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

September 1, 2010

MEMORANDUM TO: ACRS Members

FROM: Sherry Meador **/RA/**
Technical Secretary, ACRS

SUBJECT: CERTIFICATION OF THE MEETING MINUTES FROM THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS 569th FULL COMMITTEE MEETING HELD ON FEBRUARY 4, 2010 IN ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on April 8, 2010 as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment:
As stated

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

July 13, 2010

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

FROM: Cayetano Santos, Chief ***/RA/***
Reactor Safety Branch
Advisory Committee on Reactor Safeguards

SUBJECT: MINUTES OF THE 573rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS), JUNE 9-11, 2010

I certify that based on my review of the minutes from the 573rd 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.

OFFICE	ACRS	ACRS:RSB/Sunsi
NAME	SMeador	CSantos/sam
DATE	07/ 13 /10	07/ 13 /10

OFFICIAL RECORD COPY

CERTIFIED Date Certified: 07/13/2010

TABLE OF CONTENTS
MINUTES OF THE 573rd ACRS MEETING

JUNE 9-11, 2010

Appendices

During its 573rd meeting, June 9-11, 2010, 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 Said Abdel-Khalik, Chairman, ACRS:

- Draft Final Regulatory Guide 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure," dated June 24, 2010

- Response to the April 16, 2010, EDO Letter Regarding Draft Final NUREG-1520, Revision 1, "Standard Review Plan for Review of a License Application for a Fuel Cycle Facility," dated June 16, 2010

MEMORANDA

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

- Draft Final Regulatory Guide 2.5, dated June 14, 2010

- Proposed Regulatory Guides 1.93 and 7.7, dated June 14, 2010

MINUTES OF THE 573rd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 573rd meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B1, Two White Flint North Building, Rockville, Maryland, on June 9-11, 2010. Notice of this meeting was published in the *Federal Register* on May 19, 2010 (72 FR 28074-28075) (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.

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: Dr. Said Abdel-Khalik (Chairman), Dr. J. Sam Armijo (Vice-Chairman), Mr. John Stetkar (Member-at-Large), Dr. Sanjoy Banerjee, Dr. Dennis Bley, Mr. Charles Brown, Dr. Michael Corradini, Dr. Dana A. Powers, Mr. Harold Ray, Dr. Michael Ryan, Dr. William Shack, and Mr. John Sieber. For a list of other attendees see Appendix III.

I. Chairman's Report (Open)

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

Dr. Said Abdel-Khalik, Committee Chairman, convened the meeting at 8:30 a.m. In his opening remarks he announced that the meeting was being conducted in accordance with the provisions of the Federal Advisory Committee Act. He reviewed the agenda items for discussion and noted that no written comments or requests for time to make oral statements from members of the public had been received. Dr. Bonaca also noted that a transcript of the open portions of the meeting was being kept and speakers were requested to identify themselves and speak with clarity and volume.

II. Draft Final Regulatory Guide 1.216, “Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure”

[Note: Mrs. Zena Abdullahi was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss Draft Final Regulatory Guide (RG) 1.216, “Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure.” This RG applies to new light water reactors with free-standing steel or concrete containment. The staff discussed the Regulatory Positions in RG 1.216, the

associated regulatory requirements, and the disposition of the public comments. RG 1.216 describes methods that the staff considers acceptable for: (1) predicting the internal pressure capacity for containment structures above the design-basis accident pressure; (2) demonstrating containment structural integrity related to combustible gas control; and (3) demonstrating that containment structural integrity meets the Commission's performance goals related to the prevention and mitigation of severe accidents.

The Committee issued a letter to the EDO on this matter, dated June 24, 2010, recommending that RG 1.216 be issued.

III. Proposed Revisions to NUREG-1520, "Standard Review Plan for Review of a License Application for a Fuel Cycle Facility"

[Note: Mr. Neil Coleman was the Designated Federal Office for this portion of the meeting.]

During its 569th meeting, February 4, 2010, the Committee met with representatives of the NRC staff to discuss the proposed modifications in draft final NUREG-1520 Revision 1, "Standard Review Plan (SRP) for Review of a License Application for a Fuel Cycle Facility (FCF)." On February, 22, 2010, the Committee issued a report to the NRC Chairman on this matter, concluding that NUREG-1520 Revision 1 should be issued. In addition, the ACRS recommended that when developing and reporting the results of Integrated Safety Analyses (ISAs), the staff should consider fire induced "hot shorts" and their potential to place systems in conditions other than a fail-safe condition. On April 16, 2010, the EDO responded to the ACRS report stating that the staff will evaluate the potential for fuel cycle events related to hot shorts; and if the staff determines that these are common events or have significant risk for fuel cycle facilities, the staff will develop guidance utilizing the results of ongoing research on this topic. The Committee evaluated the adequacy of the EDO's response and decided to issue a response letter to the EDO.

The Committee issued a letter to the EDO on this matter, dated June 16, 2010, recommending that explicit consideration of fire-induced "hot shorts" be included in the guidance for review of applications for fuel cycle facilities.

IV. Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions

[NOTE: Mr. Neil Coleman was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss a proposed rulemaking concerning the distribution of source materials. The NRC intends to amend Title 10, Part 40, "Domestic Licensing of Source Material," of the *Code of Federal Regulations* (10 CFR Part 40) to require specific licenses for the initial distribution of source material to exempt persons and to those operating under the general license for small quantities of source material (10 CFR 40.22, "Small Quantities of Source Material"). The proposed amendments would modify the existing possession and use requirements for a 10 CFR 40.22 general license to more closely align the requirements with current health and safety and security standards. The proposed amendments would revise, clarify, or delete certain product exemptions in 10 CFR 40.13,

"Unimportant quantities," to make the exemptions more risk informed. Amendments requiring specific licensing are necessary because the NRC currently has no reporting requirements to identify how, and in what quantity, source material is being used under exemption or under the 10 CFR 40.22 general licenses. In addition, much of 10 CFR Part 40 has not been revised to account for revisions to NRC's health and safety requirements. In particular, 10 CFR 40.22 general licensees are exempt from NRC's health and safety requirements and can exceed exposure limits that would normally require action by most other NRC licensees. By requiring distributors to obtain specific licenses and imposing new reporting requirements, the proposed amendment would allow the NRC to better identify how much source material is being used under both product exemptions and the general license, as well as help in identifying general licensees. In addition, the staff considers that the proposed amendment to 10 CFR 40.22 would make the regulations more consistent with existing health and safety requirements.

The following concerns were raised by the members: (1) there appears to be a declining trend in the use of uranium and thorium source material; (2) there was no clear evidence of significant dose consequences in applications related to use of this source material; (3) the basis for significantly lowering the possession limits for source material is not transparent; and (4) it is unclear how this proposed rulemaking for 10 CFR Part 40 is risk informed or how it can be used to enhance public or worker safety. This was an information briefing. No Committee action was necessary. The Committee plans to review the draft final revision to this rule after the resolution of public comments.

V. Proposed Interim Staff Guidance (ISG) DC/COL-ISG-013 and DC/COL-ISG-014

[NOTE: Mr. Derek Widmayer was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss two proposed Interim Staff Guidance (ISG) documents. The two documents are Draft DC/COL-ISG-013, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks for Combined License Applications," and Draft DC/COL-ISG-014, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases." The two ISGs address inconsistencies and lack of guidance in several sections of the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800). The ISGs apply to an acute, accidental discharge from a liquid tank. One of the primary purposes of the analyses described in these ISGs is to establish technical specifications for the amount and concentrations of radioactive liquids that can be stored in tanks that are susceptible to accidents at the plant site. This was an information briefing. No Committee action was necessary. The Committee plans to review the draft final revisions of these two ISGs after the resolution of public comments.

VI. Status of Risk-Informed Guidance for New Reactors

[NOTE: Mr. Jorge Cruz-Ayala was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss the status of risk-informed guidance for changes to the licensing basis and the Reactor Oversight Process (ROP) for new light-water reactors. Several risk-informed initiatives such as Risk-Managed Technical

Specifications (RMTS), risk-informed in-service inspection of piping, and special treatment requirements (10 CFR 50.69, "Risk Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors") have been proposed. The staff's review of these initiatives has raised questions regarding appropriate risk metric acceptance guidelines and thresholds in the ROP. The staff discussed the evolution of their views on this subject and noted that staff consensus on a high-level approach across the agency was recently achieved.

The staff discussed potential approaches for developing guidance for risk informed applications and their possible implications. The approach selected by the staff will be to: (1) identify specific changes to risk-informed guidance for changes to the licensing basis that would prevent a significant decrease in the safety of the new reactor over its life and (2) identify specific changes to risk-informed guidance for the ROP that would provide for meaningful regulatory oversight. The staff plans to issue the final Commission paper on this issue and to continue to engage stakeholders regarding specific changes to industry and NRC guidance documents. The Committee will consider a report on this issue during its July 14-16, 2010, meeting.

VI. Executive Session

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

A. Reconciliation of ACRS Comments and Recommendations/EDO Commitments

- The Committee considered the EDO's response of May 25, 2010, to comments and recommendations included in the April 7, 2010, ACRS report on the review and evaluation of the NRC Safety Research Program. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of May 3, 2010, to comments and recommendations included in the March 25, 2010, ACRS report on Draft Revision 2 to RG 4.11 (DG-4016), "Terrestrial Environmental Studies for Nuclear Power Plants." The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of April 30, 2010, to comments and recommendations included in the March 25, 2010, ACRS report on Draft Final Revision 1 of RG 1.141, "Containment Isolation Provisions for Fluid Systems." The Committee decided that it was satisfied with the EDO's response.

B. Report of the Planning and Procedures Subcommittee Meeting

Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through October 2010 was discussed. 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

Regulatory Guides and Branch Technical Positions

a) Draft Final Regulatory Guides

The staff plans to issue the following Draft Final Regulatory Guides (RGs) and would like to know whether the Committee wants to review these Guides prior to being issued as final.

- Draft Final Revision 1 to Regulatory Guide 2.5 (DG-2001), "Quality Assurance Program Requirements for Research and Test Reactors"

Regulatory Guide 2.5 is a proposed Revision 1 that was issued as DG-2001 for public comments on September 15, 2009. The original Regulatory Guide was based on the American Nuclear Standards Institute (ANSI) Standard N402-1976, "Quality Assurance Program Requirements for Research Reactors." The industry standard was revised and became ANSI 15.8. This revision endorsed the current ANSI 15.8-1995 guidance for QA programs for research and test reactors (for those licensees have already included ANSI 15.8-1995 as part of their license), adds a reference to power reactor guidance for commercial grade procurement, and identifies other standards, e.g., international standards, which may provide useful information.

Based on his review of this Regulatory Guide, Dr. Stetkar recommends that the Committee not review this Guide.

- Draft Final Regulatory Guide 3.74 (DG-3037), "Guidance for Fuel Cycle Facility Change Processes"

Regulatory Guide 3.74 is a proposed new Regulatory Guide that was issued as DG-3037 for public comments on June 29, 2009. The requirements in 10 CFR 70.72, "Facility Changes and Change Process," require certain processes to be implemented to control facility configuration. Based on a threshold, some facility changes require NRC approval. Other facility changes do not require NRC approval but licensees are required to summarize the changes and provide an annual report. The proposed guidance is to assist licensees in providing more consistent evaluations and reports.

Based on his review of this Regulatory Guide, Dr. Ryan recommends that the Committee review this Guide.

b) Proposed Regulatory Guides

The staff plans to issue the following proposed regulatory guides for public comment and would like to know whether the Committee wants to review these Guides prior to being issued for public comment.

- Proposed Revision 1 to Regulatory Guide 1.93 (DG-1244), "Availability of Electric Power Sources"

DG-1244 is a proposed Revision 1 of Regulatory Guide 1.93 dated December 1974. This was previously issued as DG-1195 in May 2008. The numerous public and staff comments on DG-1195 resulted in a complete re-write of the draft guide which has resulted in it being

re-issued as DG-1244 for a second round of public comments. This regulatory guide is being revised to incorporate changes made in Title 10, Section 50.36(c) (2), of the Code of Federal Regulations (10 CFR 50.36(c)(2)) requiring that technical specifications include the limiting conditions for operation (LCOs). The LCOs are now incorporated in the improved Standard Technical Specifications (iSTS) (NUREG-1430–1434) and Regulatory Guide 1.93 is being revised to promulgate the same requirements and language as in the revised regulations and the iSTS NUREGs.

Based on his review of this Proposed Regulatory Guide Mr. Sieber recommends that the Committee reconsider review of the draft final revision to this Guide after reconciliation of public comments.

- Proposed Revision 1 to Regulatory Guide 7.7 (DG-7007), "Administrative Guide for Verifying Compliance with Packaging Requirements for Shipments of Radioactive Materials"

  DG-7007 is a proposed Revision 1 of Regulatory Guide 7.7 dated December 1977. Regulatory Guide 7.7 (1977) endorsed American National Standards Institute (ANSI) N14.10.3-1975, “Administrative Guide for Verifying Compliance with Packaging Requirements for Shipments of Radioactive Materials.” In the 30 years since the NRC published the regulatory guide, the regulations have changed several times, and ANSI Subcommittee N14.10 withdrew ANSI Guide N14.10.3-1975 without any replacement. Regulatory Guide 7.7 has been revised to eliminate the reliance on the ANSI Standard, broaden the scope to include most routine actions, and provide the public with a description of an approach that the staff considers acceptable for meeting the administrative requirements in 10 CFR Part 71.

  Based on his review of this Proposed Regulatory Guide Dr. Ryan recommends that the Committee reconsider review of the draft final revision to this Guide after reconciliation of public comments.

