



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

March 8, 2005

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

SUBJECT: SUMMARY REPORT - 519TH MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 10-11, 2005, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Dear Chairman Diaz:

During its 519th meeting, February 10-11, 2005, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memorandum:

REPORTS:

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

- Review of the Final Safety Evaluation Report for the Mixed Oxide Fuel Fabrication Facility Construction Authorization Request, dated February 24, 2005
- Waterford Steam Electric Station, Unit 3 - Extended Power Uprate, dated February 24, 2005

MEMORANDUM:

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

- Draft Regulatory Guide, DG-1137, "Guidelines for Lightning Protection for Nuclear Power Plants," dated February 11, 2005

HIGHLIGHTS OF KEY ISSUES

1. Power Uprate for Waterford Nuclear Plant

The Committee considered the license application by Entergy for an 8% core thermal power uprate for the Waterford Steam Electric Station, Unit 3.

The matter of boron concentration during long-term cooling was discussed during the meeting, and the Committee concluded that the licensee and the staff have demonstrated by conservative analyses that there exists, at Waterford, a significant margin to the boron solubility limit. However, there may be generic issues, not specific to power uprates, that are related to the precipitation of boric acid and its effects on long-term core cooling. The Committee became

aware that there does not appear to be a good technical basis for evaluating the properties of a boron-water mixture, together with chemicals added from the containment sump, when the concentration is close to the solubility limit.

Committee Action

The Committee issued a report to the NRC Chairman, dated February 24, 2005, recommending that the application be approved, subject to (1) the staff's approval of the pending alternate source term (AST) application and (2) documentation of the resolution of the boron precipitation issue during long-term cooling for Waterford 3 by the submittal of the analysis details and their acceptance in the staff's safety evaluation (SE). The Committee also agreed with the staff that the requirement for large-transient testing should be waived for this application.

The Committee also recommended that the staff should review the generic potential for boron concentration and precipitation to interfere with core cooling following a loss-of-coolant accident (LOCA). It further encouraged the staff to establish a basis for a quantitative assessment of the associated phenomena as it considers the potential for boron concentration and precipitation to interfere with core cooling following a LOCA.

2. Mixed Oxide (MOX) Fuel Fabrication Facility

The Committee heard presentations by and held discussions with representatives of the Office of Nuclear Material Safety and Safeguards (NMSS). The purpose of this meeting was to hear a staff presentation on the Final Safety Evaluation Report (FSER) for the Mixed Oxide (MOX) Fuel Fabrication Facility Construction Application Request.

Duke Cogema Stone and Webster (DCS) submitted to the NRC a Construction Authorization Request (CAR) to construct a MOX Fuel Fabrication Facility (FFF) on the Department of Energy (DOE)-owned Savannah River Site near Aiken, South Carolina on February 28, 2001. The MOX facility is being constructed because of an agreement between the United States and Russia, under which each country agreed to dispose of 34 metric tons of excess plutonium (Pu). The facility is designed to convert surplus weapons-grade plutonium to MOX fuel to be used to generate electricity at commercial nuclear power stations. DCS will be the operator of the MOX FFF and the MOX FFF will be regulated by NRC.

The NMSS staff presented information on the regulatory framework within which the construction authorization request was reviewed including the design bases requirements, the two step licensing process, the integrated safety analysis (ISA), and the application for a use and possession license. They also discussed the Savannah River Site where the MOX facility will be constructed, the mixed oxide fuel fabrication process that will finally result in fuel assemblies for use in commercial nuclear power plants, and the methodology used for the safety assessment of the construction authorization request.

The Committee and staff discussed the facility location and the emergency response in the event of an accident. While the emergency response details will be deferred to the second stage, they want to assure that in the event of an accident, emergency actions to protect all personnel will be undertaken quickly and effectively.

The Committee had concerns regarding; 1. "red oil" and the applicant's ability to control runaway reactions in closed systems under transient conditions, 2. the autocatalytic decomposition of hydroxylamine nitrate and the understanding of the associated basis for the limits and verification of the margins, 3. fires in moderation-controlled spaces where the use of water to suppress fires could initiate a criticality event and the applicant's ability to demonstrate that in these spaces with limited amounts of combustible materials, post-fire cooling by conduction and thermal radiation is sufficient to prevent re-ignition, and 4. a consideration of a plan in the ISA to bring the facility to a safe configuration in the event of unplanned interruptions in waste receipt.

Committee Action

The Committee issued a report to the NRC Chairman, dated February 24, 2005, recommending that the Final Safety Evaluation Report for the Mixed Oxide Fuel Fabrication Facility be issued.

3. Subcommittee Report — Plant License Renewal

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the February 9, 2005, Subcommittee meeting with the NRC staff and representatives of the Indiana Michigan Power Company (I&M) to review the Safety Evaluation Report (SER) with Open Items related to the License Renewal Application for the Donald C. Cook Nuclear Plant (CNP) Units 1 and 2. The current operating licenses for Units 1 and 2 expire on October 25, 2014, and December 23, 2017, respectively. During the meeting, I&M described recent operating experience, major plant improvements, and plant-specific aging management programs. CNP is the third plant to be reviewed using on-site audits to verify consistency with the Generic Aging Lessons Learned (GALL) Report. The SER with Open Items that was issued on December 21, 2004, contained two open items and two confirmatory items. Since that time, these items have been resolved. The staff concluded that actions have been or will be taken such that there is reasonable assurance that activities will be conducted in the renewal term in accordance with the current licensing basis.

Committee Action

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

4. Assessment of the Quality of the Selected NRC Research Projects

The Committee discussed the plan, schedule, and assignments for assessing the quality of selected research projects. The Committee selected four specific projects from the list of nine candidate projects provided by the Office of Nuclear Regulatory Research (RES). A panel of three ACRS members was formed for each of the projects selected for review.

Committee Action:

The Committee plans to complete these reviews in FY 2005. Each panel will conduct a detailed review of assigned projects, prepare a report and present its assessment of the project before the full Committee. The panel report, amended as mandated by the full ACRS, will be provided to RES in October 2005.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the response from the EDO dated January 18, 2005, to the ACRS report dated November 17, 2004, concerning the Resolution of Certain Items Identified by the ACRS in NUREG-1740, "Voltage-Based Alternative Repair Criteria." The Committee decided that it was satisfied with the EDO response.

Consistent with the intent of the Committee's suggestions, the staff plans to initiate a sensitivity study in an attempt to determine the governing conditions and realistic bounds for the hot leg flows.

The staff will also assess the significance of the uncertainty in the hot leg flow rates in relation to the other uncertainties that impact the outcomes of the integrated probabilistic risk assessment analysis.

The staff committed to discussing these additional analyses with the ACRS in the future.

- The Committee considered the EDO's December 22, 2004 letter of response to the November 19, 2004 ACRS report summarizing the Committee's views on the subject of the proposed rule revision to incorporate post-fire operator manual actions into 10 CFR Part 50, Appendix R, Paragraph III.G.2, as a fourth compliance option. The Committee decided that it was satisfied with the EDO's response.

The staff committed to evaluate a more global approach to establishing regulatory requirements for safety-security interface. The staff also committed to ensure that all manual actions are feasible and reliable.

- The Committee considered the EDO's June 17, 2004 and its follow-up letter, dated December 20, 2004, responding to ACRS February 26, 2004 report (NUREG-1635, Vol. 6) on review and evaluation of the NRC safety research program.

RES had identified many projects for sunseting, consistent with ACRS recommendations, in its budget proposal for FY 2006. The Staff did not agree with some of the Committee's recommendations. The Committee decided to discuss staff responses during its preparation of the 2006 report on the NRC safety research program.

- The Committee considered the response from the EDO, dated December 16, 2004, to the 2003 report of the Advisory Committee on Reactor Safeguards on the NRC's Safety Research Program, NUREG-1635, Volume 5. The Committee expressed concern as to the level of detail and the timeliness of the EDO's response. The Committee plans to discuss the actions taken by the NRC staff in response to the Committee's recommendations at an appropriate future time.
- The Committee considered the December 22, 2004 RES response to the November 18, 2004 ACRS letter providing findings from an assessment performed by the Committee to evaluate the quality of selected NRC research projects. The Committee decided that it was satisfied with the RES response.
- The Committee considered the response from the EDO, dated January 18, 2005, to the December 17, 2004 ACRS letter on risk-informing 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors." The Committee decided it was satisfied with the EDO's response.

The staff committed to meeting with the ACRS to discuss the draft proposed rule for a voluntary alternative to 10 CFR 50.46 prior to issuance for public comment.

- The Committee considered the response from the EDO, dated February 4, 2005, to the December 10, 2004 ACRS report on estimating loss-of-coolant accident frequencies through the elicitation process.

The Committee decided it was not satisfied with the EDO's response and plans to follow up on its concerns during its review of the revised draft NUREG Report, "Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process," in March 2005.

- The Committee considered the EDO's response of December 23, 2004, to lessons learned included in the ACRS letter dated November 18, 2004, regarding lessons learned from the ACRS review of the AP1000 design. The Committee decided that it was satisfied with the EDO's response.

The staff committed to meet with the ACRS to discuss the status of the progress made in addressing some of the ACRS comments.

The staff committed to meet with the ACRS to discuss the Draft NUREG-1791, "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operators Staffing Requirements Specified in 10 CFR 50.54(m)."

With regard to Committee's comment on aerosol removal in containment, the staff committed to consider this issue in conjunction with future plant design certification reviews and discuss this issue with the ACRS during a future meeting.

- The Committee considered the EDO's response of January 13, 2005, to the ACRS letter dated December 9, 2004, regarding "Interim Letter- Regulatory Structure For New Plant Licensing: Technology-Neutral Framework". The Committee decided that it was satisfied with the EDO's response.

The staff committed to have continued discussion and interaction with the ACRS on this effort as progress is made.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from December 1, 2004, through February 9, 2005, the following Subcommittee meetings were held:

- Thermal-Hydraulic Phenomena - January 26, 2005

The Subcommittee reviewed the power uprate application and the associated Safety Evaluation prepared by the NRC staff for the Waterford Nuclear Power Plant.

- Plant License Renewal - Donald C. Cook Units 1 and 2 - February 9, 2005

The Subcommittee reviewed the License Renewal Application and associated SER with Open Items for the Donald C Cook Nuclear Plant Units 1 and 2.

- Planning and Procedures - February 9, 2005

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

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee plans to review the revised draft NUREG Report, "Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process," in March 2005.
- The Committee plans to review the proposed rulemaking package for risk-informing 10 CFR 50.46 in March 2005.
- The Committee plans to continue its discussion and interactions with the staff on the lessons learned from the AP1000 design review.
- The Committee plans to continue its discussion and interactions with the staff regarding regulatory structure for new plant licensing: Technology-Neutral Framework.
- The Committee plans to review the draft final Regulatory Guide, DG-1137, "Guidelines for Lightning Protection for Nuclear Power Plant," after Reconciliation of Public comments.

PROPOSED SCHEDULE FOR THE 520th ACRS MEETING

The Committee considered the following topics during the 520th ACRS meeting, held on March 3-5, 2005:

- Revised Draft NUREG on Expert Elicitation on Large-Break LOCA Frequencies
- Proposed Rulemaking Package for Risk-Informing 10 CFR 50.46
- Draft Safety Evaluation Report Related to North Anna Early Site Permit Application
- Technical Basis for Potential Revision of the Pressurized Thermal Shock (PTS) Screening Criteria in the PTS Rule
- Proposed Revisions to Generic License Renewal Guidance Documents/Scoping Review Process for BOP Systems

Sincerely,

Graham B. Wallis

Graham B. Wallis
Chairman



Date Issued: 3/9/05

Date Certified: 3/17/05

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REPORTS:

The following reports to Nils J. Diaz, Chairman, NRC, from Graham B. Wallis, Chairman, ACRS:

- Review of the Final Safety Evaluation Report for the Mixed Oxide Fuel Fabrication Facility Construction Authorization Request, dated February 24, 2005
- Waterford Steam Electric Station, Unit 3 - Extended Power Uprate, dated February 24, 2005

MEMORANDA:

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

- Draft Regulatory Guide, DG-1137, "Guidelines for Lighting Protection for Nuclear Power Plants," dated February 11, 2005

APPENDICES

- I. *Federal Register Notice*
- II. Meeting Schedule and Outline
- III. Attendees
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February 10-11, 2005

MINUTES OF THE 519th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
February 10-11, 2005
ROCKVILLE, MARYLAND

The 519th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on February 10-11, 2005. Notice of this meeting was published in the *Federal Register* on January 24, 2005 (70 FR 3399) (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. Graham B. Wallis (Chairman), Dr. William J. Shack (Vice Chairman), Mr. John D. Sieber, (Member-at-Large), Dr. George E. Apostolakis, Dr. Mario V. Bonaca, Dr. Richard S. Denning, Dr. F. Peter Ford, Dr. Thomas S. Kress, Dr. Dana A. Powers, Dr. Victor H. Ransom, and Mr. Stephen L. Rosen. 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. Graham B. Wallis, 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. Power Uprate for Waterford Nuclear Plant

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

The Committee considered the license application by Entergy for an 8% core thermal power uprate for the Waterford Steam Electric Station, Unit 3. It issued a report to the Chairman recommending that the application should be approved, subject to (1) the staff's approval of the pending alternate source term (AST) application and (2) documentation of the resolution of the

boron precipitation issue during long-term cooling for Waterford 3 by the submittal of the analysis details and their acceptance in the staff's safety evaluation (SE). The Committee also agreed with the staff that the requirement for large-transient testing should be waived for this application.

The matter of boron concentration during long-term cooling was discussed during the meeting, and the Committee concluded that the licensee and the staff have demonstrated by conservative analyses that there exists, at Waterford, a significant margin to the boron solubility limit. However, there may be generic issues, not specific to power uprates, that are related to the precipitation of boric acid and its effects on long-term core cooling. The Committee became aware that there does not appear to be a good technical basis for evaluating the properties of a boron-water mixture, together with chemicals added from the containment sump, when the concentration is close to the solubility limit. As a result, the Committee has recommended that the staff should review the generic potential for boron concentration and precipitation to interfere with core cooling following a loss-of-coolant accident (LOCA). It further encouraged the staff to establish a basis for a quantitative assessment of the associated phenomena as it considers the potential for boron concentration and precipitation to interfere with core cooling following a LOCA.

III. Mixed Oxide (MOX) Fuel Fabrication Facility (Open)

[Mrs. Maggalean W. Weston was the Designated Federal Official for this portion of the meeting.]

Dr. Dana A. Powers, Chairman of the Reactor Fuels subcommittee introduced this topic to the Advisory Committee on Reactor Safeguards and a representative of the Advisory Committee on Nuclear Waste. The purpose of this meeting was to hear a staff presentation on the Final Safety Evaluation Report (FSER) for the Mixed Oxide Fuel Fabrication Facility Construction Application Request.

Discussion

Duke Cogema Stone and Webster (DCS), submitted to the NRC a Construction Authorization Request (CAR) to construct a Mixed Oxide (MOX) Fuel Fabrication Facility (FFF) on the Department of Energy (DOE)-owned Savannah River Site near Aiken, South Carolina. The facility is designed to convert surplus weapons-grade plutonium to MOX fuel to be used to generate electricity at commercial nuclear power stations. The CAR for the MOX FFF was submitted by DCS on February 28, 2001. It was revised on October 31, 2002.

The MOX facility is being constructed because of an agreement between the United States and Russia, under which each country agreed to dispose of 34 metric tons of excess plutonium (Pu). Weapons-grade Pu coming into the Savannah River Site will go to a Pit Disassembly and Conversion Facility and then to the MOX facility. The above ground facility will be approximately 400 x 400 feet and about 65 feet tall and comprises an aqueous polishing area, shipping and

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receiving, and the MOX processing area. The MOX facility is about 5-6 miles from the Savannah River Site boundary, and there are public roads that run through the site. The pit disassembly and conversion facilities will be regulated by DOE. DCS will be the operator of the MOX FFF and the MOX FFF will be regulated by NRC.

NRC Staff Presentation

The staff presentation were made by David Brown of the Office of Nuclear Materials Safety and Safeguards.

Mr. Brown discussed the regulatory framework within which the construction authorization request was reviewed including the design bases requirements, the two step licensing process, the integrated safety analysis (ISA), and the application for a use and possession license. He also discussed the Savannah River Site where the MOX facility will be constructed, the mixed oxide fuel fabrication process that will finally result in fuel assemblies for use in commercial nuclear power plants, and the methodology used for the safety assessment of the construction authorization request.

The committee and staff discussed the facility location and the emergency response in the event of an accident. While they agreed with the staff that emergency response details could be deferred to the second stage, they had concerns that in the event of an accident, emergency actions to protect all personnel be undertaken quickly and effectively.

The committee had concerns regarding; 1. "red oil" and the applicant's ability to control runaway reactions in closed systems under transient conditions, 2. the autocatalytic decomposition of hydroxylamine nitrate and the understanding of the associated basis for the limits and verification of the margins, 3. fires in moderation-controlled spaces where the use of water to suppress fires may initiate a criticality event and the applicant's ability to demonstrate that in these spaces with limited amounts off combustible materials, post-fire cooling by conduction and thermal radiation is sufficient to prevent re-ignition, and 4. a consideration of a plan in the ISA to bring the facility to a safe configuration in the event of unplanned interruptions in waste receipt.

Committee Action

The Committee wrote a letter dated February 24, 2005, recommending that the Final Safety Evaluation Report for the Mixed Oxide Fuel Fabrication Facility be issued.

IV. Plant License Renewal Subcommittee Report (Open)

[Mr. Cayetano Santos was the Designated Federal Official for this portion of the meeting.]

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the February 9, 2005, subcommittee meeting with the NRC staff and representatives of the Indiana Michigan Power Company (I&M) to review and discuss the Safety

Evaluation Report (SER) with Open Items related to the License Renewal Application for the Donald C. Cook Nuclear Plant (CNP) Units 1 and 2. The current operating licenses for Units 1 and 2 expire on October 25, 2014, and December 23, 2017, respectively. The applicant has requested approval for continued operation of each unit for a period of 20 years beyond the current license expiration dates.

CNP consists of a two, 4-loop Westinghouse pressurized water reactor units with ice condenser containments. Unit 1 is licensed for a power output of 3304 MWt, and Unit 2 is licensed for a power output of 3468 MWt. The approximate net electrical outputs of Unit 1 and Unit 2 are 1044 MWe and 1117 MWe, respectively. Both units have undergone steam generator replacement and an Appendix K Measurement Uncertainty Recapture power uprate. CNP is also installing traveling water screens, converting to the improved technical specifications, and adding supplemental diesel generators. The reactor heads will be replaced by 2007. CNP is currently in the Regulatory Response Column of the NRC Action Matrix due to a white inspection finding in both Units and a white performance indicator for Unit 2.

The SER with Open Items was issued on December 21, 2004, containing two open items and two confirmatory items. Since that time these items have been resolved. As a result of the staff's review, 5 components/commodities were brought into scope and subjected to an aging management review. CNP is the third plant to be reviewed using on-site audits to verify consistency with the Generic Aging Lessons Learned (GALL) Report. Of the 46 Aging Management Programs at CNP, 13 are consistent with GALL, 17 are consistent with exceptions and/or enhancements, and 16 are plant-specific. The applicant has demonstrated that the Time-Limited Aging Analyses are either valid for the period of extended operation, have been projected to the end of the period of extended operation or that aging effects will be adequately managed. The staff concluded that actions have been or will be taken such that there is reasonable assurance that activities will be conducted in the renewal term in accordance with the current licensing basis.

Committee Action

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

V. Assessment of the Quality of the Selected NRC Research Projects

[Mr. Hossein Nourbakhsh was the Designated Federal Official for this portion of the meeting.]

The Committee discussed the plan, schedule, and assignments for assessing the quality of selected research projects. The Committee selected four specific projects from the list of nine candidate projects provided by the Office of Nuclear Regulatory Research (RES). A panel of three ACRS members was formed for each of the projects selected for review.

Committee Action

The Committee plans to complete these reviews in FY 2005. Each panel will conduct its detailed review of a project, prepare a report and present its assessment of the project before the full Committee. The panel report, amended as mandated by the full ACRS, will be available to RES as soon as possible.

VI. 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/EDO Commitments

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

The Committee discussed the response from the NRC Executive Director for Operations (EDO) to ACRS comments and recommendations included in recent ACRS reports:

- The Committee considered the response from the EDO dated January 18, 2005, to the ACRS report dated November 17, 2004, concerning the Resolution of Certain Items Identified by the ACRS in NUREG-1740, "Voltage-Based Alternative Repair Criteria."

The Committee decided that it was satisfied with the EDO response. The staff committed to discussing this subject with the Committee at a future meeting.

- The Committee considered the EDO's December 22, 2004, letter of response to ACRS's November 19, 2004 report summarizing the Committee's views on the subject of the proposed rule revision to incorporate post-fire operator manual actions into 10 CFR Part 50, Appendix R, Paragraph III.G.2, as a fourth compliance option.

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

- The Committee considered the EDO's June 17, 2004, and its follow-up letter, dated December 20, 2004, responding to ACRS's February 26, 2004, report on review and evaluation of the NRC safety research program.
- RES had identified many projects for sunseting, consistent with ACRS recommendations, in its budget proposal for FY 2006. The Staff did not agree with some of the Committee's recommendations.

The Committee decided to discuss staff responses during its 2006 review of the NRC research program.

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- The Committee considered the RES's December 22, 2004, letter of response to ACRS's November 18, 2004, letter providing findings from an assessment performed by the Committee to evaluate the quality of selected NRC research projects.

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

- The Committee considered the response from the EDO, dated January 18, 2005, on risk-informing 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors."

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

The staff committed to meeting with the ACRS to discuss the draft proposed rule for a voluntary alternative to 10 CFR 50.46 prior to issuance for public comment. The staff is now targeting the end of March 2005.

- The Committee considered the response from the EDO, dated February 8, 2005, to the Committee's letter on estimating loss-of-coolant accident frequencies through the elicitation process. The Committee decided it was not satisfied with the EDO's response.

The Committee plans to follow up on its concerns during its review of the draft NUREG Report, "Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process," in March 2005.

- The Committee considered the EDO's response of December 23, 2004, to lessons learned included in the ACRS letter dated November 18, 2004, regarding lessons learned from the ACRS review of the AP1000 design.

The Committee decided that it was satisfied with the EDO's response, and it will continue interactions with the staff on this matter as progress is made.

- The Committee considered the EDO's response of January 13, 2005, to the ACRS letter dated December 9, 2004, regarding "Interim Letter-Regulatory Structure For New Plant Licensing: Technology-Neutral Framework".

The Committee decided that it was satisfied with the EDO's response, and will continue discussion and interaction with the staff on this effort as progress is made.

- Draft Regulatory Guide, DG-1137, "Guidelines for Lightning Protection for Nuclear Power Plants," dated February 11, 2005

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

The Committee heard a report from the ACRS Chairman and the Executive Director, ACRS, regarding the Planning and Procedures Subcommittee meeting held on February 9, 2005. The following items were discussed:

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

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

Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through April 2005 were addressed. 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

Commitments and Follow-up items Resulting from the Expanded Meeting of the Planning and Procedures Subcommittee

An expanded meeting of the Planning and Procedures Subcommittee was held on January 27-28, 2005, at the ACRS conference room to discuss certain process and regulatory issues. The outcomes of this meeting was discussed.

2006 Quadripartite Meeting

The members' input for the 2006 Quadripartite Meeting consolidated and discussed. Based on these inputs, a tentative schedule and potential topics for the meeting was prepared and distributed to the members on Thursday, February 10, 2005. The proceedings for the 2002 Quadripartite Meeting was also discussed.

Self-Assessment of ACRS Performance

A SECY paper, documenting the results of the self-assessment of the ACRS performance is due to the Commission on May 31, 2005. As has been the practice, we plan to obtain feedback from internal and external stakeholders on the ACRS performance as well as value added by the ACRS to the regulatory process. To accomplish this, an enhanced survey questionnaire, which is being developed, will be

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used. A draft Commission paper summarizing the survey results will be provided to the Committee during the April ACRS meeting for review and comment.

Meeting with the EDO, Deputy EDOs, and Program Office Directors

The ACRS plan to meet with the EDO, Deputy EDOs, and Program Office Directors between 9:30 and 11:30 a.m. on Friday, May 6, 2005, to discuss items of mutual interest. The Committee proposed a list of topics for this meeting at the March 2005 ACRS meeting.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the 520th ACRS Meeting, March 3-5, 2005.

The 519th ACRS meeting was adjourned at 6:17 p.m. on February 11, 2005.

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



March 9, 2005

MEMORANDUM TO: ACRS Members

FROM: Noble S. Green, Jr. *Noble S. Green, Jr.*
Technical Secretary

SUBJECT: PROPOSED MINUTES OF THE 519th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS -
FEBRUARY 10-11, 2005

Enclosed are the proposed minutes of the 519th 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

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



March 17, 2005

MEMORANDUM TO: Noble S. Green, Jr., Technical Secretary
Advisory Committee on Reactor Safeguards

FROM: Graham B. Wallis *Graham B. Wallis*
ACRS Chairman

SUBJECT: CERTIFIED MINUTES OF THE 519th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
(ACRS), FEBRUARY 10-11, 2005

I certify that based on my review of the minutes from the 519th 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.

Type of Request: Intent to seek approval to renew an information collection.

Abstract

Proposed Project: On September 11, 1993, President Clinton issued Executive Order 12862, "Setting Customer Service Standards," which calls for Federal agencies to provide service that matches or exceeds the best service available in the private sector. Section 1(b) of that order requires agencies to "survey customers to determine the kind and quality of services they want and their level of satisfaction with existing services." The National Science Foundation (NSF) has an ongoing need to collect information from its customer community (primarily individuals and organizations engaged in science and engineering research and education) about the quality and kind of services it provides and use that information to help improve agency operations and services.

Estimate of Burden: The burden on the public will change according to the needs of each individual customer satisfaction survey; however, each survey is estimated to take approximately 30 minutes per response.

Respondents: Will vary among individuals or households; business or other for-profit; not-for-profit institutions; farms; Federal Government; State, local or tribal governments.

Estimated Number of Responses per Survey: This will vary by survey.

Comments: Comments are invited on (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information shall have practical utility; (b) the accuracy of the Agency's estimate of the burden of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information on respondents, including through the use of automated collection techniques or other forms of information technology; and (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Dated: January 14, 2005.

Suzanne H. Plimpton,
Reports Clearance Officer, National Science Foundation.

[FR Doc. 05-1194 Filed 1-21-05; 8:45 am]

BILLING CODE 7555-01-M

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards; Meeting Notice

In accordance with the purposes of Sections 29 and 182b. of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards (ACRS) will hold a meeting on February 10-12, 2005, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the *Federal Register* on Wednesday, November 24, 2004 (69 FR 68412).

Thursday, February 10, 2005, Conference Room T-2B3, Two White Flint North, Rockville, Maryland

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.-10:30 a.m.: Power Uprate for Waterford Nuclear Plant (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff and Entergy Operations, Inc. regarding the Entergy's license amendment request for an 8% increase in thermal power for the Waterford Nuclear Plant and the related NRC staff's Safety Evaluation Report.

10:45 a.m.-12:30 p.m.: Technical Basis for Potential Revision of the Pressurized Thermal Shock (PTS) Screening Criteria in the PTS Rule (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the technical basis for potential revision of the PTS screening criteria in the PTS rule.

1:30 p.m.-4:30 p.m.: Mixed Oxide (MOX) Fuel Fabrication Facility (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the draft Safety Evaluation Report related to the construction authorization request to construct a MOX Fuel Fabrication Facility at the Department of Energy's Savannah River site.

4:30 p.m.-6:30 p.m.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports on matters considered during this meeting.

Friday, February 11, 2005, Conference Room T-2B3, Two White Flint North, Rockville, Maryland

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.-8:50 a.m.: Subcommittee Report (Open)—The Committee will hear a report by the Chairman of the ACRS Subcommittee on Plant License Renewal regarding interim review of the license renewal application for the D.C. Cook Nuclear Plant.

8:50 a.m.-10 a.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.

10:15 a.m.-11:15 a.m.: Assessment of the Quality of the Selected NRC Research Projects (Open)—The Committee will hear a report by the Chairman of the Safety Research Program Subcommittee regarding the plan, schedule, and assignments for assessing the quality of selected NRC research projects.

11:15 a.m.-11:30 a.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.

12:30 p.m.-6:30 p.m.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports.

Saturday, February 12, 2005, Conference Room T-2B3, Two White Flint North, Rockville, Maryland

8:30 a.m.-12:30 p.m.: Preparation of ACRS Reports (Open)—The Committee will continue its discussion of proposed ACRS reports.

12:30 p.m.-1 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 5, 2004 (69 FR 59620). In accordance with those procedures, oral or written views may be presented by members of the public, including representatives of the nuclear industry. Electronic recordings will be permitted only during the open portions of the meeting. Persons desiring to make oral

statements should notify the Cognizant ACRS staff named below five days before the meeting, if possible, so that appropriate arrangements can be made to allow necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during the meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by contacting the Cognizant ACRS staff prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the Cognizant ACRS staff if such rescheduling would result in major inconvenience.

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, as well as the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor can be obtained by contacting Mr. Sam Duraiswamy, Cognizant ACRS staff (301-415-7364), between 7:30 a.m. and 4:15 p.m., e.t.

ACRS meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at pdr@nrc.gov, or by calling the PDR at 1-800-397-4209, or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS) which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> or <http://www.nrc.gov/reading-rm/doc-collections/> (ACRS & ACNW Mtg schedules/agendas).

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

Dated: January 14, 2005.

Annette Vietti-Cook,
Secretary of the Commission.

[FR Doc. 05-1197 Filed 1-21-05; 8:45 am]

BILLING CODE 7590-01-P

PACIFIC NORTHWEST ELECTRIC POWER AND CONSERVATION PLANNING COUNCIL

Northwest Power and Conservation Planning Council Subbasin Plan Draft Amendments

AGENCY: Pacific Northwest Electric Power and Conservation Planning Council (Northwest Power and Conservation Council; Council).

ACTION: Notice of availability and opportunity to comment on subbasin plan draft amendments to the Council's Columbia River Basin Fish and Wildlife Program (program).

SUMMARY: Following the mandate set out in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (16 U.S.C. 839 *et seq.*) (the Act), in November 1982 the Council adopted a regional program, the Columbia River Basin Fish and Wildlife Program. The Act requires the program be designed to protect, mitigate and enhance fish and wildlife of the Columbia River Basin affected by hydropower dams, while also assuring the region of an adequate, efficient, economical and reliable power supply.

SUPPLEMENTARY INFORMATION: In 2000, the Council began a comprehensive revision of the program. First, the Council amended the program by adopting a framework of vision, objectives and strategies at different geographic scales (basinwide, ecological province, subbasin), tied together with a consistent scientific foundation. The Council also adopted basinwide provisions and described how it proposed to add more specific objectives and measures to the program through integrated subbasin plans for the tributary subbasins of the Columbia and for specific mainstem reaches. The draft amendments now proposed for adoption will add subbasin plans to the general, basinwide provisions of the program as the next step in the comprehensive revision.

On August 12, 2002, the Council solicited recommendations for amendments to the program at the subbasin level from the region's state and federal fish and wildlife agencies, Indian tribes, and others, as required by the Act. At the same time, the Council worked with a broad range of interests in the region and developed a "Technical Guide for Subbasin Planners" to help ensure that plans had a consistent format and content. The Council also worked with the Bonneville Power Administration to secure funding support for planning groups, the first time that funding has

been made available to help develop fish and wildlife program amendment recommendations. Subbasin planners were asked to develop subbasin plans that incorporate a technical assessment, an inventory of past and present activities, and a management plan consisting of a vision, biological objectives and implementation strategies for the subbasin.

On May 28, 2004, the Council received 59 recommendations for subbasin plans in 58 subbasins from various planning entities. The Council made those recommendations available for public review and comment, including review by a team of independent scientists. The public comment period on the recommendations ended on August 12, 2004. The Council received an extensive set of comments. The Council staff and Council also reviewed the plans during the comment period for consistency with standards in the Act for program amendments and with the provisions in the 2000 Program.

After its review of the recommendations and the comments on recommendations, the Council divided the recommended subbasin plans into three groups for consideration as amendments to the Council's fish and wildlife program. From October to December 2004, the Council engaged in public review of the first set of draft subbasin plans, deciding in December 2004 to adopt plan for 23 subbasin plans into the program.

At same time, as its December 2004 meeting the Council decided to release a second set of 29 subbasin plan recommendations for public review as draft amendments to the program. The Council proposes to adopt the management plan portions of these subbasin plans as parts of the program. The underlying technical assessments and inventories will be placed in an appendix to the program. The Columbia subbasins for which draft subbasin plans are now proposed for adoption into the program are: Boise, Burnt, Clearwater, Columbia Estuary, Cowlitz, Deschutes Elochoman, Entiat, Grays, Imnaha, Kalama, Klickitat, Lewis, Little White Salmon, Lower Columbia, Lower Mid-Columbia, Lower Mid-Snake, Methow, Okanogan, Payette, Powder, Snake Hells Canyon, Upper Mid-Snake, Walla Walla, Washougal, Weiser, Wenatchee, Wind, Yakima.

Public Comments and Hearings

The Council has scheduled public hearings in the following locations to accept oral and written comments on the 29 draft subbasin plan program amendments:

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

January 31, 2005

REVISED
 SCHEDULE AND OUTLINE FOR DISCUSSION
 519th ACRS MEETING
 FEBRUARY 10-11, 2005

THURSDAY, FEBRUARY 10, 2005, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH,
 ROCKVILLE, MARYLAND

- 1) 8:30 - 8:35 A.M. ~~8:32~~ Opening Remarks by the ACRS Chairman (Open) (GBW/JTL/SD)
 1.1) Opening statement
 1.2) Items of current interest
- 2) 8:35 - 12:00 Noon Power Uprate for Waterford Nuclear Plant (Open) (GBW/RC)
~~(10:00-10:15 A.M. BREAK)~~ 2.1) Remarks by the Cognizant Subcommittee Chairman
 10:33-10:48 A.M. 2.2) Briefing by and discussions with representatives of the
 I, II, NRC staff and Entergy Operations, Inc. regarding Entergy's
 license amendment request for an 8% increase in thermal
 power for the Waterford Nuclear Plant and the related NRC
 staff's Safety Evaluation Report.
 12:18 - 1:15 P.M.
~~12:00 - 1:00 P.M.~~ ***LUNCH***
 1:17
- 3) 4:00 - 4:00 P.M. Mixed Oxide (MOX) Fuel Fabrication Facility (Open) (DAP/MWW)
~~(2:30-2:45 P.M. BREAK)~~ 3.1) Remarks by the Cognizant Subcommittee Chairman
 2, III, 3.2) Briefing by and discussions with representatives of the NRC
 staff regarding the draft Safety Evaluation Report related to
 the construction authorization request to construct a MOX
 Fuel Fabrication Facility at the Department of Energy's
 Savannah River site.
 3:05 p.m - 3:20
~~4:00 - 4:15 P.M.~~ ***BREAK***
- 4) 4:15 - 6:30 P.M. Preparation of ACRS Reports (Open)
 4:40-5:00 P.M. Discussion of proposed ACRS reports on:
 Break 4.1) Waterford Power Uprate (GBW/RC)
 4.2) Construction Authorization Application for the MOX Fuel
 Fabrication Facility (DAP/MWW)

Don't need
 court reporter @ 4:40 p.m., per Wallis

FRIDAY, FEBRUARY 11, 2005, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH,
 ROCKVILLE, MARYLAND

- 5) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (GBW/JTL/SD)
- 6) 8:35 - 8:50 A.M. Subcommittee Report (Open) (MVB/CS)
 III, Report by the Chairman of the ACRS Subcommittee on Plant
 License Renewal regarding interim review of the license renewal
 application for the D.C. Cook Nuclear Plant.

- No Court
 Reporter for
 Today

- 10:40
- 7) 8:50 - ~~10:00~~ A.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (GBW/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.
- 10:40 - 11:00 AM ←
- ~~10:00 - 10:15 A.M.~~ ***BREAK***
- 8) 10:15 - 11:15 A.M. Assessment of the Quality of the Selected NRC Research Projects (Open) (DAP/HPN/SD)
- 11:00 A.M. ^{4.}_{1.} Report by the Chairman of the Safety Research Program Subcommittee regarding the plan, schedule, and assignments for assessing the quality of selected NRC research projects.
- 9) 11:15 - 11:30 A.M. Reconciliation of ACRS Comments and Recommendations (Open) (GBW, 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.
- 12:00 - 1:15 P.M.
- ~~11:30 - 12:30 P.M.~~ ***LUNCH***
- 10) ~~4:30~~ - 6:00 P.M. Preparation of ACRS Reports (Open)
- 1:15 Discussion of the proposed ACRS reports on:
- 10.1) Waterford Power Uprate (GBW/RC)
- 10.2) Construction Authorization Application for the MOX Fuel Fabrication Facility (DAP/MWW)
- 11) 6:00 - ~~6:30~~ P.M. Miscellaneous (Open) (GBW/JTL)
- 6:17 P.M. 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) hard copies and (1) electronic copy of the presentation materials should be provided to the ACRS.

