

Risk-Informed, Performance-Based Principles and Policy Committee (RP3C) Hybrid Meeting

November 18, 2024

Renaissance Orlando at SeaWorld, Orlando, FL

| Attended | Voting Member Name | Role | Company |
|----------|---|-------------------|--------------------------------------|
| | Amir Afzali | Member | Aalo Atomics |
| X | Todd Anselmi | Member | Idaho National Laboratory |
| X* | Robert Budnitz | Member | Consultant |
| X* | Robert Burg | Member | EPM, Inc. |
| | Stefani Buster | Member | University of Wisconsin-Madison |
| X | Brandon Chisholm | Vice Chair | Southern Company |
| | Mihai Diaconeasa | Member | North Carolina State University |
| X* | Donald Eggett | Member | Eggett Consulting, LLC |
| X* | Rani Franovich | Member | Nuclear ROSE Consulting, LLC |
| X* | Dennis Henneke | Member | Individual |
| X* | Mark Joseph | Member | Navarro Research & Engineering, Inc. |
| X* | Ian Jung | Member | U.S. Nuclear Regulatory Commission |
| X | N. Prasad Kadambi | Member | Consultant |
| X* | Gerry Kindred | Member | Tennessee Valley Authority |
| X | Margaret Kotzalas | Member | U.S. Department of Energy |
| X | Steven Krahn | Chair | Vanderbilt University |
| | Svetlana Lawrence | Member | Idaho National Laboratory |
| | Michael Muhlheim | Member | Oak Ridge National Laboratory |
| | James O'Brien | Member | U.S. Department of Energy |
| X | Andrew Smetana | Member | Individual |
| X* | Kent Welter | Member | NuScale Power |
| X* | Robert Youngblood | Member | Idaho National Laboratory |
| 16 | 16/22 Votes = 72.73% Participation (12 needed for a quorum) | | |
| X | Jason Andrus | Observer | Idaho National Laboratory |
| X* | James August | Observer | Individual |
| X | Sam Bays | Observer | Idaho National Laboratory |
| X* | William Britz | Guest | Oak Ridge National Laboratory |
| X* | Sarah Davis | Observer | Argonne National Laboratory |
| X* | George Flanagan | Observer | Individual |
| X* | Chaitee Godbole | Guest | Idaho National Laboratory |
| X* | Fred Grant | Observer | Simpson Gumpertz & Heger Inc. |
| X* | David Holcomb | Observer | Idaho National Laboratory |
| X* | F. Gregory Hudson | Observer | Metcalfe, PLLC |
| X* | Daniel LaBrier | Guest | Idaho State University |
| X* | Mark Linn | Observer | Individual |

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|----|-----------------------|----------|------------------------------------|
| X | Jef Lucchini | Observer | Los Alamos National Laboratory |
| X | Daniel Moneghan | Observer | Electric Power Research Institute |
| X* | Hahn Phan | Observer | U.S. Nuclear Regulatory Commission |
| X | Andrew Sowder | Observer | Electric Power Research Institute |
| X* | Jenise-Marie Thompson | Observer | U.S. Nuclear Regulatory Commission |

*participated remotely.

1. Welcome, Roll Call & Introductions

RP3C Chair Steven Krahn welcomed those joining in person and those joining remotely. Roll call was taken, and a quorum was established.

THEME: BUILDING ON SUCCESSES TO REINFORCE MOMENTUM

2. Approval of Meeting Agenda

The agenda was approved as presented. The meeting presentation [embedded](#) below is cited throughout the minutes for more details.



ANS Winter 2024 -
RP3C Meeting_FINAL

CATEGORY I: RP3C SUCCESSES AND PRIORITIES

3. Community of Practice (CoP) Sessions

A. Recap of Recent CoP Sessions

Brandon Chisholm presented slides 3-5 of the meeting presentation [embedded](#) in agenda item #2.

Chisholm stated that the theme for today's meeting is building on successes. The CoP is an incredible example of a successful initiative. CoP presentations continue to be well attended with hundreds, if not thousands, of additional views through YouTube¹. Links to CoPs posted to YouTube are available on the [RP3C CoP public website](#). Many are also posted on [ANS's Nuclear Science and Technology Open Research \(NSTOR\)](#) platform in the [RP3C CoP Collection](#) and have been assigned a permanent digital object identifier (DOI) link. CoPs are a great opportunity for those that participate and for those that present. Robert Budnitz questioned how to better publicize the availability of CoP recordings. Chisholm suggested that the CoPs could be curated into categories and that an article could be included in *Nuclear Newswire*. Budnitz suggested forming a small group to best publicize the CoPs. He suggested that CoPs could be publicized with the 19th International Conference on Probabilistic Safety Assessment and Analysis (PSA 2025) which is an embedded topical at the June 2025 ANS Annual Meeting. and with nuclear engineering programs.