Status of Selection of New Members

The solicitation for new members closed on April 13, 2010. The review panel met on April 7, 2010. Some of the prospective members met with the ACRS members on Friday, May 7. The remaining prospective members will meet with ACRS members on Friday, June 11 and Friday, July 16, 2010.

Status of Resolution of Generic Safety Issue 191 (Assessment of Debris Accumulation on PWR Sump Performance)

On May 17, 2010, the Commission issued an SRM based on the April 15, 2010 staff briefing on the ongoing efforts to resolve Generic Safety Issue 191 (GSI-191) (pp. 12-13). The SRM directed staff not to transmit any letters to licensees under 10 CFR 50.54(f) pending further direction from the Commission and directed staff to prepare a notation vote policy paper on potential approaches to bring GSI-191 to closure by September 2010. Items to be addressed in the policy paper include determining the realistic zone of influence, application of General Design Criteria 4 as referenced in NEI and UCS letters, consideration of in-vessel effects of different types of fuel, revision to 10 CFR 50.46a and implementing guidance and feasibility of alternative regulatory treatment of in-vessel effects. An information briefing on the status of the resolution of GSI-191 is scheduled for June 10, 2010.

SRM on Briefing on the Fuel Cycle Oversight Process Revision

On April 29, 2010, the Commission was briefed by stakeholders and staff on the Fuel Cycle Oversight Process revision. In their May 12, 2010, Staff Requirements Memoranda (SRM), the Commission directed staff to submit a paper comparing Integrated Safety Analyses (ISAs) for fuel cycle facilities and PRAs for reactors, including a critical evaluation of how ISAs differ from PRAs (pp. 14). The Commission directed that this paper be provided to ACRS for review by October 29, 2010. It is anticipated that NMSS will ask for an extension to complete the paper.

DAC/ITAAC Closure for New Reactors

During the May 20, 2010, ABWR subcommittee meeting, several deficiencies were identified regarding the staff's Instrumentation and Control (I&C) review. It has been suggested that the ACRS write a letter on Design Acceptance Criteria (DAC)/Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) closure as a separate item from the design centers. The purpose of the letter would be to clearly articulate the concerns that the ACRS has with the lack of specificity at the combined license stage in certain applications, particularly in the area of digital I&C. Included in the discussion would be the concern with closure of such a significant design-specific issue via an "inspection."

Criteria for Addressing ACRS Letters

There are currently no criteria for deciding which ACRS letters are addressed to the EDO and which letters are addressed to the Chairman. Typically, ACRS letters regarding established agency processes or procedural matters have been sent to the EDO. Letters on Commission tasking or potential policy decisions have typically gone to the Commission. However, some correspondence has been sent to the Commission due to optics.

Visit to Columbia Generating Station and Meeting with Region IV

The ACRS is scheduled to visit Columbia Generating Station on July 27, 2010, and meet with Region IV on July 29, 2010. Draft agendas for the visit and meeting are attached (pp 15-17). The itinerary for this week is as follows:

- Monday July 26, 2010 – Fly to Pasco Tri Cities Airport (PSC). PMDA Rachel Boyer will be making hotel reservations at the Hilton Garden Inn, 701 North Young Street, Kennewick, WA, phone 509-735-4600 as well as your flights and car.

- Tuesday July 27, 2010 – We are planning on getting two vans that will provide transportation to and from the Columbia Generating Station and hotel. Plans are to meet at 7:00 am in the hotel lobby. Lunch will be catered at Columbia. Price per person will be determined and the cost will be provided to you at a later date.

- Wednesday July 28, 2010 – Fly to Dallas Ft. Worth (DFW). PMDA Rachel Boyer will be making hotel reservations at the Spring Hill Suites (Marriott owned), 1975 East Lamar Boulevard, Arlington, TX, Phone 817-860-2737.

- Thursday July 29, 2010 - We are planning on getting two vans that will provide transportation to and from the Region IV Office. Plans are to meet at 7:30 am in the hotel lobby. Lunch will be catered by Jason's Deli and will be setup in another conference room. PMDA plans to purchase 20 Box lunches with delivery one hour prior to meeting adjourn. Price per person will be determined and collected at a later date (July 2010 Full Committee Meeting).

A detailed itinerary and final meeting agendas will be provided at the July 2010 meeting.

Subcommittee Scheduling

As a result of the significant number of requests for subcommittee meetings by the staff, particularly for the five new reactor design centers, criteria has been proposed to guide ACRS staff in scheduling subcommittee meetings to balance the workload for members. These criteria include:

(1) No simultaneous SC meetings on New Reactor Design Centers;
(2) No simultaneous SC meetings on technical areas that draw from similar ACRS skill sets;
(3) Minimize the use of 2-day meetings
(4) No more than 3-4 days of SC meetings in one week;

To assist members with the schedule of subcommittee meetings in the coming months, ACRS staff has developed a scheduling tool (attachment on pp. 18-23) that summarizes each subcommittee meeting by room, date and time, members attending and the topic(s) to be discussed.

Proactive Initiatives

This is a follow up from the March P&P meeting on the availability of contract resources. Member Michael Corradini suggested using faculty and university scientists to research long-term technical projects in support of ACRS activities. These projects would be under the purview of the ACRS Senior Technical Advisor, Dr. Hossein Nourbakhsh, with input from the ACRS technical staff. Member Michael Ryan has suggested using a Ph.D. candidate in environmental management at the Vanderbilt University to develop a white paper that would address risk-informed performance-based regulation for low level radioactive management.

Possible Meeting with the Defense Nuclear Facilities Safety Board (DNFSB)

The ACRS Charter states that the DNFSB "may obtain the advice and recommendations of the Advisory Committee on Reactor Safeguards" with regard to the hazards of DOE nuclear activities and facilities. Congress created DNFSB in 1988 as an independent oversight organization charged with providing advice and recommendations to the Secretary of Energy "to ensure adequate protection of public health and safety" at DOE's defense nuclear facilities. A DNFSB staff member has contacted the ACRS staff to discuss a potential meeting between the DNFSB and ACRS. The topics proposed by the DNFSB are listed below:

a) Use of and guidance for PRAs in support safety basis development (lessons learned with respect to deterministic safety assessment),

b) Quality assurance for PRAs,

c) Use of PRA to support prioritization of corrective actions,

d) Discuss using ACRS as a model for a National Nuclear Security Administration (NNSA) Federal Advisory Committee Act compliant review body for nuclear explosive safety,

e) Lessons for NNSA from ACRS oversight of safety-related research and development,

f) Requests for support from the ACRS by the Board as provided for in the Board's Enabling Legislation

g) The growing use of numerical simulations,

h) Greater use of probabilistic assessments of risk in regulatory processes,

i) Rapidly evolving understanding of fire events and the assessment of risks from fire damage in nuclear facilities,

j) Materials degradation assessment,

k) Operational experience research,

l) Seismic safety research in support of regulatory activities,

m) Updated modeling capabilities for severe accident safety analyses,

n) International experimental collaborations to share costs of validation of new computational tools

o) Currently, computational fluid dynamics (CFD) is limited to the use of some commercial CFD codes. Commercial CFD codes are used in the process industry for qualitative indications of phenomena, but they are validated to a much less rigorous standard than codes for nuclear use, and the source codes are not available. In addition, they appear to include a number of ad hoc fixes to improve stability and robustness which may affect their predictive capability for situations that cannot be studied experimentally.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the 574th ACRS Meeting, July 14-16, 2010.

A list of documents that were provided to the Committee during the 573rd ACRS Meeting is listed in Appendix V.

The meeting was adjourned at 7:00 p.m. on June 10, 2010.

prepare emergency plans. The information specified in this guide should be included in the licensee's emergency plan to comply with the requirements of 10 CFR 30.32(i)(3), 40.31(j)(3), 63.161, 70.22(i)(3), 72.32, and 76.91.

II. Further Information

The NRC staff is soliciting comments on DG–3039. Comments may be accompanied by relevant information or supporting data and should mention DG–3039 in the subject line.

ADDRESSES: You may submit comments by any one of the following methods. Please include Docket ID NRC–2010–0181 in the subject line of your comments. Comments submitted in writing or in electronic form will be posted on the NRC Web site and on the Federal rulemaking Web site Regulations.gov. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed.

The NRC requests that any party soliciting or aggregating comments received from other persons for submission to the NRC inform those persons that the NRC will not edit their comments to remove any identifying or contact information, and therefore, they should not include any information in their comments that they do not want publicly disclosed.

Federal Rulemaking Web site: Go to *http://www.regulations.gov* and search for documents filed under Docket ID NRC–2010–0181. Address questions about NRC dockets to Carol Gallagher 301–492–3668; e-mail *Carol.Gallagher@nrc.gov.*

Mail comments to: Chief, Rulemaking, Announcements and Directives Branch (RADB), Division of Administrative Services, Office of Administration, Mail Stop: TWB–05–B01M, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, or by fax to RDB at (301) 492–3446.

You can access publicly available documents related to this notice using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied for a fee publicly available documents at the NRC's PDR, Room O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

NRC's Agencywide Documents Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html.* From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1–800–397–4209, 301–415–4737, or by e-mail to *pdr.resource@nrc.gov. Federal Rulemaking Web site:* Public comments and supporting materials related to this notice can be found at *http://www.regulations.gov* by searching on Docket ID: NRC–2010–0181.

Comments would be most helpful if received by July 12, 2010. Comments received after that date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date. Although a time limit is given, comments and suggestions in connection with items for inclusion in guides currently being developed or improvements in all published guides are encouraged at any time.

Requests for technical information about DG–3039 may be directed to the NRC contact, Kevin M. Ramsey at (301) 492–3123 or e-mail *Kevin.Ramsey@nrc.gov.*

Electronic copies of DG–3039 are available through the NRC's public Web site under Draft Regulatory Guides in the "Regulatory Guides" collection of the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/doc-collections/.* Electronic copies are also available in ADAMS (*http://www.nrc.gov/reading-rm/adams.html*), under Accession No. ML093290274.

In addition, regulatory guides are available for inspection at the NRC's Public Document Room (PDR) located at 11555 Rockville Pike, Rockville, Maryland. The PDR's mailing address is USNRC PDR, Washington, DC 20555–0001. The PDR can also be reached by telephone at (301) 415–4737 or (800) 397–4205, by fax at (301) 415–3548, and by e-mail to *pdr.resource@nrc.gov.*

Regulatory guides are not copyrighted, and Commission approval is not required to reproduce them.

Dated at Rockville, Maryland, this 11th day of May, 2010.

For the Nuclear Regulatory Commission.

Andrea D. Valentin,

Chief, Regulatory Guide Development Branch, Division of Engineering, Office of Nuclear Regulatory Research.

[FR Doc. 2010–11975 Filed 5–18–10; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards

In accordance with the purposes of Sections 29 and 182b of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards (ACRS) will hold a meeting on June 9–11, 2010, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the **Federal Register** on Monday, October 14, 2009, (74 FR 52829–52830).

Wednesday, June 9, 2010, Conference Room T2–B1, 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.: Draft Final Regulatory Guide (RG) 1.216, "*Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure*" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding draft final RG 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure," and the NRC staff's resolution of public comments.

10:45 a.m.–12 p.m.: Discussion of Topics for Meeting with the Commission (Open)—The Committee will discuss the following topics in preparation for the meeting with the Commission: Risk-Informed Performance-Based Fire Protection, NRC Safety Research Program, Draft Guidance for Use of Containment Accident Pressure, and Rulemaking for Disposal of Depleted Uranium.

1:30 p.m.–3:30 p.m.: Meeting with the Commission (Open)—The Committee will hold discussions with the Commission regarding the topics noted above.

3:45 p.m.–5 p.m.: Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions (Open)—The Committee will hold discussions with representatives of the NRC staff regarding a proposed rule on distribution of source materials to exempt persons and to general licensees and revision of general license and exemptions.

5:15 p.m.–7 p.m.: Preparation of ACRS Reports (Open)—The Committee

will discuss proposed ACRS reports on matters discussed during this meeting.

Thursday, June 10, 2010, Conference Room T2-B1, 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 a.m.: Proposed Interim Staff Guidance (ISG) DC/COL/-ISG–013, "*Assessing the Consequences of an Accidental Release of Radioactive Materials from Waste Tanks,*" *and Proposed DC/COL–ISG–014,* "*Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases*" (Open)—The Committee will hold discussions with representatives of the NRC staff regarding proposed ISG–013, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Waste Tanks," and proposed ISG–014, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases."

10:15 a.m.–12 p.m.: Status of Risk-Informing Guidance of New Reactors (Open)—The Committee will hold discussions with representatives of the NRC staff regarding the current status of risk-informing guidance for new reactors.

1 p.m.–2:30 p.m.: Generic Safety Issue (GSI)–191, "*Assessment of Debris Accumulation on PWR Sump Performance*" (Open)—The Committee will hold discussions with representatives of the NRC staff regarding the current status towards resolution of GSI–191.

2:45 p.m.–4:15 p.m.: Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed)—The Committee will discuss the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the Full Committee during future ACRS meetings, including anticipated workload and member assignments.

[Note: A portion of this session may be closed pursuant to 5 U.S.C. 552b (c)(2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACRS, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.]

4:15 p.m.–4:30 p.m.: Reconciliation of ACRS Comments and Recommendations (Open)—The Committee will discuss the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

4:45 p.m.–7 p.m.: Preparation of ACRS Reports (Open)—The Committee will continue its discussion of proposed ACRS reports.