APPENDIX III: MEETING ATTENDEES

519TH ACRS MEETING

February 10-11, 2005

NRC STAFF (2/10/05)

T. Scarbrough, NRR	R. Pelton, NRR	S. Magruder, NMSS
J. Hannon, NRR	S. Jones, NRR	J. Klein, NMSS
N. Trehan, NRR	H. Berkow, NRR	C. Zy, NMSS
R. Ennis, NRR	T. Marsh, NRR	F. Burrows, NMSS
A. Howe, NRR	A. Stubbs, NRR	D. Brown, NMSS
J. Tatum, NRR	B. Denning, NRR	J. Giitter, NMSS
C. Liang, NRR	E. Skarpar, NRR	M. Cash, OIG
F. Orr, NRR	C. Wu, NRR	T. Cox, NMSS
B. Ruland, NRR	S. Miranda, NRR	H. Graves, RES
K. Kaswaski, NRR	L. Ward, NRR	R. Shaffer, RES
J. Mitchell, RES	M. Kotzales, NRR	J. Holonich, NMSS
D. Coe, NRR	D. Thatcher, NRR	J. Hill, OGC
P. Prescott, NRR	J. Medoff, NRR	S. Steele, NMSS
T. Carter, NMSS	M. Hart, NRR	A. Murray, NMSS
T. Quay, NRR	J. Lazevnick, NRR	D. Persinko, NMSS
M. Stutzke, NRR	W. Troskoski, NMSS	
M. Webb, NRR	D. Diaz, NMSS	
R. Pettis, NRR	J. Heissener, NMSS	
N. Kalyanam, NRR	R. Wescott, NMSS	

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

G. Hess, Westinghouse	W.L. Brown, Westinghouse	M. Matsumora, NSC Japan
J. Rachal, Entergy	J. Holman, Entergy	S. Osumi, NSC Japan
T. Leonard, Entergy	D. Fink, Westinghouse	J. Weil, McGraw-Hill
J. E. Venable, Entergy	P. Sicard, Entergy	T. Delldizo, Main Line Eng PSEG Nucl.
J. Brown, Westinghouse	D. Constance, Entergy	M. Testa, First Energy
S. O'Hearn, Westinghouse	D. Madere, Entergy	J. Deblasio, Westinghouse
J. McInnery, Westinghouse	J. Venable, Entergy	P. Negus, GF
D. Viener, Entergy	T. Mitchell, Entergy	J. Clark, Gamna Engineering
J. Cleary, Westinghouse	J. Burford, Entergy	M. Williams, DOE
T. Fleischer, Entergy	D.P. Siska, Westinghouse	S. Kale, DOE-NNSA-NA-54
S. Jaquith, Westinghouse	G. Jones, PPL	G. Kaplan, DCS
L. Gvcwa, Vermont Yankee	J. Oddo, PPL	R. Sweigart, DCS
C. Nichols, Entergy	J. Bartos, PPL	K. Ashe, DCS
D. Miller, Entergy	R. Schwartzbeck, Enercon	G. Smith, DOE
S. Traiforos, LINK Technologies	R. Aleksick, CSI Technologies	D. Horne, McGraw-Hill
B. Hammersley, Westinghouse	D. Baisley, Westinghouse	
D. Raleigh, Scientech	G. Matharu, Entergy	
J. Sugaya, Janus	R. Putnam, Jr., Entergy	
K. Sakamoto, JNES	S. Cybert, Westinghouse	

APPENDIX III: MEETING ATTENDEES (Cont'd)

519TH ACRS MEETING

February 10-11, 2005

NRC STAFF (2/11/05)

A. Levin, RES
C. Adar, RES
M. Cash, OIG
N. Kalyanam, NRR
R. Wescott, NMSS
S. Steele, NMSS

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

S. Traniforos, LINK
H. Feinroth, Gamma Engineering
M. Matsumura, NSC Japan
J. Susaya, Japan NUS Company
S. Osumi, NSC Japan
D. Miller, Entergy



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

February 14, 2005

**SCHEDULE AND OUTLINE FOR DISCUSSION
 520th ACRS MEETING
 MARCH 3-5, 2005**

**THURSDAY, MARCH 3, 2005, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH,
 ROCKVILLE, MARYLAND**

- 1) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (GBW/JTL/SD)
 1.1) Opening statement
 1.2) Items of current interest

- 2) 8:35 - 10:00 A.M. Revised Draft NUREG on Expert Elicitation on Large-Break LOCA
 Frequencies (Open) (GEA/MRS)
 2.1) Remarks by the Cognizant Subcommittee Chairman
 2.2) Briefing by and discussions with representatives of the
 NRC staff regarding the revised draft NUREG-xxx,
 "Estimating Loss-of-Coolant Accident (LOCA) Frequencies
 Through the Elicitation Process," and related matters.

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

10:00 - 10:15 A.M. *BREAK*****

- 3) 10:15 - 12:15 P.M. Proposed Rulemaking Package for Risk-Informing 10 CFR 50.46.
 (Open) (WJS/MRS/RC)
 3.1) Remarks by the Cognizant Subcommittee Chairman
 3.2) Briefing by and discussions with representatives of the NRC
 staff regarding the proposed rulemaking package for risk-
 informing 10 CFR 50.46, "Acceptance Criteria for Emergency
 Core Cooling Systems for Light-Water Nuclear Power
 Reactors."

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

12:15 - 1:15 P.M. *LUNCH*****

- 4) 1:15 - 2:45 P.M. Draft Safety Evaluation Report Related to North Anna Early Site
 Permit Application (Open) (DAP/MME)
 4.1) Remarks by the Cognizant Subcommittee Chairman
 4.2) Briefing by and discussions with representatives of the NRC
 staff and Dominion Nuclear North Anna, LLC regarding the
 NRC staff's draft Safety Evaluation Report related to the
 North Anna Early Site Permit Application.

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

2:45 - 3:00 P.M.

BREAK

5) 3:00 - 5:00 P.M.

Technical Basis for Potential Revision of the Pressurized Thermal Shock (PTS) Screening Criteria in the PTS Rule (Open)
(WJS/HPN/CS)

- 5.1) Remarks by the Cognizant Subcommittee Chairman
- 5.2) Briefing by and discussions with representatives of the NRC staff regarding the technical basis for potential revision of the PTS screening criteria in the PTS rule.

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

5:00 - 5:15 P.M.

BREAK

6) 5:15 - 6:45 P.M.

Preparation of ACRS Reports (Open)

Discussion of proposed ACRS reports on:

- 6.1) Revised Draft NUREG on Expert Elicitation on Large-Break LOCA Frequencies (GEA/MRS)
- 6.2) Proposed Rule for Risk-Informing 10 CFR 50.46 (WJS/MRS/RC)
- 6.3) North Anna Early Site Permit Application (Tentative) (DAP/MME)
- 6.4) Technical Basis for Potential Revision to the PTS Screening Criteria (WJS/HPN/CS)

FRIDAY, MARCH 4, 2005, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

7) 8:30 - 8:35 A.M.

Opening Remarks by the ACRS Chairman (Open) (GBW/JTL/SD)

8) 8:35 - 10:30 A.M.

Proposed Revisions to Generic License Renewal Guidance Documents/Scoping Review Process for BOP Systems (Open)
(MVB/CS)

- 8.1) Remarks by the Cognizant Subcommittee Chairman
- 8.2) Briefing by and discussions with representatives of the NRC staff regarding proposed revisions to: NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants;" NUREG-1801, "Generic Aging Lessons Learned (GALL) Report;" and Draft Regulatory Guide DG-1140, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" (Proposed Revision 1 to Regulatory Guide 1.188) that endorses, with certain exceptions, NEI 95-10, Rev. 5, "Industry Guidelines for Implementing the Requirements of 10 CFR 54 - The License Renewal Rule." The Committee will also discuss with the staff the scoping review process for balance-of-plant (BOP) systems.

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

- 10:30 - 10:45 A.M. ***BREAK*****
- 9) 10:45 - 12:15 P.M. Preparation for Meeting with the NRC Commissioners (Open)
(GBW, et.al/JTL, et.al)
Discussion of topics for meeting with the NRC Commissioners which is scheduled for April 7, 2005.
- 12:15 - 1:15 P.M. ***LUNCH*****
- 10) 1:15 - 2:15 P.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (GBW/JTL/SD)
- 10.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future ACRS meetings.
- 10.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.
- 11) 2:15 - 2:30 P.M. Reconciliation of ACRS Comments and Recommendations (Open)
(GBW, 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.
- 2:30 - 2:45 P.M. ***BREAK*****
- 12) 2:45 - 6:45 P.M. Preparation of ACRS Reports (Open)
Discussion of the proposed ACRS reports on:
- 12.1) Revised Draft NUREG on Expert Elicitation on Large-Break LOCA Frequencies (GEA/MRS)
- 12.2) Proposed Rule for Risk-Informing 10 CFR 50.46 (WJS/MRS/RC)
- 12.3) North Anna Early Site Permit Application (Tentative) (DAP/MME)
- 12.4) Technical Basis for Potential Revision to the PTS Screening Criteria (WJS/HPN/CS)

SATURDAY, MARCH 5, 2005, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 13) 8:30 - 12:30 P.M. Preparation of ACRS Reports (Open)
(10:30-10:45 A.M. BREAK) Continue discussion of proposed ACRS reports listed under Item 12.
- 14) 12:30 - 1:00 P.M. Miscellaneous (Open) (GBW/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) hard copies and (1) electronic copy of the presentation materials should be provided to the ACRS.**

APPENDIX V
LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE
519th ACRS MEETING
February 10-11, 2005

[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 | <u>Opening Remarks by the ACRS Chairman</u>
1. Items of Interest, dated February 10-11, 2005 |
| 2 | <u>Power Uprate for Waterford Nuclear Plant</u>
2. Waterford 3 Extended Power Uprate Project presentation by Entergy
3. Waterford Steam Electric Station, Unit 3 presentation by NRC and Entergy |
| 3. | <u>Mixed Oxide (MOX) Fuel Fabrication Facility</u>
4. NRC Review of the Construction Authorization Request for the Mixed Oxide Fuel Fabrication Facility presentation |
| 7. | <u>Future ACRS Activities/Report of the Planning and Procedures Subcommittee</u>
5. Future ACRS Activities/Final Draft Minutes of Planning and Procedures Subcommittee Meeting - February 9, 2005 [Handout #7] |
| 8. | <u>Assessment of the Quality of the Selected NRC Research Projects</u> |
| 9. | <u>Reconciliation of ACRS Comments and Recommendations</u>
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
519th FULL COMMITTEE MEETING

FEBRUARY 10-12, 2005

TODAY'S DATE: February 10, 2005

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Thomas Scarborough	NRR/DE/EMEB
John Hannon	NRR/DSSA/SPLB
N-TREHAN	NRR/DE/EEIB
Rick Ennis	NRR/DLPM
Allen Howe	NRR/DLPM
James Tatum	NRR/DSSA/SPLB
Chu-yu Liang	NRR/DSSA/SRXB
FRANK ORR	NRR/DSSA/SRXB
Bill Ruland	NRR/DLPM/PDIII
Ken Karwowski	NRR/DE/EMEB
Soledad Mitchell	RES
Robert Kuntz	NRR/DLPM/PDIII-1
Doug Coe	NRR/DSSA/SRXB
George Ness	Westinghouse
Paul Prescott	NRR/DLPM/IPSB
TED CARTER	NMSS/FCSS/SRB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
519th FULL COMMITTEE MEETING

FEBRUARY 10-12, 2005

TODAY'S DATE: February 10, 2005

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ROBERT PETTY	NRR / DIPM / IPSB
N. Kalyanam	NRR / DLPM / PDIV-1
R PELTON	NRR / DIPM / IROR
Steve Jones	NRR / DSSA / SPLR
HERB BERKOV	NRR / DLPM / PDIV
Tud Minsk	NRR / DLPM
Angelo Stubbs	NRR / DSSA / SPLB
Bob Dennig	NRR / DSSA / SPSB
Eric Skarpec	NRR / DLPM / ADE-1
CHEUNG-14 (JOHN) WU	NRR / DE / EMEB
Sam Miranda	NRR / DSSA / SRXB
LEW WARD	NRR / DSSA / SA XB
Margie Kopravics	NRR / DLPM
Dale Thatche	NRR / DIPM / IPSB
JAMES MEDOFF	NRR / DE / EMCB
Michelle Hart	NRR / DSSA / SPSB
JAMES LAZEVNIC	NRR / DE / EMB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
519th FULL COMMITTEE MEETING

FEBRUARY 10-12, 2005

TODAY'S DATE: February 10, 2005

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<u>DIANA DIAZ</u>	<u>NMSS/FCSS</u>
<u>JR Clark</u>	
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<u>Rex Wescott</u>	<u>NMSS/FCSS/SPB</u>
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<u>Joel Klein</u>	<u>NMSS/FCSS/SPB</u>
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<u>FRED BURROWS</u>	<u>NMSS/FCSS/TSG</u>
<u>David Brown</u>	<u>NMSS/FCSS/MOFLS</u>
<u>Joe Gmitter</u>	<u>NMSS/FCSS/SPB</u>
<u>Mike Cash</u>	<u>Office Inspector General</u>
<u>TOM COX</u>	<u>NMSS/FCSS/SPB</u>
<u>HERMAN GRAVES</u>	<u>RES/DET/ERAE</u>
<u>Roman Shaffer</u>	<u>RES/DET/ERAB</u>
<u>Abe Holonick</u>	<u>NMSS/FCSS</u>
<u>John Hull</u>	<u>OIC</u>
<u>Sharon Steele</u>	<u>NMSS/FCSS/SPB</u>
<u>ALEX MURRAY</u>	<u>NMSS/FCSS/SPB</u>
<u>D Persullo</u>	<u>NMSS/DWM/SPS</u>

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS AND SECURITY

519th FULL COMMITTEE MEETING
FEBRUARY 10-12, 2005

February 10, 2005
Today's Date

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<u>NAME</u>	<u>AFFILIATION</u>
Jocj Rachal	ENERGY
Theodore Leonard	ENERGY
J. E. Venable	ENERGY
Jeff Brown	Westinghouse
Stephen O'Hearn	Westinghouse
John McInerney	Westinghouse
DAVID VIANA	ENERGY
JOE CLEARY	WESTINGHOUSE
Thomas Fleischer	Energy
Susan Jaquith	Westinghouse
John McInerney	Westinghouse
LEN GUCWA	VERMONT YANKEE
CRAIG NICHOLS	ENERGY
David B. Miller	Energy
SAROS TRAFOROS	LINK Team
BOB HAMMERSLEY	WESTINGHOUSE
Keinn Paleygh	Scientech
Junko Sugaya	JANUS
Kazunobu Sakamoto	JNES

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS AND SECURITY

519th FULL COMMITTEE MEETING
FEBRUARY 10-12, 2005

February 10, 2005
Today's Date

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Joseph Venable	Energy
Tim Mitchell	Energy
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D.P. SISKI	WESTINGHOUSE
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JOHN M. ODDO	PPL
John A. Bartos	PPL
RALPH SCHWARTZBERG	ENERCON
ROBERT ALEKSIC	CSI TECHNOLOGIES
DAVID BAISLEY	WESTINGHOUSE
G. SINGH MATHARU	ENERGY
Rex G. Putnam Jr	ENERGY
Steven W. Cybert	Westinghouse

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS AND SECURITY

519th FULL COMMITTEE MEETING
FEBRUARY 10-12, 2005

February 10, 2005
Today's Date

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<u>NAME</u>	<u>AFFILIATION</u>
MAKOTO MATSUMURA	NSC JAPAN
Satoshi Osumi	NSC Japan
Jenny Weil	McGraw-Hill
Junbo Sugaya	JapanNUS Co
Ied Debasio	Main Line Eng / PSEG Nuclear
MIKE TESTA	FIRST ENERGY
JOHN DEBLASIO	WESTINGHOUSE
Paige Negus	GE
JR Clark	Gamma Engineering
MARIC WILLIAMS	DOE
Stephen Kale	DOE-NNSA-NA-54
GARY Kaplan	DCS
RICHARD L. SWEIGART	DCS
Ken Ashe	DCS
Joe	
Garrett Smith	DOE
Daniel Horne	McGraw-Hill

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS AND SECURITY

519th FULL COMMITTEE MEETING
FEBRUARY 10-12, 2005

February 11, 2005
Today's Date

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NAME

AFFILIATION

SPYROS TRAFIPOLOS

LINK

Herbert Feinroth

gamma eng.

MAKOTO MATSUMURA

NSC JAPAN

Junko Sugaya

Japan NUS Co.

Satoshi Osumi

NSC Japan

David B Miller

Energy

ITEMS OF INTEREST

519th ACRS MEETING

FEBRUARY 10-11, 2005

**ITEMS OF INTEREST
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
519th MEETING
February 10-11, 2005**

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January 18, 2005

MEMORANDUM TO: Luis A. Reyes
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary */RA/*

SUBJECT: STAFF REQUIREMENTS - SECY-04-0233 - PROPOSED
RULEMAKING--POST-FIRE OPERATOR MANUAL ACTIONS
(RIN 3150 AH-54)

The Commission has approved publication of the proposed rule, subject to the changes noted in the attachment. While many of the changes address the comments noted below, the staff should make conforming changes to the remainder of the package prior to issuing it for public comment.

The rulemaking package should be revised, as attached, to more clearly indicate that although the exemption process is available for cases that can be justified under 10 CFR 50.12, the Commission considers the use of the option provided by this rulemaking or the risk-informed, performance-based option in 10 CFR 50.48(c) more desirable in order to minimize the need for future exemption requests for addressing operator manual actions. In addition, the staff should engage stakeholders to get a clear understanding of the likelihood that the proposed rule would achieve its underlying purpose, including the number of plants for which the proposed rule would address the operator manual actions issue. This information should be considered in deciding whether to proceed to final rulemaking.

The rulemaking package should be revised, as attached, to include the range of options for meeting the time margin requirement for operator manual actions without recommending a preferred option. The options should be provided to solicit public comment on them and on other potential approaches for determining an appropriate time margin.

The Commission has approved the the staff's recommendation to continue using the current enforcement discretion policy described in EGM 98-02, "Enforcement Guidance Memorandum - Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures," and the guidance provided in IP 71111.05 in relation to operator manual actions, until the final rule is published, rather than developing an interim enforcement policy.

Attachment: Changes to the Federal Register Notice in SECY-04-0233

January 6, 2005

MEMORANDUM TO: Luis A. Reyes
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary /RA/

SUBJECT: STAFF REQUIREMENTS - COMSECY-04-0079 - FIRE
PROTECTION RULE 10 CFR 50.48(C) (NFPA 805 RULE)
INTERIM ENFORCEMENT DISCRETION POLICY EXTENSION

The Commission has approved extension of the Interim Enforcement Discretion Policy under the Fire Protection Rule (10 CFR 50.48(c)) until December 31, 2005 and publication of the related Federal Register notice subject to the changes noted below.

1. On page 3, revise line 3 from the top to read ' ... until the NRC completes its review approval of the license'
2. On page 3, last paragraph, revise lines 2 and 3 to read ' ... requested **additional enforcement discretion** regarding the final rule amending 10 CFR 50.48. ~~NEI requested that NRC extend~~'
3. On page 4, replace the periods at the end of the 1st and 2nd bullets with commas.
4. On page 5, 1st bullet, revise lines 1 and 2 to read 'Licensees potentially would be identifying and addressing improvements to existing programs. ~~New issues during the transition process that otherwise would likely not be identified.~~'

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
DOC
OGC
CFO
OCA
OPA
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR

January 4, 2005

MEMORANDUM TO: Luis A. Reyes
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary */RA/*

SUBJECT: STAFF REQUIREMENTS - SECY-04-0223 - REQUEST FOR APPROVAL OF STAFF COMMENTS ON THE 2005 RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

The Commission has approved the staff's plans to transmit comments to the International Commission on Radiological Protection (ICRP) on the draft ICRP 2005 Recommendations, subject to the following comments and changes.

The Commission supports the staff's position that ICRP should delay finalizing the draft 2005 Recommendations to allow the "foundation documents" to be reviewed by the international community, and to permit consideration of the results of the BEIR VII study and the next UNSCEAR report. Also, the Commission agrees that it is not necessary to develop a framework for radiological protection of non-human species, and Section 11 and Appendix B of the draft recommendations should be removed. The staff should continue to express the Commission's concerns about developing standards for protection of flora and fauna to the ICRP and the IAEA in the appropriate forums.

There should be internal consistency within the ICRP document. For example, the inconsistencies in the document with some table values requiring regulatory action for material below the exemption value should be corrected.

Consistent with the path the NRC has taken in the ongoing rulemaking for controlling the disposition of solid materials, general comment number 7 should be revised to clearly indicate that the Commission supports the concept of exemption, and that there should be no regulatory requirements (e.g., optimization) from a radiological perspective for material with radioactivity below the exempt values. Additionally, there may be some levels above the exemption constraint where further optimization is not practical, and ICRP should provide some guidance in this area.

The staff should remain firm in its position in comment 14 that the ICRP should clearly describe the scientific basis for its decision to more emphatically endorse the linear, no-threshold dose-response model.

Specific comment number 46 should read that the value chosen for exemption should be at a level where no further regulatory controls or optimization is necessary from a radiological perspective. The document should be revised to eliminate any inconsistencies between the exemption values and minimum constraint values.

The staff should continue to monitor ICRP activities and review ICRP documents, and,

consistent with previous direction, should continue to raise any potential policy issues to the Commission. In these interactions, the staff should reinforce the principle that radiological protection recommendations should enhance public health and safety, and the costs of implementing the recommendations should be commensurate with their potential benefits.

The Commission would like to thank the Advisory Committee on Nuclear Waste (ACNW) for its detailed review of the ICRP recommendations and for the clear and well written letter report dated November 3, 2004. This effort by the ACNW working group was beneficial to both the staff and the Commission.

Additional change to Attachment 2

1. On page 1, paragraph 1, line 4, change "... The NRC's was ..." to "... The NRC was ..."
2. On page 3, item 8, change first sentence to read: "NRC is unaware of any evidence ..."

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
OGC
DOC
CFO
OCA
OIG
OPA
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR


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EA-04-173 - Vermont Yankee (Entergy Nuclear Operations, Inc.)

February 2, 2005

EA-04-173

Mr. Jay K. Thayer
 Site Vice President
 Entergy Nuclear Operations, Inc.
 Vermont Yankee Nuclear Power Station
 P.O. Box 0500
 185 Old Ferry Road
 Brattleboro, VT 05302-0500

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING
 (NRC Inspection Report 05000271/2004009)
 Vermont Yankee Nuclear Power Station

Dear Mr. Thayer:

The purpose of this letter is to provide you with the final results of our significance determination for the preliminary White finding identified at Vermont Yankee during an inspection completed on October 12, 2004. The results of the inspection were discussed with Mr. R. Wanczyk, Nuclear Safety Director, and other members of your staff during exit meetings on July 30 and October 12, 2004. The inspection finding was assessed using the significance determination process and was preliminarily characterized as White, a finding with low to moderate importance to safety that may require additional NRC inspections. The basis for this preliminary White finding was explained in our letter dated November 12, 2004, which transmitted the subject inspection report.

This preliminary White finding involved the failure to establish a means to provide early notification and clear instruction to a portion of the populace within the plume exposure pathway emergency planning zone (EPZ), as required by the Vermont Yankee Emergency Plan. Specifically, a portion of the populace that was within the Vermont Yankee EPZ, but outside of siren coverage, was not issued tone alert radios so that they could be notified in case of an emergency.

In our letter dated November 12, 2004, the NRC provided you an opportunity to either request a regulatory conference to discuss this finding, or to explain your position in a written response. On December 8, 2004, Mr. R. Wanczyk of your staff informed Mr. R. Conte of NRC, Region I, that Entergy declined the opportunity to discuss this issue in a Regulatory Conference, but would provide a written response.

In your response dated December 15, 2004, you stated that sirens and tone alert radios were the two primary means to notify the populace within the EPZ of an emergency, and that you concurred with our assessment that Vermont Yankee did not provide adequate active measures to positively assure distribution of tone alert radios. However, you believed that the safety significance of this condition was substantially mitigated by the fact that other means of notification were available, including radio and television broadcasting, use of automatic telephone dialing/notification systems, pagers, and cell phones.

After considering the information developed during the inspection and the information provided in your letter, the NRC has concluded that the inspection finding is appropriately characterized as White, an issue with low to moderate increased importance to safety that may require additional inspections. The issue is White because an emergency preparedness risk

significant planning standard, namely, the ability to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ, was degraded. Although sirens provided coverage for most of the EPZ, a portion of the EPZ population outside of the siren coverage area did not have tone alert radios because Entergy did not have a reliable "effort" process in place to offer them tone alert radios. The NRC recognizes that some of the individuals who were not notified via tone alert radios may be notified via other various informal and unplanned methods. However, as described in your response dated December 15, 2004, you do not take credit for these other methods of notification in your Alert and Notification System design. Therefore, the NRC can not assume that these methods would be successful.

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 not establishing the means to provide early notification and clear instruction to a portion of the populace within the plume exposure pathway EPZ is a violation of 10 CFR 50.47(b)(5), as cited in the enclosed Notice of Violation (Notice). The circumstances surrounding the violation are described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, NUREG-1600, this 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 issue 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 2.390 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 the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Samuel J. Collins
Regional Administrator

Docket No: 50-271
License No: DPR-28

Enclosure: Notice of Violation

cc w/encl:

M. R. Kansler, President, Entergy Nuclear Operations, Inc.
G. J. Taylor, Chief Executive Officer, Entergy Operations
J. T. Herron, Senior Vice President and Chief Operating Officer
D. L. Pace, Vice President, Engineering
B. O'Grady, Vice President, Operations Support
J. M. DeVincentis, Manager, Licensing, Vermont Yankee Nuclear Power Station
Operating Experience Coordinator - Vermont Yankee Nuclear Power Station
J. F. McCann, Director, Nuclear Safety Assurance
M. J. Colomb, Director of Oversight, Entergy Nuclear Operations, Inc.
J. M. Fulton, Assistant General Counsel, Entergy Nuclear Operations, Inc.
S. Lousteau, Treasury Department, Entergy Services, Inc.
Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Mass.
D. R. Lewis, Esquire, Shaw, Pittman, Potts & Trowbridge
G. [redacted] isbee, Esquire, Deputy Attorney General, Environmental Protection Bureau
J. [redacted], Esquire
J. P. Matteau, Executive Director, Windham Regional Commission

M. Daley, New England Coalition on Nuclear Pollution, Inc. (NECNP)
 D. Katz, Citizens Awareness Network (CAN)
 R. Shadis, New England Coalition Staff
 G. [REDACTED], President/Staff Person, c/o Stopthesale
 J. [REDACTED], PWR SRC Consultant
 R. Toole, PWR SRC Consultant
 D. Bell, RAC Chair, FEMA Region I
 Commonwealth of Massachusetts, SLO Designee
 State of New Hampshire, SLO Designee
 State of Vermont, SLO Designee

NOTICE OF VIOLATION

Entergy Nuclear Operations, Inc.
 Vermont Yankee Nuclear Power Station

Docket No. 50-271
 License No. DPR-28
 EA-04-173

During an NRC inspection conducted between July 26, 2004 through July 30, 2004, and on October 12, 2004, for which exit meetings were held on July 30 and October 12, 2004, 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 50.54(q) requires a licensee authorized to possess and operate a nuclear power reactor to follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b).

10 CFR 50.47(b)(5) requires in part, that means to provide early notification and clear instruction to the populace within the plume exposure pathway emergency planning zone (EPZ) have been established.

The Vermont Yankee Emergency Plan, Section 11.2, "Public Notification," refers to Appendix H for details concerning the prompt public notification methods for the Vermont Yankee area. Appendix H describes equipment necessary to alert the public within the Vermont Yankee EPZ as sirens and tone alert radios.

Contrary to the above, as of September 23, 2004, the licensee failed to follow its emergency plan to establish the means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ. Specifically, a portion of the populace within the EPZ, who are outside of the range of sirens, did not have tone alert radios.

This violation is associated with a WHITE significance determination process finding.

Pursuant to the provisions of 10 CFR 2.201, Entergy Nuclear Operations, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 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-04-173" and should include for the violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (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, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible at NRC's 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. 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 redacts 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 2.390(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 2nd day of February 2005.

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Last revised Friday, February 04, 2005


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EA-04-189 - Catawba 1 & 2 (Duke Energy Corporation)

January 24, 2005

EA-04-189

EA-04-236

Duke Energy Corporation
 ATTN: Mr. D. M. Jamil
 Site Vice President
 Catawba Nuclear Station
 4800 Concord Road
 York, SC 29745

SUBJECT: NOTICE OF VIOLATION (CATAWBA NUCLEAR STATION - NRC INSPECTION REPORT 05000413/2005006 AND 05000414/2005006)

Dear Mr. Jamil:

This refers to the in-office inspection completed by the Nuclear Regulatory Commission (NRC) staff on October 29, 2004, concerning Duke Energy Corporation's (DEC) proposed license amendment request (LAR) of February 27, 2003. DEC's request, as supplemented by additional letters through December 10, 2004, proposed to revise its Technical Specifications to allow the use of four mixed oxide (MOX) fuel lead test assemblies (LTAs) at Catawba Nuclear Station Units 1 and 2.

The results of the inspection, including the identification of three apparent violations, were discussed with you and your staff on November 1, 2004, and were forwarded to you by NRC Inspection Report No. 05000413,414/2004010, dated November 3, 2004. Based on the results of the inspection, a pre-decisional enforcement conference was held on December 17, 2004, in the NRC's White Flint North office in Rockville, MD, with you and members of your staff to discuss the apparent violations, their significance, root causes, and your corrective actions. A listing of conference attendees, material presented by the NRC, and material presented by DEC are included as Enclosures 2, 3, and 4, respectively.

Based on the information developed during the inspection and presented at the conference, the NRC has determined that violations of NRC requirements occurred. One cited violation (EA-04-189) is set forth in the enclosed Notice of Violation (Notice), and the circumstances surrounding it are described in detail in NRC Inspection Report No. 05000413/2004010. The cited violation involves two examples of DEC's failure to submit complete and accurate information in violation of 10 CFR 50.9. The first such example involves DEC's initial failure to indicate that the reactor core would also include eight next generation fuel (NGF) LTAs as part of the complete core loading of 193 fuel assemblies. The second example involved DEC's initial reliance on radiation dose evaluations that were not based on the current plant design basis accident radiation dose estimates.

At the conference, DEC stated that it did not contest the violation. DEC also stated that its submittal of the inaccurate information was unintentional. Based on DEC's review of the issues, the root causes for the first example involved inadequate preparation and review for accuracy of the MOX LAR and inadequate attention to the literal accuracy of statements in the submittal. The root causes for the second example involved a failure to maintain Updated Final Safety Analysis Report (UFSAR) Chapter 15 dose information current as well as inadequate preparation and review of DEC's responses to the NRC's request for additional information (RAI).

Providing complete and accurate information to the NRC is essential to our mission to ensure public health and safety. In

both examples, as part of the license amendment review process, it was necessary for the NRC staff to conduct substantial further inquiry to review the acceptability of the thermal-hydraulic conditions, mechanical design, and radiation doses for the actual intended core composition. Therefore, the NRC concludes that this violation should be characterized at Severity Level II in accordance with the Enforcement Policy. Regarding the first violation example, the NRC concluded in its July 27, 2004 safety evaluation supplement that the effect of the eight NGF LTAs on the core had been conservatively evaluated by DEC and that the NGF LTAs would not have any significant effect on the MOX LTAs. The impact of the second example (regarding updated dose information) on the staff's safety evaluation is still under NRC review, but is not expected to result in a different regulatory position.

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 2 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.

DEC's completed corrective actions included the following: DEC reviewed, clarified, and/or corrected its MOX LAR submittals and RAI responses; DEC management immediately took steps to reinforce its expectations regarding accuracy and precision in its submittals and RAI responses; regarding the FSAR Chapter 15 dose information, DEC informed the NRC of the error upon discovery and submitted updated dose information to the NRC; DEC reviewed the FSAR Chapter 15 results against the licensing basis calculations; and DEC also identified the need to correct the loss of coolant accident control room dose for the unfiltered control room inleakage and emergency core cooling system leakage. DEC's planned corrective actions included the following: increased formality in the preparation, review, and internal approval of documents submitted to the NRC by creating a separate Basis Document for each LAR and response to an RAI; training of the DEC staff on the standards for completeness and accuracy in NRC correspondence; and FSAR update process improvements. Additional corrective actions taken or planned by DEC were also discussed at the conference. Based on the above, the NRC concluded that credit was warranted for the factor of Corrective Action.

Therefore, to encourage prompt and comprehensive correction of violations and in recognition of the absence of previous escalated enforcement action, I have been authorized to propose that no civil penalty be assessed in this case. However, similar violations in the future could result in further escalated enforcement action. Issuance of this Notice constitutes escalated enforcement action, that may subject you to increased inspection effort.

An additional violation was discussed at the conference involving DEC's failure to update the FSAR as required by 10 CFR 50.55(e). Because of its low safety significance and because the issue was entered into your corrective action program (Problem Investigation Process Nos. G-04-0334 and C-04-4116), the NRC is treating this Severity Level IV violation as a non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy.

The NRC has concluded that information regarding the reason for the violations, the corrective actions taken and planned to correct the violations and prevent recurrence, and the date when full compliance will be achieved is adequately addressed in the information provided by DEC at the conference (Enclosure 4). Therefore, you are not required to respond to the violations documented 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.

For administrative purposes, this letter is issued as a separate NRC Inspection Report, No. 05000413/2005006 and 05000414/2005006, and the above violations are identified as follows: VIO 05000413,414/2005006-01, Failure to Provide Complete and Accurate Information Involving MOX Amendment Fuel Assemblies and Related Dose Calculations; and NCV 05000413,414/2005006-02, Failure to Update the FSAR Involving Dose Calculations. Accordingly, AV 05000413,414/2004010-01, AV 05000413,414/2004010-02, and AV 05000413,414/2004010-03 are closed.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if you chose to provide one) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, the response should not include any personal privacy, proprietary, classified, or safeguards information so that it 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/

William D. Travers
Regional Administrator

Docket Nos.: 50-413, 50-414
License Nos.: NPF-35, NPF-52

Enclosures:

1. Notice of Violation
2. List of Attendees
3. Information Presented by NRC
4. Information Presented by DEC

cc w/encls:

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Regulatory Compliance Manager
Duke Energy Corporation
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County Manager of York County, SC
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Eisenberg, LLP
1726 M Street, NW
Suite 600
Washington, DC 20036

NOTICE OF VIOLATION

Duke Energy Corporation
Catawba Units 1 and 2

Docket No. 50-413, 50-414
License No. NPF-35, NPF-52
EA-04-189

During an NRC inspection completed on October 29, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy), the violation is listed below:

10 CFR 50.9(a) states, in part, that information provided to the Commission by an applicant for a license or by a licensee shall be complete and accurate in all material respects.

Contrary to the above, on February 27, 2003, November 3, 2003, and March 16, 2004, the licensee submitted incomplete and inaccurate information regarding a proposed amendment to the facility operating license, to allow the irradiation of four mixed oxide (MOX) lead test assemblies (LTAs). Specifically:

- A. The proposed license amendment of February 27, 2003, failed to indicate that the reactor core would also include

eight next generation fuel LTAs as part of the complete core loading of 193 fuel assemblies. This information was material to the NRC in that, as part of the license amendment review, substantial further inquiry by the NRC was necessary to review the thermal-hydraulic conditions and mechanical design arising from the proposed reactor core composition.

- B. The above submittals included radiation dose evaluations that were not based on the current plant design basis accident radiation doses. This information was material to the NRC, in that as part of the license amendment review, substantial further inquiry by the NRC was necessary to review the radiation doses arising from the proposed reactor core composition.

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 the information provided by DEC at the conference (Enclosure 4). 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-04-189," 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 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, U.S. 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), 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>. 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 2.390(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 2 working days.

