



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

July 3, 2013

The Honorable Allison M. Macfarlane
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 605th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, JUNE 5-7, 2013

Dear Chairman Macfarlane:

During its 605th meeting, June 5-7, 2013, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following letters and memoranda:

LETTERS

Letters to R. W. Borchardt, Executive Director for Operations, NRC, from J. Sam Armijo, Chairman, ACRS:

- Proposed Rulemaking on Station Blackout Mitigation Strategies, dated June 17, 2013
- Draft Final Revisions of Regulatory Guides 1.168 through 1.173, Software Processes for Digital Computers in Safety Systems of Nuclear Power Plants, dated June 18, 2013

MEMORANDA

Memoranda to R. W. Borchardt, Executive Director for Operations, NRC, from Edwin M. Hackett, Executive Director, ACRS:

- Draft Final Regulatory Guides, dated June 11, 2013
- Proposed Draft Guide (DG-3042), dated July 1, 2013
- Draft Final Interim Staff Guidance, dated June 17, 2013

HIGHLIGHTS OF KEY ISSUES

1. Proposed Rulemaking on Station Blackout Mitigation Strategies

The Committee met with representatives of the NRC staff to discuss the status of NRC's initiative to strengthen station blackout requirements at nuclear power plants including enhancing the mitigation capability. The Near Term Task Force recommended that the station blackout mitigation capability at all operating and new reactors for design basis and beyond design basis external events be strengthened. The staff issued Order EA-12-049 requiring licensees to develop strategies capable of mitigating a simultaneous loss of all ac power and loss of normal access to the ultimate heat sink due to beyond design basis external events and have adequate capacity to address challenges to core cooling, containment, and spent fuel pool cooling capabilities. In addition, the staff issued an Advance Notice of Proposed Rulemaking to address these issues. The staff described the status of their rulemaking efforts; they discussed NRC's initiative to strengthen the station blackout rule, including the related regulatory basis document, "Rulemaking for Station Blackout Mitigation Strategies." The staff also discussed the implementation status of Order EA-12-049.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated June 17, 2013, concluding that sufficient regulatory basis exists to proceed with the development of a station blackout mitigation strategies rule and that further briefings with the staff will be needed to assess the technical adequacy and robustness of the mitigating strategies developed by licensees. In addition, the Committee recommended that (1) the staff should continue to explore the concept of a robust supplemental ac power source to be used to restore power following a beyond design basis external event, (2) guidance for the new mitigation strategies rule should be sufficient to evaluate the feasibility and reliability of the manual actions necessary to implement the mitigating strategies called for by Order EA-12-049, (3) the staff should consider the results from the ongoing integrated assessments of seismic, flooding, and high wind hazards to determine if the available margins for these hazards are adequate for the development of mitigating strategies, and (4) an increase in scope to include loss of decay heat removal as a separate condition and not just as a consequence of extended loss of ac power should be considered as part of the staff efforts on Near Term Task Force Recommendation 1 and the Risk Management Task Force program development.

2. Draft Final Revisions of Regulatory Guides 1.168 through 1.173, Software Processes for Digital Computers in Safety Systems of Nuclear Power Plants

The Committee met with representatives of the NRC staff to discuss draft final revisions of the following regulatory guides regarding processes for digital computer software used in safety systems of nuclear power plants:

- Regulatory Guide 1.168 on Verification, Validation, Review, and Audits
- Regulatory Guide 1.169 on Configuration Management
- Regulatory Guide 1.170 on Test Documentation
- Regulatory Guide 1.171 on Unit Testing
- Regulatory Guide 1.172 on Software Requirements Specifications
- Regulatory Guide 1.173 on Developing Software Life-Cycle Processes

These regulatory guides were based on and endorsed Institute of Electrical and Electronics Engineers (IEEE) standards utilized prior to 1997. The impetus for these regulatory guide revisions was to review and evaluate the updated IEEE standards and revise the affected regulatory guides as appropriate. The staff's presentation described the relationship among the six regulatory guides and issues common to all of them such as security, integrity, software tools, and release management. For each regulatory guide, the staff described the changes made to the referenced IEEE standards, the significance of these changes, and any exceptions taken.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated June 18, 2013, recommending that the draft final revisions to these regulatory guides be issued. In addition, the Committee recommended that the staff expedite the development of consistent regulatory guidance for enhanced design, development, operation, and maintenance of digital hardware and software which controls non-safety-related equipment that is "important to safety." This letter also contained additional comments from several ACRS members.

3. Assessment of the Quality of Selected NRC Research Projects

The Committee discussed the status of the ACRS Panels' review of the quality assessment of NRC research projects on NUREG/CR-7026, "Application of Model Abstraction Techniques to Simulate Transport in Soils," and NUREG-2121, "Fuel Fragmentation, Relocation, and Dispersal During the Loss-of-Coolant Accident."

Committee Action

The Committee will continue its discussion of the quality assessment of the research projects noted above during future meetings.

4. Preparation for Meeting with the Commission

The Committee discussed the following topics in preparation for its meeting with the Commission on July 11, 2013.

- Overview
- Draft Design Specific Review Standard for mPower iPWR Chapter 7 Instrumentation and Control Systems
- Station Blackout Rulemaking
- Next Generation Nuclear Plant (NGNP) Key Licensing Issues
- Draft NUREG-2125, "Spent Fuel Transportation Risk Assessment"
- Draft NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking"

5. Draft Final Regulatory Guides 1.33, 1.184, and 1.185

The Committee considered the following draft final regulatory guides and decided not to review them. The Committee has no objection to the staff's proposal to issue these regulatory guides as final.

- Draft Final Revision 3 to Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)"
- Draft Final Revision 1 to Regulatory Guide 1.184, "Decommissioning of Nuclear Power Reactors"
- Draft Final Revision 1 to Regulatory Guide 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report (PSDAR)"

6. Proposed Regulatory Guide DG-3042

The Committee considered proposed revision to Regulatory Guide 3.50 (DG-3042), "Standard Format and Content for a License Application for an Independent Spent Fuel Storage Installation or a Monitored Retrievable Storage Facility," and decided not to review it. The Committee has no objection to the staff's proposal to issue this regulatory guide for public comment, but would like an opportunity to review the draft final version of this regulatory guide following the public comment period.

7. Final Interim Staff Guidance DC/COL-ISG-024

The Committee considered final Interim Staff Guidance DC/COL-ISG-024, "Implementation of Regulatory Guide 1.221 on Design-Basis Hurricane and Hurricane Missiles," and decided not to review it.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

The Committee considered the EDO's response of May 24, 2013, to comments and recommendations included in the April 29, 2013, ACRS letter on chapters 4, 15, 17, and 19 of the safety evaluation report with open items for certification of the US-APWR design and safety evaluation of supporting topical reports. The Committee decided that it was satisfied with the EDO's response.

SCHEDULED TOPICS FOR THE 606th ACRS MEETING

The following topics are scheduled for the 606th ACRS meeting, to be held on July 9-12, 2013:

- Spent Fuel Pool Study
- State of the Art Reactor Consequence Analysis (SOARCA) Uncertainty Analyses
- Proposed Revisions to 10 CFR Part 61
- Meeting with the Commission

Sincerely,

/RA/

J. Sam Armijo
Chairman

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/RA/

J. Sam Armijo
Chairman

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OFFICE	ACRS	SUNSI Review	ACRS	ACRS	ACRS
NAME	MBanks	MBanks	CSantos	EMHackett	EMH for JSA
DATE	7-2-13	7-2-13	7-2-13	7-3-13	7-3-13

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