Friday, June 11, 2010, Conference Room T2–B1, Two White Flint North, Rockville, Maryland

12 p.m.–2 p.m.: Preparation of ACRS Reports (Open)—The Committee will continue its discussion of proposed ACRS reports.

2 p.m.–2:30 p.m.: Miscellaneous (Open)—The Committee will continue its discussion related to the conduct of Committee activities and specific issues that were not completed during previous meetings.

Procedures for the conduct of and participation in ACRS meetings were published in the **Federal Register** on October 14, 2009, (74 FR 52829–52830). In accordance with those procedures, oral or written views may be presented by members of the public, including representatives of the nuclear industry. Persons desiring to make oral statements should notify Mr. Derek Widmayer, Cognizant ACRS Staff (Telephone: 301–415–7366, E-mail: *Derek.Widmayer@nrc.gov*), five days before the meeting, if possible, so that appropriate arrangements can be made to allow necessary time during the meeting for such statements. 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.

Thirty-five hard copies of each presentation or handout should be provided 30 minutes before the meeting. In addition, one electronic copy of each presentation should be emailed to the Cognizant ACRS Staff one day before meeting. If an electronic copy cannot be provided within this timeframe, presenters should provide the Cognizant ACRS Staff with a CD containing each presentation at least 30 minutes before the meeting.

In accordance with Subsection 10(d) Public Law 92–463, and 5 U.S.C. 552b(c), certain portions of this meeting may be closed, as specifically noted above. 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. Electronic recordings will be permitted only during the open portions of the meeting.

ACRS meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at *pdr.resource@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/.*

Video teleconferencing 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. (ET), 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 video teleconferencing link. The availability of video teleconferencing services is not guaranteed.

Dated: *May 13, 2010.*

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. 2010–11967 Filed 5–18–10; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[NRC–2010–0002]

Sunshine Act Notice

DATES: Weeks of May 17, 24, 31, June, 7, 14, 21, 2010.

PLACE: Commissioners' Conference Room, 11555 Rockville Pike, Rockville, Maryland.

STATUS: Public and Closed.

Week of May 17, 2010

There are no meetings scheduled for the week of May 17, 2010.

Week of May 24, 2010—Tentative

Thursday, May 27, 2010

9:30 a.m. Briefing on the Results of the Agency Action Review Meeting, (AARM) (Public Meeting), (Contact: Nathan Sanfilippo, 301–415–3951).

This meeting will be webcast live at the Web address—*http://www.nrc.gov.*

Week of May 31, 2010—Tentative

There are no meetings scheduled for the week of May 31, 2010.

Appendix II

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

May 12, 2010

AGENDA
573rd ACRS MEETING
JUNE 9-11, 2010

WEDNESDAY, JUNE 9, 2010, CONFERENCE ROOM T-2B1, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

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

2) 8:35 – ~~10:30~~ 9:30 A.M. Draft Final Regulatory Guide (RG) 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure" (Open) (WJS/ZA)
- 2.1) Remarks by the Subcommittee Chairman
- 2.2) Briefing by and discussions with representatives of the NRC staff regarding draft final RG 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure," and the staff's resolution of public comments.

~~10:30~~ 9:30 – ~~10:45~~ 10:00 A.M. ***** BREAK *****

3) ~~10:45~~ 10:15 – ~~12:00 P.M.~~ 11:00 am Discussion of Topics for Meeting with the Commission (Open) (SAK, et al. /EMH, et al.)
Discussion of the following topics for meeting with the Commission:
- 3.1) Overview
- 3.2) Risk-Informed Performance-Based Fire Protection
- 3.3) NRC Safety Research Program
- 3.4) Draft Guidance for Use of Containment Accident Pressure
- 3.5) Rulemaking for Disposal of Depleted Uranium

12:00 – 1:30 P.M. ***** LUNCH *****

4) 1:30 – 3:30 P.M. Meeting with the Commission (Open) (SAK, et al. /EMH, et al.)
Meeting with the Commission, Commissioners' Conference Room, One White Flint North, to discuss topics listed under Item 3.

3:30 – 3:45 P.M. ***** BREAK *****

5) 3:45 – 5:00 P.M. Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions (Open) (MTR/NMC)

5.1) Remarks by the Subcommittee Chairman

5.2) Briefing by and discussions with representatives of the NRC staff regarding a proposed rule on distribution of source materials to exempt persons and to general licensees and revision of general license and exemptions.

5:00 – 5:15 P.M. ***** BREAK *****

6:00

6) 5:15 – ~~7:00~~ P.M. Preparation of ACRS Reports (Open)

Discussion of proposed ACRS reports on:

5:20-5:45

6.1) Draft Final RG 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure" (WJS/ZA)

6.2) Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions (MTR/NMC)

11:16-11:57

6.3) Response to the NRC Executive Director for Operations (EDO) regarding NUREG-1520, Revision 1, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (MTR/DAP/NMC)

THURSDAY, JUNE 10, 2010, CONFERENCE ROOM T-2B1, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

7) 8:30 – 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (SAK/EMH)

8) 8:35 – 10:00 A.M. Proposed Interim Staff Guidance (ISG) DC/COL-ISG-013, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Waste Tanks," and Proposed DC/COL-ISG-014, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases" (Open) (MTR/DAW)

8.1) Remarks by the Subcommittee Chairman

8.2) Briefing by and discussions with representatives of the NRC staff regarding proposed ISG-013, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Waste Tanks," and proposed ISG-014, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases."

10:45

10:00 – ~~10:15~~ A.M. ***** BREAK ***** FIRE DRILL

11:00 - 12:30

9) ~~10:15 – 12:00~~ P.M. Status of Risk-Informing Guidance for New Reactors (Open) (JWS/JCL)

9.1) Remarks by the Subcommittee Chairman

9.2) Briefing by and discussions with representatives of the NRC staff regarding the current status of risk-informing guidance for new reactors.

12:00 – 1:00 P.M. ***** LUNCH *****

10) 1:00 – 2:30 P.M. Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR Sump Performance" (Open) (SB/WW)

10.1) Remarks by the Subcommittee Chairman

10.2) Briefing by and discussions with representatives of the NRC staff regarding the current status towards resolution of GSI-191.

2:30 – 2:45 P.M. ***** BREAK *****

11) 2:45 – 4:15 P.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed) (SAK/EMH)

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

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

[NOTE: A portion of this session may be closed pursuant to 5 U.S.C. 552b (c)(2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACRS, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.]

12) 4:15 – 4:30 P.M. Reconciliation of ACRS Comments and Recommendations (Open) (SAK/CS/AFD)

Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

4:30 – 4:45 P.M. ***** BREAK *****

13) 4:45 – 7:00 P.M. Preparation of ACRS Reports (Open)

Discussion of proposed ACRS reports on:

4:37-6:07 13.1) Draft Final RG 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure" (WJS/ZA)

4:19-4:31 13.2) Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions (MTR/NMC)

13.3) Response to the EDO regarding NUREG-1520, Revision 1, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (MTR/DAP/NMC)

13.4) Proposed ISG-13, "Accidental Release of Radioactive Materials from Waste Tanks" and proposed ISG-14, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases" (MTR/DAW)

FRIDAY, JUNE 11, 2010, CONFERENCE ROOM T-2B1, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND 8:30-8:45, RG1.216

14) 12:00 – 2:00 P.M. Preparation of ACRS Reports (Open)
Continue discussion of the proposed ACRS reports listed under Item 13.

15) 2:00 – 2:30 P.M. Miscellaneous (Open) (SAK/EMH)
Discussion of matters related to the conduct of Committee activities and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTES:

- When appropriate, members of the public and representatives of the nuclear industry may provide their views during the briefings.
- During the days of the meeting, phone number 301-415-7360 should be used in order to access anyone in the ACRS Office.
- Presentation time should not exceed 50 percent of the total time allocated for a given item. The remaining 50 percent of the time is reserved for discussion.
- Thirty five (35) hard copies and one (1) electronic copy of the presentation materials should be provided to the ACRS in advance of the briefing.
- One (1) electronic copy of each presentation should be emailed to the Designated Federal Official 1 day before the meeting. If an electronic copy cannot be provided within this timeframe, presenters should provide the Designated Federal Official with a CD containing each presentation at least 30 minutes before the meeting.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 9, 2010

	NAME	NRC ORGANIZATION
1	Christy Fisher	NMSS/FCSS/TSB
2	Mark Henry Salley	RES/DRA/FRB
3	ANDREW CARRERA	FSME/DILR
4	Gary Comfort	FSME/DILR
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 10, 2010

NAME	NRC ORGANIZATION
Eugene Moore	AREVA.
Nageswara R. Karipineni	NRR/DSS/SSIB
Steve Smith	NRC/DSS/SSIB
Shu Pradhan	NRC/DSS
Chris Hunt	NRR/DC1
Joe Donoghue	NRO

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 10, 2010

NAME	NRC ORGANIZATION
Sheryl Burrows	NRO/DNRL/NRGA
Ed Roach	NRO/DCIP/CHPB
Jean Claude Dehmel	NRO/DCIP/CHPB
Rich Clement	NRO/DCIP/CHPB
Jim SHEINERD	FSME/DWMEP/RDB
Joseph Kanney	RES/DRA/ETB
Tom Nicholson	RES/DRA
Jill Caverly	NRO/DSER/RHEB
Rani Franovich	NRR/DIRS/IPAB
Jocelyn Lian	NRR/DIRS/IPAB
Audrey Klett	NRR/DIRS/IPAB
DON HELTON	NRC/RES/DRA
JOSEPH GIACINTO	RITER
Margaret Sharkey	RHEB
Kimberly Keithline	NEI
Patrick O'Regon	EPRI
T.R. TJADEN	NRO/DCIP/CTSB
Stephen Dinsmore	NRR/DRA/APLA
STEVEN LAUR	NRR/DRA
THOMAS KOSHY	RES/DE/MEEB
Marilyn Diaz	NRR/DCI
John BUTLER	NEI
TIM ANDREYCHEK	WESTINGHOUSE
Steve DiTommaso	Westinghouse
FARIBA GARTLAND	AREVA
Gordon Wesenger	AREVA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 9, 2010

	NAME	AFFILIATION
1	William Slagle	Westinghouse
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		

NRC

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 10, 2010

NAME	AFFILIATION
John Thompson	NRR-DIRS
DON DUBE	NRO/DSRA
Nathan Sanfilippo	OEDO
Kevin Roche	NRR/DIRS/IPAB
Fred Brown	NRR/DIRS
Ron Frahm	NRR/DIRS
Theresa Clark	NRO/DSRA
Dan Gallagher	SAIC
CRAIG SOLERS	ALION
William Slagle	Westinghouse
Steven Dottori	PNNL
Gary DeMoss	RES
Alan Levin	AREVA
Michael Scott	NRR/DSS
Emma Wong	NRR/DCI
Matt Yoder	NRR/DCI
John Burke	RESIDE
John TSAO	NRR/DCI
Patrick Ernst	NRR/DCI
Roberto Torres	NRR/DSS
Steve Jones	NRR/DSS
Joe Golla	NRR
Robert Taylor	NRR/DCI
John Lehning	NRC
Chris Hott	NRC
ROSS Powers	NRO/DNRL/NARP
Bruce Lin	RES/DE
ERVIN GEIGER	NRR/DSS
JAMES VAIL	NRR/DSS
ERIC OESTERLE	NMSS

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
573rd FULL COMMITTEE MEETING

June 9-11, 2010

PLEASE PRINT

TODAY'S DATE: June 10, 2010

NAME	AFFILIATION
Jairus Freeney	MNES
Koro Umada	MNES
William Slagle	Westinghouse
Stacey Rosenberg	NRC/DCI
PATRICK Donnelly	NRC
Amy Aughtman	SNC
[illegible]	WESTINGHOUSE
Charles Brinkman	"

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

June 18, 2010

AGENDA
574th ACRS MEETING
July 14-16, 2010

WEDNESDAY, JULY 14, 2010, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD

1) 8:30 AM - 8:35 AM — Opening Remarks by the ACRS Chairman (Open) (SAK/EMH)
- 1.1) Opening Statement
- 1.1) Items of Current Interest

2) 8:35 AM - 10:30 AM — Safety Evaluation Report with Open Items Associated with the South Texas Project Combined License Application (Open/Closed) (SAK/MB)
- 2.1) Remarks by the Subcommittee Chairman
- 2.2) Briefing by and discussions with representatives of the NRC staff and the South Texas Project Nuclear Operating Company regarding the Safety Evaluation Report with Open Items associated with the South Texas Project Combined License Application

[NOTE: A portion of this session may be closed in order to discuss and protect proprietary information pursuant to 5 U.S.C 552b(c)(4)

10:30 AM - 10:45 AM — ***BREAK***

3) 10:45 AM - 12:15 PM — Draft Final Regulatory Guide (RG) 3.74, "Guidance for Fuel Cycle Facility Change Processes" (Open) (DAP/NMC)
- 3.1) Remarks by the Subcommittee Chairman
- 3.2) Briefing by and discussions with representatives of the NRC staff regarding draft final RG 3.74, "Guidance for Fuel Cycle Facility Change Processes," and the staff's resolution of public comments.