Dated this 24th day of January 2005

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Last revised Tuesday, February 01, 2005


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EA-04-223 - Sequoyah 1 (Tennessee Valley Authority)

January 26, 2005

EA-04-223

Tennessee Valley Authority
 ATTN: Mr. K. W. Singer
 Chief Nuclear Officer and
 Executive Vice President
 6A Lookout Place
 1101 Market Street
 Chattanooga, TN 37402-2801

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION (NRC INSPECTION REPORT NO. 05000327/2005007, SEQUOYAH NUCLEAR POWER PLANT)

Dear Mr. Singer:

The purpose of this letter is to provide you with the Nuclear Regulatory Commission's (NRC) final significance determination for a finding at your Sequoyah Nuclear Power Plant involving the failure to promptly identify and correct binding problems with the Siemens breaker mechanism operated cell (MOC) slide assembly for the 1A Residual Heat Removal (RHR) pump. On July 7, 2004, the 1A RHR pump failed to start during routine surveillance testing due to MOC slide assembly binding. The failed breaker had been installed in the 1A RHR pump cubicle on April 27, 2004, and was last successfully operated on June 23, 2004.

The finding was documented in NRC Inspection Report (IR) 05000327/2004004 and 05000328/2004004, dated October 25, 2004, and was assessed under the Significance Determination Process (SDP) as a preliminary White issue for Unit 1 (i.e., an issue of low to moderate safety significance, which may require additional NRC inspection). NRC Inspection Report 05000327/2004010, dated December 17, 2004, informed TVA of the NRC's preliminary conclusion, provided TVA an opportunity to request a regulatory conference on this matter, and forwarded the details of the NRC's preliminary estimate of the change in core damage frequency (CDF) for this finding.

In a telephone conversation with Mr. S. Cahill of NRC, Region II, on December 29, 2004, Mr. Paul Pace of your staff indicated that TVA did not contest the risk significance of this finding or the characterization of the issue as a violation, and declined the opportunity to discuss this issue in a regulatory conference. You documented these decisions in a letter dated January 18, 2005.

After considering the information developed during the inspection and provided in your January 18 letter, the NRC has concluded that the inspection finding is appropriately characterized as White (i.e., an issue with low to moderate increased importance to safety, which may require additional NRC inspections), in the mitigating systems cornerstone.

You have 10 business 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 also determined that a violation occurred involving the requirements of 10 CFR 50, Appendix B, Criterion XVI,

Corrective Action, in that TVA failed to promptly correct a condition adverse to quality. Specifically, TVA's actions in response to the previous MOC linkage problems and the vendor's discovery of the binding problem in April of 2004 did not constitute adequate corrective action to preclude the failure of the 1A RHR breaker, which resulted in the failure of 1A RHR pump to start during surveillance testing. Accordingly, a Notice of Violation is included as an enclosure to this letter. 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. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Because plant performance for this issue 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 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and 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>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it 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.

For administrative purposes, this letter is issued as a separate NRC Inspection Report, No. 05000327/2005007, and the above violation is identified as VIO 05000327/2005007-01: Failure to Take Adequate Corrective Actions Regarding Binding of the 1A RHR Pump Breaker. Accordingly, the associated apparent violation, AV 05000327/2004010-01 and unresolved item, URI 05000327/2004004-02, are closed.

Should you have any questions regarding this letter, please contact Stephen Cahill, Chief, Reactor Projects Branch 6, at (404) 562-4520.

Sincerely,

/RA/
William D. Travers
Regional Administrator

Docket No.: 50-327
License No: DPR-77

Enclosure: Notice of Violation

cc w/ encl:

Ashok S. Bhatnagar
Senior Vice President
Nuclear Operations
Tennessee Valley Authority
Electronic Mail Distribution

County Mayor
Hamilton County Courthouse
Chattanooga, TN 37402-2801

Larry S. Bryant, General Manager
Engineering and Technical Services
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David A. Kulisek, Plant Manager
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Lawrence E. Nanney, Director
TN Dept. of Environment & Conservation
Division of Radiological Health
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NOTICE OF VIOLATION

Tennessee Valley Authority
Sequoyah Nuclear Plant
Unit 1

Docket No.: 50-327
License No.: DPR-77
EA-04-223

During an NRC inspection completed on September 25, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy), the violation is listed below:

10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, requires in part that measures shall be established to assure that conditions adverse to quality, such as failures and malfunctions, are promptly identified and corrected.

Contrary to the above, from April 27, 2004, through July 7, 2004, the licensee failed to correct conditions adverse to quality. Specifically, a breaker linkage binding/bradding problem that led to the failure of the 1A Residual Heat Removal (RHR) pump to start on demand during surveillance testing on July 7, 2004, was not detected during the visual inspection of the 1A RHR breaker on June 9, 2004. The licensee's actions in response to the previous linkage problems and the vendor's discovery of the binding problem in April of 2004 did not assure that the condition was identified and corrected to preclude the failure of the 1A RHR breaker to operate during testing.

This violation is associated with a White Significance Determination Process finding for Unit 1.

Pursuant to the provisions of 10 CFR 2.201, TVA 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 II, 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 Notice of Violation; EA-04-223" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (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 previously 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.

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), 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>. 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 2.390(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 26th day of January 2005

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UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

RAS 9112

DOCKETED 01/05/05

SERVED 01/05/05

COMMISSIONERS

Nils J. Diaz, Chairman
Edward McGaffigan, Jr.
Jeffrey S. Merrifield

In the Matter of

DUKE ENERGY CORP.

Catawba Nuclear Station, Units 1 & 2)

Docket Nos.

50-413-OLA and
50-414-OLA

CLI-05-02

MEMORANDUM AND ORDER

This proceeding arises from Duke Energy Corporation's application for a license amendment to authorize the use of four lead test assemblies of mixed oxide (MOX) fuel in one of its Catawba nuclear reactors. On December 21, 2004, the NRC Staff filed a "Motion for Interlocutory Review" of the Licensing Board's December 17th order amending the Protective Order issued a year ago in this adjudication.¹ The amendment permits Ms. Diane Curran, counsel for intervenor Blue Ridge Environmental Defense League (BREDL), to store at her office the exhibits for the pre-filed testimony addressing BREDL's Security Contention 5.² These exhibits contain safeguards information relevant to the Catawba plant as well as to Duke's other nuclear power reactors. Duke supports the Staff's Motion and BREDL opposes it. We deny the Staff's Motion.

I. BACKGROUND³

The protective order, prior to its amendment, permitted Ms. Curran access to certain safeguards documents⁴ at either the Commission headquarters or the offices of Duke's counsel (Winston & Strawn). The Protective Order also permitted Ms. Curran to store in her own office certain other safeguards documents.⁵ The set of documents in Ms. Curran's office contained information derived from primary safeguards documents, while the set of documents at NRC headquarters and Winston & Strawn were themselves the primary documents.

As Ms. Curran was able to work under this "cumbersome" process⁶ for a while, she concluded this autumn that the limited access was impeding her preparation for the upcoming hearing (January 10-14, 2005) on security issues, and would

also impede her subsequent preparation of post-hearing pleadings (the last of which is due on February 4, 2005). She initially raised the issue informally with the NRC Staff and sought its agreement for her to store the additional documents in her office from December 17th through February 4th. The Staff, to inform its response, arranged for NRC's Office of Nuclear Security and Incident Response (NSIR) to conduct a security audit of Ms. Curran's office on December 13th. NSIR's representative found that the measures there to protect safeguards information were adequate.⁷ The Staff nonetheless refused to agree to BREDL's request. The Staff reasoned that storage of the "primary" safeguards documents at yet another site would unacceptably heighten the risk of their disclosure.

Ms. Curran's next step was to file with the Board a "Motion to Amend Protective Order." The requested amendment to the Protective Order would permit her to store in her office until February 4, 2005, the exhibits to pre-filed testimony that include primary safeguards documents. The Staff objected, arguing that the increased risk of disclosure outweighed Ms. Curran's need for ready access to those documents. Duke concurred, arguing that its own counsel's offices were only about four blocks from those of Ms. Curran, and that the existing limitation on the sites of these primary documents had apparently not had an adverse effect on the conduct of the proceeding.⁸

The Board was not convinced and, on December 17th, granted BREDL's Motion to Amend (subject to one condition summarized below). The Board generally concluded that BREDL's request was reasonable and would assist in the expeditious handling of the proceeding.⁹ The Board found that the temporal and locational restrictions were too onerous a burden to impose on Ms. Curran when she is preparing for a hearing or drafting post-hearing pleadings.¹⁰ The Board particularly noted that the Protective Order (as it then read) would require Ms. Curran to carry voluminous documents containing safeguards information back and forth between her own office and that of Winston & Strawn. This result would, according to the Board, not only compromise her ability to prepare for the hearing and draft the post-hearing documents, but it would also "increase[] the likelihood of losing control of sensitive material."¹¹ The Board therefore granted BREDL's Motion to Amend, subject to an independent inspection by the NRC's Office of Administration (OA), Division of Facilities and Security, to confirm that Ms. Curran's office can "ensure the effective safeguarding of the exhibits in question in her law office."¹² On December 21st, the Chief of OA's Security Branch and OA's Senior Facility Security Specialist conducted this inspection, which resulted in another apparent finding of the adequacy of Ms. Curran's security measures for protecting safeguards information.¹³

The NRC Staff now seeks expedited discretionary Commission review of the Board's interlocutory order. The Staff argues that the Board should grant its Motion because the Board's ruling threatens "serious, immediate and irreparable harm" -- one of the grounds for granting discretionary interlocutory review pursuant to 10 C.F.R. § 2.786(g).¹⁴ The claimed "serious ... harm" is the purportedly increased risk that the security of the primary documents could be compromised while in Ms. Curran's office, thereby increasing the vulnerability of Duke's nuclear power stations. The Staff also asserts that these "primary" safeguards documents are more sensitive than the "secondary" safeguards documents (*i.e.*, those containing information derived from the primary documents) already in Ms. Curran's possession and that their release would therefore create a significantly greater security risk. Finally, the Staff argues that the harm would be both "immediate and irreparable" upon any release of the information.

II. DISCUSSION

While we appreciate and share in the Staff's concern regarding the risk of an inadvertent release of safeguards information, we are not convinced that the Board-ordered change in the Protective Order unacceptably heightens the risk of a security breach in this instance. Most notably, the Board, in amending the protective order, has continued to ensure that the Commission's regulations regarding the protection of safeguards information have been appropriately applied. As envisioned by 10 C.F.R. § 2.744(e), the parties agreed to operate under a protective order when disclosure of safeguards information is required and a need-to-know is established, as is the case with regard to access by Ms. Curran and BREDL's expert witness to the documents at issue. As is also required by section 2.744(e), this protective order, in turn, compels the parties to protect the information in a manner consistent with the requirements outlined in 10 C.F.R. § 73.21. The Board-ordered amendment to this protective order does not remove any of these regulatory requirements, but simply allows Ms. Curran's office to maintain additional safeguards documents - for a limited period - in the same protective fashion that the office maintains other safeguards documents. Thus, it is difficult for us to find "serious, immediate and irreparable harm" where, as here, there is no evidence that the Board order has strayed from the Commission's regulations regarding the protection of safeguards information.

Moreover, although there arguably is always some increased risk when an additional storage location is authorized for safeguards information, the Board reasonably considered a number of factors in addressing the views of the parties. First,

there is ample evidence that Ms. Curran's office is employing adequate measures to protect safeguards information. Both NSIR and OA have inspected Ms. Curran's office, and the staff does not contend that the measures fail to meet our requirements for storing and handling safeguards information. Additionally, the Board-ordered amendment to the protective order conservatively allows Ms. Curran's office to store the "primary" safeguards documents only for a brief period of time corresponding to the hearing and the associated post-hearing filings. Finally, there exists the Board's sensible concern that the continued application of the pre-December 17th version of the Protective Order would pose its own risks of a loss of control over safeguards information from the continuation of Ms. Curran's current practice of transporting the secondary safeguards documents between offices -- a practice compelled by her need to do much if not all of her hearing preparation and post-hearing pleading preparation at the offices of Winston & Strawn.

The fact is that, during the intense time period surrounding an adjudicatory hearing, all counsel may need equal access to critical documents. As our Appeal Board indicated many years ago, it may well be "desirable" to limit the sites at which parties may examine security-related documents.¹⁵ But our Boards may also take into account the practical concerns and delays that may stem from such limitations in individual cases. "In the last analysis, the Licensing Board is in the best position to determine the most appropriate circumstances in which [safeguards information] may be viewed."¹⁶

For the reasons set forth above, the NRC Staff's Motion for Interlocutory Review is *denied*.¹⁷

IT IS SO ORDERED.

For the Commission

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Done at Rockville, Maryland,
this 5th day of January, 2005.

1. See unpublished "Memorandum and Order (Ruling on BREDL Motion to Amend Protective Order" (Dec. 17, 2004) ("Board Order"). On December 20, 2004, the NRC Staff filed a Motion for Stay Pending Interlocutory Review of the Board's December 17, 2004 Order (NRC Staff's Motion for Stay). The Staff also requested that the Commission issue a "housekeeping stay" of the Board Order, effective immediately, pending review of the Staff's Motion for Stay. NRC Staff's Motion for Stay at 5. On Dec. 21st the Commission denied the Staff's Dec. 20th request for a "housekeeping" stay.
2. Security Contention 5 challenges the adequacy of Duke Energy Corporation's (Duke) application for exemptions from various NRC regulations governing facilities that possess formula quantities of strategic special nuclear material.
3. During litigation about BREDL's security contention, the Commission has dealt with several issues involving BREDL's access to and use of sensitive safeguards information. See *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-06, 59 NRC 62 (2004) (providing guidance for "need to know" determinations); CLI-04-11, 59 NRC 203 (2004) (accepting certified questions regarding security contention); CLI-04-19, 60 NRC 5 (2004) (declining to revisit "need to know" guidance provided in CLI-04-06); CLI-04-21, 60 NRC 357 (2004) (expert witness qualifications for safeguards/security issues); CLI-04-29, 60 NRC 417 (2004) (setting standard for "need to know" in discovery); and CLI-04-37, 60 NRC __ (Dec. 8, 2004) (denying motion for reconsideration of CLI-04-29).
4. These documents include "the most recent version of the Physical Security Plan and Safeguards Contingency Plan for Catawba, McGuire and Oconee Nuclear Stations, procedures for armed response, and the locations of armed responders." NRC Staff's Motion for Interlocutory Review at 4.

5. These documents are pleadings and Board orders related to BREDL's security contention, and also the transcripts of closed pre-hearing conferences. NRC Staff's Motion for Stay, dated Dec. 20, 2004, at 2 & n.2.
6. BREDL's Motion to Amend Protective Order, dated Dec. 15, 2004, at 3.
7. Board Order, slip op. at 2.
8. To effectuate the terms of the Protective Order, Duke's counsel recently agreed to make those documents available at its offices between 6:00 a.m. and 6:00 p.m., Monday through Friday, and on evenings and weekends "if feasible and if requested by BREDL." NRC Staff's Motion for Interlocutory Review at 3 n.3.
9. Board Order, slip op. at 3.
10. *Id.* at 4. The Board also acknowledged holding the parties to a tight hearing schedule to accommodate Duke's plans for the proposed MOX lead test assemblies. *Id.* at 3.
11. *Id.*
12. *Id.* at 5. This inspection was to be conducted December 21st. *Id.*
13. The inspectors did request that Ms. Curran implement several additional security measures, which she agreed to do. The Staff questions the Board's authority to require an OA inspection, but because the inspection has already taken place, we do not address the issue. As a general matter, though, our boards may not exercise supervisory authority over the Staff. *See, e.g., Metropolitan Edison Co. (Three Mile Is. Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1263 (1984), rev'd on other grounds, CLI-85-2, 21 NRC 282 (1985).*
14. By its terms, this standard applies to the Commission's discretionary review of certified questions and referred rulings. We have, however, applied the standards of section 2.786(g) to discretionary interlocutory appeals as well. *See, e.g., Private Fuel Storage, LLC (ISFSI), CLI-01-1, 53 NRC 1, 5 (2001).* The instant case arises under our "old" Part 2 procedural rules, not the revised version promulgated at Final Rule, "Changes to Adjudicatory Process," 69 Fed. Reg. 2182 (Jan. 14, 2004).
15. *Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-410, 5 NRC 1398, 1406 (1977), review denied, CLI-77-23, 6 NRC 455 (1977).*
16. *Diablo Canyon, ALAB-410, 5 NRC at 1406.*
17. Because the Commission denied the Motion for Interlocutory Review, the Motion for Stay is moot.

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs

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No. 05-013

January 21, 2005

NRC COMMISSIONER JACZKO TAKES OATH OF OFFICE; COMMISSIONER LYONS SWEARING-IN SET FOR NEXT WEEK

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Gregory B. Jaczko was sworn in as a commissioner of the Nuclear Regulatory Commission today by Chairman Nils J. Diaz in a ceremony at the NRC. Peter B. Lyons is expected to be sworn in next Tuesday at the agency.

The additions bring the NRC to its full complement of five commissioners for the first time since March 2003. The other members of the Commission are Edward McGaffigan Jr., and Jeffrey S. Merrifield.

Because both commissioners were appointed by the President during a congressional recess, their terms will expire at the end of the Senate's next session in late 2006.

Before joining the NRC, Jaczko served four years first as science policy advisor and then as appropriations director to Sen. Harry Reid, D-Nev. He has also been an adjunct professor teaching a science policy course at Georgetown University.

Jaczko's professional career has been devoted to science and its use and impact in the public policy arena. He worked as a congressional science fellow in the office of Rep. Edward Markey, D-Mass., and later advised members of the Senate Committee on Environment and Public Works on nuclear policy and other scientific issues.

Jaczko, a native of New York, earned a bachelor's degree from Cornell University and a doctorate in particle physics from the University of Wisconsin-Madison.

Lyons brings to the NRC eight years of experience as science advisor to Sen. Pete Domenici, R-N.M., and to the Senate Energy and Natural Resources Committee. From 1997 to 2002, he focused on military and civilian uses of nuclear technologies, national science policy and nuclear non-proliferation. More recently, he was involved with issues on national and international nuclear policy, energy research and development, and hydrogen technology.

From 1969 to 1996, Lyons worked in progressively more responsible positions at the Los Alamos National Laboratory. During that time he served as director for industrial partnerships, deputy associate director for energy and environment, and deputy associate director-defense research and applications. While at Los Alamos, he spent over a decade supporting nuclear test diagnostics.

Lyons has published well over 100 technical papers, holds three patents related to fiber optics and plasma diagnostics, and served as chairman of the NATO Nuclear Effects Task Group for five years.

A native of Nevada, Lyons received his doctorate in nuclear astrophysics from the California Institute of Technology in 1969 and earned a bachelor's degree in physics/math from the University of Arizona in 1964.

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No. 05-015

January 26, 2005

NRC COMMISSIONER LYONS TAKES OATH OF OFFICE JANUARY 25

Peter B. Lyons was sworn in as a commissioner of the Nuclear Regulatory Commission yesterday at 1:00 p.m. by Chairman Nils J. Diaz in a brief ceremony at the NRC in Rockville, Md.

The addition brings the NRC to its full complement of five commissioners for the first time since March 2003. The other members of the Commission are Edward McGaffigan Jr., Jeffrey S. Merrifield, and Gregory B. Jaczko who was sworn in last Friday (see Jan. 21 press release, No. 05-0013).

Because Lyons was appointed by the President during a congressional recess, his term will expire at the end of the Senate's next session in late 2006.

Lyons, 61, served eight years as science advisor to Sen. Pete Domenici, R-N.M., and to the Senate Energy and Natural Resources Committee. During that time, he focused on issues of nuclear technologies, national science policy, national and international nuclear policy, non-proliferation, energy research and development, and hydrogen technology.

Before his assignment in Washington, Lyons worked as a management official at the Los Alamos National Laboratory for over 25 years supporting energy and environmental programs, industrial interactions, nuclear test diagnostics, and strategic defense initiative programs.

Biographies of Commissioners Lyons and Jaczko will be available soon on NRC's Web site at <http://www.nrc.gov/who-we-are/organization/commfuncdesc.html>.

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Last revised Thursday, January 27, 2005

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Tuesday, March 8, 2005

Tues P1 9:00 - 9:30 am Rooms D & E	Welcome <ul style="list-style-type: none"> • Jim Dyer, Director (D)/Office of Nuclear Reactor Regulation (NRR)/ Nuclear Regulatory Commission (NRC) • Luis A. Reyes, Executive Director for Operations (EDO)/NRC 	Session Coordinator Timothy Frye NRR/NRC TJF@nrc.gov 301-415-1287
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Tues P2 9:30 - 10:30 am Rooms D & E	Plenary Session: Presentation / Q&A Session <i>NRC Chairman Nils J. Diaz</i>	
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BREAK 10:30 - 11:00 am

Tues P3 11:00 - 11:30 am Rooms D&E	Plenary Session: Regulatory Trends <ul style="list-style-type: none"> • Jim Dyer, D/NRR/NRC 	Session Coordinator: David J. Wrona NRR/NRC DJW1@nrc.gov 301-415-1924
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Tues P4 11:30 am - 12:30 pm Rooms D&E	Plenary Session: Presentation / Q&A Session <i>NRC Commissioner Edward McGaffigan Jr.</i>	
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LUNCH 12:30 - 2:00 pm

BREAKOUT SESSIONS - Set #1 2:00 - 3:30 pm

Tues A1 2:00 - 3:30 pm Room A	Risk Informing Emergency Core Cooling System (50.46) Requirements <p style="text-align: center;">Chair: Brian W. Sheron, Associate Director for Project Licensing & Technical Analysis (ADPT)/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Charles E. Ader, D/Division of Risk Analysis and Applications (DRAA)/ Office of Nuclear Regulatory Research (RES)/NRC • Roy Anthony (Tony) Browning, Principal Engineer-Regulatory Affairs, Nuclear Management Company and Chairman of the BWR Owners Group's (BWROG) Risk-Informed Regulation - Option 3 Committee • Albon Wayne Harrison, Sr. Staff Licensing Engineer, South Texas Project Nuclear Operating Company (STPNOC) • Lawrence E. Hochreiter, Professor of Nuclear and Mechanical Engineering, Pennsylvania State University <p>Theme/Subtopics: Safety Enhancements & Risk Reductions Resulting from Revising 10 CFR 50.46</p>	Session Coordinator: Timothy E. Collins NRR/NRC TEC@nrc.gov 301-415-3261
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<p>Tues B1 2:00 - 3:30 pm Room B</p>	<p>Spent Fuel Management</p> <p>Chair: C. William Reamer, D/Division of High Level Waste Repository Safety/Office of Nuclear Material Safety and Safeguards (NMSS)/ NRC</p> <p>Co-Chair: James E. Lyons, DD/Division of Licensing Project Management (DLPM)/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Jack R. Strosnider, D/NMSS/NRC • Margaret Chu, D/Office of Civilian Radioactive Waste Management/Department of Energy (DOE) • J. Gary Lanthrum, D/Office of National Transportation/Office of Civilian Radioactive Waste Management/DOE • John D. Parkyn, Chairman of the Board and Chief Executive Officer (CEO)/Private Fuel Storage, LLC • Timothy A. Runyon, Section Manager/Environmental Monitoring and Transportation/Division of Nuclear Safety/Illinois Emergency Management Agency <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Disposal • Storage • Transportation 	<p>Session Coordinators:</p> <p>Thomas W. Alexion TWA@nrc.gov NRR/NRC 301-415-1326</p> <p>Steven L. Baggett SLB@nrc.gov NMSS/NRC 301-415-8584</p>
<p>Tues C1 2:00 - 3:30 pm Room C</p>	<p>Grid Reliability</p> <p>Chair: Jose A. Calvo, Chief/Electrical & Instrumentation & Controls Branch (EEIB)/Division of Engineering (DE)/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • William S. Raughley, Senior Assessment Engineer/Division of Systems Analysis and Regulatory Effectiveness (DSARE)/RES/NRC • Vince Gilbert, Special Advisor/Operations/NEI • Frank J. Koza, General Manager/Regional Operations of PJM Interconnection, LLC • Dave R. Nevius, Senior Vice President (VP)/North American Electric Reliability Council (NERC) • Bruce A. Poole, Reliability Engineer/Federal Energy Regulatory Commission (FERC) <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Offsite Power System Availability • Station Blackout • Risk Insights • NERC Standards 	<p>Session Coordinator:</p> <p>John G. Lamb JGL1@nrc.gov NRR/NRC 301-415-1446</p>

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Tues F1 2:00 - 3:30 pm Room F	ROP / Inspection Program <p style="text-align: right;">Chair: Bruce A. Boger, D/Division of Inspection Program Management (DIPM)/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Stuart A. Richards, BC/Inspection Program Branch (IIPB)/DIPM/ NRR/NRC • Brian E. Holian, DD/Division of Reactor Projects/Region I (RI)/NRC • Gregg R. Overbeck, Senior VP-Nuclear/Arizona Public Service Company • Gary N. Wright, Assistant Director/Division of Reactor Safety/State of Illinois Emergency Management Agency • Tony Pietrangelo - Nuclear Energy Institute (NEI) <p>Theme/Subtopics: ROP Inspection Program's Top 3 Challenges in CY 2005 and the Recommended Approaches to Meet Them</p>	Session Coordinator: F. Paul Bonnett FPB@nrc.gov NRR/NRC 301-415-4107
Tues G1 2:00 - 3:30 pm Room G	Materials Issues <p style="text-align: right;">Chair: William H. Bateman, BC/ Material & Chemical Engineering Branch (EMCB)/DE/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Richard J. Barrett, D/Division of Engineering Technology (DET)/RES/NRC • Michael E. Mayfield, D/DE/NRR/NRC • Paul Gunter, D/Reactor Watchdog Project Nuclear Information and Resource Service (NIRS) • William R. MCCollum, Jr., Senior VP, Nuclear Generation, Duke Power <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Pro-active Management of Materials Degradation • Objective: Discuss materials degradation management from the perspectives of several stakeholders and to develop recommendations for additional focus. 	Session Coordinator: John C. Tsao JCT@nrc.gov NRR/NRC 301-415-2702
Tues H1 2:00 - 3:30 pm Room H	Power Uprates <p style="text-align: right;">Chair: William H. Ruland, D/Project Directorate III (LPD3)/DLPM/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • David Terao, Chief, Component Integrity and Testing Section, EMEB/NRR/NRC • David Lochbaum, Nuclear Safety Engineer, Union of Concerned Scientists (UCS) • James Meister, VP of Nuclear Services, Exelon Generation Company, LLC • Glen D. Ohlemacher, Project Manger, Detroit Edison, BWR Owners' Group Extended Power Uprate Committee Chairman • William K. Sherman, Vermont State Nuclear Engineer, Vermont Department of Public Services • Graham B. Wallis, Chairman, Advisory Committee on Reactor Safeguards <p>Theme/Subtopics: "Meeting the Challenges of Power Uprates Operating Experience"</p>	Session Coordinator: John F. Stang Jr. JFS2@nrc.gov NRR/NRC 301-415-1345
BREAK 3:30 - 4:00 pm		
BREAKOUT SESSIONS - Set #2 4:00 - 5:30 pm		

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<p style="text-align: center;">Tues A2 4:00 - 5:30 pm Room A</p>	<p>New Reactor Licensing Issues</p> <p style="text-align: right;">Chair: William D. Beckner, Program Director (PD)/New Research and Test Reactors (RNRP)/Division of Regulatory Improvement Programs (DRIP)/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Laura A. Dudes, Chief/RNRP/DRIP/NRR/NRC • James G. Danna, Chief, New Reactors Section, Advanced Reactors and Regulatory Effectiveness Branch, Division of Systems Analysis and Regulatory Effectiveness, Office of Nuclear Regulatory Research • Russ Bell, Senior Project Manager (PM), New Plant Deployment, NEI • Marilyn Kray, President, NuStart Energy Development • B. P. Singh, Program Manager, Office of Nuclear Energy, Science, and Technology, Department of Energy (DOE) <p>Theme/Subtopics: <i>The "Next Steps"</i></p>	<p>Session Coordinator: Joseph F. Williams JFW1@nrc.gov NRR/NRC 301-415-1470</p>
<p style="text-align: center;">Tues B2 4:00 - 5:30 pm Room B</p>	<p>Safeguards/ Security: Striving for Regulatory Stability in a Post 9/11 Environment</p> <p style="text-align: right;">Chair: Roy P. Zimmerman, D/Office of Nuclear Security and Incident Response (NSIR)/NRC</p> <p style="text-align: right;">Co-Chair: Cynthia A. Carpenter, D/Program Management, Policy Development & Planning Staff (PMAS)/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Mike Wallace, Constellation Energy <p>Theme/Subtopics: <i>"Striving for Stability in a Dynamic Threat Environment"</i></p>	<p>Session Coordinator: Carol A. Harris CAH4@nrc.gov NSIR/NRC 301-415-7368</p>
<p style="text-align: center;">Tues C2 4:00 - 5:30 pm Room C</p>	<p>PWR Sump</p> <p style="text-align: right;">Chair: Suzanne C. Black, D/Division of Systems Safety and Analysis (DSSA)/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Michele G. Evans, Chief/Engineering Research Applications Branch (ERAB)/Division of Engineering Technology (DET)/RES/NRC • John N. Hannon, Chief/Plant Systems Branch/DSSA/NRR/NRC • John Butler, Senior PM, NEI • Maurice E. Dinger, Technical Staff Engineer/Wolf Creek Nuclear Operating Company • David Lochbaum, Nuclear Safety Engineer/UCS <p>Theme/Subtopics: <i>"Sumps Resolution Implementation and Test Results"</i></p>	<p>Session Coordinator: Angie P. Lavretta AXL3@nrc.gov NRR/NRC 301-415-3285</p>

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<p>Tues F2 4:00 - 5:30 pm Room F</p>	<p>Operating Experience</p> <p style="text-align: right;">Chair: Patrick L. Hiland, Chief, Reactor Operations Branch (IROB)/DIPM/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Michael C. Cheok, Assistant Chief, Operating Experience Risk Analysis Branch/ DRAA/RES • Terrance Reis, Chief, Operating Experience Section (OES)/IROB/DIPM/ NRR/NRC • Marvin D. Sykes, Chief, Performance Evaluation Branch, Division of Reactor Safety (DRS)/RI/NRC • Ken Brockman, D/Division of Nuclear Installation Safety, International Atomic Energy Agency (IAEA) • Lee A. Gard, Manager, Events Analysis, Institute of Nuclear Power Operations (INPO) <p>Theme: Complementary Roles in Operating Experience</p>	<p>Session Coordinator: John G. Kramer JGK@nrc.gov NRR/NRC 301-415-1173</p>
<p>Tues G2 4:00 - 5:30 pm Room G</p>	<p>Research Activities PRA</p> <p style="text-align: right;">Chair: Charles E. Ader, D/DRAA/RES/NRC</p> <p style="text-align: right;">Co-Chair: Michael R. Johnson, DD/DSSA/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Gareth W. Parry, Senior Level Advisor for Probabilistic Risk Assessment/DSSA/NRR/NRC • Nathan O. Siu, Senior Technical Advisor, Probabilistic Risk Analysis Branch (PRAB)/DRAA/RES/NRC • John Gaertner, Senior Technical Leader, Risk Assessment and Management, Electric Power Research Institute (EPRI) • James F. Mallay, Chairman, ANS Standards Board, American Nuclear Society <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Current NRC and industry PRA research/infrastructure development activities in support of risk-informed regulation • What improvements can be made to enhance the capabilities of PRA in support of risk-informed regulation 	<p>Session Coordinators: Michael A. Junge MXJ2@nrc.gov RES/NRC 301-415-5221</p> <p>Michelle N. Laur MNL1@nrc.gov NRR/NRC 301-415-3719</p>
<p>Tues H2 4:00 - 5:30 pm Room H</p>	<p>Licensing Issues</p> <p style="text-align: right;">Chair: Ledyard (Tad) Marsh, D/DLPM/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Richard J. Barrett, D/DE/NRR/NRC • Daniel Dorman, DD/Division of Nuclear Security/NSIR/NRC • Rochelle Becker, Executive Director, Alliance for Nuclear Responsibility • Patricia Campbell, Attorney, Morgan Lewis • Scott Head, Manager of Licensing, South Texas Project Nuclear Operating Company <p>Theme/Subtopics: "Developing A Shared Vision For An Effective Licensing Process"</p>	<p>Session Coordinator: Margie A. Kotzalas MXK5@nrc.gov NRR/NRC 301-415-2737</p> <p>Tanya M. Mensah TME@nrc.gov 301-415-3610</p>

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TUESDAY RECESS - 5:30 pm

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Wednesday, March 9, 2005

Wed P1 9:00 - 10:00 am Rooms D & E	Plenary Session: Presentation / Q&A Session NRC Commissioner Jeffrey S. Merrifield
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BREAK 10:00 - 10:30 am

BREAKOUT SESSIONS - Set #3 10:30 am - 12:00 pm

Wed A3 10:30 am - 12:00 pm Room A	50.69 <p style="text-align: center;">Chair: Frank P. Gillespie, DD/DRIP/NRR/ NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Timothy A. Reed, Senior Reactor Systems Engineer/Policy and Rulemaking (RPRP)/DRIP/NRR/NRC • Donald G. Harrison, Senior Reliability and Risk Analyst/Safety Programs Section A/Probabilistic Safety Assessment Branch (SPSB)/DSSA/NRR/NRC • Biff Bradley, Project Manager (PM), NEI • Glen E. Schinzel, PM/Risk Implementation/STPNOC 	Session Coordinator: David T. Diec DTD@nrc.gov NRR/NRC 301-415-2834
Wed B3 10:30 am - 12:00 pm Room B	Objective Measures of Safety Culture <p style="text-align: center;">Chair: Lisamarie L. Jarriel, Office of Enforcement (OE)/NRC</p> <p style="text-align: center;">Co-Chair: Theodore R. Quay, BC/IPSB/ DIPM/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Julius J. Persensky, Senior Technical Advisor-Human Factors/PRAB/DRAA/RES/NRC • Michael Brothers, VP Site Operations, PSEG Nuclear LLC • Howard Levin, Principal, Synergy Consulting Service 	Session Coordinator: Clare P. Goodman CPG@nrc.gov NRR/NRC 301-415-1047
Wed C3 10:30 am - 12:00 pm Room C	Research Activities Materials Degradation <p style="text-align: center;">Chair: Michael E. Mayfield, D/DE/NRR/NRC</p> <p style="text-align: center;">Co-Chair: Christopher I. Grimes, DD/DE/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • John Craig, DD/RES/NRC • James Lang, EPRI • Christer Viktorsson, Deputy Director General, Swedish Nuclear Power Inspectorate (SKI) • Gary Park <p>Theme/Subtopics: Non-destructive Examination (NDE) Research, Applications and Current Issues - discussing the development of NDE technologies and their application to materials degradation management from the perspectives of several stakeholders (Regulator, Industry, Foreign Regulator, Standards Organization).</p>	Session Coordinator: Carol E. Moyer CEM3@nrc.gov RES/NRC 301-415-4061

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Program and Schedule
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 Nuclear Regulatory Commission
 Updated: January 25, 2005 (6:46am)

Session Day/Room	Session Information	Contact Information
Wednesday, March 9, 2005		
<p align="center">Wed F3 10:30 am - 12:00 pm Room F</p>	<p>ROP / Pls</p> <p align="center">Chair: Michael J. Case, DD/DIPM/NRR/ NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • James W. Andersen, Chief, Performance Assessment Section/Inspection Program Branch (IIPB)/DIPM/NRR/NRC • Linda J. Smith, Chief, Plant Engineering/Division of Reactor Safety/Region IV (RIV)/NRC • Thomas C. Houghton, Senior PM, Reactor Oversight Process/NEI • Willem E. Mookhoek, Senior Staff Licensing Engineer/ STPNOC <p><i>Theme/Subtopics: "Expanding the Benefit of Pls"</i></p>	<p>Session Coordinator: Allan R. Barker ARB3@nrc.gov NRR/NRC 301-415-4006</p>
<p align="center">Wed G3 10:30 am - 12:00 pm Room G</p>	<p>Research Activities New Reactors</p> <p align="center">Chair: Farouk Eltawila, D/DSARE/RES/ NRC</p> <p align="center">Co-Chair: William D. Beckner, PD/RNRP/ DRIP/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • David B. Matthews, D/DRIP/NRR/NRC • Mary Drouin, Senior Program Advisor, PRAB/DRAA/RES/NRC • Michael Golay, Professor of Nuclear Science and Engineering MG, Massachusetts Institute of Technology • Adrian Heymer, Director, New Plant Deployment, NEI <p><i>Theme/Subtopics: "A Technology-Neutral, Risk-Informed, and Performance - Based Regulatory Framework for New Reactor Design"</i></p>	<p>Session Coordinators: Kent B. Welter KBW@nrc.gov RES/NRC 301-415-5740</p> <p>Michelle Flanagan MEF@nrc.gov NRR/NRC 301-415-6461</p>
<p align="center">Wed H3 10:30 am - 12:00 pm Room H</p>	<p>Emergency Preparedness</p> <p align="center">Chair: Eric J. Leeds, D/Division of Preparedness and Response (DPR)/ NSIR/NRC</p> <p align="center">Co-Chair: Herbert N. Berkow, Project Director, Project Directorate IV/DLPM/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Thomas B. Blount, Security Interface Team Leader/DPR/NSIR/NRC • Andrew X. Feeney, First Deputy Director, New York State Emergency Management Office • Frank Inzirillo, Emergency Planning Manager, Indian Point Energy Center, Entergy • Alan P. Nelson, Chief, Emergency Preparedness, Nuclear Generation Division, NEI <p><i>Theme/Subtopics: "Emergency Preparedness in the Post-9/11 Threat Environment"</i></p>	<p>Session Coordinator: Robert E. Moody REM2@nrc.gov NSIR/NRC 301-415-1737</p>
<p align="center">Wed P2 12:00 - 1:30 pm Room: TBD</p>	<p>NEI Luncheon</p>	
<p>BREAKOUT SESSIONS - Set #4 1:30 - 3:00 pm</p>		