ACTION ITEM 11/2024-01: Brandon Chisholm and Daniel Moneghan to prepare a curated list of the CoP presentations and prepare a *Nuclear Newswire* article to coincide with the 5th anniversary of the CoP in February 2025.

DUE DATE: February 1, 2025

B. Solicit Input on Path Forward & Plans for Next Year

See slide 6 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

¹ A point of interest: Brandon Chisholm checked the YouTube channel after the meeting. He found that there were 21,000 views across all of the CoP YouTube videos!

Chisholm questioned members on topics for future presentations and solicited presenters. One future plan includes the use of CoPs in RP3C training activities. Prasad Kadambi stated that he has been raising the question of what is the outcome for the large collection of very informative CoPs. He asked what can be done with the CoPs that would be useful. Each CoP presenter is asked for permission to post and record the presentation, post the presentation in NSTOR, and use the presentation as the basis for articles for ANS publications for promotion. ANS would need to go back and ask presenters for permission to create derivative works. A near-term priority is taking a look at revising the RP3C Guidance Document (GD). The CoP sessions provide an opportunity to solicit input on and/or socialize proposed revisions/additions to the GD. Sowder would like to see case studies added to the GD.

4. **Discussion of Proposed Near-Term Priorities**

See slides 7-8 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

The possible list of priorities discussed include the following:

- Improve alignment on definitions and/or expectations associated with key terms related to RIPB principles, methods, and approaches
- Improve involvement / interactions within the ANS Standards Committee
- Improve involvement / interactions external to the ANS Standards Committee

An additional priority suggested was for RP3C to be proactive and assign an RP3C member to working groups using RIPB methods, especially priority projects. The Standards Board (SB) added a new item to their meeting agenda to recognize and review the status of high-priority standards projects. The need for these priority projects needs to connect with RP3C and beyond.

CATEGORY II: INCREASING ALIGNMENT ON RIPB CONCEPTS AND TERMINOLOGY

5. **Consideration of ANS Policy Statement 46, including Ongoing Advanced Reactor Working Group Efforts**

See slides 9-17 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

Prasad Kadambi stated that ANS Policy Statement (PS) 46, [Risk-Informed and Performance-Based Regulations for Nuclear Power Plants](#), has a lot of history which he considers divided into ancient and recent history. He explained the connection and how the Advanced Reactor Working Group (ARWG) got involved in the revision of PS 46. The ARWG evaluates what is important to ANS on advanced reactors and then makes suggestions to ANS leadership to take a position. One such example is Part 53. Another item of importance is revising PS 46 on behalf of the Nuclear Installations Safety Division (NISD). The Public Policy Committee (PPC) would like each PS to be championed by a division. Kadambi would have liked NISD to be more involved but that didn't happen, so the ARWG started activities for a revision of PS 46 to incorporate the Nuclear Energy Innovation and Modernization Act (NEIMA). Amir Afzali, Rani Franovich, and Nima Fathi as the representatives from NISD started working on the revision. The draft has gone through the review process within ARWG. Dennis Henneke and Steven Cook have reviewed the revised PS 46. It was questioned what role RP3C would play in reviewing PS 46. Robert Youngblood sees value in RP3C reviewing the revision of PS 46 keeping definitions in mind. Other RP3C members were also in favor of reviewing PS 46.

ACTION ITEM 11/2024-01: Pat Schroeder to distribute the revised Position Statement 46, "Risk-Informed and Performance-Based Regulations for Nuclear Power Plants," to RP3C members for comment via email.