12:15 PM - 1:15 PM *****LUNCH/BREAK*****

4) 1:15 PM - 3:00 PM Meeting with Representatives of the Nuclear Energy Institute (NEI) (Open) (JDS/KH)
- 4.1) Remarks by the Subcommittee Chairman
- 4.2) Briefing by and discussions with representatives of the Nuclear Energy Institute (NEI) on items of mutual interest

3:00 - 3:15 PM *****BREAK*****

5) 3:15 PM - 7:00 PM Preparation of ACRS Reports (Open)
- 5.1) Safety Evaluation Report with Open Items Associated with the South Texas Project Combined License Application (SAK/MB)
- 5.2) Draft Final Regulatory Guide 3.74, “Guidance for Fuel Cycle Facility Change Processes” (DAP/NMC)
- 5.3) Closure of Design Acceptance Criteria/Inspection Test Analysis and Acceptance Criteria (DAC/ITAAC) (DCB/CEA/IB)
- 5.4) Risk-Informed Guidance for New Reactors (JWS/JCL)

THURSDAY, JULY 15, 2010, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD

6) 8:30 AM - 8:35 AM Opening Remarks by the ACRS Chairman (Open) (SAK/EMH)

7) 8:35 AM - 9:30 AM Interim Staff Guidance DC/COL-ISG-017, "Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses" (Open) (WJS/DAW)
- 7.1) Remarks by the Subcommittee Chairman
- 7.2) Briefing by and discussions with representatives of the NRC staff regarding DC/COL-ISG-017, "Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses"

8) 9:30 AM - 10:30 AM Interim Staff Guidance (ISG) DC/COL-ISG-020, "Implementation of Seismic Margin Analysis for New Reactors Based on PRA" (Open) (DCB/DAW)
- 8.1) Remarks by the Subcommittee Chairman
- 8.2) Briefing by and discussions with representatives of the NRC staff regarding DC/COL-ISG-020, "Implementation of Seismic Margin Analysis for New Reactors Based on PRA"

10:30 AM - 10:45 AM *****BREAK*****

9) 10:45 AM - 12:15 PM

Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed) (SAK/EMH)

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

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

[NOTE: A portion of this meeting may be closed pursuant to 5 U.S.C. 552b (c) (2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACRS, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.]

10) 12:15 PM - 12:30 PM

Reconciliation of ACRS Comments and Recommendations (Open) (SAK/DW/CS/AFD)

Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

12:30 PM - 1:30 PM *****LUNCH*****

11) 1:30 PM - 2:30 PM

Assessment of the Quality of Selected NRC Research Projects (Open) (DAP/HN)

11.1) Remarks by the Subcommittee Chairman

11.2) Discussions with members of the ACRS Panels performing the quality assessment of the NRC research projects on: NUREG/CR-6947, “Human Factors Consideration with Respect to Emerging Technology in Nuclear Power Plants," and NUREG/CR-6997, “Modeling a Digital Feedwater Control System Using Traditional Probabilistic Risk Assessment Methods”

12) 2:30 PM - 7:00 PM

Preparation of ACRS Reports (Open)

12.1) Safety Evaluation Report with Open Items Associated with the South Texas Project Combined License Application (SAK/MB)

12.2) Draft Final Regulatory Guide 3.74, “Guidance for Fuel Cycle Facility Change Processes” (DAP/NMC)

12.3) Closure of Design Acceptance Criteria/Inspection Test Analysis and Acceptance Criteria (DAC/ITAAC) (DCB/CEA/IB)
12.4) Risk-Informed Guidance for New Reactors (JWS/JCL)
12.5) Assessment of the Quality of Selected NRC Research Projects (DAP/HN)

FRIDAY, JULY 16, 2010, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD

13) 12:00 PM - 2:00 PM — Preparation of ACRS Reports (Open)
Continue discussion of the proposed ACRS reports listed under Item 12. There may be a 15 minute break at some point during this activity.

14) 2:00 PM - 2:30 PM — Miscellaneous (Open)(SAK/EMH)
Discussion of matters related to the conduct of Committee activities and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTES:

- When appropriate, members of the public and representatives of the nuclear industry may provide their views during the briefings.
- During the meeting, phone number 301-415-7360 should be used in order to contact anyone in the ACRS Office.
- Presentation time should not exceed 50 percent of the total time allocated for a given item. The remaining 50 percent of the time is reserved for discussion.
- Thirty five (35) hard copies and one (1) electronic copy of the presentation materials should be provided to the ACRS in advance of the briefing.
- One (1) electronic copy of each presentation should be emailed to the Designated Federal Official 1 day before the meeting. If an electronic copy cannot be provided within this timeframe, presenters should provide the Designated Federal Official with a CD containing each presentation at least 30 minutes before the meeting.

APPENDIX V

LIST OF HANDOUTS
571ST ACRS MEETING
APRIL 8-10, 2010

I. Opening Remarks by the ACRS Chairman
1. Opening Remarks
2. Items of Interest

II Draft Final Regulatory Guide (RG) 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings above Design-Basis Pressure"
3. Table of Contents
4. Proposed Agenda
5. Status Report
6. Staff Memorandum, "Transmittal of Draft Commission Paper on Risk-Informed Regulatory Guidance for New Reactors", dated May 12, 2010
7. Staff Memorandum to the Commissioners, "Alternative Risk Metrics for New Light-Water Reactor Risk-Informed Applications", dated February 12, 2009
8. White Paper on "Options for Risk Metrics for New Reactors", dated February 12, 2009
9. Report from Thomas Kress, "Recommendation on the Options for Risk Metrics for New LWRs", dated May 16, 2010

V. Proposed Rulemaking on Distribution of Source Materials to Exempt Persons and to General Licensees and Revision of General License and Exemptions
10. Status Report
11. SECY-09-0179, Rulemaking Issue Notation Vote dated December 10, 2009
12. NRC 40.22 Rulemaking: Unintended Consequences
13. Proposed Rulemaking on Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions

VIII. Proposed Interim Staff Guidance (ISG) DC/COL-ISG-013, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Waste Tanks," and Proposed DC/COL-ISG-014, "Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases"
14. Proposed Agenda
15. Status Report
16. DC/COL-ISG-013*, "Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks for Combined License Applications"*
17. DC/COL-ISG-014, "*Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases*"

APPENDIX V

LIST OF HANDOUTS
571ST ACRS MEETING
APRIL 8-10, 2010

IX. Status of Risk-Informing Guidance for New Reactors

18. Table of Contents
19. Proposed Agenda
20. Status Report
21. Staff Memorandum, "Transmittal of Draft Commission Paper on Risk-Informed Regulatory Guidance for New Reactors", dated May 12, 2010
22. Staff Memorandum to the Commissioners, "Alternative Risk Metrics for New Light-Water Reactor Risk-Informed Applications", dated February 12, 2009
23. White Paper on "Options for Risk Metrics for New Reactors", dated February 12, 2009
24. Report from Thomas Kress, "Recommendation on the Options for Risk Metrics for New LWRs", dated May 16, 2010

X. Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR Sump Performance

25. Status Report

RG 1.216 on Containment Structural Integrity Evaluation for Internal Pressure Loadings Above Design-Basis Pressure (For New Reactors)

Prepared by: Robert Roche and Jose Pires, NRC/RES/DE/SGSEB
Joseph Braverman and Richard Morante, BNL

ACRS Briefing
June 9, 2010
Rockville, MD

Outline:

- Background
- Objective
- Description

Background:

- This RG is intended to ensure appropriate and consistent implementation of regulatory criteria related to structural integrity of the containment for beyond design-basis pressure loadings.
  - The RG will provide detailed and up-to-date guidance on deterministic methods to evaluate containment structural integrity under pressure loads above design-basis pressures for new light water reactors design.
- Motivation:
  - Complement and consolidate guidance pertaining to containment structural integrity evaluation for internal pressure loadings above design-basis pressure (i.e. RG 1.136, 1.57, 1.7 and 1.206)
  - Issues identified during licensing reviews

Background (Cont.):

- Example of issues identified during licensing reviews:
  - Use of internal pressure loading for the combustible gas generation inside containment equal to 45 psig, without consideration of pressures generated by a 100% fuel cladding-water reaction.
  - Questions regarding what severe accidents and acceptable structural integrity criteria should be considered for an analysis that addresses NRC's deterministic containment performance goals in SECY-90-16, SECY-93-087, and corresponding SRMs.

Background (Cont.):

Timeline:

- Dec 2008 – Issued for public comments
- Feb 2009 – Received public comments
- DG revision with staff working group and BNL
- Oct 2009 – Category 2 public meeting
- June 2010 – Interoffice concurrence
- May/June 2010 – ACRS briefing
- July 2010 –RG publication

Objective:

- To provide guidance on methods acceptable to the NRC staff for:
  - predicting the internal pressure capacity for containment structures above the design-basis accident pressure
    - 10 CFR 50, Appendix A, GDC 50
  - demonstrating containment structural integrity related to combustible gas control
    - 10 CFR 52.47(a)(12), 52.79(a)(8), 50.44(c)5
  - demonstrating containment structural integrity for an analysis that addresses Commission's performance goals for the prevention and mitigation of severe accidents.
    - 10 CFR 52.47(a)(23), 52.79(a)(38).

Regulatory Position 1: Prediction of Containment Internal Pressure Capacity above Design-Basis Pressure

- 10 CFR 50, GDC 50:"Containment design basis. containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident…"
- **Purpose:** to provide an acceptable method for predicting the internal pressure capacity for containment structures above the internal pressure for the design-basis LOCA.
  - Internal pressure capacity at which the structural integrity is retained and a failure leading to a significant release of fission products does not occur.

Regulatory Position 1: (Cont.)

- **Related SRP sections**
  - 3.8.1 and 3.8.2, SRP Acceptance Criteria 4.K and 4.D, respectively.
- **Items Addressed:**
  - Staff expectations regarding the use of a nonlinear finite element analysis to evaluate the containment response
  - Staff expectations regarding the use of a "Simplified Method"
    - Strain limits specified for the evaluation
    - Concrete failure modes near discontinuities

Regulatory Position 1: (Cont.)

- Staff expectations regarding the use of a "Simplified Method" (Cont.)
  - The positions are consistent with criteria in SRP sections 3.8.1 and 3.8.2 with addition and clarification such as:
    - new position regarding verification of concrete shear and axial compression failures.
    - limits for the free-field hoop strain in the prestressing tendons apply to the total strain which is the strain from initial prestressing plus the strain from pressurization.
    - Defines global free field hoop strains limits for prestressed concrete containments
  - Information to be submitted in the FSAR and in which sections of the FSAR (i.e. Section 3.8).

Regulatory Position 2: Combustible Gas Control Inside Containment

- 52.47(a)(12) and 52.79(a)(8) for DC and COL applications respectively, require an analysis and description of the equipment and systems for combustible gas control as required by 10 CFR 50.44
- 50.44(c)(5)
  - "Structural analysis. An applicant must perform an analysis that demonstrates containment structural integrity… The analysis must address an accident that releases hydrogen generated from 100 percent fuel clad-coolant reaction accompanied by hydrogen burning…"
- **Purpose:** to provide an acceptable method to evaluate containment structural integrity to pressure loadings associated with hydrogen generation due to the reaction between fuel cladding and the water coolant.

Regulatory Position 2: (Cont.)

- This RG complements the guidance in RP 5 in RG 1.7
- In agreement with RP 5 in RG 1.7 it provides acceptance criteria to meet requirement in 10 CFR 50.44(c)(5).
  - Service Level C and Factored Load Category requirements of the ASME Code for steel and concrete containments respectively.
  - Load combination consisting of dead load and the higher of the following:
    - Pressure arising from fuel cladding-water reaction, hydrogen burning, and post accident inerting (if applicable), or
    - 45 psig.
- Additionally, it references the finite element model described in RP 1 of this RG, with some limitations, as an acceptable method to evaluate the containment structural integrity.
- Information to be submitted in the FSAR should be reported in section 3.8.

Regulatory Position 3: Commission's Severe Accident Performance Goal

- 52.47(a)(23) and 52.79(a)(38) for DC and COL applications respectively, require a description and analysis of design features for the prevention and mitigation of severe accidents.
- Section C.I.19.8 of RG 1.206 provides the following guidance:
  - "The applicant should provide a description and analysis of the design features to prevent and mitigate severe accidents, in accordance with the requirements in 10 CFR 52.47(23) or 10 CFR 52.79(a)(38), for a DC or a COL application, respectively. This review should specifically address the issues identified in SECY-90-016 and SECY-93-087, which the Commission approved in related SRMs dated June 26, 1990, and July 21, 1993, respectively, for prevention (…) and mitigation (…)."

Regulatory Position 3: Commission's Severe Accident Performance Goal (cont.)

- **Purpose:** to provide an acceptable method for an analysis that specifically addresses the performance goals identified in SECY-90-016 and SECY-93-087 and related SRMs for containment structures in nuclear power plants under severe accident conditions.
- SRM (July 21, 1993) to SECY-93-087 states:
  - "The containment should maintain its role as a reliable, leak-tight barrier (for example, by ensuring that containment stresses do not exceed ASME Service Level C limits for metal containments, or Factored Load Category for concrete containments) for approximately 24 hours following the onset of core damage under the more likely severe accident challenges and, following this period, the containment should continue to provide a barrier against the uncontrolled release of fission products."

Regulatory Position 3: Commission's Severe Accident Performance Goal (cont.)

- Key items:
  - Identification of more likely severe accident challenges
  - Criteria for structural integrity evaluation of the containment for the period after the initial 24 hours following the onset of core damage as it relates to the ability of the containment to continue to provide a barrier against the uncontrolled release of fission products.