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RIC 2005
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Session Day/Room	Session Information	Contact Information
Wednesday, March 9, 2005		
<p align="center">Wed A4 1:30 - 3:00 pm Room A</p>	<p>International Use of Operating Experience</p> <p align="right">Chair: R. William Borchardt, DD/NRR/NRC</p> <p align="right">Co-Chair: Janice Dunn-Lee, D/Office of International Programs/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Li Ganjie, Director General National Nuclear Safety Administration (China) • Jukka Laaksonen, Director General, Radiation and Nuclear Safety Authority (Finland) • Andre-Claude Lacoste, Director General, DGSNR (France) • Andrey Malyshev, Chairman, Federal Nuclear and Radiation Safety Authority (Russia) • Kazuo Matsunaga, Director General, Nuclear and Industrial Safety Agency (NISA) (Japan) 	<p>Session Coordinator: Michael C. Cullingford MCC@nrc.gov NRR/NRC 301-415-1276</p>
<p align="center">Wed B4 1:30 - 3:00 pm Room B</p>	<p>State Interface in Emergency Response</p> <p align="right">Chair: Paul H. Lohaus, D/Office of State and Tribal Programs (STP)/NRC</p> <p align="right">Co-Chair: Cornelius F. Holden, Jr., D/Project Directorate/(LPD1)/DLPM/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Eric J. Leeds, D/DPR/NSIR/NRC • William Craig Conklin, Chief/Nuclear and Chemical Hazards Branch/Preparedness Division/Federal Emergency Management Agency/Department of Homeland Security • Scott Nelson, Manager for Radiological Emergency Preparedness and Response/State Emergency Response Team (SERT), Chief, Florida Division of Emergency Management (FDEM) • Ronald C. Osborne, D/South Carolina Emergency Management Division (SCEMD)/Office of the Adjutant General (OTAG) 	<p>Session Coordinator: Victor Nerses VXN@nrc.gov 301-415-1484 NRR/NRC</p>
<p align="center">Wed C4 1:30 - 3:00 pm Room C</p>	<p>Fire Protection</p> <p align="right">Chair: John N. Hannon, Chief, SPLB/DSSA/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Dwight D. Chamberlain, DRS/RIV/NRC • Brian Sheron, ADPT/NRR/NRC • Henry B. Barron, Duke Power • Fred Emerson, Senior PM, NEI <p>Theme/Subtopics: "Challenges of Risk-Informed Fire Protection"</p>	<p>Session Coordinator: James R. Downs JRD2@nrc.gov NRR/NRC 301-415-3194</p>
<p align="center">Wed F4 1:30 - 3:00 pm Room F</p>	<p>ROP / Cross-Cutting Issues</p> <p align="right">Chair: Stuart A. Richards, BC/IIPB/DIPM/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • James W. Andersen, Chief/Performance Assessment Section/IIPB/DIPM/NRR/NRC • Dale Ambler, Regulatory Affairs Manager, Braidwood Station, Exelon Corporation • A. Randolph Blough, D/Division of Reactor Projects (DRP)/Region I (RI)/NRC • Thomas Houghton, Senior PM, Reactor Oversight Process, NEI <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Initiating Cross-Cutting Issues • Documenting Cross-Cutting Issues • Closing Cross-Cutting Issues 	<p>Session Coordinator: Lois M. James LMJ@nrc.gov NRR/NRC 301-415-1112</p>

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Session Day/Room	Session Information	Contact Information
Wednesday, March 9, 2005		
<p style="text-align: center;">Wed G4 1:30 - 3:00 pm Room G</p>	<p>Risk Informed</p> <p style="text-align: right;">Chair: Michael R. Johnson, DD/DSSA/ NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Gareth W. Parry, Senior Level Advisor for Probabilistic Risk Assessment/DSSA/NRR/NRC • Mike Tschiltz, BC/SPSB/DSSA/NRR/NRC • William E. Burchill, Ph.D./Department Head and HTRI Professor/Nuclear Engineering/Texas A&M University • Michelle P. Carr, Manager, Systems Engineering/PRA /Southern California Edison, San Onofre Nuclear Generating Station • Eugene M. Kelly, Limerick Engineering Programs Manager/Exelon Nuclear <p>Theme/Subtopics:</p> <ul style="list-style-type: none"> • Phased Approach to Risk • RG 1.200 Pilots- NRC & Industry Perspectives • Life In A Risk Informed Environment - The Implications for RG 1.200 and Risk Informed Applications • Risk Analyst & Peer Reviewer Training - Training needs and a path forward to meet demands of Risk Informed Applications 	<p>Session Coordinator: Michelle N. Laur MNL1@nrc.gov NRR/NRC 301-415-3719</p>
<p style="text-align: center;">Wed H4 1:30 - 3:00 pm Room H</p>	<p>Davis Besse Lessons Learned</p> <p style="text-align: right;">Chair: Edwin M. Hackett, D/Project Directorate II (LPD2)/NRR/NRC</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Nilesh Chokshi, Chief, Operating Experience Risk Analysis Branch, Division of Risk Analysis and Applications/RES/NRC • Wayne D. Lanning, RI/NRC • Richard Jan Strasma, RII-OPA/NRC • Gary R. Leidech, President and Chief Nuclear Officer (CNO)/FirstEnergy Nuclear Operating Company (FENOC) • Jerry Witt, Ottawa County Administrator, Ohio <p>Theme/Subtopics: "Institutionalizing Change - How are we doing three years after the event? How have behaviors changed?"</p>	<p>Session Coordinator: Jose R. Arroyo-Rivera JXA1@nrc.gov NRR/NRC 301-415-2149</p>
BREAK 3:00 - 3:30 pm		
<p style="text-align: center;">Wed P3 3:30 - 4:30 pm Rooms D & E</p>	<p>Plenary Session: Presentation / Q&A Session NRC Commissioner Gregory B. Jaczko</p>	
<p style="text-align: center;">Wed P4 4:30 - 5:30 pm Rooms D & E</p>	<p>Plenary Session: Presentation / Q&A Session NRC Commissioner Peter B. Lyons</p>	
<p style="text-align: center;">Wed P5 5:30 - 5:45 pm Rooms D & E</p>	<p>Plenary Session: 2-Day Wrap Up</p> <ul style="list-style-type: none"> • Jim Dyer, D/NRR/NRC 	
WEDNESDAY RECESS 5:45 pm		

draft

**RIC 2005
Program and Schedule**
Sponsored by the Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
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Session Day/Room	Session Information	Contact Information
Thursday, March 10, 2005		
REGIONAL BREAKOUTS Set #5 8:00 - 10:00 am		
		Regional Breakout HQ Contact: Rani Franovich
Thur A5 8:00 - 10:00 am Room A	Region I Breakout Chair: Samuel J. Collins, Regional Administrator (RA)/RI/NRC Panelists: <ul style="list-style-type: none"> • Brian Sheron, ADPT/NRR/NRC 	Session Coordinator: Tracy E. Walker RI/NRC TEW@nrc.gov 610-337-5381
Thur B5 8:00 - 10:00 am Room B	Region II Breakout Chair: William D. Travers, RA/RII/NRC Panelists: <ul style="list-style-type: none"> • R. William Borchardt, DD/ NRR/NRC 	Session Coordinator: Anne T. Boland RI/NRC ATB@nrc.gov 404-562-4653
Thur C5 8:00 - 10:00 am Room C	Region III Breakout Chair: James L. Caldwell, RA/RIII/NRC Panelists: <ul style="list-style-type: none"> • Ellis W. Merschoff, Deputy Executive Director for Reactor Programs (DEDO)/EDO/NRC • Christopher M. Crane, President and CNO/Exelon Nuclear/Exelon Generation Company, LLC 	Session Coordinator: Sonia D. Burgess RIII/NRC SDB2@nrc.gov 630-829-9752
Thur F5 8:00 - 10:00 am Room F	Region IV Breakout Chair: Bruce S. Mallett, RA/RIV/NRC Panelists: <ul style="list-style-type: none"> • James E. Dyer, D/NRR/NRC • Randall K. Edington, VP/Nuclear and CNO at Nebraska Public Power District 	Session Coordinator: Dale A. Powers RIV/NRC DAP@nrc.gov 817-860-8195
BREAK 10:00 - 10:30 am		
Thur P1 10:30 - 11:00 am Rooms D & E	Plenary Session: Inter-Regional Chair: Ellis W. Merschoff, DEDO/EDO/NRC Panelists: <ul style="list-style-type: none"> • James L. Caldwell, RA/RIII/NRC • Samuel J. Collins, RA/RI/NRC • James E. Dyer, D/NRR/NRC • Bruce S. Mallett, RA/RIV/NRC • William D. Travers, RA/RII/NRC 	Session Coordinator: James A. Isom NRR/NRC JAI@nrc.gov 301-415-1109
CONFERENCE RECESS 11:00 am		

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Yellow Announcement



UNITED STATES
NUCLEAR REGULATORY COMMISSION

Announcement No. 009

Date: February 7, 2005

To: All NRC Employees

SUBJECT: MANAGERIAL APPOINTMENTS IN THE OFFICES OF NUCLEAR REGULATORY RESEARCH AND NUCLEAR REACTOR REGULATION

I am pleased to announce the following managerial appointments:

James T. Wiggins has been appointed Deputy Director, Office of Nuclear Regulatory Research. He will succeed John W. Craig who is retiring. Mr. Wiggins joined the NRC in 1980 as a Reactor Inspector in Region I. Since that time, he has held a number of progressively more responsible positions in Region I including Senior Resident Inspector; Chief, Materials and Processes Section; Chief, Reactor Projects Section; and Chief, Reactor Projects Branch. In 1990, Mr. Wiggins was appointed Senior Executive Service (SES) and served as Deputy Director, Division of Reactor Projects; Deputy Director, Division of Reactor Safety; and Director, Division of Reactor Safety, Region I. In 1999, Mr. Wiggins was appointed to his most recent position of Deputy Regional Administrator, Region I. Prior to joining the NRC, Mr. Wiggins served in the U.S. Navy as an officer in the Navy's Nuclear Power Program. He received a B.S. degree in Electrical Engineering from Villanova University. Mr. Wiggins is expected to assume his new duties in June.

Richard J. Barrett has been appointed Director, Division of Engineering Technology, Office of Nuclear Regulatory Research (RES). Dr. Barrett joined the NRC in 1982 as a Nuclear Engineer in the Office of Nuclear Reactor Regulation (NRR). In 1987, Dr. Barrett was appointed to the SES and served in a number of management positions in NRR including Chief, Risk Applications Branch; Project Director, Project Directorate III-2; and Chief, Containment Systems and Severe Accident Branch. From 1995 to 1998, Dr. Barrett worked in the former Office for Analysis and Evaluation of Operational Data (AEOD) as Chief, Emergency Response Branch, and Deputy Director, Incident Response Division. In 1998, he returned to NRR and served as Chief, Probabilistic Safety Assessment Branch, and Deputy Director, Division of Engineering. In 2002, he was appointed to his most recent position of Director, Division of Engineering, NRR. Prior to joining the NRC, Dr. Barrett served on the technical staff of the Los Alamos National Laboratory. He received a B.S. degree in Physics from the University of Scranton and a Ph.D. in Nuclear Physics from the University of Virginia. Dr. Barrett's appointment will be effective February 20, 2005.

Michael E. Mayfield has been appointed Director, Division of Engineering, NRR. Mr. Mayfield joined the NRC in 1985 as a Materials Engineer in RES. Since that time, he has held a number of progressively more responsible positions in RES including Senior Materials Engineer; Chief, Materials Engineering Section; and Chief, Fracture and Irradiation Section. In 1994, Mr. Mayfield was selected for the SES and served as Chief, Materials Engineering Branch, and Chief, Electrical, Materials, and Mechanical Engineering Branch, RES. In 2000, he was appointed to his most recent position of Director, Division of Engineering Technology, RES. Prior to joining the NRC, Mr. Mayfield was a Senior Engineer with Materials Engineering Associates in Lanham, Maryland. He received a B.S. degree in Physics from Missouri Southern State College and an M.S. degree in Mechanical Engineering from the University of Missouri-Columbia. Mr. Mayfield's appointment will be effective February 20, 2005.

Please join me in congratulating Mr. Wiggins, Dr. Barrett, and Mr. Mayfield on their new assignments.

/RA/

Luis A. Reyes
Executive Director for Operations

NRC Yellow Announcements Index

Inside NRC

Volume 27 / Number 3 / February 7, 2005

ACRS to host 2006 meeting of international nuclear advisors

The Advisory Committee on Reactor Safeguards (ACRS) lists hosting the fifth international Quadripartite meeting of senior nuclear regulatory advisory committees in 2006 as one of its key proactive initiatives over the next four years. In the ACRS 2005-2008 Action Plan, which was released this month, the committee noted that the Quadripartite is a consortium of senior advisory committees on nuclear safety from France, Germany, Japan, and the U.S. (with Sweden and Switzerland as observers). The meetings are held every four years.

ACRS also said it is interested in how regulators in other countries handle various technical issues and how those approaches may differ from NRC's.

ACRS said it would be proactively involved in identifying potential safety issues connected with DOE's advanced reactor program for generating hydrogen from nuclear heat. In particular, ACRS said, it will work to identify long-term research issues that will require new analytical tools or infrastructure for hydrogen-production reactors.

ACRS also said it will continue to identify major model uncertainties in Level 1 and Level 2 probabilistic risk assessments (PRAs) and will document examples of model uncertainties that were important in regulatory decisions. The committee said it also intends to be proactive in reviewing the impact of power uprates on nuclear plants, especially in light of other plant changes such as aging, longer fuel cycles, and the use of higher burnup fuel.

And the ACRS said it will continue to review progress NRC is making in the agency's proactive materials degradation program, which has been developed in response to corrosion-related failures in U.S. and non-U.S. plants. The list of

proactive initiatives may be supplemented as issues arise, ACRS said.

The ACRS action plan is available on NRC's Web site (<http://www.nrc.gov/reading-rm/doccollections/nuregs/brochures/br0286/>).

—*Michael Knapik, Washington*

Inside NRC

Volume 27 / Number 3 / February 7, 2005

Areva ready for NRC to start design review process for EPR

Areva officials are expected this week to expand on the company's plans for an NRC review of its 1,600-megawatt EPR design, which includes setting out a schedule with milestones to meet its 2008 target for the reactor's certification. The company is preparing to outline a proposed agenda in a Feb. 11 letter to NRC.

Areva first publicly signaled its intentions to get into the U.S. market in a Dec. 2, 2004 letter to NRC. In the correspondence, James Malloy, regulatory affairs director for Framatome ANP Inc. (a joint Areva-Siemens company), told the agency that his company wanted to kick off the pre-application review this month. Because the EPR is an evolutionary model of the latest French and German plants, the company does not believe NRC will have to conduct confirmatory tests or new research. Most of the design is completed, since it is based on the European version of EPR, and engineering work is well under way.

Malloy noted that the French regulator, the Nuclear Safety & Radiation Protection Directorate (DGSNR), approved the EPR design in September. The French utility Electricite de France has said it plans to build a nearly 1,700-MW EPR unit at its Flamanville site, and Areva officials expect the plant

order to be made sometime in late 2005.

Separately, the Finnish Radiation & Nuclear Safety Authority (STUK) approved Jan. 24 construction of Olkiluoto-3, an EPR that utility Teollisuuden Voima Oy (TVO) expects will begin commercial operations in 2009. The construction license should be issued by the Finnish government by early spring (NW, 27 Jan., 1). The Finnish plant will be the first EPR to come on line.

Areva is working on a bid due by the end of February to the Chinese to build four large reactors and has expressed confidence that it will win and that those will be the next group of EPRs constructed. The design was originally called the European Pressurized water Reactor, or EPR for short. Areva officials in the U.S. are shying away from the name but not from its European roots.

Ray Ganthner, who is heading up Areva's newest U.S. business unit, New Plants Deployment (NPD), said cross-Atlantic efforts have contributed to the technology. He said he viewed the EPR as "U.S. PWR technology that's been exported and now is being re-imported back to the United States with some improvements and advances." In a Feb. 1 interview, Ganthner said the EPR development began about 15 years ago as a joint effort between Framatome and Siemens. The design was based on the N4 series of next-generation French nuclear plants and Siemens' Convoy advanced reactors, he said. The Europeans used the Electric Power Research Institute's advanced LWR Utility Requirements Document (URD), released in the late 1990s, to develop a similar document for meeting European regulations. The URD set out technical requirements that could be used in a future design, licensing, and construction application. The EPR was designed to meet the European requirements but will be converted to meet U.S. standards, Ganthner said.

New U.S. business unit

Areva's NPD business unit, launched Jan. 1, is gearing up for a major U.S. push. Areva decided to establish the new business after completing last year an assessment of the U.S. market.

About 50 engineers and staffers are now in place at the company's North American corporate headquarters in Lynchburg, Va. and at its Charlotte, N.C. office.

The unit is still growing, Ganthner said, and it also will tap the expertise of engineers at Areva's other offices in California, Massachusetts, Texas, and Illinois.

"When a company like Areva who's a global player in the nuclear market decides to put a new business unit in place, there must be something behind it," Ganthner said. He said NPD's mission is "not to develop designs but to actually construct plants in North America." The focus will be on the EPR and a more futuristic very-high temperature gas-cooled reactor (VHTR).

The VHTR, with capabilities of cogenerating hydrogen, is targeted for production around mid-2020, he said. A VHTR demonstration plant is anticipated to be completed earlier, he said.

"The main design we are looking at now for the U.S. market is the EPR," he said.

NRC preparations

Areva says it is not yet ready to make any announcements about securing a utility partner to support its licensing efforts. But Ganthner said the company is actively working on getting "market endorsement" of the design and understands the importance of that for the review process. William Beckner, director of NRC's new, research and test reactors program, emphasized in a Jan. 14 letter to Framatome ANP Inc.'s Jerald Holm that NRC staff considers whether there is industry interest in allocating its resources. "Within the new reactor program, priority will be given to activities clearly aligned with a domestic partner," Beckner wrote.

In a staff paper (Secy 05-13) released two weeks ago, the staff also emphasized that it was likely to defer certification review of the EPR and two other reactor designs—Westinghouse's International Reactor Innovative & Secure and the Pebble Bed Modular Reactor—until they are "clearly aligned with a domestic partner."

Ganthner said his company, too, does not want to expend a lot of resources if there is no interest in the EPR. "Without a prospect for a customer, we don't want to be

involved in this process," he said.

There has been some talk in the industry that Duke and Constellation are interested in the EPR.

In his letter, Beckner asked Areva to flag any possible policy issues that would involve a commission decision and technical issues that could take time to resolve. But Ganthner said he doesn't believe there are any major issues.

"In the EPR's case, the maturity of design is well past the COL [combined operating permit-operating license] level because of the work we're doing in Finland," Ganthner said. "It's more mature than any design at this point in time because we're building one."

He said all engineering work will be finished by the end of 2006, before construction starts on the Finnish plant. Areva plans to transfer the design from that work and convert it to a design that will meet U.S. codes and standards.

Ganthner said Areva would not be seeking DOE funding for a COL demonstration, in part because the EPR already has significant design detail. "In 95% of the EPR systems, we are well past the COL stage in terms of detail," he said.

He indicated that the federal aid also could have the effect of slowing down the project. "We want to adapt to market timing," he said. "The DOE funding available under (the Nuclear Power 2010 program) is aimed at demonstrating a COL, and first step we see in the process is design certification."

Ganthner deferred questions about the projected costs of the EPR because of the pending China bid. But he said the EPR would provide a good value for customers because of the large size and its ability to be run as a load-following plant to meet customer electricity demands.

—*Jenny Weil, Washington*

Inside NRC

Volume 27 / Number 3 / February 7, 2005

Staff recommends abolishing special research review board

NRC's research effectiveness review board should be ended because its mission has largely been accomplished, staff recommended to the commission last month. Known as RERB, the board was established in 1997 to review "the bases for initiating, continuing, and terminating specific research programs, giving particular attention to the effectiveness of broad-based, long-range programs and the staff's capabilities to address core research needs," staff said in a Jan. 6 paper (Secy 05-5) supporting its recommendation. RERB is chaired by NRC's Office of Nuclear Regulatory Research (RES), which reports periodically to the commission. Among other activities, RERB established a research user need working group comprised of one branch chief from each program office, reasoning that "establishing a documented user need process that is consistent across the offices will improve the efficiency of [NRC's research] process and will help to ensure that agency resources are optimally applied in resolving technical and programmatic issues," staff said in an August 2001 paper, Secy 01-163.

By November 2003, RERB noted "improved coordination through a marked increase in the number and scope of inter-office meetings" and "improved communications between assigned points of contact in each office," staff reported in Secy 03-204. "New user needs are considered for funding through the add/shed process based on priority assigned to existing work," which "helps RES develop its research plans within the scope of its program goals and objectives and within budget limitations," staff said. "The Commission's original objectives for creating the RERB have been attained, and even surpassed in some respects," staff said in the January Secy paper. "The ongoing development of improvements such as interdependent operating plans, periodic status review meetings, routine office level coordination meetings, and other activities...have taken the effectiveness of research coordination beyond the level envisaged at the time that RERB was formed."

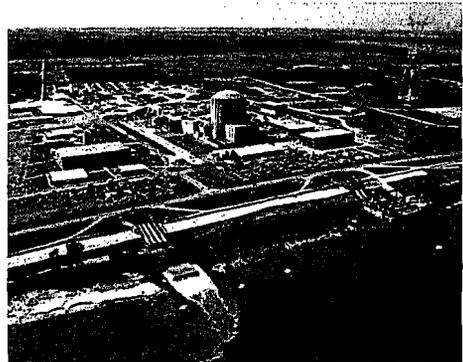
Such findings are consistent with those of an April 2004 report (Nureg-1635) by the Advisory Committee on Reactor Safeguards, which found that "[o]verall, the NRC has a well planned, well-focused safety research program" and "a very large fraction of the research is focused on immediate user needs."

For these reasons, "continuation of the RERB in its present form duplicates other routine activities" and the board "is no longer necessary," staff concluded in its latest paper. "Terminating the RERB would serve the interest of the agency's strategic performance goal to ensure effectiveness, efficiency, realism, and timeliness," and "could improve efficiency through resource savings," staff said.

The commissioners have not yet finished voting on the staff's recommendation to eliminate RERB, an NRC staffer said last week.—*Steven Dolley, Washington*

 Entergy

Waterford 3 Extended Power Uprate Project



Advisory Committee on
Reactor Safeguards

February 10, 2005

1

 Entergy

Joe Venable
VP Operations

2



Tim Mitchell
Engineering Director

3



Agenda

- Introduction – Joe Venable
- Overview of W3 and EPU Project – Tim Mitchell
- Boron Precipitation
 - Entergy – Jerry Holman
 - NRC Staff
- Large Transient Testing
 - Entergy – David Constance
 - NRC Staff
- Steam Generator Dryers – Don Siska
- Conclusion – Joe Venable

4



Overview

- Project Scope
- Design Basis Improvements
- Oversight & Rigor
- Industry Operating Experience

5



Overview

- Combustion Engineering Nuclear Steam Supply System (NSSS) Pressurized Water Reactor (PWR)
- Entered commercial operation 1985
- 3390 MWt original licensed power
- 3441 MWt Appendix K Uprate
- 3716 MWt Extended Power Uprate (EPU)

6



Overview

- Project Team
 - Entergy
 - Westinghouse (NSSS)
 - Enercon (Balance of Plant (BOP))
 - Siemens-Westinghouse (Turbine / Generator)

7



Significant Modifications

- Replace HP Turbine Steam Path
- Main Generator Rewind and Alkalizer Skid
- Replace Main Generator Output Breakers
- Main Transformer A Improvements
- FW Heater Drain Valve Capacity Increase
- Condenser Tube Staking
- Control Systems and Instrumentation

8



Engineering Plant Impacts

- Decay Heat
 - Safety Systems Acceptable without Modification
 - Ultimate Heat Sink
 - Emergency Feedwater
 - Shutdown Cooling
 - Fuel Pool Cooling
 - Raised Fuel Oil Minimum Requirement
 - Maintain 7 Day Supply per Current Licensing Basis
 - Commitment to provide additional storage

9



Safety Analysis Impacts

- Demonstrate Acceptable EPU Impact:
 - Emergency Core Cooling System (ECCS)
 - 1999 Large Break Evaluation Model
 - Credit Atmospheric Dump Valve for Small Break secondary pressure control
 - Non-LOCA Transient Events
 - CENTS analysis code
- Meet acceptance criteria for Fuel Design Limits (e.g., DNBR), RCS Pressure, Dose

10



Alternative Source Term

- Alternative Source Term used to address Control Room Habitability Issue
 - Tracer Gas Testing April 2004
- Submittal under Staff Review
- Meet 10CFR50.67 & GDC19 acceptance criteria

11



PRA Impacts

- Conclusions
 - All PRA model elements reviewed for impact
 - Minor reduction in Operator recovery times
 - Internal Events (per year):
 - CDF increase = $3.5E-7$
 - LERF increase $< 1.0E-7$
 - External Events
 - Slight increase in fire CDF due to operator response time reduction

12



Conclusions

13



Boric Acid Precipitation

Jerry Holman
Manager, Nuclear Engineering

14



Boric Acid Precipitation

- Issue Summary
 - W3 analysis uses collapsed volume per previous NRC approval
 - NRC review focus on voiding in core
- Conclusion
 - Supplemental calculations confirm significant margin to solubility limit

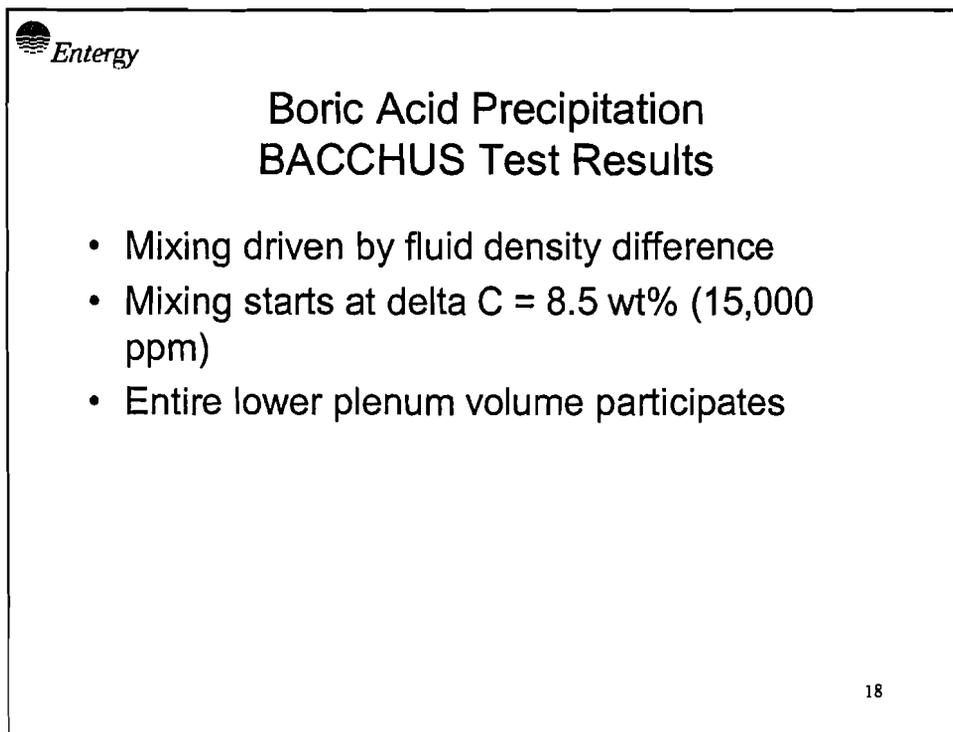
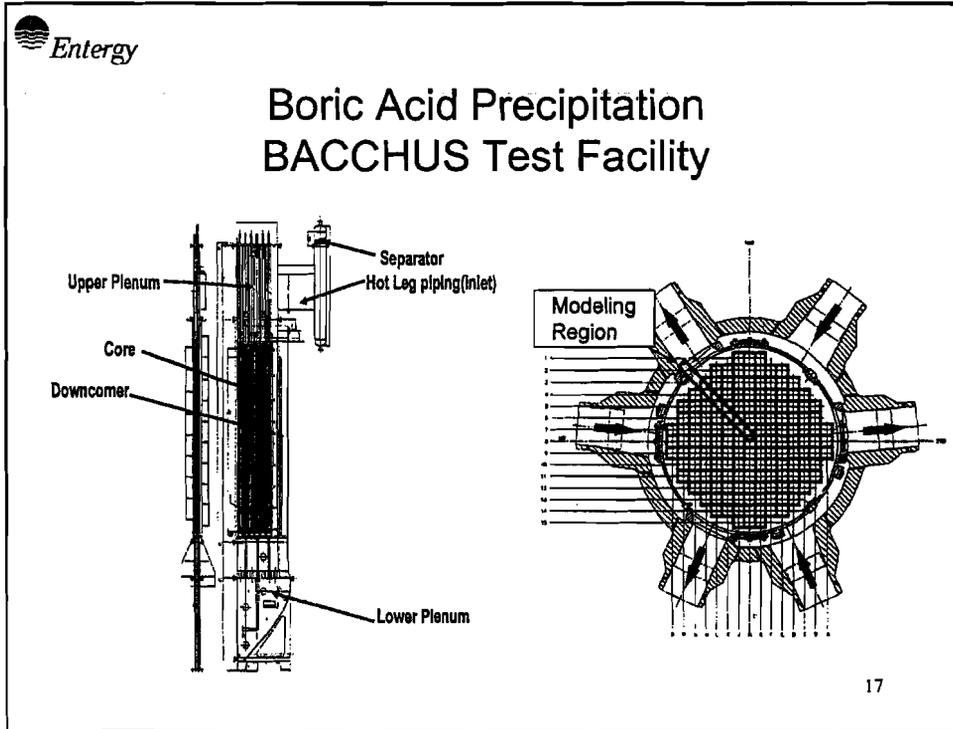
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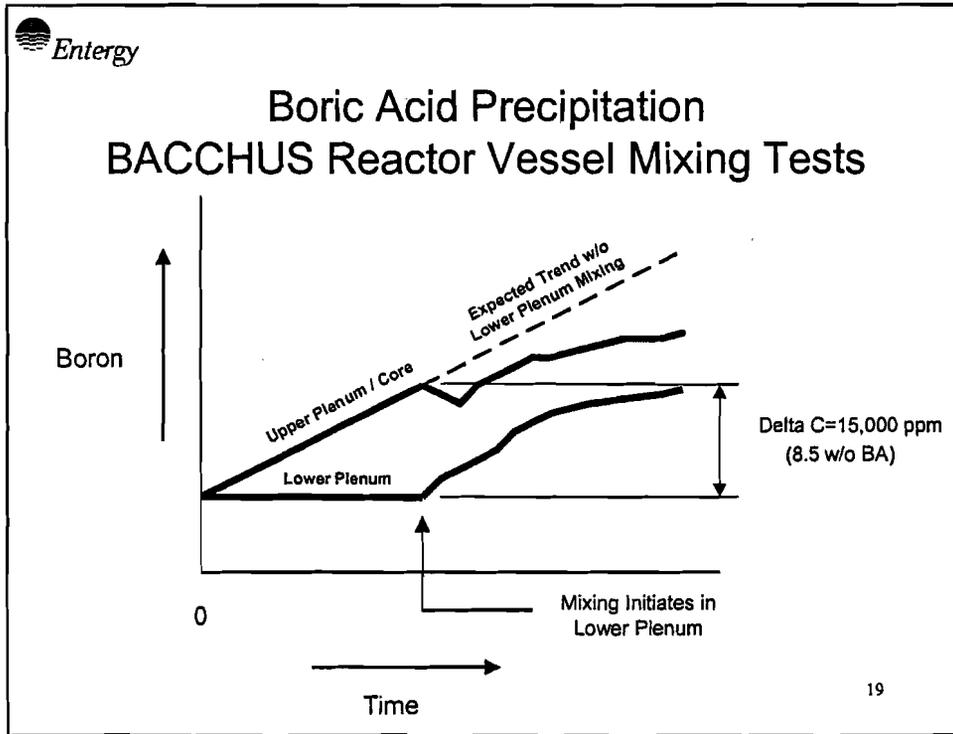


Boric Acid Precipitation Supplemental Results

- Account for:
 - Voiding in core
 - Lower plenum mixing
 - Mixing of BAMT and RWSP
 - 1979 ANS Decay Heat Best Estimate
 - Containment Pressure of 20 psia
 - TSP solubility limit elevation
- Boric Acid Concentration at 3 hours 17.2 wt%
- Solubility Limit = 40 wt%

16





-
- Boric Acid Precipitation
Solubility Limit**
- TSP in sump water
 - Increase limit to 36 wt%
 - Minimum containment pressure of 20 psia
 - Increase limit by 4 wt%
 - Solubility limit = 40 wt%
- 20



Boric Acid Precipitation Boiling Solution Near Solubility Limit



21



Boric Acid Precipitation Supplemental Calculation Input

- Mixing Volume
 - 50% lower plenum
 - Upper plenum to top of hot leg at 3 hours
- 66% average voiding in core at 3 hours
- 1979 ANS decay heat best estimate

22



Boric Acid Precipitation Supplemental Calculation Results

*copies of
comparisons
submitted to
AERS*

- Boric acid concentration at 3 hours with 50% Lower Plenum = 17.2 wt%
- Large margin to precipitation limit of 40 wt%



Boric Acid Precipitation Updated Licensing Basis Analysis

- Assumptions
 - Voiding in core
 - 50% Lower Plenum Mixing
 - Mixing of BAMT and RWSP
 - TSP Solubility Limit Elevation
- Demonstrates Significant Margin to Precipitation



Boric Acid Precipitation

NRC Staff Conclusion

25



Large Transient Testing

David Constance
Operations

26



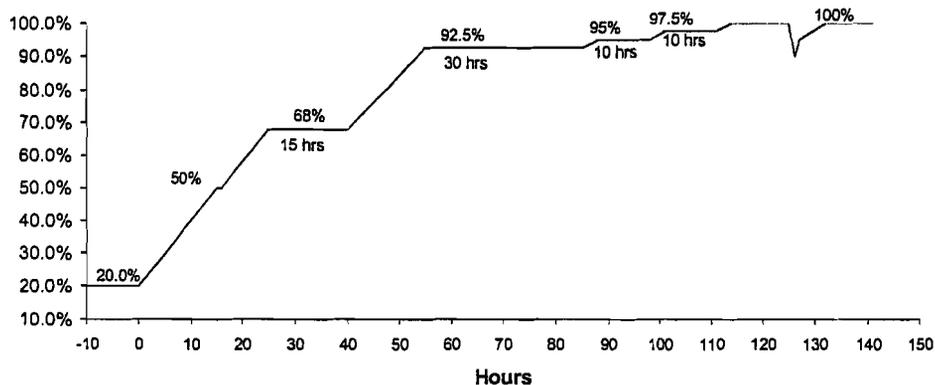
Power Ascension Testing

- Reactor Engineering Tests / Power Verification
- Transient and Steady State Data Record
- Post Modification Testing
- Plant Maneuver Test (100%-90%-95%)
- Post 100% Testing, Data Collection & Surveys
- Vibration Monitoring

27



Power Ascension Profile



28



Power Ascension Testing

- Low Power Physics Testing (LPPT) remains unchanged for EPU
- Data sets
 - Collected every 10% from 20-100%
 - Collected at 7 different power plateaus
 - Approximately 1000 parameters monitored
 - Data will be automatically collected and processed
 - Data evaluated against predetermined criteria
- Plant Safety Subcommittee reviews results report at each power plateau (>68%), and recommends continued power ascension.