DUE DATE: December 1, 2024

6. Evaluating the Current State of RP3C Guidance Document (GD)

See slides 18-31 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

Brandon Chisholm provided history of the RP3C GD and its training. The GD is a living document and has been issued for trial use for a few years now. Only a few comments have been received on the GD. Initial thoughts on potential improvements to the GD include the following:

- Refine definitions of key terms for clarity
- Expand case examples to provide better clarification
- Include more focus on “performance based”
- Update/revise the GD training once revised

Andrew Sowder stated that there is confusion on what “risk-informed” and “performance based” means and would like to see a brief, two-page document prepared to clarify these definitions. Chisholm stated that the Licensing Modernization Project (LMP) developed both a glossary and an “anti-glossary” during the LMP effort to facilitate internal and external consistency on use of specific terminology. This topic could be useful for potential, future revision(s) of the GD.

At this time, Don Eggett explained that he asked Prasad Kadambi to provide an ANS RIPB standards case example at the upcoming Advanced Reactor Codes & Standards Collaborative (ARCSC) Workshop on December 4, 2024. Eggett is one of the ARCSC co-chairs. He explained that RIPB is an area that has been identified by the industry as an elevated priority on the 2023 ARCSC Gap Assessment Survey. RIPB is a key topic that will be addressed at the Workshop. ARCSC is working on two actions that stem from the North American Advanced Reactor Roadmap (NAARR) developed by the Electric Power Research Institute and the Nuclear Energy Institute. Action #1 to establish high-priority standards for advanced reactors is now essentially complete. Action #2 is to focus on a RIPB pilot project useful to the industry. ARCSC will discuss ideas for fulfillment of Action #2 at the Workshop. Kadambi’s presentation on behalf of ANS will present the RP3C GD and tie in examples from ANSI/ANS-30.3-2022, *Light Water Reactor Risk-Informed, Performance-Based Design*, at the ARCSC Workshop. Representatives from the American Society of Mechanical Engineers (ASME), the American Society of Civil Engineers, and the CSA Group will also provide a RIPB standards case example at the Workshop. Rani Franovich is hoping that these RIPB case examples will provide clarification to the U.S. Nuclear Regulatory Commission (NRC) and others.

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| ACTION ITEM 11/2024-02: Prasad Kadambi to add a slide on the CoP in his presentation for the ARCSC Workshop. DUE DATE: December 4, 2024 |
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When questioned about the feedback from NRC on endorsement of ANSI/ANS-30.3-2022, Kent Welter stated that the top-level comment was about the need for prescriptiveness of the standard. NRC wants a greater level of detail—more prescriptiveness, but ANSI/ANS-30.3-2022 is a performance-based standard and is intentionally not prescriptive. Welter found the conversation with NRC on performance based incongruent. Additionally, the ANS-30.3 Working Group tried to harmonize terms for international use, which he thought confused the NRC.

CATEGORY III**INTERACTIONS WITH ANS STANDARDS WORKING GROUPS****7. Recent and Ongoing Involvement with ANS Standards Working Groups**

See slides 32-33 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

RP3C recently reviewed the following three draft standards:

- ANS-3.11-202x, *Determining Meteorological Information at Nuclear Facilities* (revision of ANSI/ANS-3.11-2015; R2020)

- ANS-19.13-202x, *Initial Fuel Loading and Startup Tests for FOAK Advanced Reactors* (new standard)
- ANS-56.2-202x, *Containment Isolation Provisions for Fluid Systems After a LOCA* (new standard, revision of withdrawn ANS-56.2-1984)

RP3C leadership held a discussion with Larry Wetzel, the Nuclear Criticality Safety Consensus Committee Chair. The discussion was broad and included all of the ANS-8 nuclear criticality safety standards. RP3C leadership also held a meeting with the ANS-2.35 Working Group to discuss whether risk-informed and/or performance-based methods could be incorporated into the proposed new standard ANS-2.35, *Guidelines for Estimating Present & Projecting Future Socioeconomic Impacts from the Construction, Operations, and Decommissioning of Nuclear Sites*.

RP3C's near-term priorities may include involvement with the revision of ANS-54.8, *Liquid Metal Fire Protection*, and reaching out to consensus committee and/or working group leadership to identify potential areas for interaction.

8. Invite Input on High Value Areas for Interactions with Consensus Committees and/or Working Groups

See slide 34-35 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

The following two questions were posed to attendees:

- What are the high-priority areas for RP3C to focus efforts within the ANS Standards Committee?
- Are there any high-value efforts where RP3C can leverage ongoing relationships/interactions to magnify impact?

A list of standards that the (SB) considers high priority will be discussed at tomorrow's SB meeting. Steven Krahn will be attending the SB meeting and will recommend to the SB whether any of these standards should be included on RP3C's priority list.