More Likely Severe Accident Challenges

- Selection of accident sequences for consideration:
  - "The applicant provides the technical basis for the identification of the more likely severe accident challenges to be reviewed by the staff on a case-by-case basis. An example of an acceptable way to identify the more likely severe accident challenges is, to consider the sequences or plant damage states, which, when ordered by % contribution, represent 90% or more of the core damage frequency."
- Pressure-temperature demands
  - Select physically reasonable enveloping pressure-temperature demands from the identified sequences.
    - These demands define the deterministic loads for the structural analysis.
    - For concrete, it is generally acceptable to analyze the containment for the sequence or damage state with the highest pressure load and its co-existing temperature loading

Period Following Initial 24 hours after the Onset of Core Damage:

- "…the containment should continue to provide a barrier against the uncontrolled release of fission products."
- Acceptable ways for meeting the performance goal:
  - The maximum pressure/temperature demands following the initial 24-hour period is enveloped by the maximum pressure/temperature demands during the initial 24-hour period; or
  - The containment response under the maximum pressure/temperature following the initial 24-hour period meets applicable Level C or Factored Load acceptance criteria (as in the case of the first 24 hour period); or
  - The calculated release for the more likely severe accident challenges, following the initial 24 hour period, meets site-specific design criteria for fission product released from the containment, in accordance with the requirements of 10 CFR 100.21 and 10 CFR 50.34; or
  - Another alternative method if adequate justification is provided.
- For the evaluations to be conducted for the two time periods under consideration, the RG recommends using a finite element model such as that described in Regulatory Position 1.
- Information to be submitted in the FSAR should be reported in Section 19.

Public Comments

- Public comment period: December 9, 2008 to February 9, 2009.
  - 38 comments received by February 9, 2009.
- Comments by category as per NEI submittal:

Purpose	6
Applicability	11
Methodology	3
Acceptable Analysis Codes	2
Definitions	1
Limitations	10
Criteria	5

Public Comments (Cont.):

- Comments by Regulatory Position:

RP 1	4
RP 2	1
RP 3	7
RP 4	12
RP 1 and RP 3	2
RP 1 and RP 4	2
RP 3 and RP 4	1
Other	9

- Staff formed a working group for the resolution of the public comments that resulted in major revisions to the DG.

Public Comments (Cont.):

Major revisions include:

- The RG scope is for new light water reactor designs
- Clarification of the RG purpose and relation to existing requirements and guidance documents.
- Severe accident performance goals (SECY 93-087/SRM)
  - Approach to identify the <u>more likely severe accident challenges.</u>
  - Additional criteria for the period following the initial 24 hours after the onset of core damage.

Public Comments (Cont.):

Major revisions include:

- Removal of Regulatory Position (RP) 4, "Containment Fragility under Pressure Loads"
  - Item may require further development of technical bases and subsequent publication in a NUREG report or a standard.
  - This RG should focus on deterministic methods until subsequent research provides the technical bases for risk-informed performance-based regulatory guidelines.

Proposed Rulemaking on Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions

Andrew Carrera, Health Physicist
Rulemaking Branch A
Division of Intergovernmental Liaison and Rulemaking
FSME

June 9, 2010

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Topics

- Background on Part 40 and current general license and exemption conditions
- History of rulemaking.
- Part 40 current issues and proposed resolution through rulemaking
- Requesting public input

Background on current Part 40 general license and exemptions conditions

What does 10 CFR Part 40 cover?

40.1 Purpose

Establish procedures and criteria for the issuance of licenses to receive title to, receive, possess, use, transfer, or deliver source material and byproduct materials, as defined in this part, and establish and provide for the terms and conditions upon which the Commission will issue such licenses.

What is Source Material?

Source Material is defined as:

(1) Uranium or thorium, or any combination thereof, in any physical or chemical form, or

(2) Ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) uranium, (ii) thorium or (iii) any combination thereof.

Source material does not include special nuclear material.

* *Uranium and thorium are found naturally throughout the environment*

Regulation of Source Material

- Specific License
  - Yellow cake processors
  - Uranium conversion facilities
  - Mineral extractors
  - Uranium Mills (byproduct material)

- General License
  - Thorium-coated lens manufacturers
  - Water treatment facilities

- Exemption
  - Thorium lantern mantles
  - Thorium welding rods
  - Depleted Uranium Counterweights

"Small quantities" general license

- Section 40.22 provides a general license for "small quantities of source material"
  - Less than 15 pounds at any one time
  - Less than 150 pounds per calendar year

- Exempts licensee from Parts 19, 20, and 21
  - Exemption does not apply to Part 40 specific licensees

Exemptions

- Section 40.13(a) exempts source material in concentrations less than 0.05 percent by weight
- Section 40.13(b) exempts “unprocessed” source material
- Section 40.13(c) provides exemptions for use of certain products

History of section 40.22 rulemaking

What is the history of the rulemaking?

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

1999 Staff proposed multiple activities associated with Part 40 to the Commission in SECY-99-259

2000 Commission directed staff to move forward with developing rulemaking plan

2001 SECY-01-0072, "Draft Rulemaking Plan: Distribution of Source Material to Exempt Persons and to General Licensees and Revision of 10 CFR 40.22 General License"

What is the history of the rulemaking? (cont)

2003	SRM to SECY-01-0072
2004 - 2006	Data Collection
2006	SECY-06-0094, “Tracking or Providing Enhanced Controls for Category 3 Sources”/ SRM to SECY-06-0094
2007	PNNL-16148, Rev. 1, “Dose Assessments for Current and Projected Uses of Source Material under U.S. NRC General License and Exemption Criteria”

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

What are the issues with the current Part 40 and how do we resolve them through the proposed rulemaking?

Current identified issues with 10 CFR Part 40

1. Health and safety impacts in § 40.22 are not in alignment with current standards.

2. Lacking complete and timely information regarding distribution of source materials.

3. Changes in how some products are used under exemption.

4. Lacking clarity in certain requirements in § 40.22.

1) Health and safety impacts in § 40.22 are not in alignment with current standards

Health and safety requirements in § 40.22 are not in alignment with current standards

- Issues:
  - Part 40 not significantly revised since 1961.
  - PRM 40-27.
  - PNNL-16148, Rev.1 “Dose Assessment for Current and Projected Uses of Source Material Under a U.S NRC General License and Exemption Criteria”

Health and safety requirements in § 40.22 are not in alignment with current standards

PRM-40-27

- In January, 1999, Colorado Radiation Control Program was notified of activated radiation alarm at a landfill by dumpster used by a source material general licensee.
- 4.9 mR/hr (1.3 uCi/kg-hr) was measured on the exterior of the dumpster and initiated an investigation.
- General licensee vacated building with contamination level of 734 mrem/year (regulatory limit is 25 mrem/year).

Health and safety requirements in § 40.22 are not in alignment with current standards

Radiation Dose Assessment for Routine Use, Accidents, and Manufacturing Involving Thorium + Progeny Thin-Film Optical Coatings. (PNNL-16148, Rev. 1)

Scenario	Annual Scenario Dose (mrem)		
	Ingestion	Inhalation	Effective*
Routine Use (TV Camera Operator)			4.0 E-3
Accidents	8.2 E-4	6.4 E-2	6.5 E-2
Manufacturing	206	562	768

* Contribution from external dose considered negligible (except in routine use scenario where external dose predominates)

Health and safety requirements in § 40.22 are not in alignment with current standards

Resolution:

- Would make changes in possession limits.
  - Only in natural isotopic concentration or as depleted uranium.
  - Limited to 1.5 kg (3.3 lb) at once or 7 kg (15.4 lb) per calendar year if processed or in dispersible form.
  - No effective change in possession limit for non-dispersible materials or when removing uranium from drinking water.
- Would require contamination to be addressed when activities completed.

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

2) Lacking complete and timely information regarding distribution of source materials

Lacking complete and timely information regarding distribution of source materials

Issue:

- No method to allow understanding of amounts of source material distributed to exempt persons and general licensees.
- Difficulties in identifying general licensees.

Lacking complete and timely information regarding distribution of source materials

Resolution:

- New specific licenses for initial distribution of source material to exempt persons (§ 40.52) .
  - Would require specific license by NRC only.
  - Certain health and safety requirements would not apply to persons in Agreement States (AS) or importers.
  - Would require annual reporting of product types, quantities of products, and source material content of products.
  - May result in certain general licensees manufacturing exempt products to become specific licensees

Lacking complete and timely information regarding distribution of source materials

Resolution:

- New specific licenses for initial distribution of source material to general licensees (§ 40.54)
  - Would require specific license for distribution (issued by either NRC or an AS)
  - Would require labeling and quality control
  - Would require recipients to be notified of § 40.22 (or equivalent AS) requirements and appropriate safety precautions for handling, use, storage, and disposal
  - Would require annual reporting to NRC or AS where source material is distributed including to whom and how much to allow identification of general licensees

3) Changes in how some products are used under exemption

Changes in how some products are used under exemption

Issue:

- Changes in industry practices
  - Exempt products no longer being manufactured (i.e. uranium smoke detectors and glazed ceramic tablewares)
  - Reduced the concentration of source material used in the manufacturing practice (i.e. glasswares)
  - More prevalent use of thorium coated lenses

Changes in how some products are used under exemption

Resolution:

- Revision of certain exemptions.
  - Would remove exemption for uranium smoke detectors [§ 40.13(d)].
  - Would allow no new distributions of glazed ceramic tableware [§ 40.13(c)(2)(i)].
  - Would reduce allowable concentration of source material in glassware [§ 40.13(c)(2)(iii)].
  - Would expand exemption for thorium lenses [§ 40.13(c)(7)] to include coatings, but reduce allowable concentrations.

4) Lacking clarity in certain requirements in § 40.22

Lacking clarity in certain requirements in § 40.22

Issue:

- Waste disposal requirements
- Lack of direct citations to other applicable sections in Part 40

Lacking clarity in certain requirements in § 40.22

Resolution:

- Would clarify disposal and transfer requirements.
  - May not abandon.
  - May dispose of up to 0.5 kg per year for permanent disposal.
  - Disposal of other material must be consistent with § 20.2001.
- Direct citations to other applicable sections of Part 40 for general licensees.

Specific Questions to the Public

Questions to solicit public input

- Use of concentration limit for coatings
- Use of activity limits in possession limits in § 40.22
- Should surveys be required when § 40.22 licensees cease activities?
- Should § 40.22 be expanded to cover 11e.(2) byproduct material from mills?
- Should provisions be added to include source material and special nuclear material in items in the sealed source and device registry?
- Should § 40.25 and § 40.34 be revised to make them more useful?

Conclusion

- New specific licensees
- Providing additional health and safety
- Minimizing impacts

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Questions?

U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

Presentation to the 573rd ACRS Meeting

ISG-013: "Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks"
&
ISG-014: "Assessing Groundwater Flow and Transport of Accidental Radiological Releases"

June 10, 2010

Jean-Claude Dehmel (NRO/DCIP/CHPB) &
Hosung Ahn (NRO/DSER/RHEB)

Introduction (1/2)

- ISG-013 Purpose (SRP 11.2, BTP 11-6, and SRP 2.4.13)
  - Justify the selected tank and tank radioactivity inventory
  - Evaluate tank, tank location, and facility design features that may mitigate the impact of a release
  - Conduct a radiological assessment of the postulated failure of a tank containing liquid waste on surface and ground water
  - Assign TS for maximum radioactivity inventory in tank
  - If facility design or site fail acceptance SRP criteria, applicant can:
    - > upgrade the tank and tank room designs, or
    - > reduce TS limits on tank's maximum radioactivity inventory

- ISG-014 Purpose (SRP 2.4.12, SRP 2.4.13, and RG 1.206)
  - To clarify FSAR 2.4.12&13 radiological consequence analysis in groundwater in order to more efficiently meet regulatory requirements.
  - To reconcile the inconsistencies between the existing guides
  - To provide practical guidance in reviewing:
    - * Base hydrologic condition
    - * Hydrogeologic characterization
    - * Pathways and receptor
    - * Groundwater modeling
    - *

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Introduction (2/2)

- Why are these ISGs needed?
  - Guidance difficult to implement based on experience in reviewing ESP/COL applications
  - Current guidance is internally inconsistent between SRP Sections 2.4.12 & 2.4.13 and SRP 11.2 & BTP 11-6
  - Clarify technical guidance and regulatory requirements in applying SRP Section 11.2 with BTP 11-6 and SRP Sections 2.4.12 and 2.4.13 for the review of associated FSAR sections
  - Reconcile differences in existing guides to facilitate applicant‘s efforts in responding to regulatory requirements and guidance
  - Facilitate and expedite the staff’s review of related FSAR sections of ESP/COL applications

Regulatory Basis

- Regulatory Basis
  - 10 CFR 52.79, as it relates to equipment used to control releases
  - 10 CFR 50.34a, as it relates to equipment used to control releases
  - 10 CFR 50.36a, as it relates to technical specifications
  - GCD 60 and 61 (Part 50, App. A), as they relate to the control of releases
  - 10 CFR 100.20 (c)(3), as it relates to establish on-site hydrogeologic characters

- Regulatory Guidance
  - SRP Section 11.2 & BTP 11-6 for release scenario and source term
  - SRP Sections 2.4.12 & 2.4.13 for ground water flow and transport
  - RG 1.206 Sections 11.2, 2.4.12, & 2.4.13, as guidance to COL applicants
  - RG 1.143, as it relates to the design features of LWMS
  - RG 1.113 and NUREG/CR-3332, as they relate to modeling aquatic dispersion
  - NUREG/CR-6805, as it relates to the development of conceptual site models

- SRP 11.2 and BTP 11-6 Acceptance Criteria Adopted from:
  - 10 CFR Part 20, App. B , Table 2, Col, 2 effluent concentration limits, *or*
  - 10 CFR Part 20 limit of 100 mrem for non-drinking water pathways