29



Large Transient Testing

- Reviewed Initial S/U Testing per SRP 14.2.1
- The Initial Turbine Trip Test (84% RTP) potentially applicable to EPU
- Transient Testing should be considered in relation to the full spectrum of testing and monitoring, including:
 - Power Ascension Testing
 - Post Modification Testing
 - Routine Testing, Surveillance, & Trend Programs
 - Continuous Active Monitoring Plant Equipment

30



Large Transient Testing

Modification	Post Modification Test	Further tested by Turbine Trip
ADV Setpoint Change	Channel Calibration	No
Low S/G Press Setpoint	Channel Calibration	No
FWCS, SBCS, RRS Constants	Channel Calibration Transient/Steady State Data Record	Load Change Test Partially
RT/TT Permissive	Channel Calibration	No
HP Turbine Rotor Replacement	120% rotor speed factory test Transient/Steady State Data Record Validate TFS Power constants	Overspeed Trip Test Vibration monitoring Thermal Performance Test
DEH Program Constants	Channel Calibration Transient/Steady State Data Record	Load Change Test No

31



Large Transient Testing

Modification	Post Modification Test	Further tested by Turbine Trip
Main Generator Rewind	Pre-Operation Electrical Tests Transient/Steady State Data Record Isophase Bus Temp Monitoring	Vibration monitoring Generator Capability Test No
Main Transformers	100% factory load test (MT A) Temperature survey of connectors	Monitor Temperatures Test Oil Samples No
GOB Replacement	AC and DC acceptance tests Synchronizing Check calibration	Power factor tests Timing tests No
DCT NLCV trim change	Channel Calibration Transient/Steady State Data Record	AOV Testing Load Change Test No
Condenser Tube Staking	Circ Water tube leak check Monitor Secondary Chemistry	No
SCW Alkalizer Skid	Vendor Startup and Calibration SCW Chemistry monitoring	No

32



Large Transient Testing

- A Turbine Trip Test is not an effective test for the majority of modifications for the W3 EPU
- Integrated Control System performance is more rigorously evaluated using a calculation model
- The calculational model has been sufficiently benchmarked to the plant at near EPU conditions

33



Large Transient Testing

- Current Benchmarking Transients
 - Turbine trip from 100% power / RPC – February 14, 2003
 - Feedwater pump trip from 100% power / RPC – June 3, 2001
 - Reactor trip from approximately 82% power – February 13, 2001

34



Large Transient Testing Conclusion

The Post EPU Plant Performance

- Will be adequately demonstrated by Post Modification and Start Up Testing
- Has been thoroughly evaluated using a well benchmarked calculation model
- Will not be further demonstrated during a Turbine Trip transient

35



Large Transient Testing

NRC Staff Conclusion

36

 Entergy

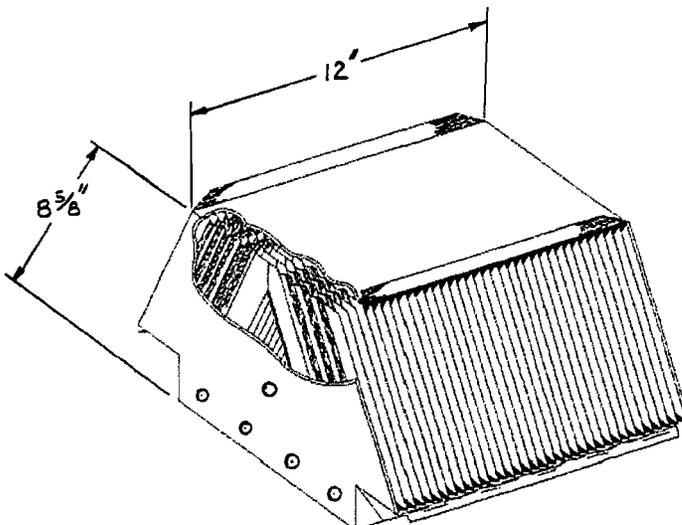
Steam Generator Dryers

Don Siska
Westinghouse

37

 Entergy

Steam Generator Dryers



12'

8 ⁵/₈"

38



Steam Generator Dryers

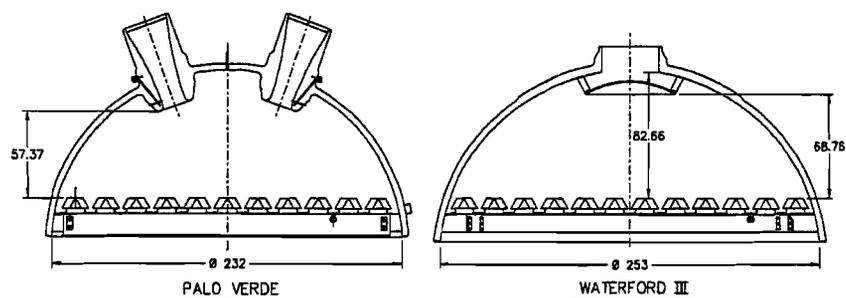
- Description
 - Same chevron design used in all CE Original SGs.
 - Used in Fossil Power Industry since 1940's.
 - 12" x 12" at base; 8 5/8" tall.
 - Very low pressure drop (~0.25 psi).
- Testing Performed
 - Flow Rates of 30,000 lb/hr to 60,000 lb/hr.
 - Pressures of 600 psia to 1200 psia.
 - Bounds conditions for Waterford EPU (approximately 51,250 lbs/hr at 805 psi).

39



Steam Generator Dryers

- Comparison with Palo Verde

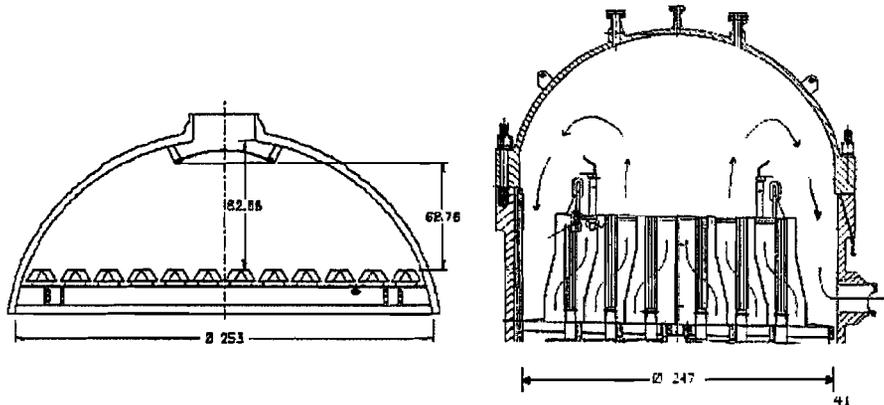


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Steam Generator Dryers

- Comparison with Typical BWR



Steam Generator Dryers

- Potential for Loose Parts
 - No dryer failures in over 200 reactor-years operation.
 - Nuts used to attach dryers to drain channels and dryers at end of row are welded in place.
 - All other nuts, bolts and lock washers below dryers.
 - No pathway or loading condition sufficient for fasteners to enter main steam line.
 - Secondary side inspection during RFO12 showed no damage or missing fasteners

42



Steam Generator Dryers

- Summary
 - EPU conditions bounded by test program.
 - EPU conditions less severe than Palo Verde.
 - Low flow loadings; not enough energy absorbed to cause vibration.
 - Potential loose parts (nuts, bolts and lock washers) can not enter main steam line.
- Conclusion
 - EPU will not adversely affect dryer integrity.

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Concluding Remarks

Joe Venable
VP Operations

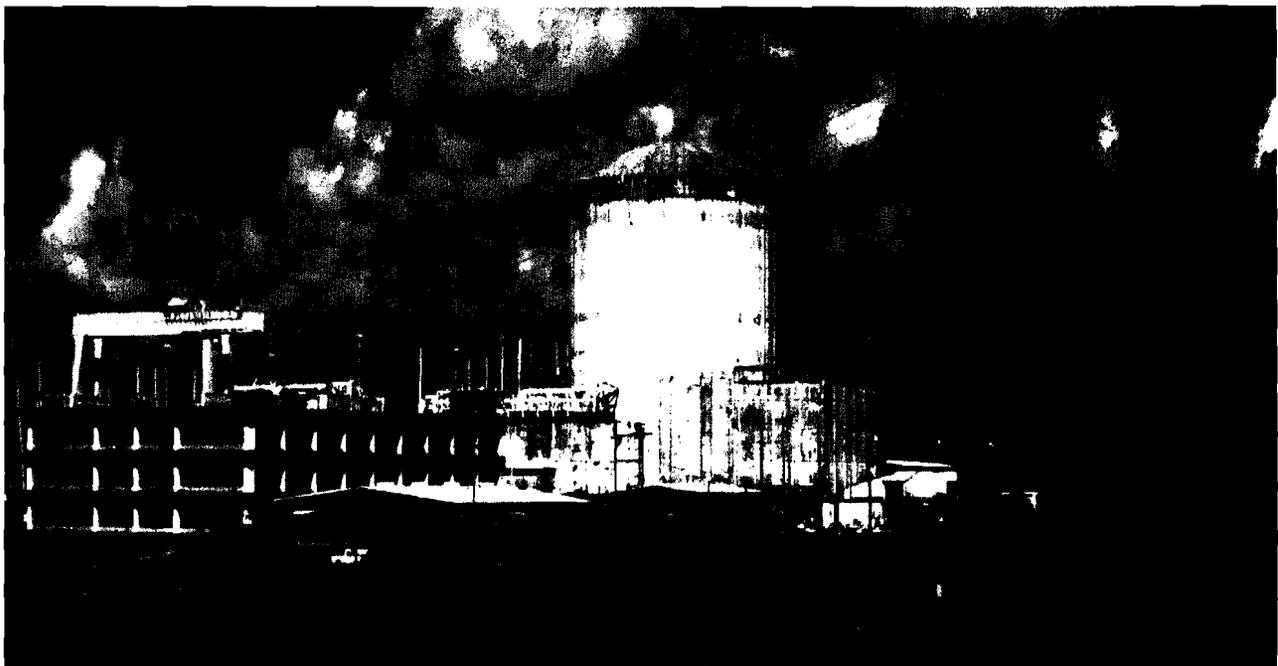
44



End of Presentation

45

Waterford 3 Extended Power Uprate



**Advisory Committee on
Reactor Safeguards**
February 10, 2005

Waterford 3 Extended Power Uprate Project



Advisory Committee on
Reactor Safeguards

February 10, 2005



Entergy



Joe Venable
VP Operations



Entergy

Tim Mitchell
Engineering Director



Agenda

- Introduction – Joe Venable
- Overview of W3 and EPU Project – Tim Mitchell
- Boron Precipitation
 - Entergy – Jerry Holman
 - NRC Staff
- Large Transient Testing
 - Entergy – David Constance
 - NRC Staff
- Steam Generator Dryers – Don Siska
- Conclusion – Joe Venable



Entergy



Overview

- Project Scope
- Design Basis Improvements
- Oversight & Rigor
- Industry Operating Experience





Overview

- Combustion Engineering Nuclear Steam Supply System (NSSS) Pressurized Water Reactor (PWR)
- Entered commercial operation 1985
- 3390 MWt original licensed power
- 3441 MWt Appendix K Uprate
- 3716 MWt Extended Power Uprate (EPU)



Overview

- Project Team
 - Entergy
 - Westinghouse (NSSS)
 - Enercon (Balance of Plant (BOP))
 - Siemens-Westinghouse (Turbine / Generator)

Significant Modifications

- Replace HP Turbine Steam Path
- Main Generator Rewind and Alkalizer Skid
- Replace Main Generator Output Breakers
- Main Transformer A Improvements
- FW Heater Drain Valve Capacity Increase
- Condenser Tube Staking
- Control Systems and Instrumentation

Engineering Plant Impacts

- Decay Heat
 - Safety Systems Acceptable without Modification
 - Ultimate Heat Sink
 - Emergency Feedwater
 - Shutdown Cooling
 - Fuel Pool Cooling
 - Raised Fuel Oil Minimum Requirement
 - Maintain 7 Day Supply per Current Licensing Basis
 - Commitment to provide additional storage

Safety Analysis Impacts

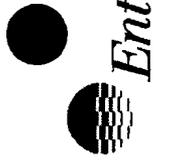
- Demonstrate Acceptable EPU Impact:
 - Emergency Core Cooling System (ECCS)
 - 1999 Large Break Evaluation Model
 - Credit Atmospheric Dump Valve for Small Break secondary pressure control
 - Non-LOCA Transient Events
 - CENTS analysis code
- Meet acceptance criteria for Fuel Design Limits (e.g., DNBR), RCS Pressure, Dose

Alternative Source Term

- Alternative Source Term used to address Control Room Habitability Issue
 - Tracer Gas Testing April 2004
- Submittal under Staff Review
- Meet 10CFR50.67 & GDC19 acceptance criteria

PRA Impacts

- Conclusions
 - All PRA model elements reviewed for impact
 - Minor reduction in Operator recovery times
 - Internal Events (per year):
 - CDF increase = $3.5E-7$
 - LERF increase $< 1.0E-7$
 - External Events
 - Slight increase in fire CDF due to operator response time reduction



Conclusions



Entergy



Boric Acid Precipitation

**Jerry Holman
Manager, Nuclear Engineering**

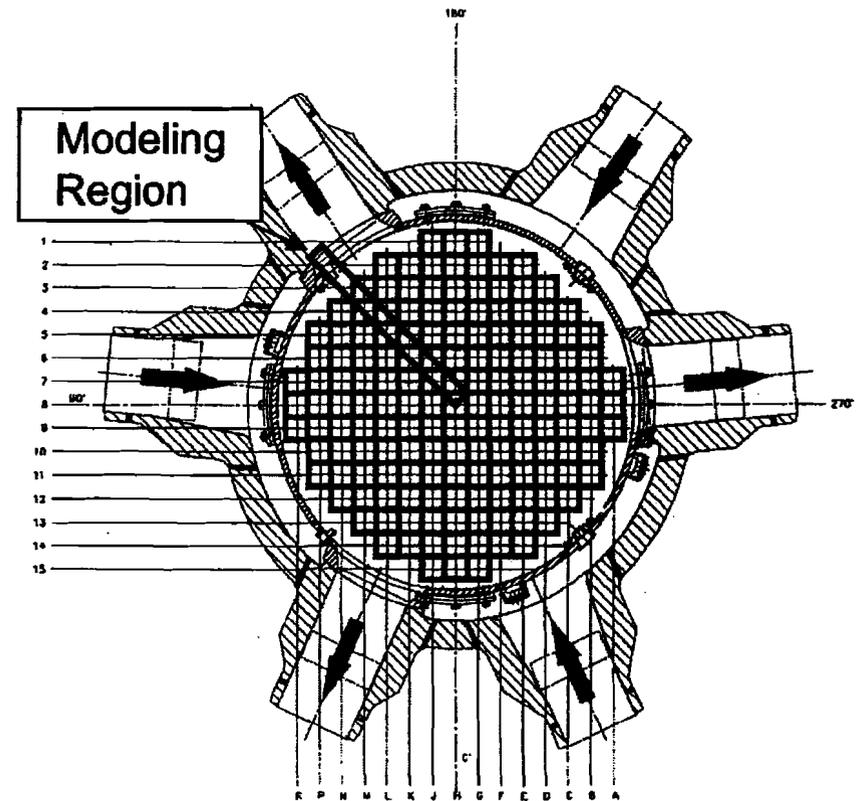
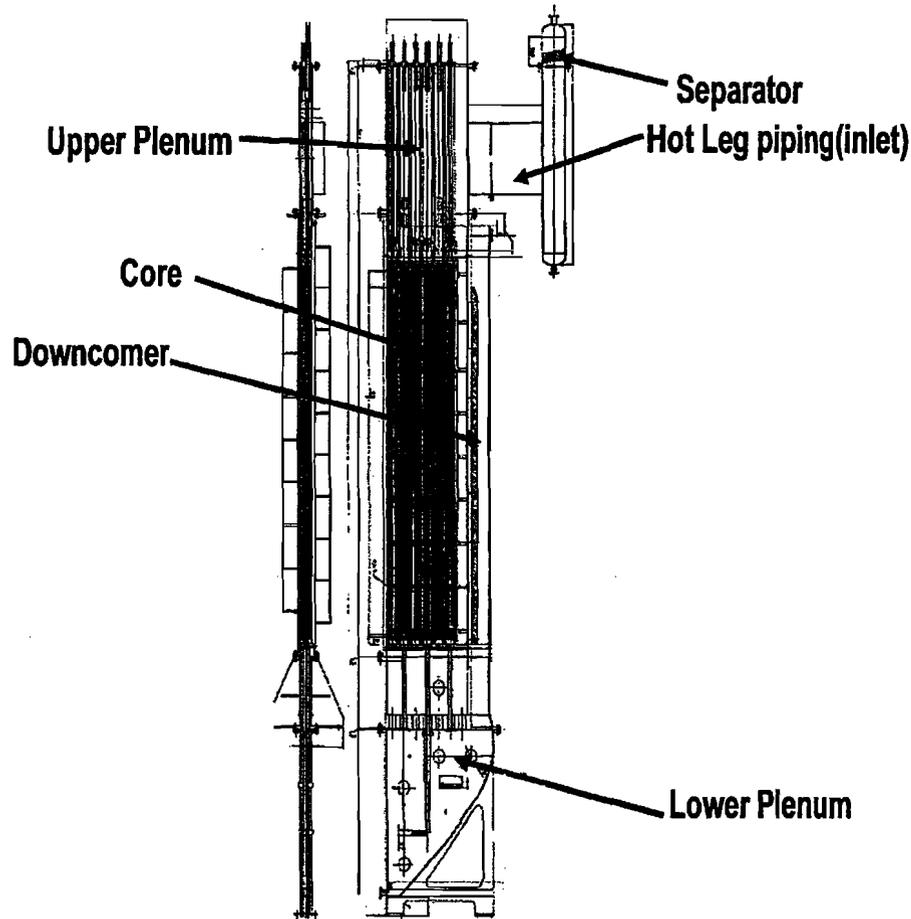
Boric Acid Precipitation

- Issue Summary
 - W3 analysis uses collapsed volume per previous NRC approval
 - NRC review focus on voiding in core
- Conclusion
 - Supplemental calculations confirm significant margin to solubility limit

Boric Acid Precipitation Supplemental Results

- Account for:
 - Voiding in core
 - Lower plenum mixing
 - Mixing of BAMT and RWSP
 - 1979 ANS Decay Heat Best Estimate
 - Containment Pressure of 20 psia
 - TSP solubility limit elevation
- Boric Acid Concentration at 3 hours 17.2 wt%
- Solubility Limit = 40 wt%

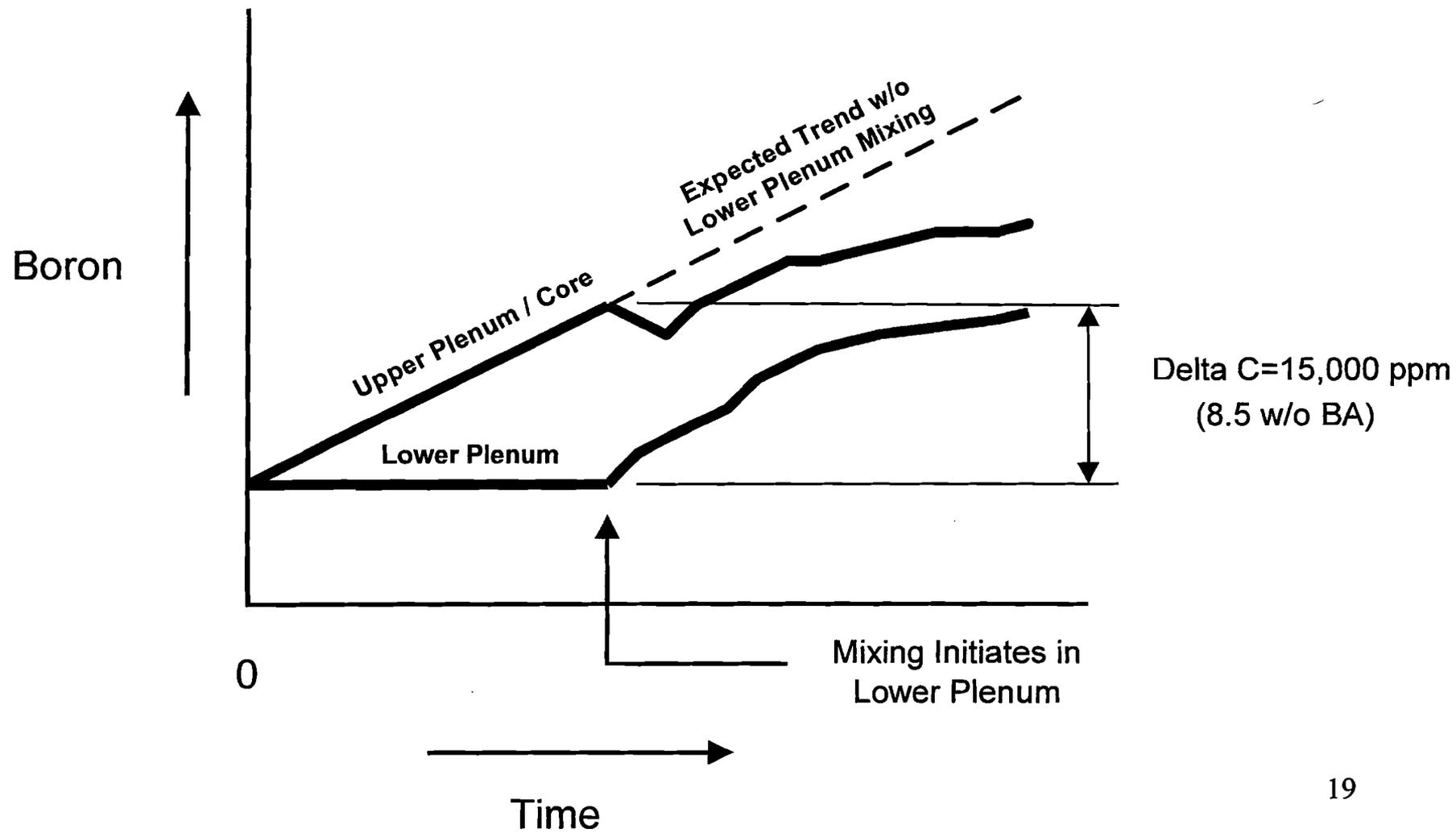
Boric Acid Precipitation BACCHUS Test Facility



Boric Acid Precipitation BACCHUS Test Results

- Mixing driven by fluid density difference
- Mixing starts at $\Delta C = 8.5 \text{ wt\%}$ (15,000 ppm)
- Entire lower plenum volume participates

Boric Acid Precipitation BACCHUS Reactor Vessel Mixing Tests



Boric Acid Precipitation Solubility Limit

- TSP in sump water
 - Increase limit to 36 wt%
- Minimum containment pressure of 20 psia
 - Increase limit by 4 wt%
- Solubility limit = 40 wt%

Boric Acid Precipitation Boiling Solution Near Solubility Limit

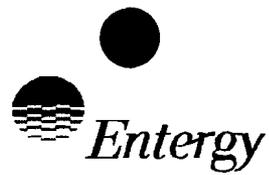


Boric Acid Precipitation Supplemental Calculation Input

- Mixing Volume
 - 50% lower plenum
 - Upper plenum to top of hot leg at 3 hours
- 66% average voiding in core at 3 hours
- 1979 ANS decay heat best estimate

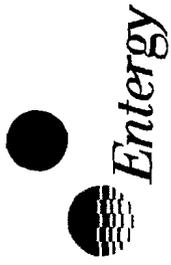
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- Boric acid concentration at 3 hours with 50% Lower Plenum = 17.2 wt%
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Boric Acid Precipitation Updated Licensing Basis Analysis

- Assumptions
 - Voiding in core
 - 50% Lower Plenum Mixing
 - Mixing of BAMT and RWSP
 - TSP Solubility Limit Elevation
- Demonstrates Significant Margin to Precipitation



Boric Acid Precipitation

NRC Staff Conclusion



Entergy

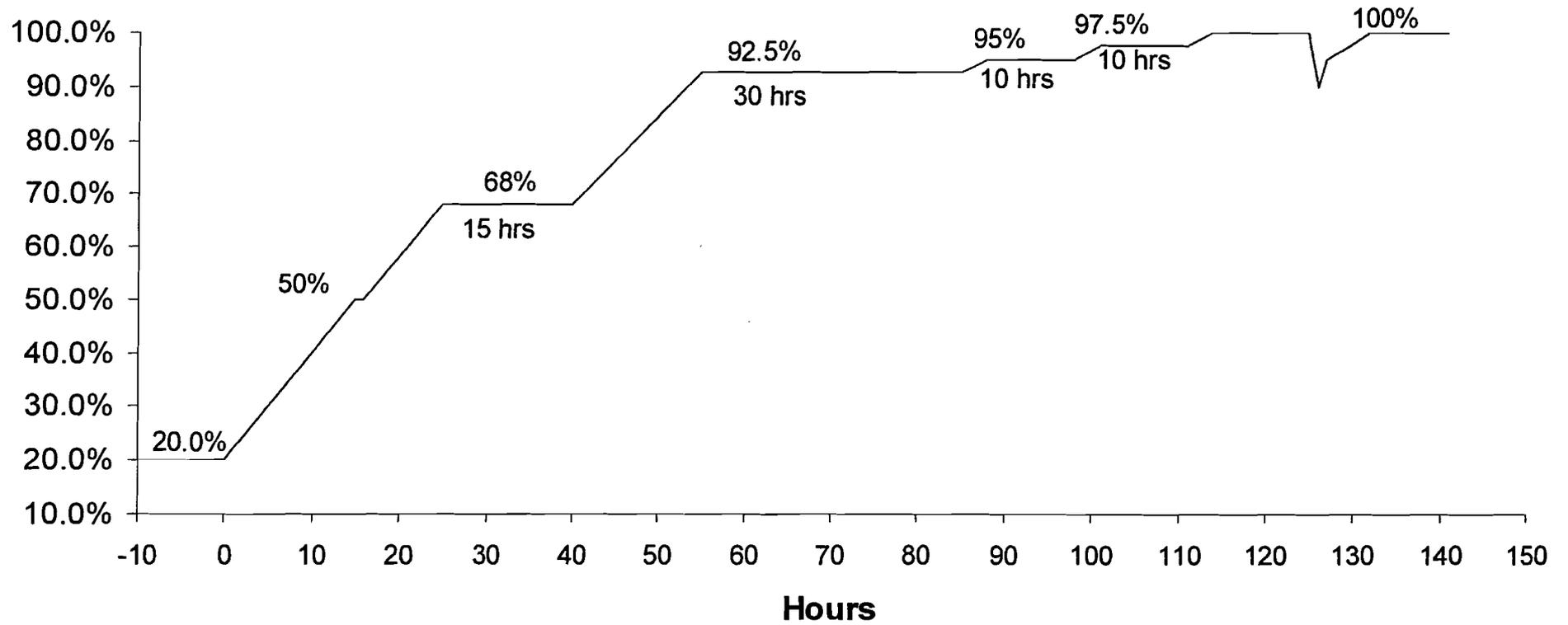
Large Transient Testing

David Constance
Operations

Power Ascension Testing

- Reactor Engineering Tests / Power Verification
- Transient and Steady State Data Record
- Post Modification Testing
- Plant Maneuver Test (100%-90%-95%)
- Post 100% Testing, Data Collection & Surveys
- Vibration Monitoring

Power Ascension Profile

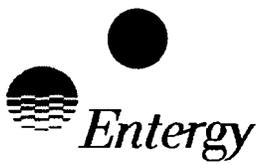


Power Ascension Testing

- Low Power Physics Testing (LPPT) remains unchanged for EPU
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- The Initial Turbine Trip Test (84% RTP) potentially applicable to EPU
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 - Post Modification Testing
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Large Transient Testing

Modification	Post Modification Test	Further tested by Turbine Trip
ADV Setpoint Change	Channel Calibration	No
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RT/TT Permissive	Channel Calibration	No
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DEH Program Constants	Channel Calibration Transient/Steady State Data Record	Load Change Test No

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DCT NLCV trim change	Channel Calibration Transient/Steady State Data Record	AOV Testing Load Change Test	No
Condenser Tube Staking	Circ Water tube leak check Monitor Secondary Chemistry		No
SCW Alkalizer Skid	Vendor Startup and Calibration SCW Chemistry monitoring		No

Large Transient Testing

- A Turbine Trip Test is not an effective test for the majority of modifications for the W3 EPU
- Integrated Control System performance is more rigorously evaluated using a calculation model
- The calculational model has been sufficiently benchmarked to the plant at near EPU conditions

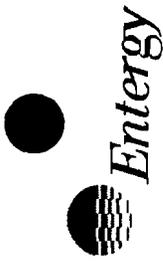
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 - Reactor trip from approximately 82% power – February 13, 2001

Large Transient Testing Conclusion

The Post EPU Plant Performance

- Will be adequately demonstrated by Post Modification and Start Up Testing
- Has been thoroughly evaluated using a well benchmarked calculation model
- Will not be further demonstrated during a Turbine Trip transient



Large Transient Testing

NRC Staff Conclusion

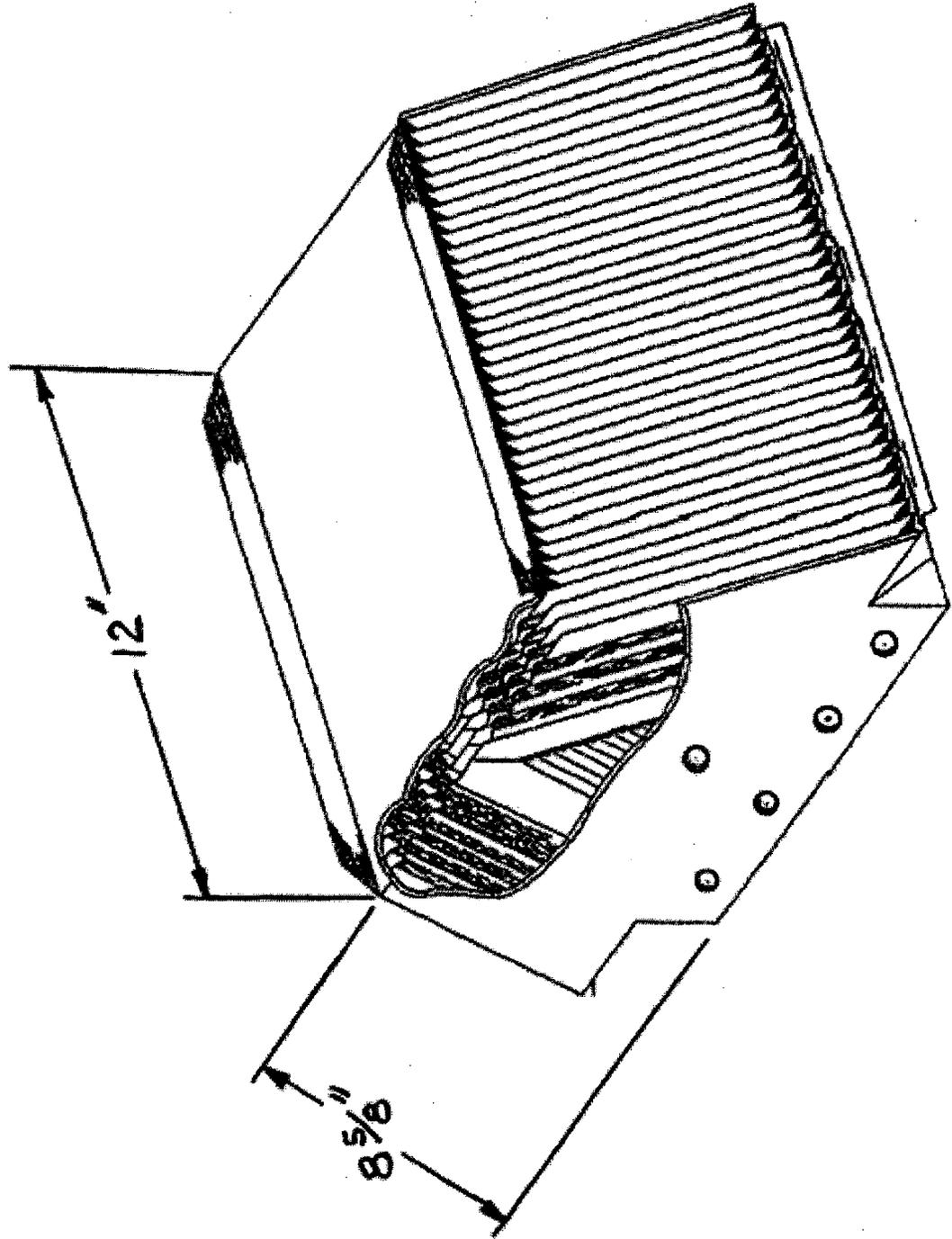


Entergy

Steam Generator Dryers

Don Siska
Westinghouse

Steam Generator Dryers

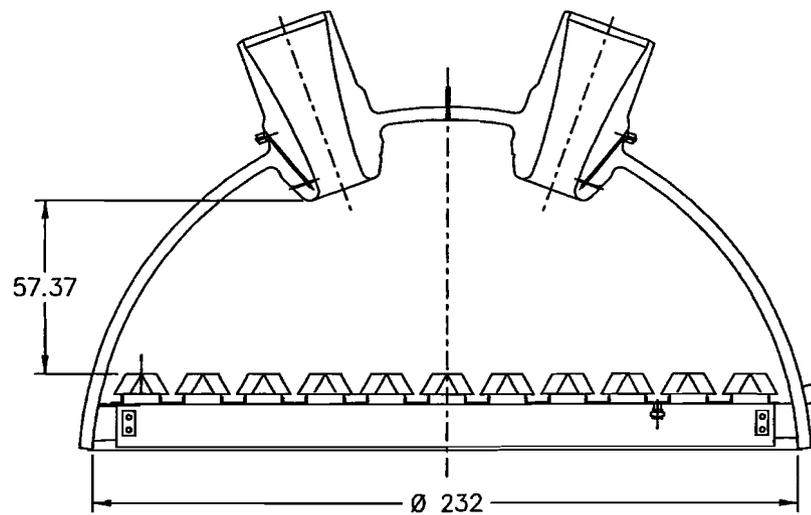


Steam Generator Dryers

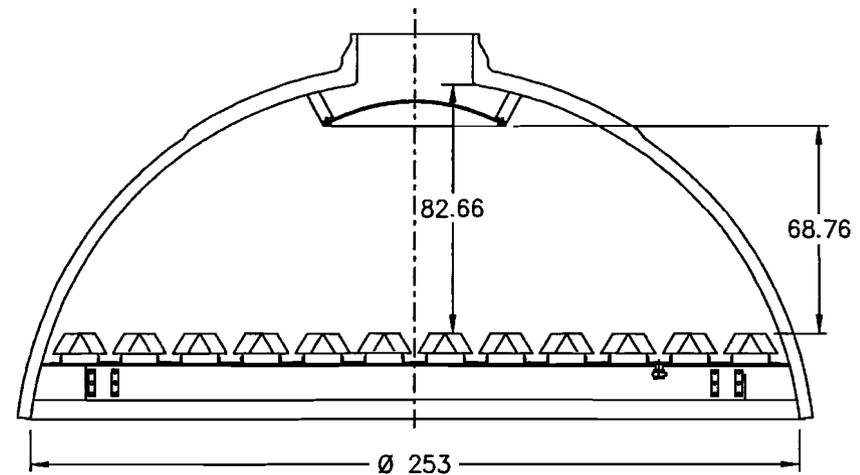
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 - Flow Rates of 30,000 lb/hr to 60,000 lb/hr.
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 - Bounds conditions for Waterford EPU (approximately 51,250 lbs/hr at 805 psi).