Don Eggett is on the ANS committee developing new ANS Certification Programs. He stated that RIPB has been tossed around as a potential topic to include in the program. Eggett has made an offer to Craig Piercy, Rebecca Steinman, and Dan Goldberg for him to take the lead on adding RIPB methods to the certification program. This is a front-end initiative with the Operations and Power Division. Eggett stated that wherever RP3C can help would be invaluable. Lastly, Eggett mentioned that he is the Priority Task Group (PriTG) Chair. The PriTG is in need of additional members. Eggett will consider the need for an RP3C member on the PriTG.

The Schedule of RIPB Standards in Development is [embedded](#) here for reference to provide more details on the status of RIPB standards in development.



8_Proposed
Schedule for ANS RI

The below provides a current list of RP3C interaction/input on the following PINS or standards on the RIPB Schedule (not discussed elsewhere):

- ANS-2.3, *Estimating Tornado, Hurricane, and Extreme Straight-Line Wind Characteristics at Nuclear Facility Sites*
- ANS-2.15, *Criteria for Modeling Atmospheric Dispersion of Radiological Releases from Nuclear Facilities*
- ANS-2.18, *Evaluating Radionuclide Transport in Surface Water for Nuclear Reactor and Nuclear Facility Sites*
- ANS-2.22, *Environmental Radiological Monitoring at Operating Nuclear Facilities*

- ANS-2.26, Categorization of Nuclear Facility SSCs for Seismic Design
- ANS-2.32, *Remediation of Radioactive Contamination in the Subsurface at Nuclear Power Plants*
- ANS-2.34, *Characterization and Probabilistic Analysis of Volcanic Hazards*
- ANS-2.36, *Accident Analysis for Aircraft Crash into Reactor and Nonreactor Nuclear Facilities*
- ANS-3.5.1, *Nuclear Power Plant Simulators for Use in Simulation-Assisted Engineering and Non-Operator Training*
- ANS-GD-3.8, *Guidance for Risk-Informing Emergency Preparedness Programs for Nuclear Facilities*
- ANS-3.15, *Risk-Informing Critical Digital Assets (CDAs) for Nuclear Power Plant Systems*
- ANS-15.22, *Classification of Structures, Systems and Components for Research Reactors*
- ANS-56.2, *Containment Isolation Provisions for Fluid Systems After a LOCA*
- ANS-57.2, *Design Requirements for LWR Spent Fuel Storage Facilities at NPPs*
- ANS-57.9, *Design Criteria for an Independent Spent Fuel Storage Installation (Dry Storage Type)*

CATEGORY III **INTERACTIONS WITH SDOs AND OTHERS**

9. Enhancing Coordination with SCoRA

See slides 36-40 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

Steven Krahn reported that RP3C leadership joined the Subcommittee on Risk Application (SCoRA) meeting on September 17, 2024, to brief members on RP3C activities. SCoRA members expressed interest in enhanced coordination.

ACTION ITEM 11/2024-03: Pat Schroeder to include a 10-minute report from SCoRA on the RP3C agenda for the June 2025 meeting.
DUE DATE: June 1, 2025

10. Invite Input on High Value Areas for Interactions with Other Organizations and/or

See slide 41 of the meeting presentation [embedded](#) in agenda item #2 above for additional details.

Robert Budnitz suggested that Steven Krahn and Brandon Chisholm might be interested in other ASME activities, particularly ASME's Plant System Design (PSD) Standard. Krahn and Chisholm are familiar with the PSD Standard and its chair Ralph Hill. Hill recently led a CoP on the PSD Standard. Additionally, Krahn and Chisholm have had meetings with Rick Grantom, Ralph Hill, and Pamela Nelson and will keep in contact with them.

Krahn and Chisholm are also open to interacting with organizations outside of nuclear and would welcome contacts from any organizations outside of nuclear that use RIPB in a way that ANS can benefit from.

Dennis Henneke asked that RP3C includes JCNRM in activities with applications that involve the JCNRM standards as the JCNRM would need to coordinate who is doing what. In this case, Henneke feels that communication more than twice a year would be needed.

CATEGORY IV: **ADDRESS STANDARDS BOARD'S OBJECTIVES**

11. Review of RP3C Activities Under SMART Matrix

NOTE: The matrix filtered for RP3C actions is embedded here. The SB is in the process of updating the Standards Committee Strategic Plan. The SMART Matrix will be updated to reflect the new Standards Committee Strategic Plan once approved.