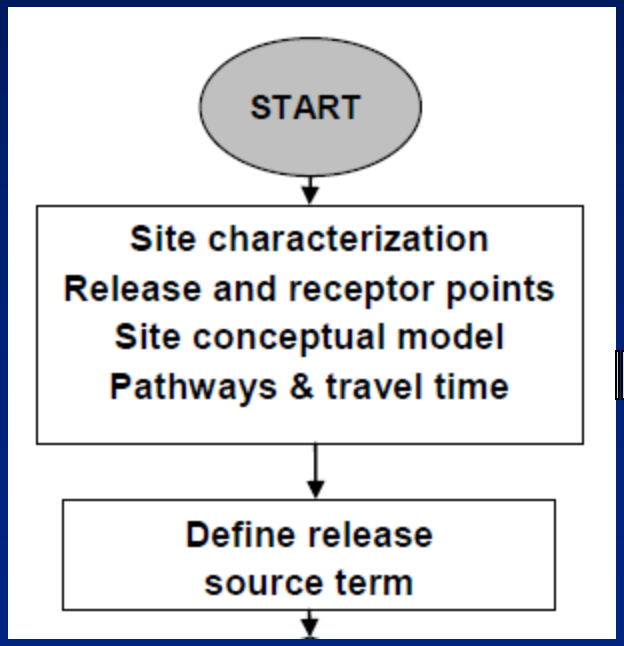
ISG-013 Interim Guidance

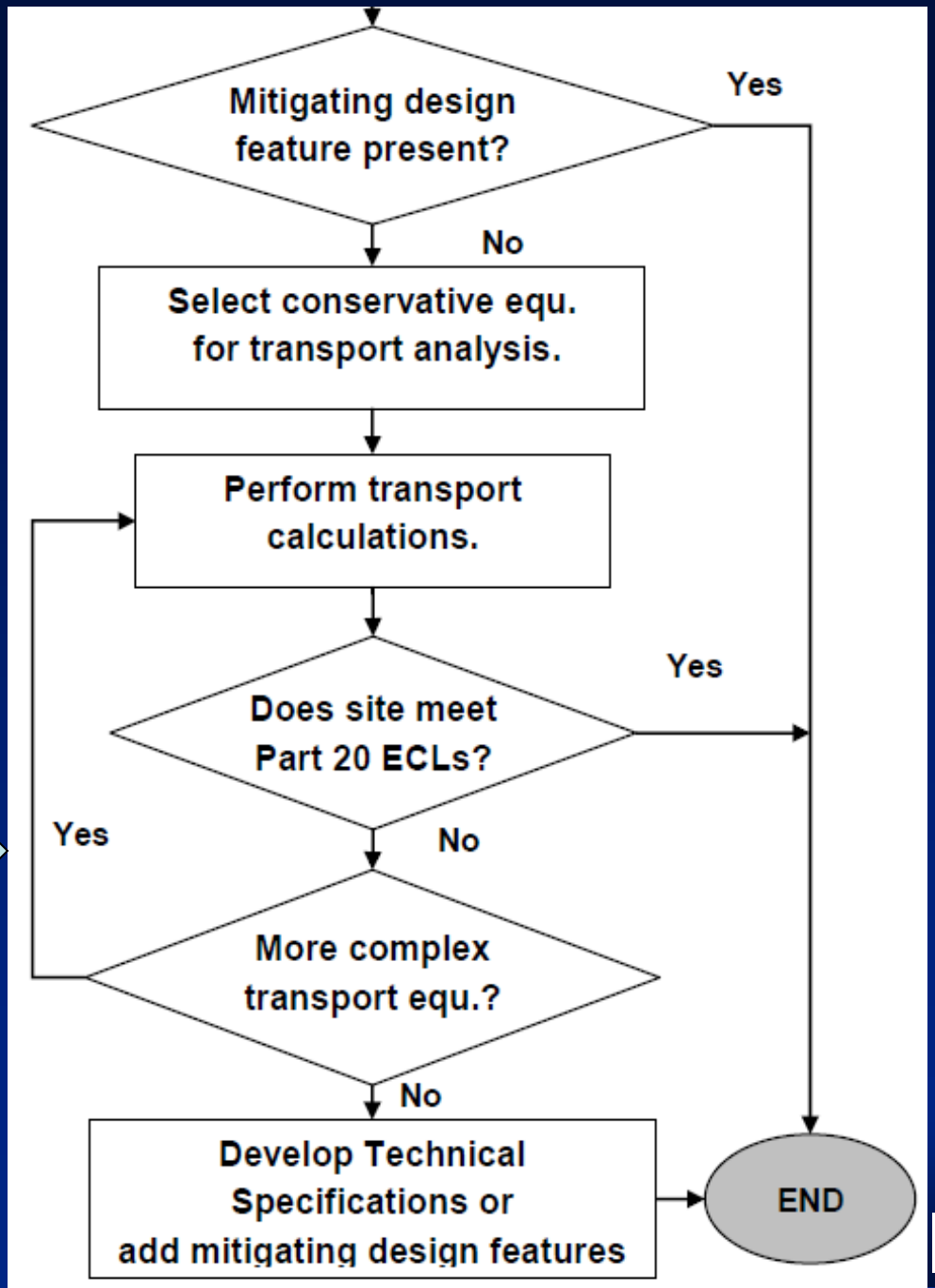
- Proposed ISG-013 clarifies guidance on:

- Selection of system tank(s) and failure mechanisms
- Credit for passive and durable mitigating design features
- Conditions that envelope site characteristics
- Application of assumptions and level of conservatism
- Development of radioactive source term for tank(s)
- Radioactivity transport in ground or surface water
- Release pathways and offsite exposure scenarios
- Acceptance criteria and exposure pathways
- Tank specifications on max radioactivity concentration levels
- Language used in SER evaluation findings

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

ISG-014: Radiological Consequence Analysis in Groundwater





* ECL: Effluent Concentration Limits

ISG-014 Topics

- Clarify the review areas and review interfaces in SRP 2.4.12&13
- Reconcile the differences between SRP Sections 2.4.13 and 11.2, and clarify the conservatism in defining a base hydrologic condition
- Provide the guideline for choosing the potential receptor locations
- Credit for mitigating design features in SRP 2.4.13 consequence analysis
- Propose practical guidance to meet the requirement of on-site hydrogeology measurements specified in 10 CFR 100.20(c)(3)
- Provide guidance for developing conceptual site models, and groundwater flow models.
- Recommend a hieratical approach for :
  - Radiological consequence analysis in FSAR 2.4.13
  - Determining species for transport parameter (K_d) sampling, and
  - Groundwater flow modeling

Resolution and Applicability

- Final Resolution:
  - Reviewing and evaluation of ACRS, public, and industry comments on ISG-013 and ISG-014
  - Finalization of ISG-013 and ISG-014 with incorporation of ACRS, public, and industry comments
  - Updating SRP Sections 2.4.12, 2.4.13, and 11.2, and BTP 11-6 given final issuance of ISG-013 and ISG-014 (as directed by NRO in updating infrastructure documents)
- Applicability to Part 52 COL Applicants:
  - Revised guidance will be applicable to all COL/ESP license applications submitted after the formal issuance ISG-013 and ISG-014

QUESTIONS ?

U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

Risk-Informed Guidance for New Reactors

Advisory Committee on Reactor Safeguards

Contacts: Donald A. Dube, Office of New Reactors, (301) 415-1483
Sunil D. Weerakkody, Office of Nuclear Reactor Regulation, (301) 415-2870

June 10, 2010

Meeting Purpose

- **Briefing on the status of risk-informed guidance for changes to the licensing basis, including operational programs, and to the Reactor Oversight Process (ROP) for new light-water reactors**

Agenda

- Risk-informed initiatives for new reactors
- Status of stakeholder engagement
- Evolution of the staff's views
- Approaches considered
- Next steps

Risk-Informed Initiatives for New Reactors

- In the near term, risk-informed applications have been proposed:
  - Risk-Managed Technical Specifications
    - Risk-informed completion times
    - Surveillance frequency control program
- Longer term initiatives (post-COL) may include:
  - EPRI research program on risk-informed inservice inspection of piping
  - Special treatment requirements (10CFR50.69)

New Reactor Implementation Issues

- Review of these applications raised questions regarding the appropriate risk metric acceptance guidelines for implementation of risk-informed initiatives for new reactors, as well as thresholds in the ROP

Stakeholder Engagement

- February 12, 2009 interoffice memorandum and white paper from Executive Director for Operations on options for risk metrics for new reactors (ADAMS ML090150636 and ML090160004)
- First public meeting, February 18, 2009, to engage stakeholders and obtain their feedback on the issues and potential options (ML090570356)
- 2009 Regulatory Information Conference presentation
- Nuclear Energy Institute (NEI) white paper to the ACRS staff, March 27, 2009 (ML090900674).
- ACRS briefing on April 3, 2009 (ML091030667)
- ACRS Subcommittee on Reliability & PRA briefing on June 2, 2009, with views from industry representatives and the Union of Concerned Scientists (ML092040138)
- Second public meeting, September 29, 2009, that focused on the potential issues associated with the ROP (ML092780211)
- Staff presentation at American Nuclear Society 2009 embedded topical meeting, November 17, 2009
- Third public meeting, June 3, 2010, that summarized the draft Commission paper

Evolution of Staff's Views

- **No early staff consensus on approach**
- **Initial staff concerns with risk acceptance guidelines for changes to the licensing basis (Regulatory Guide 1.174), and potential options (*relative* versus *absolute* change in core damage frequency (CDF) and large release frequency (LRF))**
- **More recently, less concern with numerical guidelines and more on**
  - **"Assuring that the level of enhanced safety believed to be achieved with this design will be reasonably maintained"**
  - **The implementation of 50.59-like process for new reactors**
- **Staff consensus on high-level approach across the agency including all regions**

Staff Requirements Memorandum on SECY-90-377

- The Commission approved a process similar to 10 CFR 50.59 for making changes to Tier 2 information between combined license (COL) issuance and authorization for operation
- The Commission stated that "the staff should ensure that this process requires preservation of the severe accident, human factors, and operating experience insights that are part of the certified design"
- Under Part 52, the process for changes and departures for each certified reactor design is found in Section VIII of the appendix that contains its design certification rule

Statement of Considerations for ABWR Design Certification

"The Commission recognizes that the ABWR design not only meets the Commission's safety goals for internal events, but also offers a substantial overall enhancement in safety as compared, generally, with current generation of operating power reactors…The Commission recognizes that the safety enhancement is the result of many elements of the design, and that much but not all of it is reflected in the results of the probabilistic risk assessment (PRA) performed and documented for them. In adopting a rule that the safety enhancement should not be eroded significantly by exemption requests, the Commission recognizes and expects that this will require both careful analysis and sound judgment, especially considering uncertainties in the PRA and the lack of a precise, quantified definition of the enhancement which would be used as the standard."

Statement of Considerations for ABWR (cont.)

"The Commission on its part also has a reasonable expectation that vendors and utilities will cooperate with the Commission in assuring that the level of enhanced safety believed to be achieved with this design will be reasonably maintained for the period of the certification (including renewal). This expectation that industry will cooperate with NRC in maintaining the safety level of the certified designs applies to design changes suggested by new information, to renewals, and to changes under section VIII.B.5 of the final rule. If this reasonable expectation is not realized, the Commission would carefully review the underlying reasons and, if the circumstances were sufficiently persuasive, consider the need to reexamine the backfitting and renewal standards in Part 52 and the criteria for Tier 2 changes under section VIII.B.5."

Current Regulatory Guidance for Risk-Informed Initiatives

- Regulatory guidance associated with risk-informed initiatives for currently operating reactors are based on Commission's Safety Goals (e.g., RG 1.174, 1.175, 1.177, 1.178, 1.201)
- A key principle of RG 1.174 is that "when proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement"

From RG 1.174

- Five principles for making risk-informed decisions
  - The proposed change:
    - Meets current regulations (unless exemption request)
    - Is consistent with the defense-in-depth philosophy
    - Maintains sufficient safety margins
    - Results in an increase in CDF or risk that is small and consistent with the intent of the Commission's Safety Goal Policy Statement
    - Will be monitored using performance measurement strategies.