Steam Generator Dryers

- Comparison with Palo Verde



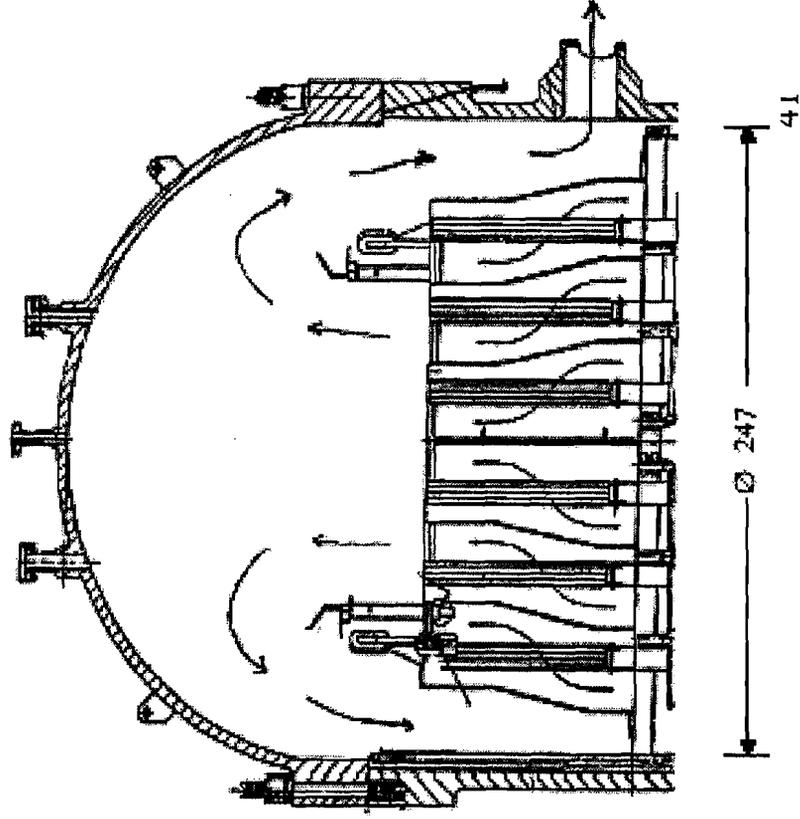
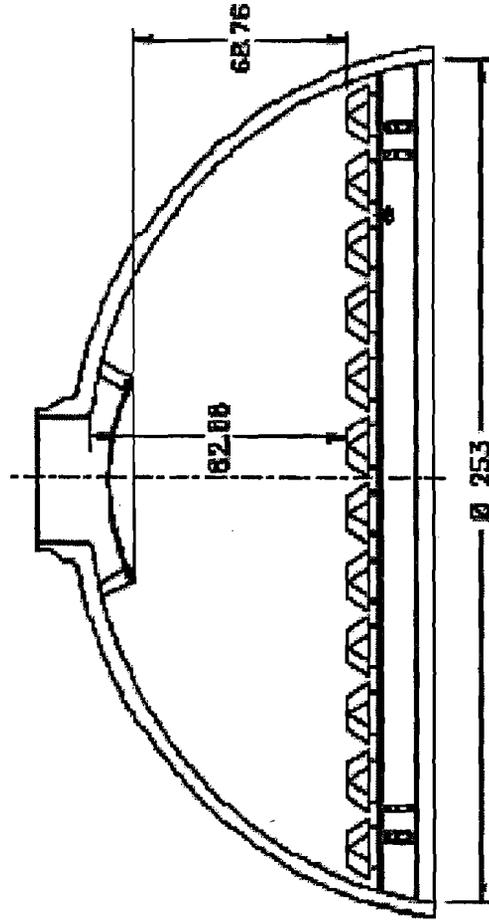
PALO VERDE



WATERFORD III

Steam Generator Dryers

- Comparison with Typical BWR



Steam Generator Dryers

- Potential for Loose Parts
 - No dryer failures in over 200 reactor-years operation.
 - Nuts used to attach dryers to drain channels and dryers at end of row are welded in place.
 - All other nuts, bolts and lock washers below dryers.
 - No pathway or loading condition sufficient for fasteners to enter main steam line.
 - Secondary side inspection during RFO12 showed no damage or missing fasteners

Steam Generator Dryers

- Summary
 - EPU conditions bounded by test program.
 - EPU conditions less severe than Palo Verde.
 - Low flow loadings; not enough energy absorbed to cause vibration.
 - Potential loose parts (nuts, bolts and lock washers) can not enter main steam line.
- Conclusion
 - EPU will not adversely affect dryer integrity.



Entergy



Concluding Remarks

Joe Venable
VP Operations



Entergy

End of Presentation

WATERFORD STEAM ELECTRIC STATION, UNIT 3

EXTENDED POWER UPRATE (8.0%)

**ACRS THERMAL-HYDRAULIC PHENOMENA
FULL-COMMITTEE BRIEFING**

FEBRUARY 10, 2005

**N. KALYANAM, PROJECT MANAGER
PROJECT DIRECTORATE IV, SECTION 1
DIVISION OF LICENSING PROJECT MANAGEMENT**

Waterford 3 EPU

Introduction by

TAD MARSH

DIRECTOR

DIVISION OF LICENSING PROJECT MANAGEMENT

Waterford 3 EPU

Background

- Originally licensed in 1985 for operation at a reactor core power (CP) not to exceed 3390 mega-watts thermal (MWt).
- Measurement uncertainty recapture uprate granted in 2002 to operate at a CP level not to exceed 3441 MWt (a 1.5% increase)
- The extended power uprate (EPU) requests an increase of 8%, CP level not to exceed 3716 MWt
- Largest pressurized water reactor (PWR) power uprate to date

Waterford 3 EPU

Background - Major Plant Modifications

- Upgrade the high pressure turbine
- Rewind main generator (MG) / provide associated auxiliaries
- Install higher capacity MG output circuit breakers, disconnect switches, and bus work
- Main transformers modifications
- Replace/upgrade control valves for the heater drain system and reheat system safety valves
- Stake the condenser tubes

Waterford 3 EPU

Background - EPU Implementation Schedule

- Entergy plans to implement the Waterford 3 EPU in one increment.
- Completion of plant modifications necessary to implement the EPU are planned prior to the end of refueling outage 13 in the spring of 2005.
- With the approval of this license amendment request, the plant will be operated at 3716 MWt starting in Cycle 14.

Waterford 3 EPU

Background - Staff Review Approach

- The first PWR EPU to follow RS-001
- Utilized Standard Review Plan (SRP)
- Used Acceptable Codes and Methodologies
- Requests for Additional Information (RAIs)
- Total of 32 supplements received
- Audits/Independent Calculations in Selected Areas

Waterford 3 EPU

Status of the 4 Issues Identified as Open in S/C Briefing

- AST amendment
 - ▶ Review proceeding on schedule
 - ▶ No surprises anticipated
 - ▶ Scheduled for issue by mid-March 2005
 - ▶ Pre-requisite for EPU amendment issuance
 - ▶ EPU SE reflects this position
 - ▶ This issue is closed

Waterford 3 EPU

Status of the 4 Issues Identified as Open in S/C Briefing (Contd.)

- 3-second time delay between steam generator tube rupture (SGTR) and loss-of-offsite power (LOOP)
- Potential for aging effects on Reactor Vessel Internals - EPRI MRP Report
- Accounting for Instrument Uncertainty
- ▶ The above three issues have been resolved and closed with either a commitment or condition in the Amendment from the licensee on the docket. The staff SE will reflect this.

Waterford 3 EPU

Post-LOCA Long Term Cooling

L. W. Ward

Reactor Systems Branch

Division of Systems Safety and Analysis

Waterford 3 EPU

Post-LOCA Long Term Cooling

■ Agenda

- ▶ Large Feedwater Line Break
- ▶ Limiting Small Break LOCA
- ▶ Post-LOCA Long Term Cooling

(Boric Acid Precipitation and Timing for Simultaneous Hot/Cold Side Injection)

Waterford 3 EPU

Post-LOCA Long Term Cooling

- Conservative emergency core cooling system (ECCS) licensing analyses are performed to identify earliest time to switch to hot/cold side injection
 - ▶ But not too early to cause core uncover
 - ▶ This assures concentration is well below the limit at re-alignment
- Staff calculations revealed non-conservative input in mixing volume (assumed void fraction 0% in mixing volume following large break LOCAs (LBLOCAs))
- Non-conservatism produces precipitation at one hour versus 4 hours

COLD LEG BREAK

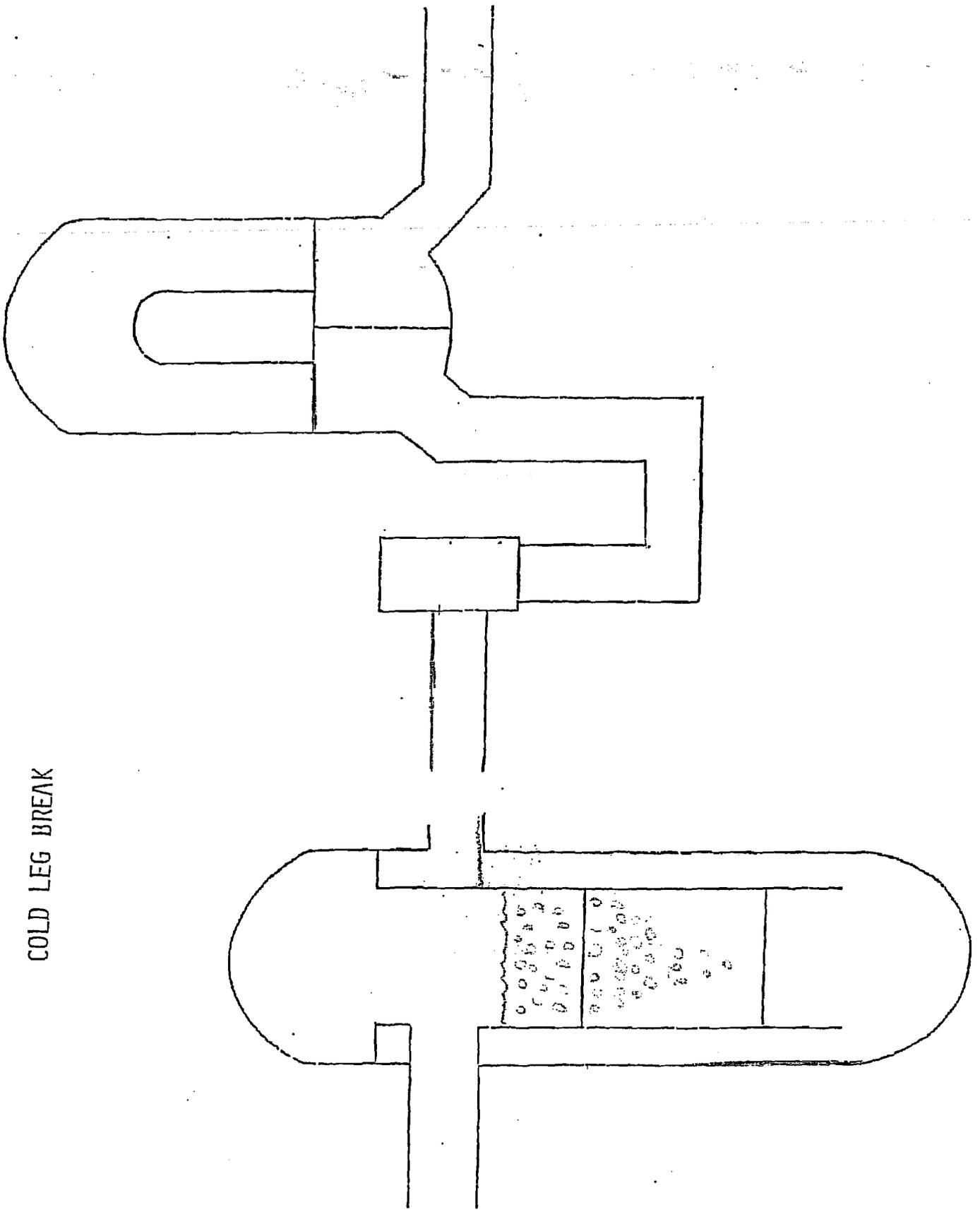
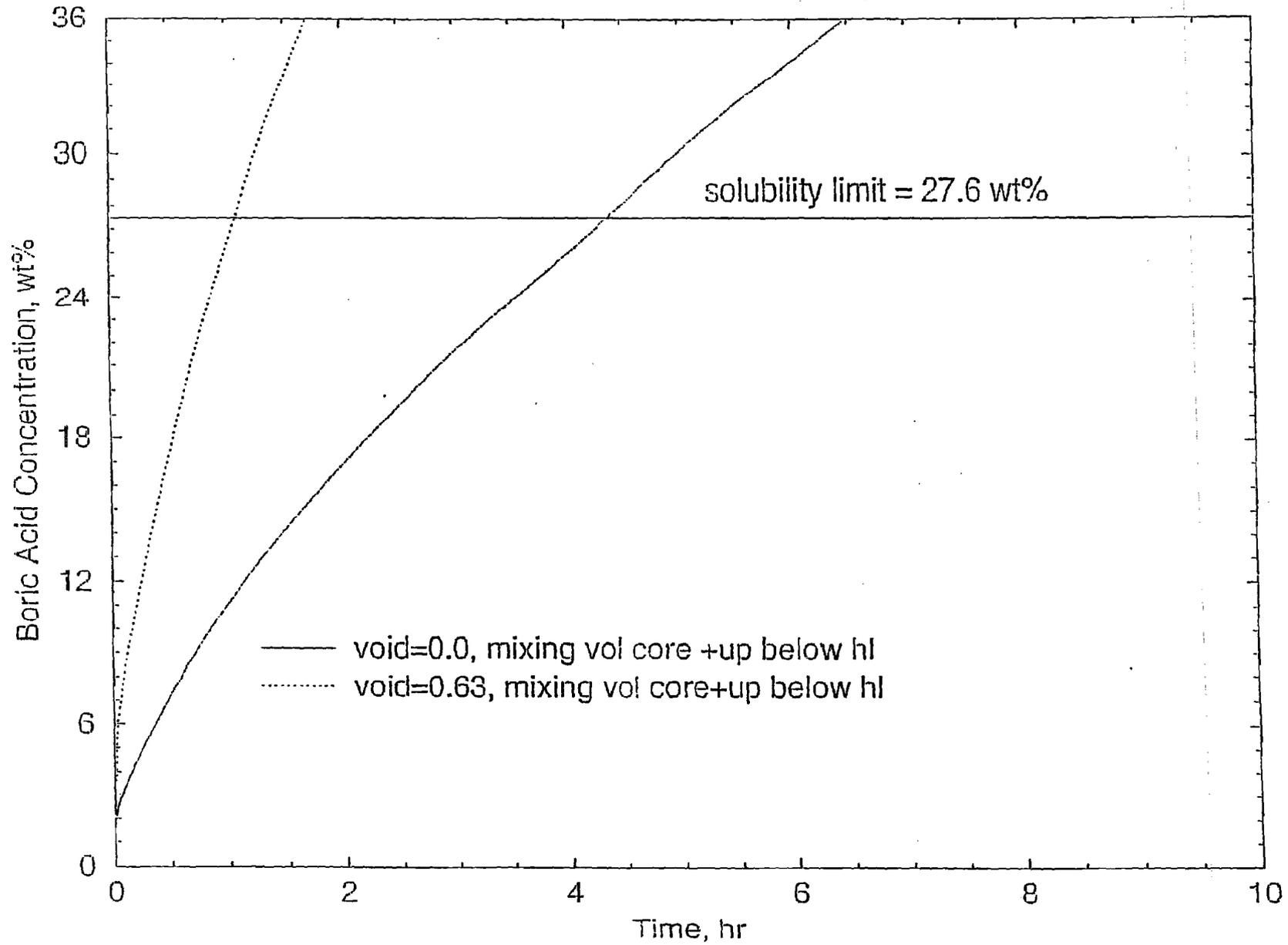


Fig. 1

Boron Concentration vs. Time

Waterford EPU, No Core Flushing Flow



118
11-8

Waterford 3 EPU

Prevention of Boric Acid Precipitation

- Westinghouse has shown margin in licensing methodology to compensate non-conservative input
 - ▶ Larger mixing volume includes lower plenum, core, and upper plenum to hot leg top elevation plus lower plenum (versus mixing volume of core and upper plenum to hot leg bottom elevation)
 - ▶ Minimum containment pressure raised to 20 psia (versus 14.7 psia)
 - ▶ Performed minimum containment pressure calculation using NRC approved methodology (GOTHIC)
 - ▶ Westinghouse analysis shows concentration of about 12 wt% (extrapolated to include entire lower plenum)

Waterford 3 EPU

Prevention of Boric Acid Precipitation

- Staff analysis demonstrates adequate margin remains to support power uprate
- ▶ Additional mixing volume available
 - Lower plenum
 - Hot legs
- ▶ Higher containment pressure
- ▶ Impact of decay heat multiplier
- ▶ No credit for liquid entrainment (also no removal of boric acid₁₃ by vapor)

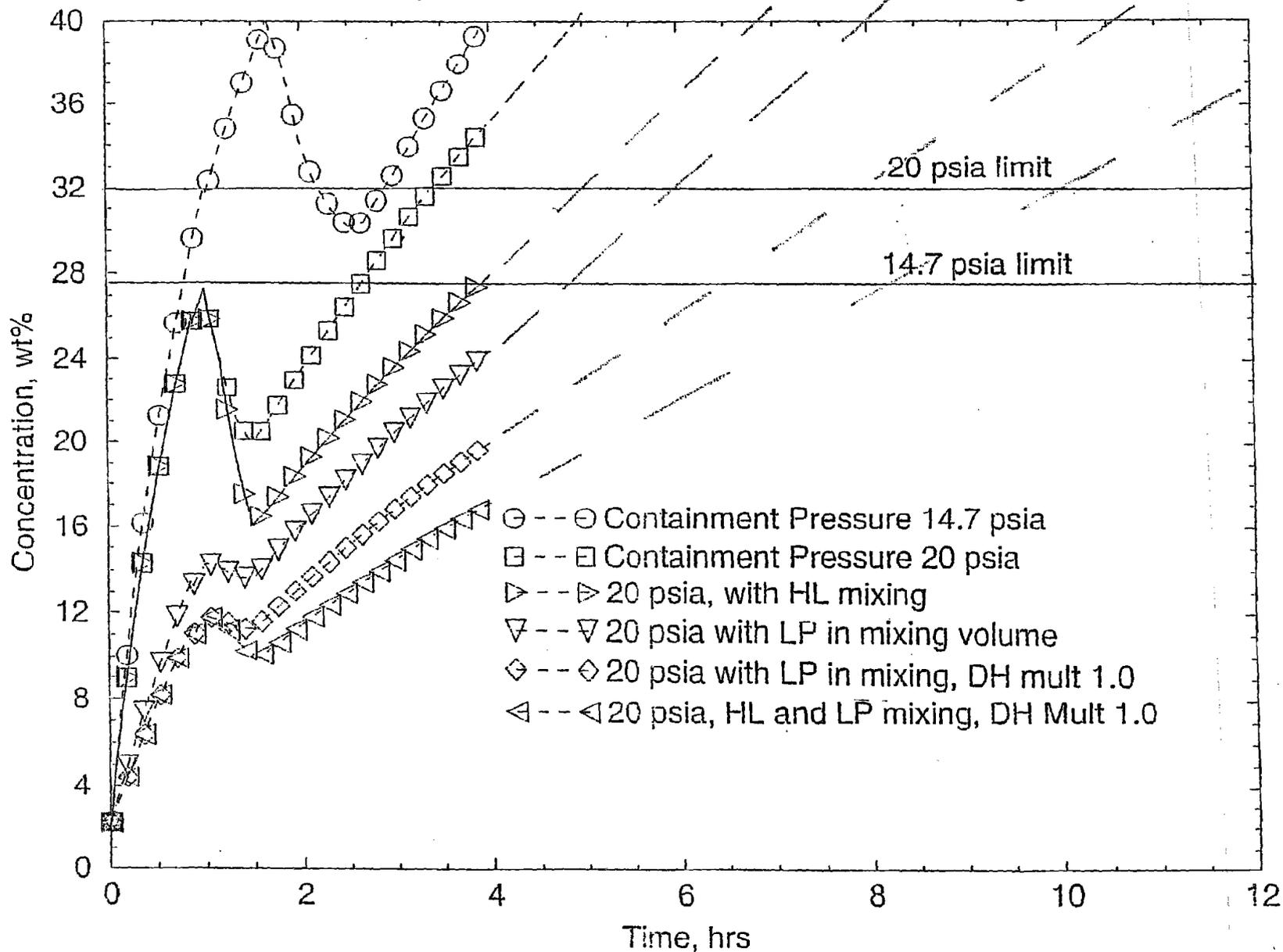
Waterford 3 EPU

Prevention of Boric Acid Precipitation (contd.)

- Staff analysis demonstrates adequate margin remains to support power uprate (Contd.)
 - ▶ No mixing in core bypass
 - ▶ Boric acid make-up tanks discharge (6187 ppm, directly in core; no mixing in DC and LP)
 - ▶ Upper plenum pressure higher than containment by loop pressure drop (raises saturation temperature)
 - ▶ No credit for subcooling during the injection phase

Boric Acid Concentration vs. Time

Waterford EPU, Effect of Containment Pressure and Mixing Volume



14a

Waterford 3 EPU

Prevention of Boric Acid Precipitation (Contd.)

- Westinghouse boron precipitation analysis consistent with staff calculations at 3 hours
 - ▶ “Best Judgement” staff calculation shows 14 wt%
 - ▶ Compared to limits:
 - 28 wt% at 14.7 psia
 - 32 wt% at 20 psia
 - 39 wt% with trisodium phosphate
- Sufficient margin exists to show concentration at 2-3 hours is less than 1/2 of the limit
 - ▶ At 14.7 psia, margin remains large

WATERFORD, UNIT 3

Extended Power Uprate Test Program

Steven Jones

Senior Reactor Systems Engineer

Plant Systems Branch (SPLB)

Division of Systems Safety and Analysis (DSSA)

Waterford 3 EPU

Major Plant Modifications

- Upgrade the high pressure turbine
- Rewind MG / provide associated auxiliaries
- Install higher capacity MG output circuit breakers, disconnect switches, and bus work
- Main transformers modifications
- Replace/upgrade control valves for the heater drain system and reheat system safety valves
- Stake the condenser tubes

Waterford 3 EPU

Test Program

- First Application of RS-001, "Extended Power Uprate," including SRP Section 14.2.1.
- SRP Section 14.2.1, "Generic Guidelines for Extended Power Uprate Testing Programs"
 - ▶ Testing based on plant-specific initial test program
 - ▶ Includes large transient testing (LTT) within scope

Waterford 3 EPU

Test Program

- SRP provides supplemental guidance for staff evaluation of alternative approaches used to justify elimination of LTT based on the following factors:
 - ▶ Operating experience
 - ▶ Potential for new phenomena or system interactions
 - ▶ Validity of analytical methods for EPU conditions
 - ▶ Degree of margin reduction in safety analysis
- Initial application did not address SRP review criteria. The staff requested additional information and held discussions on testing during public meetings.

Waterford 3 EPU

Test Program

- Justification for eliminating LTT at Waterford includes:
 - ▶ Test program includes monitoring of important parameters during EPU power ascension.
 - ▶ TS surveillance and post-modification testing will confirm the performance capability of the modified components.
 - ▶ Recent operating experience includes transients initiated from high power at Waterford and from post-uprate transient at ANO-2.
 - ▶ Code used for safety analysis benchmarked to operating experience.
 - ▶ Scope of modifications likely to affect transient response limited - largely setpoint changes.
 - ▶ Analysis code models instrument algorithms.

Waterford 3 EPU

Test Program

- Regulatory Guide 1.68 testing "Objectives"
 - ▶ Operator training and familiarization
 - ▶ Confirmation of design and installation of equipment
 - ▶ Benchmarking of analyses codes and models
 - ▶ Confirmation of the adequacy of emergency and operating procedures
- Objectives satisfied by proposed test program and operating experience
- Due to the limited extent of modifications, any benefit from LTT would not be unique to post-EPU conditions

Waterford 3 EPU

Summary

- SRP 14.2.1 allows for justification for not performing EPU Power Ascension Tests.
- In response to staff RAI, Entergy provided adequate justification for eliminating LTT using SRP criteria.
- Conducting LTTs would not provide significant new information regarding transient modeling and component performance.

Waterford 3 EPU

3-Second LOOP Delay for SGTR

- Waterford crediting 3- second LOOP delay following reactor trip in SGTR analysis
- 3-second LOOP delay utilized and approved for use in RCP seizure events in early 80's
 - ▶ Based upon wide scale grid collapse event due to loss of the nuclear plant generation (plant trip)

Waterford 3 EPU

3-Second LOOP Delay for SGTR (Contd.)

- Subsequent operating experience and investigation by NRC staff in support of risk informing 50.46 indicates consequential LOOP as a result of plant trip much more likely to result from localized events rather than wide scale grid collapse
 - ▶ Degraded switchyard voltage
 - ▶ Automatic bus transfer failure
 - ▶ Spurious switchyard breaker-failure-protection-circuit actuation
 - ▶ Startup transformer failure

Waterford 3 EPU

3-Second LOOP Delay for SGTR (Contd.)

■ Entergy evaluated LOOP delays and operability of electric equipment associated with these scenarios for SGTR

▶ Degraded switchyard voltage

– Safety bus LOOP occurs approximately 19.5 sec. following reactor trip if degraded voltage due only to loss of Waterford 3 generator voltage support to grid. Safety injection actuation signal occurs approximately 20 sec. to 1 minute following reactor/turbine trip. Sequencer resets and additional ECCS loads sequenced onto emergency diesel generators as necessary. Safety motors started within their specified parameters.

– Offsite power remains available to reactor coolant pump(RCP) non-safety buses

Waterford 3 EPU

3-Second LOOP Delay for SGTR (Contd.)

- Safety bus LOOP occurs approximately 36 to 76 seconds from reactor trip if degraded voltage due to combined loss of Waterford 3 generator and SIAS loading. Some ECCS motors started on degraded offsite voltage while degraded voltage protection timing out. Sequencer resets and ECCS loads re-sequenced/sequenced onto EDGs. Some safety motors started outside their specified starting parameters.
- Offsite power remains available to RCP non-safety buses

Waterford 3 EPU

3-Second LOOP Delay for SGTR (Contd.)

- ▶ Automatic bus transfer failure
 - Approximately 7 seconds following reactor trip, one-half LOOP (only one division loses offsite power) occurs on safety and non-safety buses. Opposite safety and non-safety divisions remain energized from offsite power. EDG starts and re-energizes lost safety division.
- ▶ Spurious switchyard breaker-failure-protection-circuit actuation
 - Same as automatic bus transfer failure
- ▶ Startup transformer failure
 - Same as automatic bus transfer failure

Waterford 3 EPU

3 Second LOOP Delay for SGTR (Contd.)

- Likely consequential LOOPs due to SGTR event will occur in excess of the 3 seconds following a reactor trip assumed by Entergy for Waterford 3.
- Entergy committing to take advantage of Transmission Operator enhanced capability for determining Waterford 3 post-trip switchyard voltages (real time contingency analysis program) when available, or provide additional independent assurance of motor operating capability under degraded voltage/double sequencing SGTR scenario.
- Issue is resolved and closed

Waterford 3 EPU

Potential for aging effects on Reactor Vessel Internals - EPRI MRP Report

- ▶ The licensee has made the following commitment in its supplement of February 5, 2005:
 - “Entergy Operations, Inc (Entergy) is currently an active participant in the Electric Power Research Institute (EPRI) Materials Reliability Program (MRP) research initiatives on aging related degradation of reactor vessel internal components. Entergy commits to:
 - continue its active participation in the MRP initiative to determine appropriate reactor vessel internals degradation management programs,
 - evaluate the recommendations resulting from this initiative and implement a reactor vessel internals degradation management program applicable to Waterford 3,

Waterford 3 EPU

Potential for aging effects on Reactor Vessel Internals - EPRI MRP Report (Contd.)

- Incorporate the resulting reactor vessel internals inspections into the Waterford 3 augmented inspection plan as appropriate.
 - In addition, as requested by the NRC, a description of the program, including the inspection plan, will be submitted to the NRC for review and approval. The submittal date will be within 24 months after the final EPRI MRP recommendations are issued or within five years from the date of issuance of the uprated license, whichever comes first."
- Issue is resolved and closed

Waterford 3 EPU

Accounting for Instrument Uncertainty

▶ The licensee has made the following commitment in its supplement of February 5, 2005, which will be included as an amendment condition:

“Prior to exceeding 3441 MWt, Entergy will submit, for NRC review and approval, a description of how Entergy accounts for instrument uncertainty for each Technical Specification parameter impacted by the Waterford 3 Extended Power Uprate.”

■ Issue is resolved and closed

WATERFORD STEAM ELECTRIC STATION, UNIT 3

EXTENDED POWER UPRATE (8.0%)

ACRS

FULL-COMMITTEE

FEBRUARY 10, 2005

N. KALYANAM, PROJECT MANAGER
PROJECT DIRECTORATE IV, SECTION 1
DIVISION OF LICENSING PROJECT MANAGEMENT

Waterford 3 EPU

Introduction by

TAD MARSH

DIRECTOR

DIVISION OF LICENSING PROJECT MANAGEMENT

Waterford 3 EPU

Background

- Originally licensed in 1985 for operation at a reactor core power (CP) not to exceed 3390 mega-watts thermal (MWt).
- Measurement uncertainty recapture uprate granted in 2002 to operate at a CP level not to exceed 3441 MWt (a 1.5% increase).
- The extended power uprate (EPU) requests an increase of 8%, CP level not to exceed 3716 MWt.
- Largest pressurized water reactor (PWR) power uprate to date.

Waterford 3 EPU

Background - Major Plant Modifications

- Upgrade the high pressure turbine
- Rewind main generator (MG) / provide associated auxiliaries
- Install higher capacity MG output circuit breakers, disconnect switches, and bus work
- Main
 - Replace/upgrade control valves for the heater drain system and reheat system safety valves
- Stake the condenser tubes

Waterford 3 EPU

Background - EPU Implementation Schedule

- Entergy plans to implement the Waterford 3 EPU in one increment.
- Completion of plant modifications necessary to implement the EPU are planned prior to the end of refueling outage 13 in the spring of 2005.
- With the approval of this license amendment request, the plant will be operated at 3716 MWt starting in Cycle 14.

Waterford 3 EPU

Background - Staff Review Approach

- The first PWR EPU to follow RS-001
- Utilized Standard Review Plan (SRP)
- Used Acceptable Codes and Methodologies
- Requests for Additional Information (RAIs)
- Total of 32 supplements received
- Audits/Independent Calculations in Selected Areas

Waterford 3 EPU

Status of the 4 Issues Identified as Open in S/C Briefing

- AST
 - ▶ Review proceeding on schedule
 - ▶ No surprises anticipated
 - ▶ Scheduled for issue by mid-March 2005
 - ▶ Pre-requisite for EPU amendment issuance
 - ▶ EPU SE reflects this position
 - ▶ This issue is closed

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Waterford 3 EPU

Status of the 4 Issues Identified as Open in S/C Briefing (Contd.)

- 3-second time delay between steam generator tube rupture (SGTR) and loss-of-offsite power (LOOP)
- Potential for aging effects on Reactor Vessel Internals - EPRIMRP Report
- Accounting for Instrument Uncertainty
 - ▶ The above three issues have been resolved and closed with either a commitment or condition in the Amendment from the licensee on the docket. The staff SE will reflect this.

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Waterford 3 EPU

Post-LOCA Long Term Cooling

L. W. Ward
Reactor Systems Branch
Division of Systems Safety and Analysis

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Waterford 3 EPU

Post-LOCA Long Term Cooling

- Agenda
 - ▶ Large Feedwater Line Break
 - ▶ Limiting Small Break LOCA
 - ▶ Post-LOCA Long Term Cooling
- (Boric Acid Precipitation and Timing for Simultaneous Hot/Cold Side Injection)

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Waterford 3 EPU

Post-LOCA Long Term Cooling

- Conservative emergency core cooling system (ECCS) licensing analyses are performed to identify earliest time to switch to hot/cold side injection
 - ▶ But not too early to cause core uncover
 - ▶ This assures concentration is well below the limit at re-alignment
- Staff calculations revealed non-conservative input in mixing volume (assumed void fraction 0% in mixing volume following large break LOCAs (LBLOCAs))
- Non-conservatism produces precipitation at one hour versus 4 hours

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Waterford 3 EPU

Prevention of Boric Acid Precipitation

- Westinghouse has shown margin in licensing methodology to compensate non-conservative input
 - ▶ Larger mixing volume includes lower plenum, core, and upper plenum to hot leg top elevation plus lower plenum (versus mixing volume of core and upper plenum to hot leg bottom elevation)
 - ▶ Minimum containment pressure raised to 20 psia (versus 14.7 psia)
 - ▶ Performed minimum containment pressure calculation using NRC approved methodology (GOTHIC)
 - ▶ Westinghouse analysis shows concentration of about 12 wt% (extrapolated to include entire lower plenum)

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COLD LEG BREAK

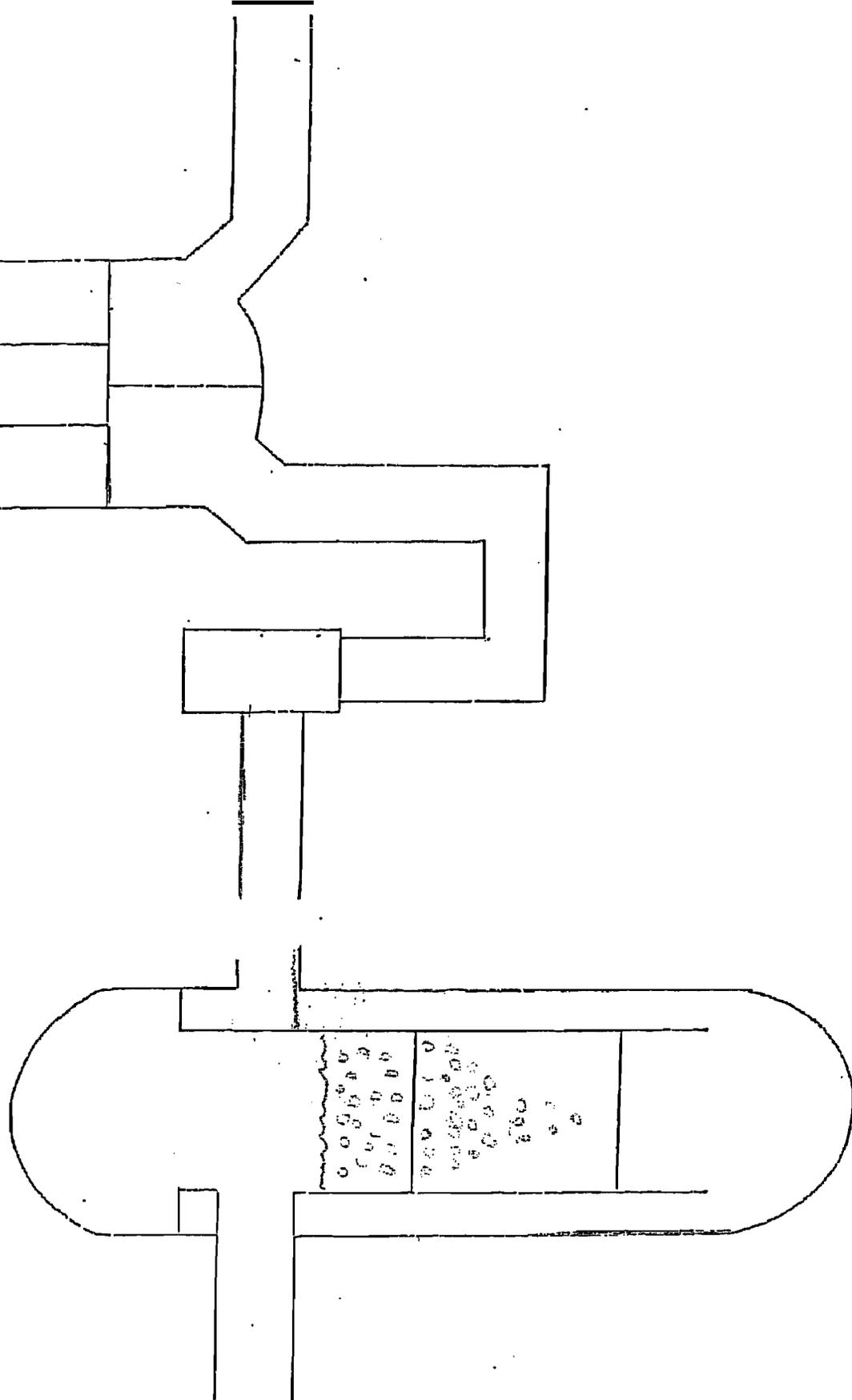
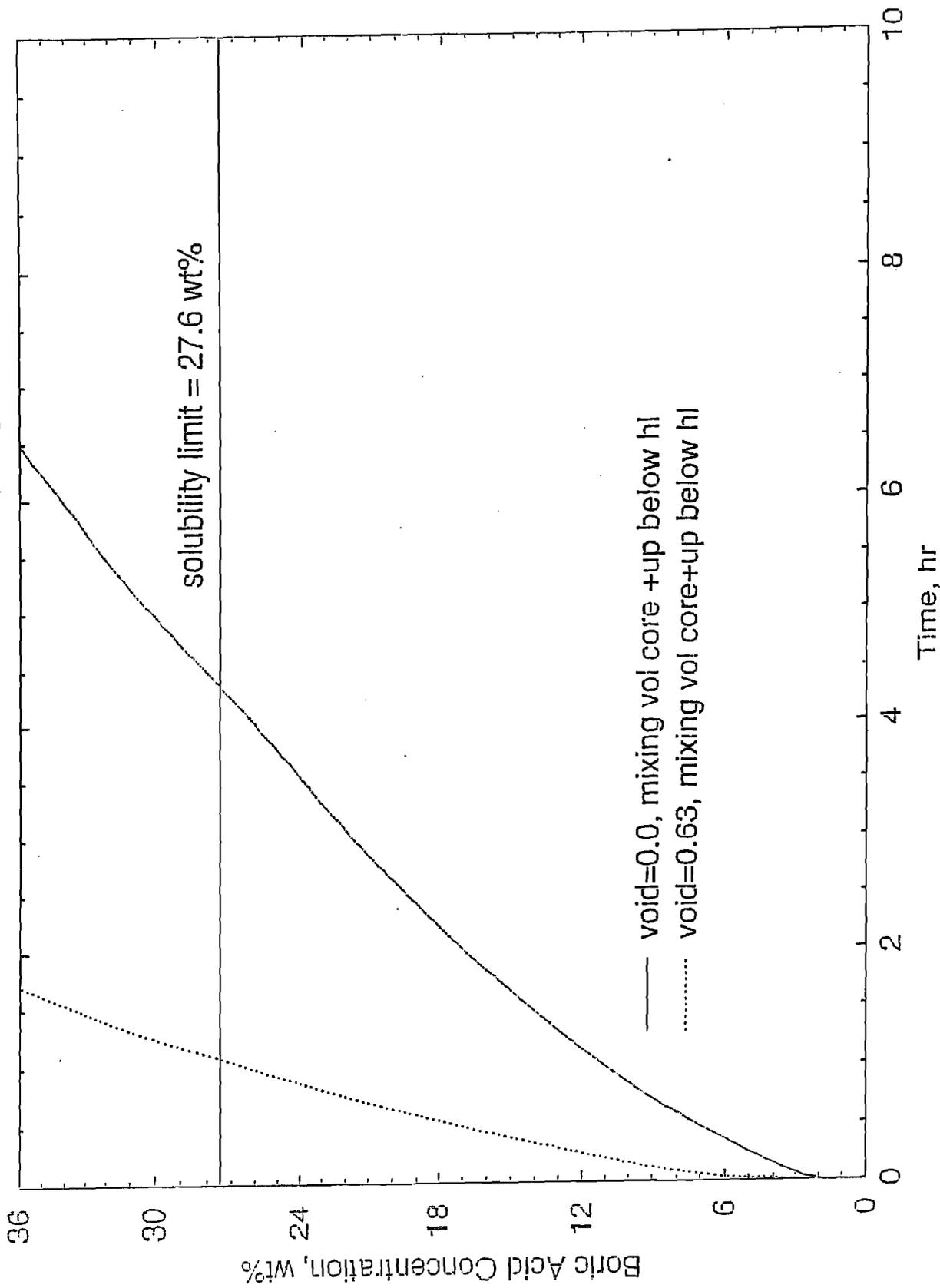


Fig. 1

Boron Concentration vs. Time

Waterford EPU, No Core Flushing Flow



Waterford 3 EPU

Prevention of Boric Acid Precipitation

- Staff analysis demonstrates adequate margin remains to support power uprate
 - ▶ Additional mixing volume available
 - Lower plenum
 - Hot legs
 - ▶ Higher containment pressure
 - ▶ Impact of decay heat multiplier
 - ▶ No credit for liquid entrainment (also no removal of boric acid by vapor)

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Waterford 3 EPU

Prevention of Boric Acid Precipitation (contd.)