4_SMART_MATRIX_ Update_2-20-23.xlsx

A. SMART Matrix Components to be included:

- (1) Item 1A: Executive Advisory Committee
- (2) Item 1C: CCs to identify standards that WGs should coordinate during development
- (3) Item 1F1: RIPB Guidance Document and training package
- (4) Item 1F2: CC and WG Chairs provide feedback during RP3C and SB meetings
- (5) Item 1F3: Focused pilots with RARCC & LLWRCC on specific standards

Todd Anselmi shared a sneak peek of a portion of the SMART Matrix that is being revised. Anselmi expects the revised SMART Matrix to be available by the June 2025 meeting. RP3C leadership will be asked to populate the SMART Matrix for RP3C actions.

12. Review of Open Action Items

The following two action items have been completed:

ACTION ITEM 06/2024-02: Pat Schroeder to forward Mark Linn the email with objections and guidance on the next step for ANS-GS-30.1.

STATUS: Email was re-sent, and draft was issued to the RARCC for formal approval 8/13/24. Ballot closed with 8 negatives currently being addressed.

ACTION ITEM 11/2023-02: John Fabian to work with Prasad Kadambi to create a collection of files from RP3C on NSTOR.

STATUS: A new collection of RP3C CoPs were added to ANS's NSTOR Platform. The collection can be viewed at <https://nstopenresearch.org/collections/rp3c-cop/about>.

13. Other Business

Robert Budnitz suggested that we ask ourselves if we have sufficient expertise on the RP3C. He also thinks that we could benefit from members that are familiar with NRC processes and activities. Additional knowledge can be sought through a CoP or a guest lecturer.

Rani Franovich feels that NRC staff participation has declined in the last few years. An NRC representative on the RP3C would be beneficial. SB Chair Andrew Sowder meets occasionally with the NRC Standard Executive and their staff. A meeting is set up for next month. He'll ask for the NRC to appoint a representative to the RP3C. If there are any other topics that should be brought up, members should let Sowder know.

ACTION 11/2024-04: Pat Schroeder to 1) provide a list of ANS committees of RP3C members and 2) add a discussion on whether additional expertise is needed on the RP3C to the RP3C June 2025 meeting agenda.
DUE DATE: June 1, 2025

ACTION ITEM 11/2024-05: Andrew Sower to ask NRC to appoint an NRC rep to the RP3C and to ask for the name of their RIPB expert.
DUE DATE: December 15, 2024

14. Next Meeting—Krahn

Upcoming ANS meetings are as follows:

- 2025 ANS Annual Conference in Chicago, IL, at the Chicago Marriott Downtown, June 15–18, 2025
- 2025 ANS Winter Conference and Expo in Washington, D.C., at the Washington Hilton, November 9–12, 2025

RP3C hybrid meetings are anticipated on Monday afternoon of the 2025 ANS annual and winter conferences.

15. Adjournment

The meeting was adjourned.

RP3C Action Item Report from 11/18/24 Meeting

| Action Item # | Description | Responsibility | Status |
|---------------|--|-----------------------|--------|
| 11/2024-01 | Brandon Chisholm and Daniel Moneghan to prepare a curated list of the CoP presentations and prepare a Nuclear Newswire article to coincide with the 5th anniversary of the CoP in February 2025. DUE DATE: February 1, 2025 | Chisholm, Moneghan | OPEN |
| 11/2024-02 | Prasad Kadambi to add a slide on the CoP in his presentation for the ARCSC Workshop. DUE DATE: December 4, 2024 | Kadambi | OPEN |
| 11/2024-03 | Pat Schroeder to include a 10-minute report from SCoRA on the RP3C agenda for the June 2025 meeting. DUE DATE: June 1, 2025 | Schroeder | OPEN |
| 11/2024-04 | Pat Schroeder to 1) provide a list of ANS committees of RP3C members and 2) add a discussion on whether additional expertise is needed on the RP3C at the RP3C June 2025 meeting agenda. DUE DATE: June 1, 2025 | Schroeder | OPEN |
| 11/2024-05 | Andrew Sower to ask NRC to appoint an NRC rep to the RP3C and to ask for the name of their RIPB expert. DUE DATE: December 15, 2024 | Sowder | OPEN |