From RG 1.174

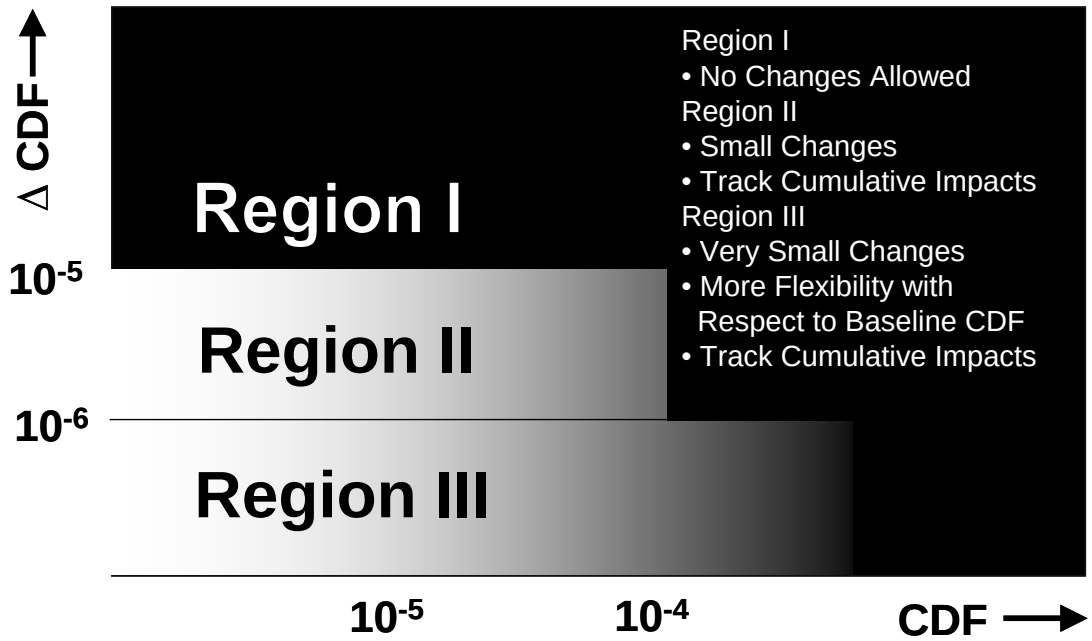


Figure 3. Acceptance Guidelines for Core Damage Frequency (CDF)

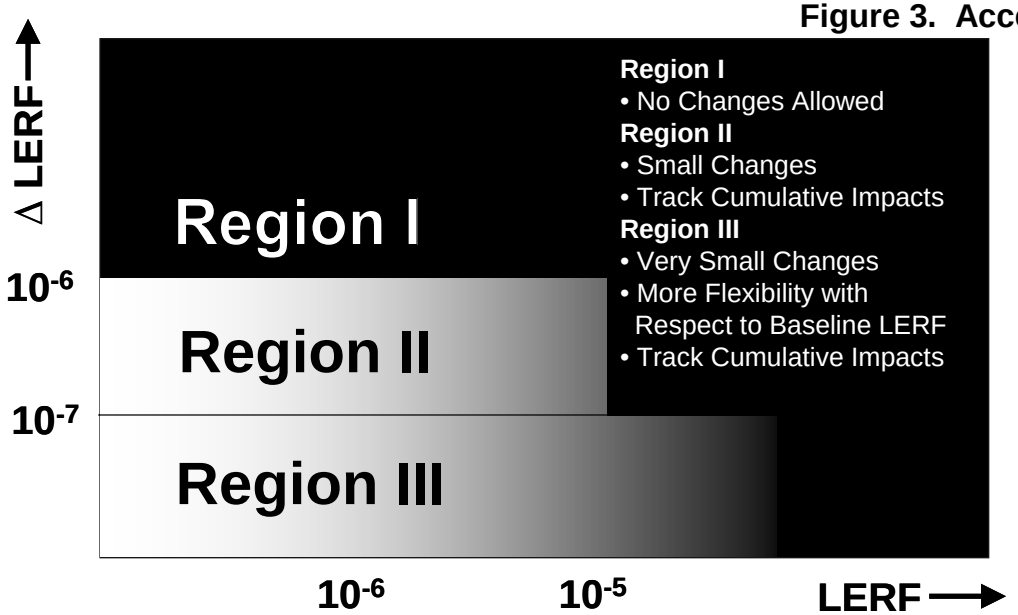


Figure 4. Acceptance Guidelines for Large Early Release Frequency (LERF)

Current Regulatory Guidance for Risk-Informed Initiatives (cont.)

- **Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis"**

- **Risk-Acceptance Guidelines:**
  - **Baseline risk metrics of CDF and LERF**

    AND
  - **ΔCDF and ΔLERF due to change**

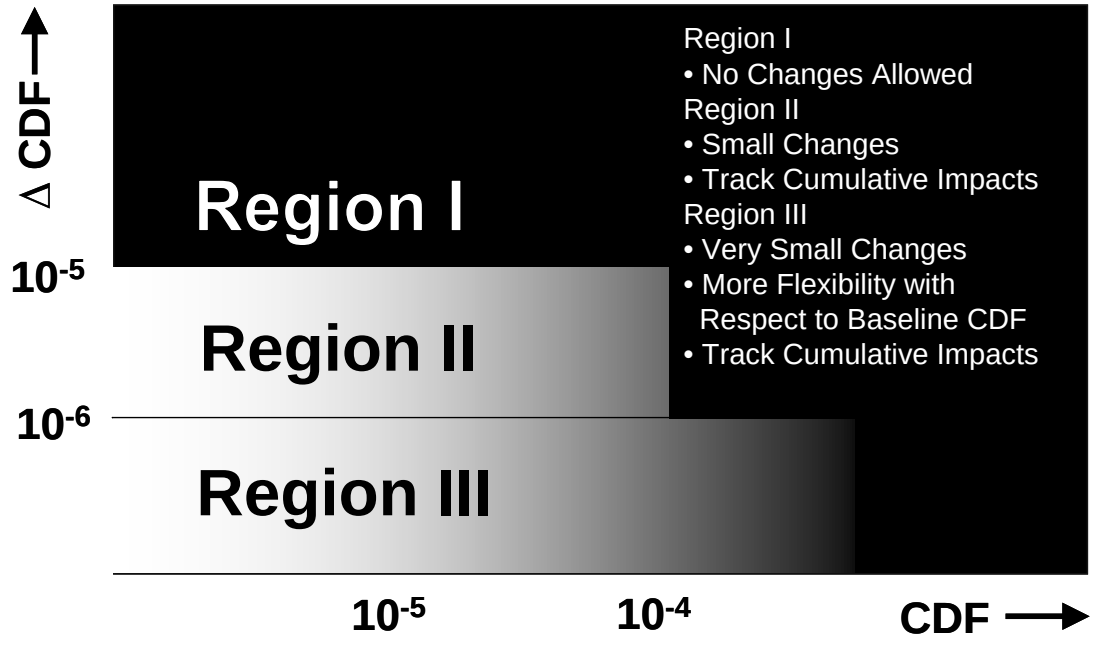
- **Basis:**
  - **Increases should be limited to small increments**
  - **CDF threshold related to backfit regulatory analysis guidelines**
  - **ΔCDF limit based on *absolute* change and set close to limit of resolution of PRA models**

Fundamental Issue before the Staff

- **Current guidance could allow large relative changes to CDF and containment performance for new reactors**

Hypothetical Example

- A new reactor design has a baseline CDF of $1x10^{-7}$ /yr
- A proposed design change results in a CDF increase of $7x10^{-8}$ /yr (70% increase).



X

Figure 3. Acceptance Guidelines for Core Damage Frequency (CDF)

Example: MD 8.3 Incident Investigation

Estimated Conditional Core Damage Probability (CCDP)				
CCDP < 1E-6	1E-6 – 1E-5	1E-5 – 1E-4	1E-4 – 1E-3	CCDP > 1E-3
No additional inspection				
	Special inspection			
		AIT		
				IIT

New Rx SGTR

Current SGTR

New Rx LOOP

Current LOOP

Approaches Considered

- **No changes to the current regulatory guidance, or *status quo***
  - **Provides incentive to build reactors with enhanced severe accident safety features**
  - **Applicants and licensees who invest in and maintain additional safety features have more flexibility to operate the plants with a reduction in regulatory interactions**
  - **The staff concluded, however, that this approach did not meet Commission expectations in that this approach may not prevent significant decrease in enhanced safety through changes to the licensing basis and plant operations over plant life**
  - **In addition, this approach may not provide for meaningful regulatory oversight that supports NRC's response and inspection**

Approaches (cont.)

- **Modify the risk-informed guidance to include a new lower risk metric for the ROP and changes to the licensing basis**
  - **Supports the Commission's expectation that new plants have enhanced severe accident safety performance and that advanced reactors provide enhanced margins of safety**
  - **Approach goes beyond the Commission's expectation by essentially *requiring* the continued maintenance of the enhanced margin of safety**
  - **Approach may be inconsistent with the Commission's statement on the Regulation of Advanced Reactors in 2008 that the "policy statement does not state that advanced reactor designs must be safer than the current generation of reactors"**
  - **Would create a risk-informed framework that is, in effect, inconsistent with the underlying technical basis for the current thresholds that are derived from the Commission Safety Goals and implemented in RG 1.174**
  - **Could have unintended consequences in that new reactors with enhanced safety features would have less operational flexibility than the current fleet of reactors**

Approach Selected by Staff

- **Identify specific changes to the risk-informed guidance for changes to the licensing basis that would prevent a significant decrease in the level of safety of the new reactor over its life**

- **Identify specific changes to the risk-informed guidance for the ROP to provide for meaningful regulatory oversight**

For changes to the licensing basis and operational programs

- **Evaluate how to modify the risk-informed guidance to prevent a significant decrease in the level of safety provided by certified designs**
- **Evaluate how to supplement the CDF and LERF acceptance guidelines to recognize the lower risk profiles of new reactors**
- **Utilize stakeholder involvement in the evaluation and development of detailed changes to risk-informed regulatory guidance**
- **Evaluate the merits of developing additional criteria (e.g., deterministic, defense in depth) to support the change process**
- **Evaluate proposed changes to guidance to ensure that the changes do not create unintended consequences such as creating disincentives for safer designs on the one hand, or allowing degradation of passive safety system performance on the other hand**
- **Develop guidance to implement Section VIII.B.5.c of the design certification rules**

For changes to the ROP

- **Utilize stakeholder involvement in the evaluation and development of changes to the guidance**
- **Evaluate the criteria for plant placement in the action matrix to assess whether the current process would ensure that operational performance that results in significant reductions in the level of safety provided by the certified design is fully understood by the licensee and NRC and is effectively corrected**
- **Evaluate the merits of developing additional criteria (e.g., deterministic, change in risk) to support NRC's response to findings and performance trends**
- **Evaluate any potential ROP changes to avoid unintended consequences such as creating disincentives for safer designs on the one hand; or allowing degradation of passive safety system performance on the other hand; or diverting the attention of NRC inspectors from issues of higher safety significance on currently operating reactors**

For changes to the ROP (cont.)

- **Consider the need to risk-weight or otherwise weight findings associated with passive systems to reflect the difficulty of recognizing the degradation of passive systems**
- **Continue to independently assess licensee performance in the area of safety culture since safety culture addresses common underlying factors that affect plant safety**
- **Evaluate maintaining or changing the current thresholds for green, white, yellow, red risk-significant findings and performance indicators, given that low-risk designs may rarely if ever cross the current white threshold**
- **Consider the advantages and disadvantages of applying any potential changes to the ROP to currently operating reactors**

Summary

- New light-water reactor risk profiles generally lower than currently operating reactors
- Early staff concern with risk metrics for changes to licensing basis and ROP thresholds
- Staff's concerns have evolved to those of how to
  - assure enhanced level of severe accident capability is maintained
  - implement a 50.59-like process
- Staff prepared to engage stakeholders to develop appropriate guidance

Next Steps

- Issue final Commission Paper
- Staff to continue to engage stakeholders regarding specific changes to industry and NRC guidance documents
- Staff to proceed with evaluation of applications for risk-informed initiatives for new reactors
- Parallel but extended effort to address ROP issues

Back-up slides

Relevant Commission Policy Statements

- Severe Reactor Accidents Regarding Future Designs and Existing Plants (1985)
- Regulation of Advanced Nuclear Power Plants (1986 & 2008)
- Commission Safety Goals (1986)

Commission's Safety Goals (1986)

- Commission's SAFETY GOALS specify how safe is safe enough
  - Qualitative safety goals
  - Quantitative health objectives
  - General performance guideline for staff examination

Risk Metrics for Operating Reactors

– **Core Damage Frequency (CDF) < 10^{-4} /yr**

- **Surrogate for latent cancer fatalities in the Commission's quantitative health objective (QHO)**

– **Large Early Release Frequency (LERF) < 10^{-5} /yr**

- **Surrogate for prompt fatalities in QHO**

Commission's Expectations for New Reactors

Severe Reactor Accidents Regarding Future Designs and Existing Plants (1985)

The Commission "fully expects that vendors engaged in designing new standard (or custom) plants will achieve a higher standard of severe accident safety performance than their prior designs."

Regulation of Advanced Nuclear Power Plants (1986)

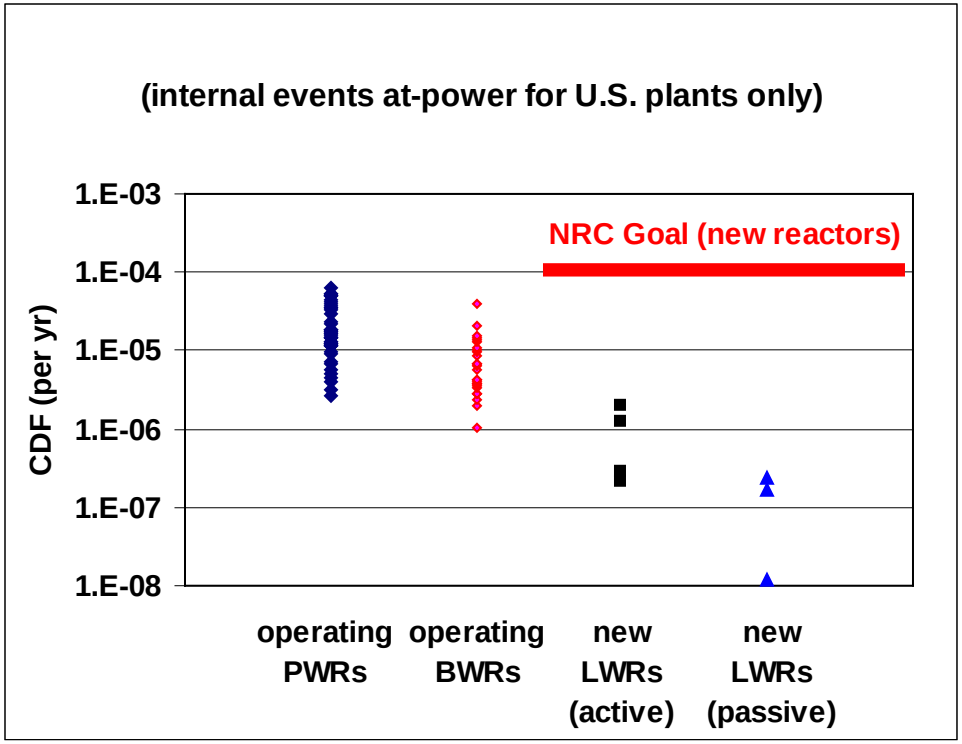
"Furthermore, the Commission expects that advanced reactors will provide enhanced margins of safety and/or utilize simplified, inherent, passive, or other innovative means to accomplish their safety functions."

