff does not believe that the petitioner's hypothetical discussion of a mechanism preventing early detection of abnormal activity levels is credible. For these reasons, the staff has determined that the petitioner's contentions have not been substantiated, and recommends that the subject petitions for rulemaking be denied.

COORDINATION:

The Office of the General Counsel has no legal objection to the denial of these petitions.

RECOMMENDATION:

That the Commission:

(1) Approve denial of the subject petitions for rulemaking and publication of the *Federal Register* Notice (Attachment 1) of the denials.

(2) Note that:

a. a letter is attached for the Secretary's signature (Attachment 2), informing the petitioner of the Commission's decision to deny his petitions.
b. the appropriate Congressional committees will be informed.

William D. Travers
Executive Director
for Operations

Attachments: 1. Federal Register Notice
2. Letter to Petitioner

Commissioners' completed vote sheets/comments should be provided directly to the Office of the Secretary by COB Tuesday, June 10, 2003.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Tuesday, June 3, 2003, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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Mr. Robert H. Leyse
P.O. Box 2850
Sun Valley, ID 83353

SUBJECT: PETITIONS FOR RULEMAKING PRM-50-73 AND PRM-50-73A: IMPACT OF CRUD BUILDUP ON ECCS CAPABILITY

Dear Mr. Leyse:

I am responding to your letters of September 4, 2001, and November 5, 2001, which submitted petitions for rulemaking that asked for amendments to 10 CFR 50.46 and Appendix K of Part 50. Your letters contend that these regulations, and associated guidance, are inadequate because they do not address the effects of crud buildup during normal operations and the effects of crud detachment and resuspension during a loss-of-coolant accident (LOCA) on the capability of the emergency core cooling system (ECCS). You further state that these inadequacies could result in overheating of the core, leading to meltdown both during a large break LOCA and during normal operations.

The NRC published notices of receipt of PRM-50-73 on October 12, 2001, and PRM-50-73A on January 29, 2002. Five letters of public comment were received on PRM-50-73, and seven letters on PRM-50-73A. All of the letters of public comment, except two that you provided on PRM-50-73A, opposed the proposed actions. The commenters argued that existing rules require the ECCS to meet stringent performance criteria by, among other procedures, controlling buildup of crud; that only one cycle in one plant ever had a significant crud buildup, which was quickly observed and remediated; that concern for controlling dose rates from crud buildup and a desire to operate a plant at full power provide strong industry incentives to control crud; and that all safety analyses have shown that crud has not had any impact on required thermal safety margins.

The Commission is denying your two petitions for the following reasons. There is no apparent safety problem. The NRC found no reports or data indicating that heavy crud buildup had ever threatened the capability of the ECCS to manage a LOCA or that heavy crud buildup could significantly interfere with coolant flow during normal operations. The NRC believes that the ECCS performance criteria, along with three specific references to crud control in the Standard Review Plan, assure that licensees will continue to address crud buildup in their analyses of ECCS performance. The NRC believes that specifying that crud buildup be addressed specifically in the rules would provide little benefit and would not contribute to performance based regulation.

Expending resources on rulemaking on a non-safety significant issue would not contribute to enhanced public confidence in the agency. Further details are discussed in the enclosed notice of Denial of Petition for Rulemaking, which will be published in the Federal Register.

Sincerely,

Annette Vietti-Cook
Secretary of the Commission

Enclosure: Federal Register Notice of Denial of Petition for Rulemaking

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: PETER FORD Date Submitted: JUNE 11TH.

Dates of Planned Trip: AUG 10 ~~AM~~, 2003 to AUG. 14TH, 2003

Destination: STEVENSON, WASHINGTON STATE.

Meeting or Facility to be Visited: 11TH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL DEGRADATION OF MATERIALS IN NUCLEAR POWER SYSTEMS - WATER REACTORS.

Purpose/Relevance to ACRS Business: MEETING COVERS ALL ASPECTS OF MATERIALS DEGRADATION IN LWR'S (CRACKING, EMBRITTLEMENT, FAC, ETC.) & ADDRESSES CURRENT OPERATIONAL PROBLEMS, DATA ANALYSIS, MECHANISTIC UNDERSTANDINGS, ETC.

Participation (Invited Speaker, paper presented, etc.): SESSION CHAIRMAN.

Justification (Foreign Travel Only):

NRC SUPPORT REQUESTED

Air Fare: Yes ✓ No ____ Per Diem: Yes ✓ No ____ Days 3

Registration: $ 575. Compensation: Yes ✓ No ____ Days 4