- Staff analysis demonstrates adequate margin remains to support power uprate (Contd.)
 - ▶ No mixing in core bypass
 - ▶ Boric acid make-up tanks discharge (6187 ppm, directly in core: no mixing in DC and LP)
 - ▶ Upper plenum pressure higher than containment by loop pressure drop (raises saturation temperature)
 - ▶ No credit for subcooling during the injection phase

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Waterford 3 EPU

Prevention of Boric Acid Precipitation (Contd.)

- Westinghouse boron precipitation analysis is consistent with staff calculations at 3 hours
 - ▶ "Best Judgement" staff calculation shows 14 wt%
 - ▶ Compared to limits:
 - 28 wt% at 14.7 psia
 - 32 wt% at 20 psia
 - 39 wt% with trisodium phosphate
- Sufficient margin exists to show concentration at 2-3 hours is less than 1/2 of the limit
 - ▶ At 14.7 psia, margin remains large

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WATERFORD, UNIT 3

Extended Power Uprate Test Program

Steven Jones
Senior Reactor Systems Engineer
Plant Systems Branch (SPLB)
Division of Systems Safety and Analysis (DSSA)

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Waterford 3 EPU

Major Plant Modifications

- Upgrade the high pressure turbine
- Rewind MG / provide associated auxiliaries
- Install higher capacity MG output circuit breakers, disconnect switches, and bus work
- Main transformers modifications
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Waterford 3 EPU

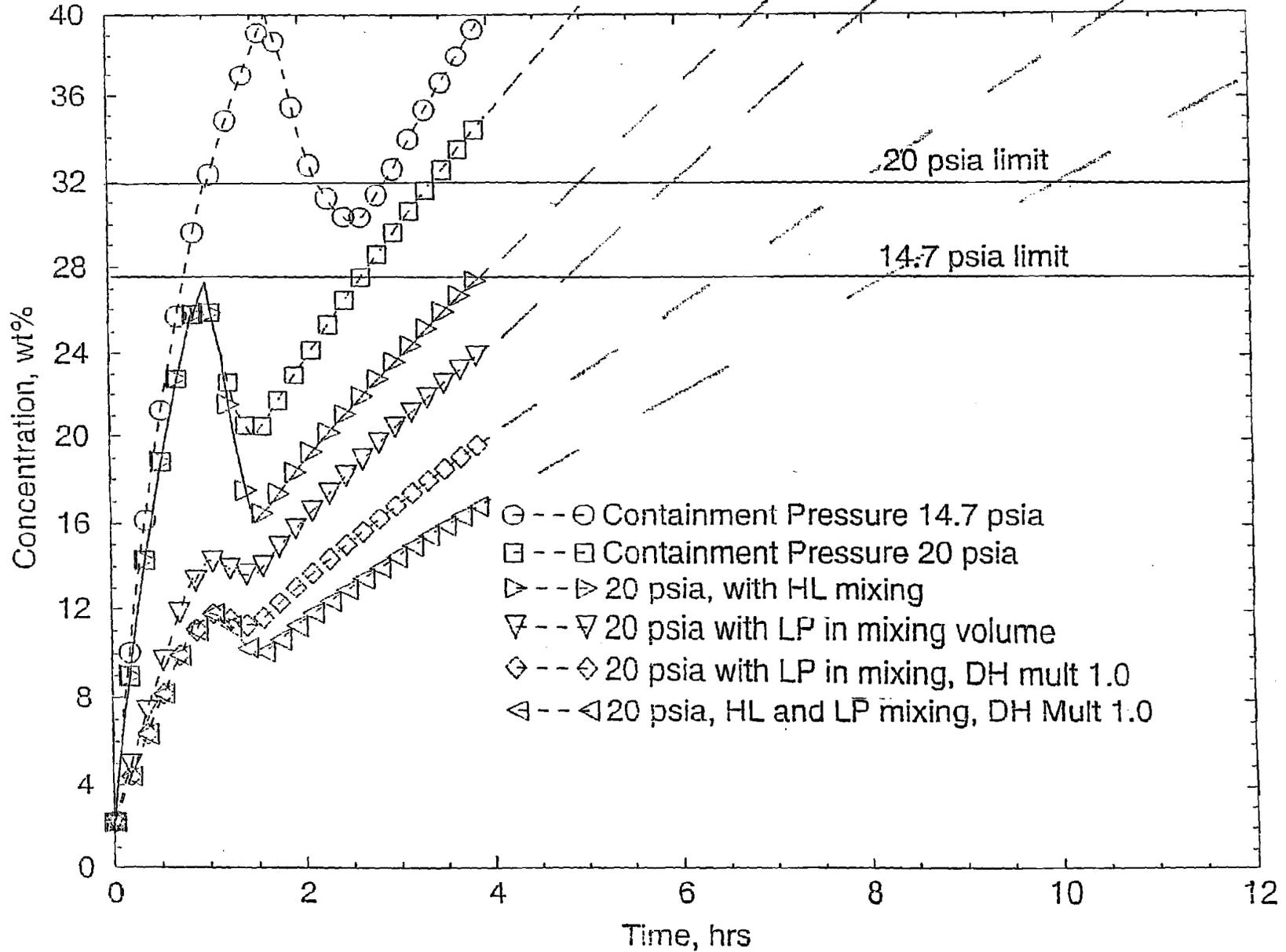
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Boric Acid Concentration vs. Time

Waterford EPU, Effect of Containment Pressure and Mixing Volume



14a

Waterford 3 EPU

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Waterford 3 EPU

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Waterford 3 EPU

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Waterford 3 EPU

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Waterford 3 EPU

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Waterford 3 EPU

Potential for aging effects on Reactor Vessel Internals - EPRI MRP Report (Contd.)

- incorporate the resulting reactor vessel internals inspections into the Waterford 3 augmented inspection plan as appropriate.
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Waterford 3 EPU

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NRC Review of the Construction Authorization Request for the Mixed Oxide Fuel Fabrication Facility

**David Brown, Sr. Project Manager
Mixed Oxide Facility Licensing Section
Division of Fuel Cycle Safety & Safeguards
Office of Nuclear Material Safety & Safeguards**



Presentation Outline

- Regulatory Framework for Construction Authorization
- Future MFFF License Application and ISA Summary
- MFFF Description
- Safety Assessment Methodology & Example
- Summary



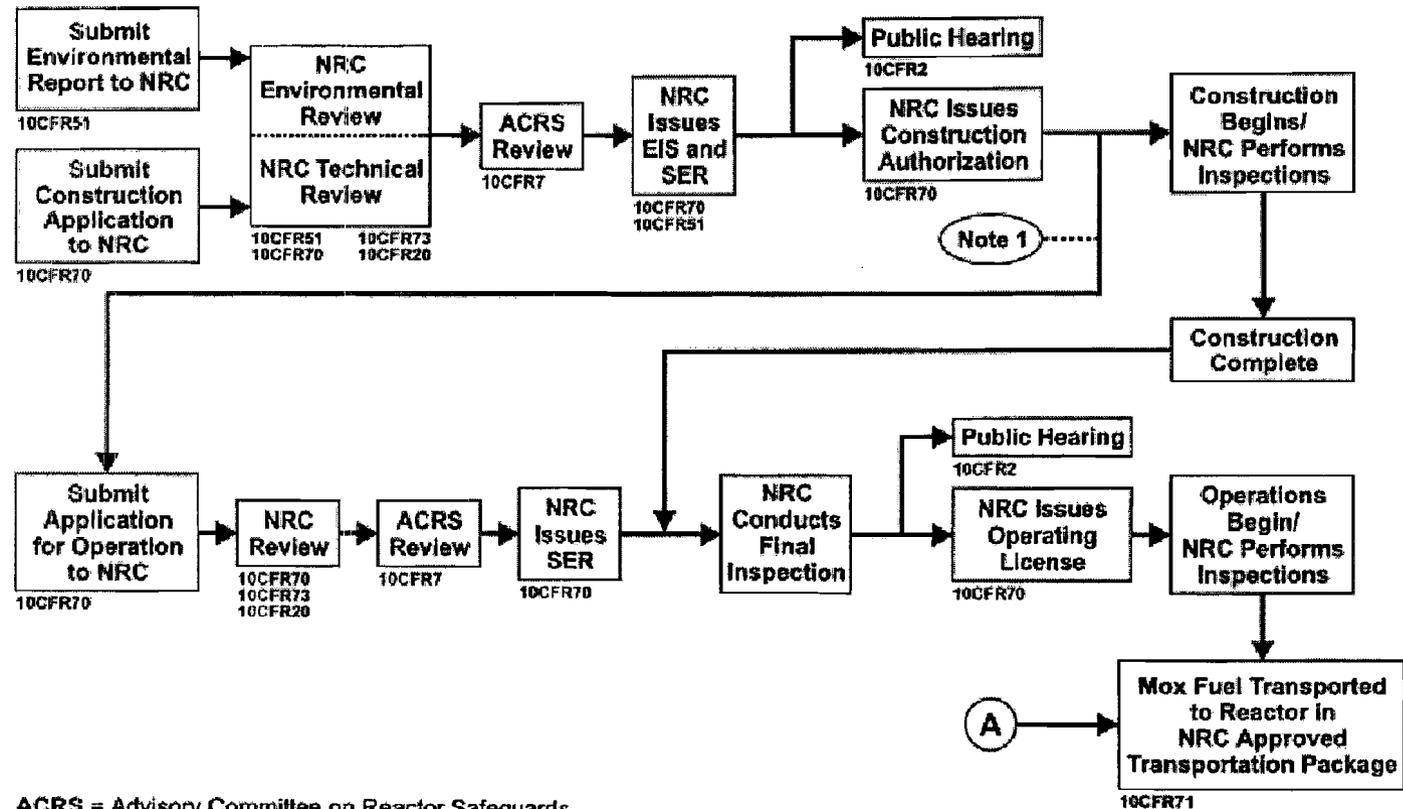
Purpose of this Meeting

- Purpose of this meeting is to brief the ACRS on the staff's Final Safety Evaluation Report on the Construction Authorization Request for the Mixed Oxide Fuel Fabrication Facility



MFFF Licensing Overview

LICENSING PROCESS FOR MOX FUEL FABRICATION FACILITY



ACRS = Advisory Committee on Reactor Safeguards
 EIS = Environmental Impact Statement
 SER = Safety Evaluation Report
 10CFR70 = Title 10 of the Code of Federal Regulations, Part 70

NOTE 1:
 It is expected that application for operation will be submitted after construction is authorized but it can be submitted at any time.



Regulatory Framework: Construction Authorization

- In September 1971, the AEC revised 10 CFR 70
- Two-step licensing approach for plutonium processing and fuel fabrication (MOX) plants
- 10 CFR 70.23(b) – requires staff finding on DESIGN BASES of the principal structures, systems and components that provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents



Regulatory Framework: Construction Authorization

- 10 CFR 50.2 Definition of Design Bases:
 - "Design Bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility and the specific values or ranges of values chosen for controlling parameters as reference bounds for design..."



Regulatory Framework: Two – Step Licensing

- Construction Authorization
 - Site Description
 - Safety Assessment of the Design Bases
 - Quality Assurance Plan
- Possession and Use License Application
 - Safety program descriptions
 - ISA Summary
 - Security Plan
 - Emergency Plan
 - Fundamental Nuclear Material Control Plan



Regulatory Framework: Possession and Use License

- September 2000 Revised Rule added requirement for an Integrated Safety Analysis (ISA)

- Under the new rule, an applicant or licensee will:
 - Identify potential accidents and items relied on for safety (IROFS)
 - Implement measures to ensure that the IROFS are available and reliable to perform their intended safety function
 - Maintain the safety basis and report changes to NRC
 - Make certain changes to its safety program and facilities without NRC approval
 - Report certain events



Regulatory Framework: Performance Requirements

Likelihood	Highly Unlikely	Unlikely	Not Unlikely
Consequence Category (Worker)			
High TEDE > 1 Sv Chem. > Level 3	No Principal SSCs Applied	Principal SSCs Applied	Principal SSCs Applied
Intermediate 0.25 Sv < TEDE < 1 Sv Lev. 2 < Chem. < Lev. 3	No Principal SSCs Applied	No Principal SSCs Applied	Principal SSCs Applied
Low TEDE < 0.25 Sv Chem. < Level 2	No Principal SSCs Applied	No Principal SSCs Applied	No Principal SSCs Applied

Chemical consequence levels are based on ERPG-1, -2, or -3 where such limits are available, and Temporary Emergency Exposure Limits (TEELs) where ERPGs are not available.



Design Bases and the Performance Requirements: Working together

- To meet 70.22(f), and in anticipation of ISA requirements, DCS completed a Safety Assessment (SA) of the Design Bases as a first step in performing its ISA.
- The MFFF SA is the safety basis for construction authorization.
- The SA includes a hazard assessment and preliminary accident analysis based on the MFFF preliminary design.
- Regulatory bases for selecting PSSCs are the sec. 70.61 performance requirements, 70.64(a) baseline design criteria, and the defense-in-depth requirement of 70.64(b).



Regulatory Framework

- Baseline design criteria are set forth in 70.64(a)(1-10), and include:
 - Quality standards and records
 - Natural phenomena hazards
 - Fire protection
 - Environmental and dynamic effects
 - Chemical protection
 - Emergency capability
 - Utility services
 - Inspection, testing, and maintenance
 - Criticality control
 - Instrumentation and controls



Regulatory Framework

- Defense-in-depth requirement set forth in 70.64(b)
 - “. . . The design must incorporate, to the extent practicable: (1) preference for the selection of engineered controls over administrative controls to increase overall system reliability; and (2) features that enhance safety by reducing challenges to items relied on for safety.



Future License Application & ISA Summary

- **Description of Safety Programs**
 - Radiation Protection, Criticality Safety, Fire Protection, Chemical Safety, Management Measures, etc.
- **ISA Summary**
- **Other required plans, such as:**
 - Security Plan
 - Fundamental Nuclear Material Control Plan



Future ISA Summary

- The ISA Summary will include:
 - IROFS at a component level of detail
 - Facility description
 - Process description
 - ISA Team qualifications
 - ISA Methods (Hazard ID, consequence evaluation methods, likelihood evaluation methods)
 - List of IROFS and sole IROFS

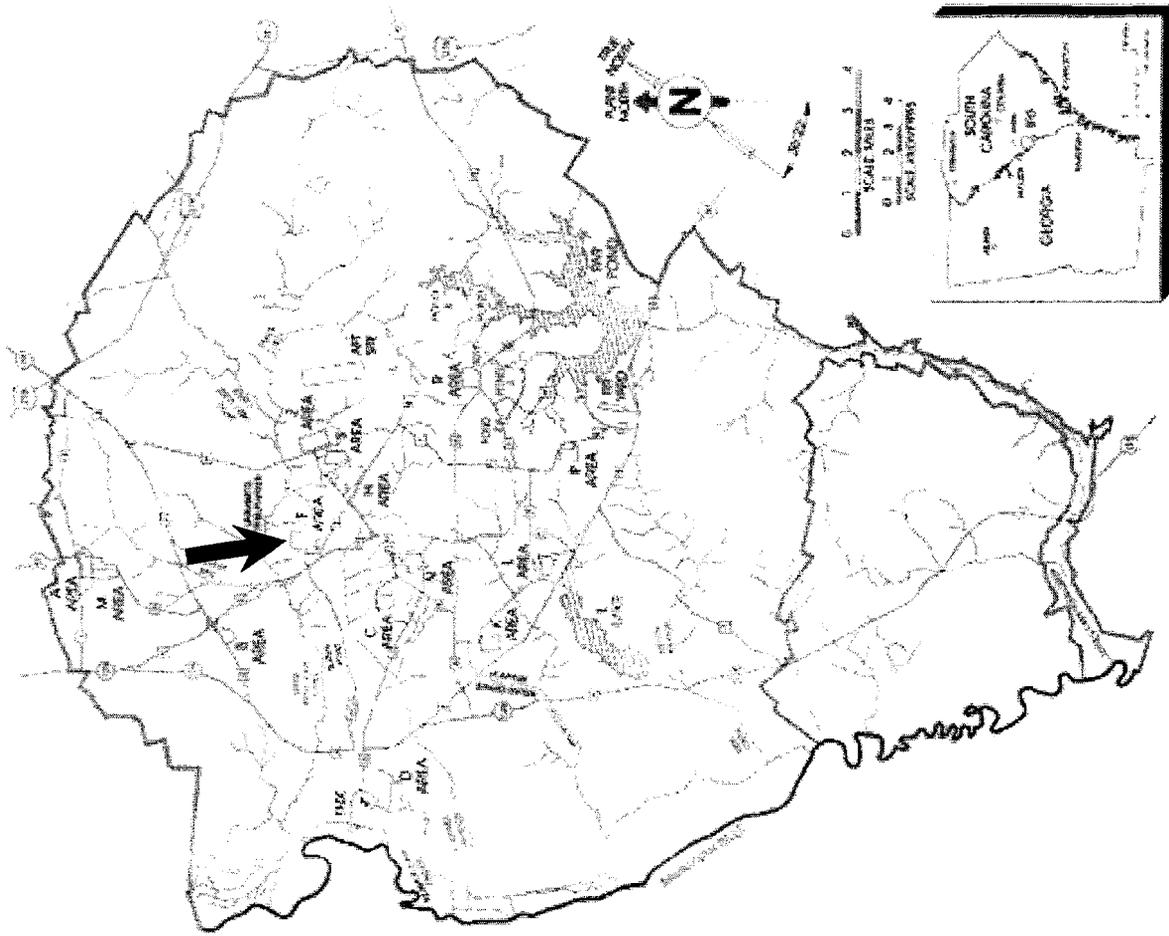


Future ISA Summary

- The ISA will also include:
 - Hazards and Operability Studies (HAZOPs)
 - Fire Hazards Analyses
 - Nuclear Criticality Safety Evaluations
 - Failure Modes and Effects Analyses



MFFF Description



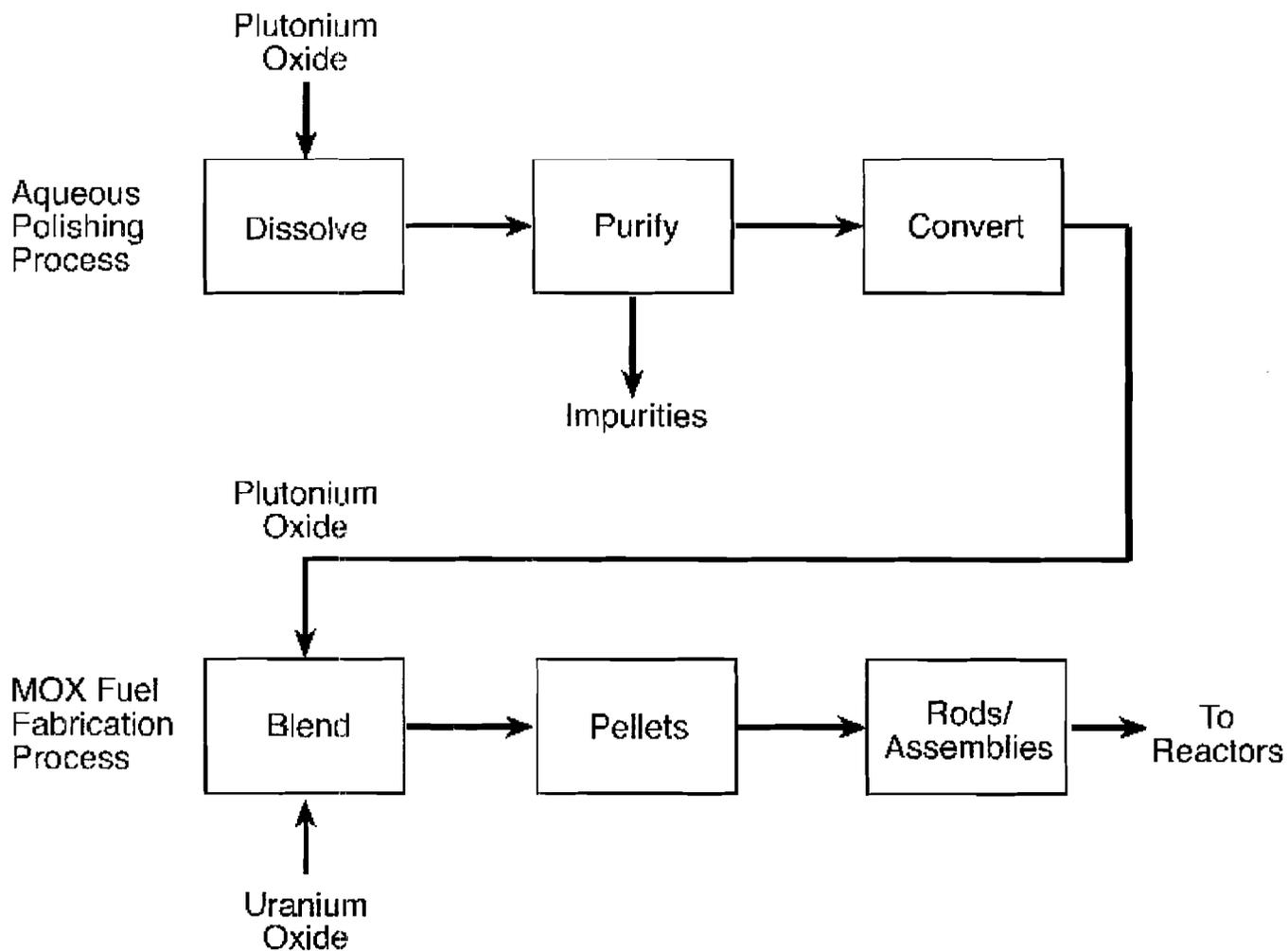


Site Description

- Natural Phenomena Hazards for which design bases of PSSCs are provided (43 considered):
 - Extreme Wind
 - External Fire
 - Rain/ Snow/ Ice
 - Lightning
 - Seismic / Liquefaction
 - Temperature Extreme
 - Tornado
 - Tornado Missiles

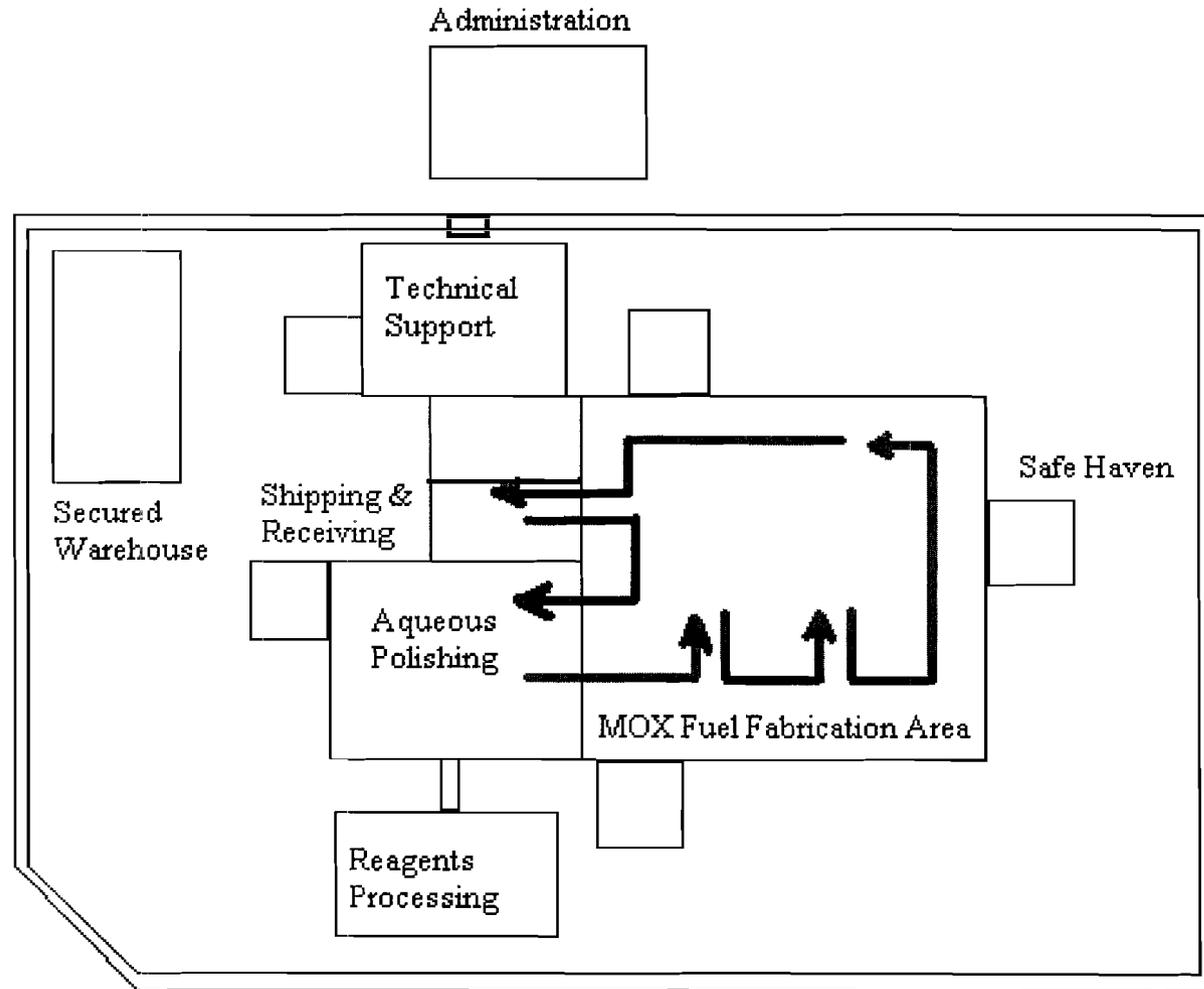


MFFF Process Description



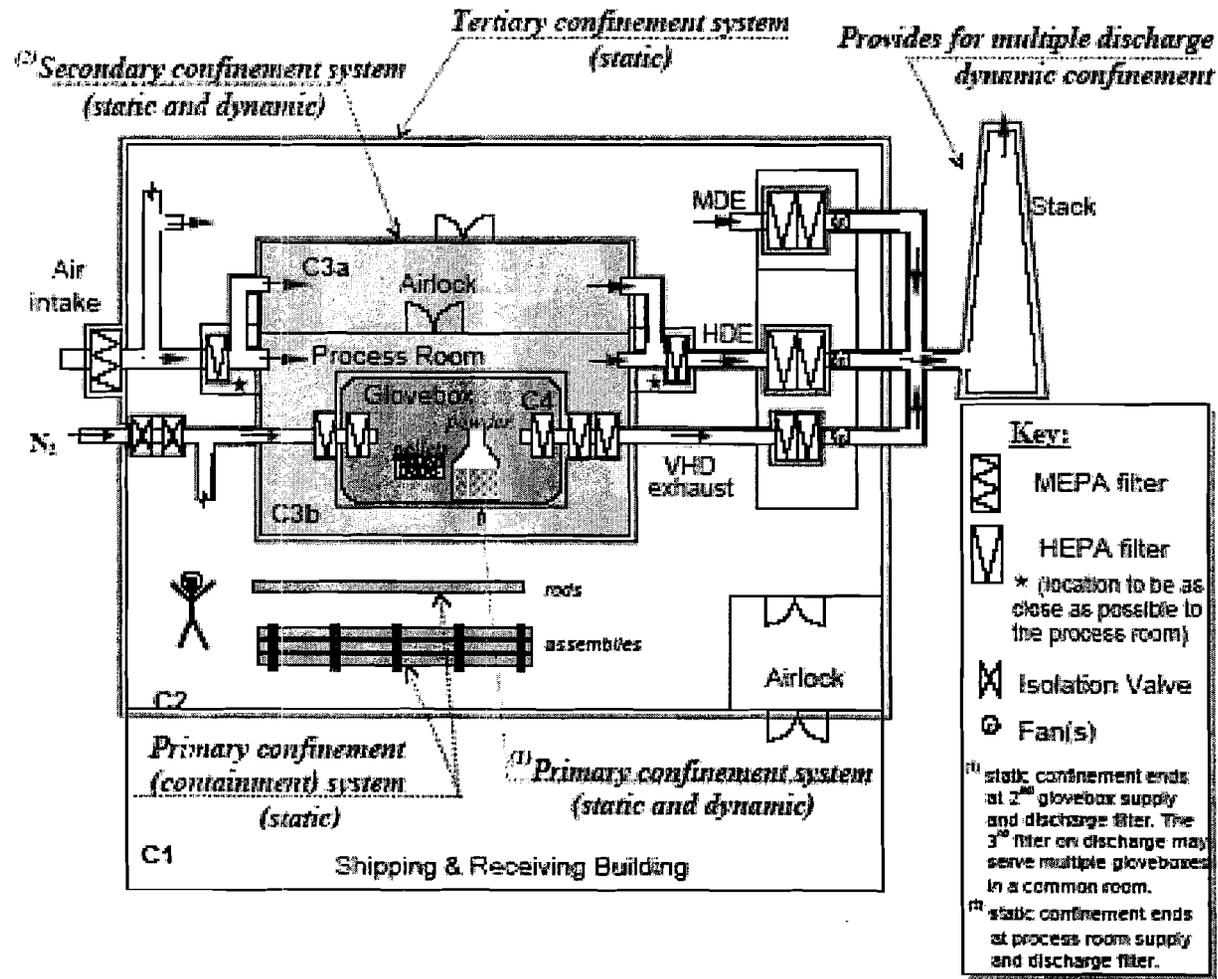


Facility Layout





Tertiary Confinement System





Safety Assessment Methodology

- Hazard Identification
 - Radioactive / Hazardous Material and Hazardous Energy Sources
 - Natural Phenomena Hazards (NPH)
 - External Man-Made Hazards



Safety Assessment Methodology

- Hazard Evaluation
 - Event type designation
 - loss of confinement, fire, drops/crush, explosions, criticality, natural phenomena, external man-made, external radiation exposure, and chemical release
 - Unmitigated event description
 - Postulated causes (to determine feasibility)
 - Unmitigated consequence estimate



Safety Assessment Methodology

- Hazard Evaluation
 - Internal events screened by consequence
 - No internal event was screened out due to likelihood considerations
 - Credibility of NPH or external man-made events based on likelihood



Safety Assessment Methodology

- Preliminary Accident Analysis
 - Event screening using consequences
 - Identification of event groups
 - Development of safety strategy
 - Selection of PSSCs
 - Design bases of PSSCs
 - Support functions related to PSSCs
 - Bounding mitigated consequence analysis



Safety Assessment Methodology

- Likelihood definitions
 - Not unlikely
 - May occur during the lifetime of the facility
 - Unlikely
 - Not expected to occur during the lifetime of the facility



Safety Assessment Methodology

- Likelihood definitions (continued)
 - Highly unlikely
 - Sufficient PSSCs applied to reduce likelihood to an acceptable level using deterministic design criteria (next slide)
 - Index score of (-5) in supplemental assessment for selected events



Safety Assessment Methodology

- **Deterministic Design Criteria**
 - Single failure criterion or double contingency principle
 - Upon failure of a single contingency, another unlikely, independent, and concurrent failure or process change must occur prior to occurrence of the event.
 - Application of 10 CFR 50 Appendix B, NQA-1
 - Application of industry codes and standards
 - Management measures, including IROFS failure detection



Safety Assessment: Example

- Fire in MP process glovebox
 - Several causes (ignition sources), with combustible material present, and which involves plutonium dioxide
 - Unacceptable risk due to high unmitigated consequences to facility worker and individuals outside and the environment.