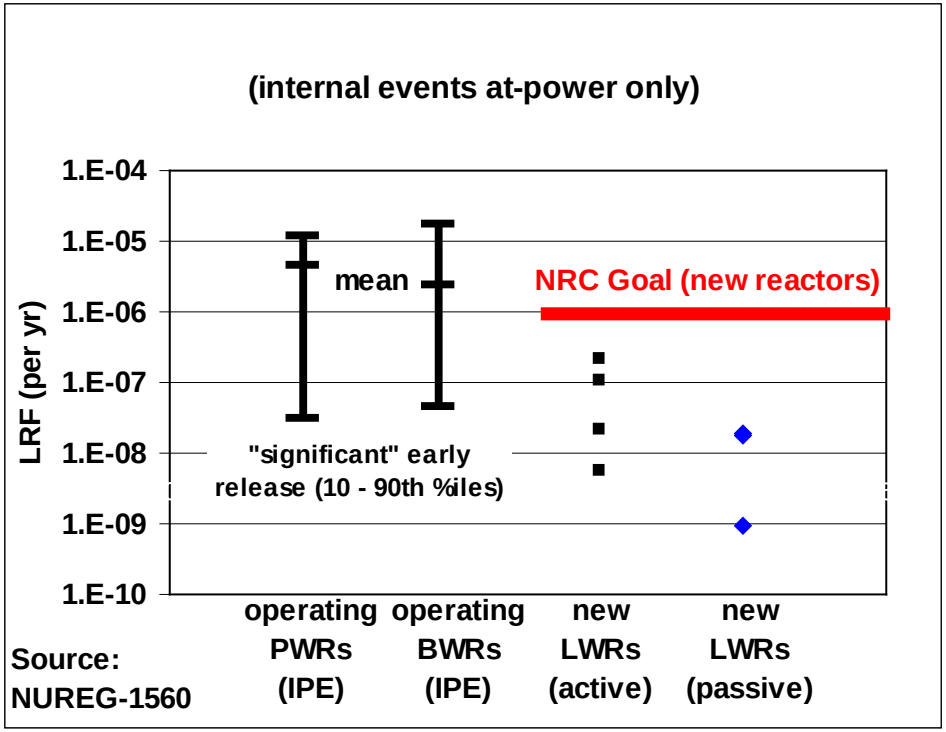
Risk Goals for New Reactors

- **SECY-90-016 Staff Recommendations**
  - **CDF < 1 x 10^{-5} /yr**
  - **LRF < 1 x 10^{-6} /yr**
  - **CCFP less than approximately 0.1**

- **In the associated SRM, the Commission disapproved the use of CDF <1 x 10^{-5} /yr and approved:**
  - **CDF < 1 x 10^{-4} /yr**
  - **LRF < 1 x 10^{-6} /yr**
  - **CCFP less than approximately 0.1**

CDF and LRF by Plant Type





U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Status on Resolution of Generic Safety Issue (GSI) 191 Pressurized Water Reactor Sump Performance

Presented by:
Michael Scott
Office of Nuclear Reactor Regulation

Presented to:
Advisory Committee on Reactor Safeguards
June 10, 2010

Purpose of Brief

- Provide background, current status, planned path forward, and key messages on GSI-191 and Generic Letter (GL) 2004-02

Background

- NRC opened GSI-191, Assessment of Debris Accumulation on PWR Sump Performance, in 1996, and sponsored new research in the late 90s for PWRs
- GL 2004-02 requested licensees perform detailed mechanistic evaluations of emergency core cooling system (ECCS) and containment spray system (CSS) functions and make modifications as needed by December 31, 2007
- NRC staff and ACRS concluded that near-term action to make PWR strainers larger was prudent
- Licensees increased strainer sizes by 1-2 orders of magnitude

Developments Since 2007

- NRC staff issued revised guidance in early 2008 regarding head loss testing, coatings, and chemical effects
- In many cases, licensee GL responses did not provide detail sufficient to determine that testing and evaluation methods were acceptable, resulting in a large number of requests for additional information (RAIs)
- ACRS questions regarding a 2008 draft safety evaluation for in-vessel downstream effects caused the staff to re-examine its views on the subject
- The NRC staff raised concerns regarding industry zone-of-influence (ZOI) testing

Zone of Influence

- Some licensees had sponsored jet impingement testing intended to justify reduced ZOIs for specific insulation and coatings
- NRC reviewed the reports and found issues
- Extended discussions were held to resolve issues – some were resolved, others not
- In late 2009, as a result of NRC questions, industry identified a design error with the test loop used for industry ZOI testing - so reduced industry ZOIs were undercalculated
- NRC informed industry that we do not accept the subject reports for insulation and inorganic zinc coatings
- Industry considering additional testing and analysis – could raise additional questions

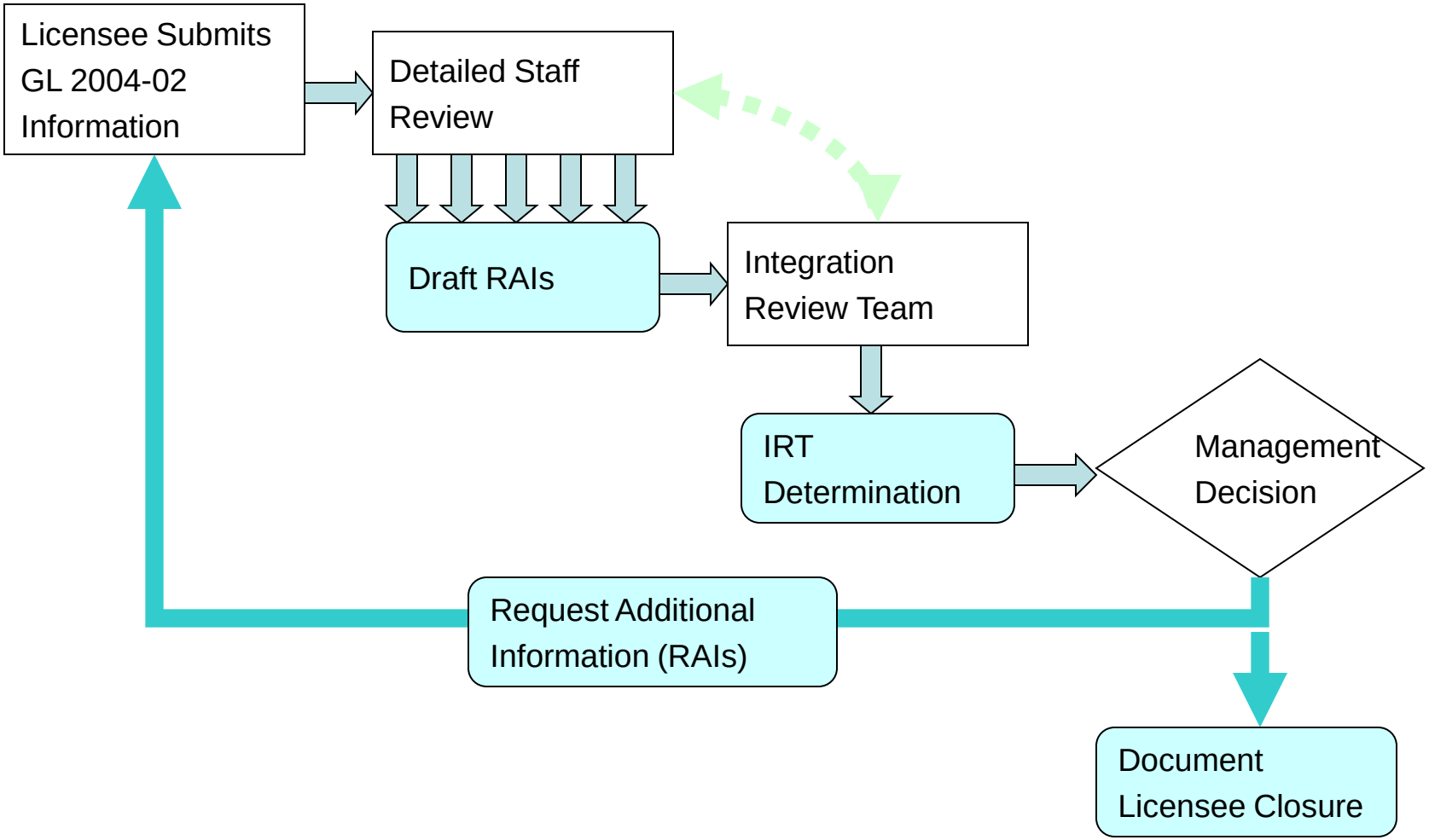
In-vessel Effects

- Industry submitted Topical Report WCAP-16793 Revision 1 to address in-vessel downstream effects
- NRC issued RAIs to industry – responses received
- Testing has shown that the two vendors' fuels appear to behave very differently in response to debris intrusion
- NRC believes "cross-testing" would likely show whether the difference is related to fuel design or is a testing issue
- NRC continuing to work with vendors to resolve the unexpected difference in behavior
- NRC working to issue safety evaluation in 2010

Sump Issue Challenges

- Numerous phenomena – e.g., debris generation, zone of influence, debris characterization, latent debris, debris transport, water hold-up, strainer headloss and vortexing, chemical effects, and downstream in-vessel effects
- No reliable models for some aspects of strainer performance evaluations, so licensees rely on complex scaled-down testing
- Small amounts of certain materials can be very problematic for sump performance
- Head loss behavior is non-linear so margins are difficult to predict
- Testing frequently has resulted in surprises

Review and Closure Process



Recent Developments

- Staff and licensees briefed Commission on GSI-191 status on 4/15/2010
- Licensee presenters stated view that GSI-191 is no longer a safety issue and that staff plans for near-term closure would cause
  - Replacement of effectively all fibrous insulation
  - Large radiation exposures to plant personnel
- Nuclear Energy Institute has proposed that staff allow application of General Design Criterion 4 (leak-before-break) to sump performance evaluations

Staff Requirements Memorandum

- Staff should not issue letters under 10 CFR 50.54(f) pending further Commission direction
- Staff should report to Commission by 8/27/2010 on potential approaches to closure, including:
  - Realistic ZOI
  - Application of GDC-4
  - In-vessel effects
  - Risk-informed resolution (e.g., 10 CFR 50.46a)
  - Alternative regulatory treatment of in-vessel effects
  - Dose impact of resolution options
- Staff is developing requested information and proposed path forward

Resolution Status

- The staff has concluded that strainer performance has been adequately demonstrated (except for in-vessel effects) for 39 of 69 U.S. PWRs
- NRC staff expects some “high fiber” plants may require additional testing and/or modifications to satisfactorily address the generic issue – NRC refusal to accept ZOI reductions has challenged these plants
- NRC staff providing options and recommendations to the Commission to support decision-making on path forward

Refinements

- Leak-before-break
- Risk-informed ECCS regulations
- Jet impingement testing (already discussed)

Leak-before-break (LBB)

- Industry has proposed that NRC reconsider application of General Design criterion 4 to sump performance evaluations
- “Dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping”
- NRC staff had twice previously rejected application to sump evaluations

Leak-before-break (Continued)

- Original intent of LBB was to allow removal of specific equipment (pipe whip restraints, etc.) whose absence would potentially enhance safety
- If credit sought and approved, could remove some break locations from consideration for sump evaluations
- Major challenge to approve this credit for sump performance evaluations

Existing ECCS Regulations

- Existing regulations require evaluation of a double-ended guillotine break of the largest pipe in the reactor coolant system as a design basis loss-of-coolant accident (LOCA)
- Performance demonstration for design basis LOCAs must include
  - assumption of loss of offsite power,
  - assumption of the worst single failure, and
  - credit only for safety-grade systems

Proposed Risk-informed ECCS Regulations

- Proposed risk-informed ECCS regulations would change the size of the largest pipe break that must be evaluated as a “design basis” LOCA (“transition break size”)
- For breaks larger than the transition break size, evaluations can be performed:
  - using realistic inputs for strainer performance
  - without inclusion of a single failure
  - without assuming that offsite power is lost and taking credit for non-safety equipment

Proposed Risk-informed ECCS Regulations (cont'd)

- Transition break size for PWRs is defined in 10 CFR 50.46a as the "largest attached pipe to the reactor coolant system" (pressurizer surge line)
- If implemented, rule could assist some licensees, though they would still need design basis analyses for smaller breaks, which could pose problems
- NRC staff expects to send proposed rule to the Commission for approval December 2010

Path Forward

- Uncertainties in strainer performance have challenged closure of the debris clogging issue for some plants
- Inadequate strainer performance can challenge long-term core cooling and maintenance of core integrity
- Plant-specific issue resolution will continue, consistent with Commission direction
- In-vessel effects issue needs to be resolved
- After all licensees have been issued closure letters, GL 2004-02 will be formally closed
- Some plant modifications may need to be made after planned issue closure – NRC will track all commitments to completion

Conclusions

- NRC closing GSI-191 one plant at a time – over half complete (with exception of in-vessel effects)
- Remaining plants are generally those with most fibrous and particulate insulation
- NRC staff providing options and recommendations to support Commission direction on path forward