Safety Assessment: Example

- Fire in MP process glovebox
 - Safety strategy is to mitigate this postulated fire event group
 - Administrative PSSC for facility worker – escape
 - C4 and C3 ventilation confinement systems are PSSCs to reduce consequences to outdoor receptors
 - Also, fire barriers restrict fires to a single fire area
 - C2 confinement and fire detection and suppression provide defense-in-depth



Safety Assessment: Example

- Fire in MP process glovebox
 - Example of applicable design bases for C3 ventilation confinement (secondary confinement):
 - Safety function: remain operable
 - Spark arrestors
 - Dilution of high temperature exhaust streams to ensure 450F HEPA filter rating is not exceeded
 - Soot and pressure conditions do not exceed HEPA filter capability



Safety Assessment: Example

- Fire in MP process glovebox
 - Later license application and ISA Summary will document:
 - the transition of system level PSSCs to component-level IROFS;
 - that IROFS will be sufficiently effective, reliable, and available to meet the specified design bases (management measures)



Summary

- Staff have resolved all former open items
- Recent revisions to the Construction Authorization Request address former open items



Summary

■ **The NRC staff concludes that:**

- the design bases of PSSSs at the proposed MFFF provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents;
- DCS has addressed the baseline design criteria in its safety assessment of the design bases;
- the proposed MFFF design and facility layout are based on defense-in-depth practices, including a preference for engineered controls over administrative controls, and features that enhance safety by reducing challenges to PSSCs

ACRS
Only

G:PPHando
PlanPro(ACRS)

ACRS MEETING HANDOUT

Meeting No. 519 th	Agenda Item	Handout No.:
Title: PLANNING & PROCEDURES/ FUTURE ACTIVITIES		
Authors John T. Larkins		
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Instructions to Preparer 1. Paginate Attachments 2. Punch holes 3. Place Copy in file box	From Staff Person: Sam Duraiswamy	

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**SUMMARY MINUTES OF THE
ACRS PLANNING AND PROCEDURES SUBCOMMITTEE MEETING
February 9, 2005**

The ACRS Subcommittee on Planning and Procedures held a meeting on February 9, 2005, in Room T2B-3, 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 3:00 p.m. and adjourned at 4:10 p.m.

ATTENDEES

G. Wallis
W. Shack
J. Sieber

NRC STAFF

J. T. Larkins
S. Duraiswamy
J Gallo
M. Snodderly
M. El-Zeftawy
J. Flack
N. Green
M. Afshar-Tous
R. Caruso
M. Weston
R. Savio

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

Member assignments and priorities for ACRS reports and letters for the February ACRS meeting are attached (pp. 4-6). 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 February ACRS meeting be as shown in the attachment (pp. 4-6).

2) Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through April 2005 is attached (pp. 4-6). 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 IV of the Future Activities list (pp. 7).

RECOMMENDATION

The Subcommittee recommends that the members provide comments on the anticipated workload. Changes will be made, as appropriate.

3) Commitments and Follow-up items Resulting from the Expanded Meeting of the Planning and Procedures Subcommittee

An expanded meeting of the Planning and Procedures Subcommittee was held on January 27-28, 2005, at the ACRS conference room to discuss certain process and regulatory issues. The outcomes of this meeting are attached (pp. 8-11)

RECOMMENDATION

The Subcommittee recommends that the members provide feedback on the list of actions, agreements, assignments, and follow-up items.

4) 2006 Quadripartite Meeting (JTL/MA)

Attached is the members' input for the 2006 Quadripartite Meeting (pp. 17-21). Based on these inputs, a tentative schedule and potential topics (pp. 22-24) for the meeting were prepared and distributed to the members on Thursday, February 10, 2005. The proceedings for the 2002 Quadripartite Meeting is also attached (pp. 25-26).

RECOMMENDATION

The Subcommittee recommends that the members provide feedback on the proposed schedule and selected potential topics for the Quadripartite Meeting. The Committee should also decide which non-member countries should be invited.

5) Meeting with the NRC Commissioners

The ACRS is scheduled to meet with the NRC Commissioners between 1:30 and 3:30 p.m. on Thursday, April 7, 2005, to discuss items of mutual interest. Topics proposed by the Planning and Procedures Subcommittee for this meeting are as follows:

- 1) Overview (GBW)
 - Future Plant Designs
 - Divergence in regulatory requirements between U.S. and other Countries
 - Future ACRS Activities
- 2) PWR Sump Performance (GBW/JDS)
- 3) Risk-Informing 10 CFR 50.46 (GEA/WJS)
- 4) Technical Basis for Potential Revision of the PTS screening Criteria in the PTS Rule (WJS)
- 5) License Renewal/Power Uprates (MVB)

RECOMMENDATION

The Subcommittee recommends that the Committee approve a list of topics for meeting with the Commissioners during the February meeting.

6) Self-Assessment of ACRS Performance

A SECY paper, documenting the results of the self-assessment of the ACRS performance is due to the Commission on May 31, 2005. As has been the practice, we plan to obtain feedback from internal and external stakeholders on the ACRS performance as well as value added by the ACRS to the regulatory process. To accomplish this, an enhanced survey questionnaire, which is being developed, will be used. A draft Commission paper summarizing the survey results will be provided to the Committee during the April ACRS meeting for review and comment. If there are specific issues on which the Committee would like the ACRS staff to obtain feedback from the stakeholders, please identify such issues during the February meeting.

RECOMMENDATION

The Subcommittee recommends that the members identify issues, if any, on which the ACRS staff should get feedback from the stakeholders regarding ACRS performance.

7) Meeting with the EDO, Deputy EDOs, and Program Office Directors

The ACRS is scheduled to meet with the EDO, Deputy EDOs, and Program Office Directors between 9:30 and 11:30 a.m. on Friday, May 6, 2005, to discuss items of mutual interest. The Committee needs to propose a list of topics for this meeting at the March 2005 ACRS meeting.

ANTICIPATED WORKLOAD FEBRUARY 10-11, 2005

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Bonaca	—	Santos	Subcommittee Report - D.C. Cook License Renewal Application - Subc. Mtg. Feb. 9, 2005	—	—	—
Powers	—	Weston/Snodderly	MOX Fuel Fabrication Facility - Construction Authorization SER	A	To support staff schedule	Draft 1
	—	Nourbakhsh/ Duraiswamy	Assignments and Schedule for Assessing the Quality of Selected NRC Research Projects			
Wallis	—	Caruso	Waterford Power Uprate	A	To support staff schedule	Draft 1

(7)

ANTICIPATED WORKLOAD MARCH 3-5, 2005

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	—	Snodderly	Revised NUREG on Expert Elicitation on LOCA Frequencies	A	To support staff schedule	—
Bonaca	—	Santos/Duraiswamy	Proposed Update to Generic License Renewal Guidance Documents/Scoping Review Process for BOP Systems	Report as needed	—	—
Powers	Kress	El-Zeftawy	Draft Safety Evaluation Report Related to North Anna Early Site Permit Application	A	To support staff schedule	—
Shack	—	Snodderly/Caruso	Proposed Rulemaking Package for Risk-Informing 10 CFR 50.46	A	To support staff schedule	—
	Wallis	Nourbakhsh/Santos	Technical Basis for Potential Revision of the PTS Screening Criteria in the PTS Rule	A	To support the staff schedule	—
Wallis	All Members	Larkins/Scott	Preparation for Meeting with the NRC Commissioners - Scheduled for April 7, 2005	—	—	—

(5)

ANTICIPATED WORKLOAD APRIL 7-9, 2005

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Bonaca		Santos/Duraiswamy	Final Review of the License Renewal Application for Farley Units 1 and 2	A	To support the staff schedule	—
Sieber	Apostolakis	Snodderly	Status of Accident Sequence Precursor Program and the Development of SPAR Models [INFORMATION BRIEFING]	—	—	—
	—	Nourbakhsh/Caruso	Technical Basis for Resolving GSI-80, "Pipe Break Effects on Control Rod Drive Hydraulic Lines in the Drywells of BWR Mark I and II Containments"	A	To support staff schedule	—
Wallis	—	Caruso	Integrated Chemical Effects Test Results (GSI-191) (TENTATIVE)	—	—	—
	All Members	Larkins/Scott	Preparation for Meeting with the Commissioners	—	—	—
				Meeting with the Commissioners (1:30 - 3:30 pm)	—	—

ACRS Items Requiring Committee Action

1 Lightning Protection Provisions for Operating and Future Plants (Open)

Member: John Sieber **Engineer:**

Estimated Time:

Purpose: Determine a Course of Action

Priority: Medium

Requested by: RES Christina Antonescu, RES

RES has developed Draft Regulatory Guide, DG-1137, "Guidelines for Lightning Protection for Nuclear Power Plants." The staff plans to issue this Draft Regulatory Guide for public comment. The technical basis for Draft Regulatory Guide DG-1137 is provided in the Draft NUREG/CR-XXXX, "Technical Basis for Regulatory Guidance on Lightning Protection in Nuclear Power Plants." DG-1137 provides guidance on the protection of nuclear power structures and systems from direct lightning strikes and the resulting secondary effects. DG-1137 includes guidance on protection of the power plant, the plant switchyard, the electrical distribution system, safety-related I&C systems, plant communications, and other important equipment in remote ancillary facilities that could impact safety. Guidance on the design, testing, maintenance practices and implementation of lightning protection systems is provided. The Office of the General Council has no legal objection to the proposed regulatory guide. NRR staff have reviewed this package and concurred.

RES has recommended that ACRS perform its formal review after all public comments have been addressed. Mr. Sieber recommends, and the P&P Subcommittee agrees, that the Committee review the draft final version of this Guide after reconciliation of public comments.

2 NUREG-1792- Human Reliability Analysis Good Practices (Open)

Member: George Apostolakis **Engineer:** Med El-Zeftawy

Estimated Time: 2 hours

Purpose: Determine a Course of Action

Priority: High

Requested by: RES E. Lois

Central to the Commission's policy on a phased approach to PRA quality is the availability of guidance documents. The Human Reliability Analysis (HRA) is an important element of PRA. The ACRS Subcommittee on Reliability and Probabilistic Risk Assessment met with the NRC staff on April 22, 2004 and discussed a draft report, "Good Practices for Implementing Human Reliability Analysis" dated April 6, 2004. The ACRS also met with the NRC staff during the May 5-8, 2004 and discussed the same subject. The Committee issued its letter on May 13, 2004, to the Executive Director for Operations recommending that the draft letter report should be issued for public comment, and it should be peer-reviewed by domestic and international experts. The Committee also indicated that the organizational issues should not be ignored.

As a result of public comments received, the staff revised the draft letter report (NUREG-1792). The revised NUREG-1792 does not contain major differences from the draft version. With respect to involving the international community, the report was sent to international HRA experts. In addition, the staff plans to invite the major experts in HRA method development to participate in a workshop (planned for June 2005). The revised NUREG-1792 does not address the organizational issues. The staff expects in the next revision (in about 2-3 years) will address the organizational issues.

The Planning and Procedures Subcommittee recommends that Dr. Apostolakis determine a course of action regarding this matter.

SUMMARY OF THE EXPANDED MEETING
OF THE ACRS SUBCOMMITTEE ON
PLANNING AND PROCEDURES

JANUARY 27-28, 2005

The ACRS Subcommittee on Planning and Procedures held an expanded meeting on January 27-28, 2005 to discuss process issues as well as certain technical issues. The entire meeting was open to the public with the exception of a portion that was closed to discuss information related to foreign countries. Dr. John T. Larkins was the Designated Federal Employee for this meeting. All ACRS members except Drs. Apostolakis and Bonaca attended this meeting. The meeting was convened at 8:30 a.m. on Thursday, January 27, 2005 and recessed at 5:30 p.m. It was reconvened at 8:30 a.m. on Friday, January 28, 2005 and adjourned at 12:00 noon.

Outcomes of the Meeting

1. Role of the Subcommittee Chairman

During full Committee meetings, the Cognizant Subcommittee Chairman should:

- Summarize key issues and results of Subcommittee meetings
- Bring out main issues during presentations, if other members do not
- Ensure that the session for which you have the lead is completed within the pre-established schedule. Cognizant staff engineers should prepare a schedule for the items they are responsible and provide to all members prior to the beginning of the session.
- Ensure that one or two members do not dominate the discussion. Such a practice will deny other members an opportunity to participate. Encourage participation by all members to ensure all views are aired.
- Avoid long critiques, harangues, lectures, and diversions by anyone.
- Encourage participation and/or seek the views of the members who were not at the Subcommittee meeting.
- Prepare a draft report prior to the meeting and distribute to the members for feedback. Ensure that key issues/questions/concerns which may influence or change the Committee position are resolved during the meeting.

2. Establishment of Ad-Hoc Subcommittees

- Ad-Hoc Subcommittee on power uprates
Chairman: Denning
Members: Ford, Kress, Sieber, and Wallis
- Ad-Hoc Subcommittee on Early Site Permits
Chairman: Powers
Members: Kress, Ransom, Shack, and Wallis
- Ad-Hoc Subcommittee on Digital I&C Systems
Chairman: Apostolakis (subject to COI check)
Members: Bonaca, Powers, Sieber

3. Safety Culture

Human Factors Subcommittee should follow-up on staff and industry activities in this area. The Subcommittee should meet with the staff, as needed, to provide feedback on staff efforts, including the work on developing a response to the Staff Requirements Memorandum, SECY-04-0111, dated August 30, 2004. Subsequently, refer this matter to the full Committee for discussion and action, as appropriate.

4. License Renewal

- The license renewal application for the Point Beach Nuclear Plant, which currently has two red findings, is expected to be submitted to the ACRS for review in the near future. The License Renewal Subcommittee should get the details associated with these red findings and develop a proposed position for consideration by the Committee with regard to endorsing the renewal of the license for this plant.
- It was proposed that unless there are some controversial issues, there is no need to hear a presentation by the applicant at the full Committee meeting on a specific license renewal application. The Plant License Renewal Subcommittee Chairman should provide his views on the appropriateness of this proposed approach.

5. Issues Raised by Drs. Wallis on Thermal Hydraulic Codes, Ransom on NRC Research, and Ford on Materials Degradation Issues

As suggested during the meeting, Dr. Powers will summarize the issues raised by Drs. Wallis, Ransom, and Ford and propose a course of action for dealing with these issues. A draft summary prepared by Dr. Powers is attached (pp. 12-16).

6. Quadripartite Meeting

- This meeting will be hosted by the ACRS in the U.S. in October 2006 (3-day meeting).
- The members should propose which topics should be discussed at this meeting, as well as which topics should not be discussed along with the reasons therefor. The topics proposed by the members at the January 27-28 Planning and Procedures Subcommittee meeting are:
 - a) Risk-Informed Regulation
 - b) Advanced Reactor Designs
 - c) Sump Blockage Issue
 - d) Significant Operating Experience since the last Quadripartite meeting
 - e) Safety Culture
- The Committee should decide on the following for this meeting:
 - a) Dates and location
 - b) Primary objectives of this meeting
 - c) Proposed list of topics to be sent to the Member countries for feedback
 - d) Keynote Speakers — NRC Chairman or a Senator
 - e) Which non-member countries should be invited to attend the meeting — should we invite China and Korea?
 - f) Should we have break-out sessions? If so, what topics should be discussed during these sessions?

7. Power Uprate Issues

Mr. Caruso, ACRS Senior Staff Engineer, briefed the Subcommittee on certain power uprate issues, including the history of the containment overpressure credit issue. Members were requested to read certain documents on the containment overpressure credit issue.

8. Miscellaneous

- The Committee should consider developing a mechanism for involving members of the wider technical community during its discussion of significant regulatory and technical issues.
- There are some pros and cons related to informal meetings between ACRS members and the NRC staff. During such meetings, the members should make sure that the views expressed at these meetings are their own and do not reflect the views of the ACRS. The members should not provide assignments to the staff during such meetings. More importantly, the members should not have confrontation with the staff or its contractors.

- Value added by the Committee to the regulatory process should be discussed as part of the self-assessment of the ACRS performance, the results which are due to the Commission on May 31, 2005. The ACRS members views should be sought as part of the self-assessment survey.
- The Plant Operations Subcommittee Chairman should periodically brief the Committee on significant operating events.
- Dr. Denning should take the lead in reviewing the FERRET Reactor Vessel Fluence Methodology and hold a Subcommittee meeting, as needed, prior to referring this matter to the full Committee for discussion and/or action.
- The Committee should hear a briefing from SNL and Purdue on the advanced reactor design for hydrogen production at the end of 2005.
- The Committee should consider hiring a consultant to assist the Committee in reviewing burnup credit for criticality safety.

From: "Powers, Dana A" <dapower@sandia.gov>
To: <sxd1@nrc.gov>
Date: 2/4/05 4:35PM
Subject: FW: Draft Summary from P&P Session on ACRS Technical Concerns

-----Original Message-----

From: Powers, Dana A
Sent: Friday, February 04, 2005 2:28 PM
To: APOSTOLAKIS, George; BONACA, Mario; DENNING, Richard; FORD, F. Peter; KRESS, T.S.; Ransom, Vic; ROSEN, Steve; SHACK, Bill; sieber, JACK; WALLIS, Graham B.
Cc: 'sxdd1@nrc.gov'; 'HPN@nrc.gov'
Subject: Draft Summary from P&P Session on ACRS Technical Concerns

At the conclusion of our Planning and Procedures Subcommittee, the chairman asked that I prepare a summary of our session on the documentation of technical concerns about the regulatory system. A draft summary is attached.

Dana

<<PP Summary.pdf>> <<PP Summary.wpd>>

Summary
**Documenting ACRS Members' Concerns Regarding the
Quality of Science and Engineering that Goes into Regulations and
Regulatory Processes**

This session was held as part of the Planning and Procedures Subcommittee meeting January 27-28, 2005 to better air frustrations about the documentation of concerns over the technical and scientific adequacy of regulatory processes and decisions. Very often in the last few years, members have identified technical weaknesses in the regulatory processes. These identifications usually are associated with review of some particular regulatory decision. Often an election has been made by ACRS to not include the technical concerns in a report or letter. The rationale for not including comments on the concerns is that the applicant or licensee has conformed to the regulatory requirements as they stand now. It is not the licensee's fault that the technical bases of the regulations or requirements are weak. It is suggested that the concern is legitimate, but it would be better documented in some separate letter or report. Alas, this separate letter or report is seldom written as ACRS moves on to other issues.

The session, then, attempted to address the question of how ACRS should document concerns over the technical and quality of regulatory decisions and processes.

In pursuit of this question, three speakers¹ provided examples of technical concerns. G. Wallis began the discussions by summarizing technical concerns in five areas:

- RETRAN
- SRELAP-5
- EPRI Containment Cooler Waterhammer Study
- 95/95 Statistical Criteria for Code outputs
- Sumps

In each of these cases, it was difficult to get NRC staff or its contractors to acknowledge that there were technical faults in what was being done. Detailed examinations of the staff work were necessary and written critiques were provided to the staff. Despite this, the regulatory process continued undeterred. Technical resolution of the issues is at least delayed if not avoided altogether.

In most of the examples cited by Professor Wallis, ACRS had documented its concerns in a report or letter. Professor Wallis did ask:

¹ A presentation by Professor Apostolakis was planned but weather prevented Apostolakis from attending the session. Had Professor Apostolakis been able to attend, he had been asked to address technical concerns over the treatment of human reliability analyses. Some of these concerns are to be found in Professor Apostolakis' trip report of September, 2004.

- How does ACRS deal with a technical issue that staff does not recognize and will not discuss?
- What does ACRS do if staff acknowledges the technical weakness, but argues - usually on qualitative or intuitive basis - that the issue is not risk significant?
- How should ACRS react when staff accepts technically weak or flawed analyses for a specific, narrow situation, yet the "blessed" analysis will be used in other, broader situations?
- When is it acceptable to use risk information as a basis for avoiding correction of a technical error?
- How far should ACRS go to enforce technical quality in the regulatory processes?
- How far should ACRS go to educate, debate or persuade the NRC staff?

Professor Ransom presented some concerns about NRC thermal hydraulics research. He argued that NRC is no longer maintaining a state-of-the-art capability in thermal hydraulic analysis. He asked:

- Should NRC have state-of-the-art thermal hydraulic analysis for the evaluation of design basis accidents?

This question has to be addressed within the context of the proposed revisions of 10 CFR 50.46 and the eventual demise of design basis accident analysis in favor of risk assessment. It may not be essential to be state of the art for existing reactors. Ransom seems to acknowledge this when he suggests we learn to live with the weaknesses and idiosyncracies of thermal hydraulics codes. But, can we do the same for more advanced water-cooled reactors that have passive safety systems? Driving forces for passive systems are much weaker than those for pumped systems. They are then susceptible to more subtle processes that are more challenging for thermal hydraulic computer codes to calculate.

Ransom argued that ACRS should communicate its concerns to the Commission on thermal hydraulic analysis capabilities. ACRS has written to the Commission on thermal hydraulic issues and, indeed, met specifically with them on these issues. Ransom further felt that ACRS should suggest an approach for resolution. He suggested that:

- A peer review of the TRACE project be organized to define achievable goals and a technical approach for the project.
- That there be ongoing peer input to the thermal hydraulics program similar to Tong's Blue Ribbon Review Group.
- A plan should be developed to remedy long standing deficiencies in the two-fluid model or recognize and accommodate the limitations in constitutive models and numerical anomalies.
- Better methods including nonparameteric statistics be used to characterize uncertainties in thermal hydraulic calculations.

Dr. Ford discussed technical concerns over the treatment of material degradation in the

regulatory process. He argued that staff in NRC Research was well aware of emerging issues in materials degradation. He feels, however, that his understanding is not being integrated into the regulatory process. This leads to superficial reviews of corrosion aspects of regulatory decisions. "Too often the NRR staff neglect consideration of evolving technology in the materials degradation arena when evaluating licensee requests associated with, for example, license renewal, power uprate, new design certifications. This may reflect out date Standard Review Plans, ASME codes and GALL." The essential thrust of Ford's arguments at this point in his presentation seemed to be that there is a communications barrier between RES and NRR. NRR is not taking a long-enough term view of the research that is needed by the regulatory process to deal effectively instead of reactively to materials degradation issues.

Ford drew attention to the assignment of importance to an issue. Risk and CDF are not the only criteria. Ford felt that adherence to the General Design Criteria was an especially important consideration for materials issues. Such a structuralist view seems appropriate in light of the resistance to the inclusion of materials degradation processes in probabilistic risk assessments. Until PRA can cope with materials degradation issues a rationalist view is not appropriate.

Ford, to the surprise of all, noted that materials and materials degradation issues are ubiquitous. He argued that because of poor understanding, boric acid corrosion proposed the greatest immediate threat to safety. He provided a list of 23 other materials issues that he felt were serious. "A quantitative understanding of many of these evolving issues is limited by advancements in scientific understanding of the specific phenomena. These developments are the prime responsibility of the licensee, but again there is a responsibility of the NRC to have sufficient independent information to be able to ask informed questions. RES staff is aware of these issues, but is unable to follow up on them to a degree commensurate with creating an 'informed regulator' due to funding constraints on NRC's anticipatory research projects."

Ford recalled the so-called Rogers report on research from 2001. This report was to address the questions:

- Are we spending enough on research?
- Are we doing the right research?
- Are we doing the research with the right people?

Ford listed some of the conclusions reached in the Rogers report including:

- research underfunded by \$8 million
- insufficient research into materials, PRA and waste management
- because of the focus on user needs, gaps are appearing in core competencies and capabilities

Ford argued that many of the issues he was raising were management issues that had been raised in the Rogers report. He asked what follow up there had been to the Rogers report recommendations. RES had asked that ACRS examine this question of the followup as part of its

2004 research report. ACRS accepted the argument that it was too soon at that time to do this. Indeed, ACRS has avoided addressing management issues. It prefers to examine performance and not delve into the processes leading to performance it criticizes.

Perhaps of more concern, Ford echoed the argument that the ACRS review of the research program every two years was not sufficient.

Conclusions

The chair elected not to drive the discussions to any conclusions. Members were instructed to think about these issues.

The general discussion in the session made it clear that there are opportunities to document member concerns over the technical adequacy of the regulations and the regulatory process. These opportunities arise in the construction of the text for reports or letters, appendices to these documents and the "added comments" process. Indeed, technical concerns raised in the session have been documented in nearly all cases.

The impact of ACRS articulation of its technical concerns may not meet members expectations. This may, in fact, been the real source of the members frustration that led to the inclusion of this session in the meeting of the Planning and Procedures Subcommittee. As noted especially in Professor Wallis' presentation, technical issues raised during a review of a regulatory activity that is nearing completion are not welcomed by the Staff. The may well be resisted stoutly in the face of self-imposed deadlines. Persuasion of the Staff that a substantive technical concern exists can take very detailed examinations and articulation of the issue by ACRS. Preparation of such detailed analyses, especially if the risk significance of the issue must be addressed, is not compatible with the ACRS schedule and in an ideal world should not be an ACRS responsibility. Approval of a regulatory activity by allowing resolution of the technical concern to be deferred reduces substantially the pressure to achieve technical resolution. Absence of ACRS follow up on its documented technical concerns further reduces the pressure for resolution.

Possible ACRS actions to address this situation are:

- Recognize in the planning of ACRS reviews and the allocation of workloads that a member is developing the articulation of a substantive technical concern
- Develop a mechanism to track the resolutions of technical issues that have been deferred. A list akin to the Generic Issues list created by ACRS in the past can be imagined. To be effective, the list would have to be reviewed regularly.

From: FPCTFord@aol.com

Graham, Mugeh

We were asked to give suggestions about the theme for the next Quadripartite meeting in 2006, and to comment on which countries should be represented.

My suggestion for a theme is;

"Technology Advances and their Impact on Effective Regulation".

Obvious subtopics that the US could provide would be revisions to 10CFR50.61, 10CFR50.46 and the various risk-informing actions embodied into RG 1.174, 1.175, 1.176, 1.177, 1.178. The development of a technology-neutral regulation base for the next generation of non-LWR reactors feeds directly from this theme. These would be the positive examples. Negative examples could be discussed as a counterbalance, including the numerous topics discussed at the Retreat regarding thermal-hydraulics and materials degradation, where the technology advances are not being incorporated into effective regulation.

I can understand the rationale for keeping the organization attendance at the same level as before, but I have a counter opinion as follows.

The US NRC should be the leader in effective, innovative nuclear power plant regulation, if only for the fact that we already serve as a guide for the actions of other regulatory bodies, especially in the Far East, where there is the greatest potential for accidents (the PRC springs to mind). All we need is one major accident in Tashkent, or wherever, and we all have major problems. Thus the wider the attendance at a meeting of Advisory Committees the better. I suggest the current core membership should remain, and that Sweden and Switzerland should be invited to be permanent members. As an interim measure, invitations to attend as guests should be extended to Korea, Russia, Ukraine, Finland, India, ROC and PRC. This essentially doubles the size of the attendance and it will take some organizational control to ensure that this does not get out of hand, but it is, in my mind, doable.

Many of the technical challenges facing the nuclear business worldwide are already being discussed in collegiate meetings, cooperative groups, etc. and this has been going on for decades. Witness the ICG_EAC meetings on materials degradation that involves organizations from 16 member countries; these meetings are now entering their 27th year. It is about time we broadened such discussions between advisory committees on effective, relevant regulation.

Peter

INPUT FOR QUAD. PLANNING

T. S. Kress

PURPOSE OF QUAD. MEETING

Besides the purposes of having a boondoggle and getting together to make ourselves appear to be important, I propose that the major purpose of a QUAD. meeting is to keep abreast of how the international community views regulatory and safety issues and how they are dealing with them so that our advice to the Commission is as informed as possible.

SUGGESTED OVERALL TOPIC AND SUB-TOPIC AREAS FOR THE MEETING

1. Licensing of Advanced Reactors

- Design basis accidents
- Risk versus "deterministic" acceptance metrics
- Role of emergency response
- Role of PRA in licensing/regulation/operation
- Reliability of passive safety systems
- Dual purpose plants

2. Technical Issues for Operating Plants

- High burnup fuel
- Experience with MOX fuel
- Sump blockage
- Materials issues
- Power uprates / effects on risk
- On-site storage of spent fuel
- Managing maintenance and scheduled shutdowns

3. Regulating Safety Culture

- Performance indicators

4. Research Needs

- High burnup fuel
- Mox fuel
- Thermal Hydraulics
- Severe accidents
- Materials
- Effects of power uprates
- Spent fuel pool accidents

The Quadripartite Meeting

D.A. Powers' responses to questions from the ACRS Chairman

* **What is the purpose of the meeting?**

The purpose of the meeting is to understand how ACRS peers in other countries are reacting to similar challenges encountered in the safety regulation of nuclear power plants. There is a very strong interest in not having the regulatory systems of the US and other countries diverge too much. Japan is going through a significant regulatory epiphany in response to events not dissimilar in magnitude to the recent events at Davis-Besse. It is of interest to understand what they have found necessary to do to a regulatory system that is very much parallel to that in the US. France is in the business of installing new nuclear capacity. At the same time, their regulatory system is now quite different than what it was just 10 years ago. It is of interest to know how they are confronting the issues of new nuclear systems. Germany is confronting the possibility of retirement of older nuclear stations. It is of interest to know how they approach these pending retirements.

* **What topics to exclude ?**

I would exclude:

- Risk-informed regulation - no one is really interested except in US
- Safety culture - addressed before; it is not apparent that culture issues cross borders.
- Materials degradation - better handled in other forums with specialists

* **What topics to include ?**

I would include:

- Changes in regulatory systems - especially France and Japan
- Value of 'harmonization' of regulatory systems - is the IAEA model useful?
- Unification of thermal hydraulics research and modeling for nuclear power plants
- Experiences with MOX - safety regulation of use, fabrication, storage, etc.
- Modeling of latent human errors; international benchmark calculations of human reliability - follow up Apostolakis trip report
- Fire risk assessment - adequacy of phenomenological models and risk analysis
- Regulatory treatment of digital electronic systems
- Important regulatory events including Davis-Besse and events in Japan

FROM: "Denning, Richard S" <denning@BATTELLE.ORG>

Quadrupartite Recommendations

Meeting Objectives

The objective of the meeting is to hold discussions on topics of mutual interest among advisory bodies to the nuclear regulatory organizations of countries that have nuclear programs that are at a similar level of maturity. The attendance should be limited and the format of the meeting should be structured in a manner to enable communication among the participants.

Invitations should not be extended to countries with emerging nuclear programs. Let's not mix objectives for the meeting.

Agenda Topics

The meeting should be divided into half-day sessions. Two of the sessions should involve the assembled group. A broad, high priority issue should be addressed in each of these sessions. The other sessions should involve smaller break-out meetings in which more interaction of specialists will be possible.

Candidate Plenary Sessions

- * Uses and limitations of PRA in reactor regulation.
- * Evolving regulations for the siting and regulation of nuclear power plants
- * New requirements for future nuclear power plants – passive safety, simplified design, severe accident mitigation, probabilistic criteria

Candidate Breakout Sessions

- * Resolution of sump screen blockage issue
- * Effective control of corrosion and erosion
- * Digital instrumentation and control systems
- * Plant aging and life extension
- * Technology neutral regulatory requirements for future reactor designs
- * Regulatory approval of power uprates

Rich Denning

FROM: Steve Rosen <HistoryArt2004@aol.com>

1) What is the primary objective of this Quadripartite meeting?

There are at least two possibilities--the first is to enhance dialog between the current participants. To do this we should keep it as small as possible.

The second possibility recognizes Chairman Diaz' theme at the 2004 ANS Annual Meeting where he said:

"For the utilization of nuclear technology to advance to a new level of performance in the 21st century, nuclear regulation needs to be better, more predictable, more usable, more consistent across borders, and more risk-informed."

He went further stating:

"I value the distinct contribution that each nuclear regulator makes to safety within each country's framework. However, I believe that more convergence on the regulatory framework and its tools would enhance predictability and decision-making."

On balance, I favor the second possibility over the first. To help move in the direction of the Chairman's theme, we should gradually broaden the forum. An accident anywhere would be damaging to nuclear technology everywhere. Advisory structures can play an important nuclear safety role and should have an information exchange and dialog forum like most other nuclear constituencies.

2) What topics should be excluded from this meeting? Along with the reasons therefor

Waste management--no others should be excluded.

3) What topics should be included in this meeting?

Safety culture, response by national authorities to significant operational events, new regulatory initiatives

4) Should the invitation be extended to countries such as Korea and China?

Invitations should be extended to Britain, Russia, Canada, Finland, Sweden, Switzerland, South Korea, China, Japan, India and Taiwan and others with significant and continuing nuclear programs and advisory groups comparable to ACRS.

Candidate Topics for the 2006 Quadripartite Meeting

DAY ONE

Welcome
Keynote Speaker:

***Plenary Session: Value of Harmonization of Safety
Requirements and Practices***

BREAKOUT SESSION 1

Regulatory Trends in Member Countries

TOPICS:

- Changes in Regulatory Approach (especially France and Japan)
- Evolving Regulations for Siting
- Regulatory Treatment of Digital Instrumentation and Control (I&C) Systems
- Use of PRA in Regulation
- Regulatory Approval of Power Upgrades

BREAKOUT SESSION 2

Licensing of Advanced Reactors

TOPICS:

- Technology Neutral Framework for Future Power Plant Licensing
- Design Basis Accidents
- Risk Versus "Deterministic" Acceptance Metrics
- Role of Emergency Response
- Reliability of Passive Safety Systems
- Dual Purpose Plants

**Candidate Topics
for the 2006 Quadripartite Meeting
DAY TWO**

Keynote Speaker:

***Plenary Session: Technology Advances and Their Impact on
Effective Regulations***

BREAKOUT SESSION 3

***Research Needs for Improved Safety and
More Effective Regulation***

TOPICS:

- Harmonization of Thermal-Hydraulics Research and Modeling
- Fire Risk Assessment- Adequacy of Phenomenological Models and Risk Analysis
- Phenomenology of Spent Fuel Pool Accidents
- Status on Materials Degradation Research

BREAKOUT SESSION 4

Technical Issues for Operating Plants

TOPICS:

- High Burnup Fuel
- Experience with MOX fuel
- Sump Screen Blockage Issue
- Plant Aging and Life Extension
- Effective Control of Corrosion and Erosion
- Managing Maintenance and Scheduled Shutdowns

Candidate Topics
for the 2006 Quadripartite Meeting
DAY THREE

BREAKOUT SESSION 5

***Response of National Authorities to
Significant Operational Events***

TOPICS:

- Davis-Besse
- Events in Japan
- Regulating Safety Management (Culture)
- Grid Reliability

Summary, Conclusions, and Recommendations

**PROCEEDINGS (CD-ROM)
FOURTH QUADRIPARTITE MEETING ON NUCLEAR SAFETY**

October 23-25, 2002
Berlin, Germany

PREFACE

The advisory committees on nuclear safety from France, Germany, Japan and USA have met at about four-year intervals so far to evaluate developments and exchange experiences in nuclear safety. Twelve years ago the first "quadripartite" meeting started in the United States of America, followed by the meetings in France in 1993, Japan in 1998 and recently by the fourth one in Germany in 2002.

On invitation of the German Reactor Safety Commission the French Groupes Permanents "Réacteurs", "Déchets" and "Transports", the Japanese "Nuclear Safety Commission" and the American Advisory Committees on "Reactor Safeguards" and on "Nuclear Waste" met in Berlin from October 23-25, 2002.

The main topics of this meeting covered

- Safety Culture and Safety Management
- PSA/PSR/Risk Informed Regulation
- Thermal Hydraulic Analysis and Code Issues
- Stress Corrosion Cracks in Pressure Retaining Components in NPP
- Safety of Spent Fuel Storage
- Waste Disposal Concepts; Performance Assessment for the Disposal; Safety Assessment of Final Repositories
- Transport of Spent Fuel and Waste and
- Current Issues i. e. Incidents in NPP.

For the first time at a quadripartite meeting issues regarding radioactive waste management and transport questions were on the agenda. This expansion reflects the growing importance of storage, disposal and transport questions also on the international level.

Representatives of the respective advisory committees of Sweden and Switzerland participated for the first time at a quadripartite meeting.

The four committees regarded the meeting as being of high value for the further development of nuclear safety and they agreed to continue their exchange of experience on a regular basis.

This CD-ROM contains the agenda of the meeting (including the presented papers, overhead or power point presentations and the summaries made by the session chairmen), the list of participants, and the press release of the competent Federal Ministry on occasion of the meeting.

During the meeting in October 2002 the participating committees and commissions jointly agreed to consider for future quadripartite meetings

- scope of a meeting, e.g. extent of nuclear waste and transport issues to be treated
- course of sessions, e. g. gaining time for discussion and
- attendance and contributions of committees or commissions other than France, Germany, Japan and the United States.

The German Reactor Safety Commission recommends the following:

- Reactor safety should remain the main scope of quadripartite meetings. Nuclear waste and transport issues should be incorporated into quadripartite meetings but restricted to general topics and to topics both related to reactor safety and to safety of storage, disposal and transport, e. g. probabilistic models and procedures. Detailed or specific topics related to safety of storage, disposal and transport of nuclear waste should preferably be dealt with in separate independent meetings.
- Presentations during quadripartite meetings should be restricted to key topics to achieve more time for discussions, e.g. the meeting should be run like a workshop.
- Representatives from KSA (Switzerland) and RSN (Sweden) should be invited again and should also present papers.

Hosting the fifth quadripartite meeting in 2006 the American Advisory Committee on Reactor Safeguards agrees with these recommendations and is reflecting on participation of other foreign advisory committees or regulators whose states have an active nuclear reactor program.

RSK Office

Guenter Weimer