

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

Hybrid Meeting

June 16, 2025

Chicago Marriott Downtown, Chicago, IL

Attended	Voting Member Name	Role	Company
x ^R	Amir Afzali	Member	Individual
X	Todd Anselmi	Member	Idaho National Laboratory
	Robert Budnitz	Member	Consultant
x ^R	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
	Rani Franovich	Member	Deep Fission
x ^R	Dennis Henneke	Member	Consultant
X	Mark Joseph	Member	Navarro Research & Engineering, Inc.
x ^R	Ian Jung	Member	U.S. Nuclear Regulatory Commission
x ^R	N. Prasad Kadambi	Member	Consultant
	Gerry Kindred	Member	Tennessee Valley Authority
	Margaret Kotzalas	Member	Individual
X	Steven Krahn	Chair	Vanderbilt University
	Svetlana Lawrence	Member	Idaho National Laboratory
	Michael Muhlheim	Member	Oak Ridge National Laboratory
X	James O'Brien	Member	Individual
x ^R	Andrew Smetana	Member	Individual
X	Kent Welter	Member	NuScale Power
x ^R	Robert Youngblood	Member	Idaho National Laboratory
14/22 Votes = 63.64% Participation			
Attended	Observer & Guest Names	Role	Company
X	John Fabian	Guest	American Nuclear Society
X	Fred Grant	Observer	Simpson Gumpertz & Heger Inc.
x ^R	David Holcomb	Observer	Idaho National Laboratory
X	Greg Hudson	Observer	Metcalfe PLLC
x ^R	Ken Jha	Observer	Bechtel Power Corp.
X	Jef Lucchini	Observer	Los Alamos National Laboratory
x ^R	Carl Mazzola	Observer	Los Alamos National Laboratory
X	Dan Moneghan	Guest	Electrical Power Research Institute
x ^R	Hahn Phan	Observer	U.S. Nuclear Regulatory Commission
x ^R	Steve Reece	Observer	Oregon State University

X	Andrew Sowder	Observer	Electrical Power Research Institute
X ^R	Jenise Thompson	Observer	U.S. Nuclear Regulatory Commission

^R Participated remotely

1. **Welcome, Roll Call & Introductions**

RP3C Chair Steven Krahn welcomed those joining in person and those joining remotely. A quorum was established.

THEME: ESTABLISHING CONTEXT TO PROVIDE CLARITY

2. **Approval of Meeting Agenda**

The agenda was approved as presented. The meeting presentation [embedded](#) below is cited throughout the minutes for more details. Those in person and those joining remotely took a moment to introduce themselves.



RP3C June 2025
Annual Meeting_dist.p

CATEGORY I: RP3C PRIORITIES – RECENT, ONGOING, AND UPCOMING

3. **Review of RP3C Activities Under SMART Matrix**

A. RP3C actions under new SMART Matrix:



SMART_MATRIX_Up date_for 5-29-25_SB_updates to RP3C sm



BMC May 2025

Brandon Chisholm walked members through SMART Matrix actions assigned to RP3C by the Standards Board and efforts to complete the actions.

- (1) Item 1Cb: Develop interface matrix outlining the scope, responsibilities, and interface management between the ANS/ASME Joint Committee on Nuclear Risk Management (JCNRM) and the Risk-informed, Performance-based Principles and Policy Committee (RP3C). STATUS: There is a lot of synergy between RP3C and SCoRA which could result in overlap. A matrix outlining the two committees' scope and responsibilities is considered to be too formal. Regular touch points at RP3C and SCoRA meetings have been established and are considered to be sufficient. It seems that a logical conclusion of this action item for alignment might be concurrence on adequate JCNRM/SCoRA and RP3C representation/observers for relevant ANS standards working groups (i.e., those identified to involve RIPB elements)
- (2) Item 2Cb: Develop an RIPB Guidance Document and training package to train current WG members on its application to standards. STATUS: A trial version of the Guidance Document has been issued. A revision needs to be initiated and then new training can be rolled out. The goal would be to complete a draft of the revision by the 2026 Winter Meeting, but the timing of the revision will depend upon the timeliness of volunteers to support RP3C. Additional sub-actions may be found as the revision is in development. A number of tangential/related/parallel efforts, including the Advanced Reactor Codes and Standards Collaborative (ARCSC) RIPB Task Group and the ANS RIPB certification course, were recognized.
- (3) Item 3Ca: New action needed.

STATUS: A recommendation was made to close this out this action. At this point, the CoP has its own NSTOR collection, is frequently socialized within and external to ANS via the standards organization and now is advertised by the U.S. Department of Energy in their National Nuclear Security Administration Community of Practice (CoP) Hub. The thought is that we want to “maintain” the momentum; however, action items should not necessarily be “indefinite” in nature.

- (4) Item 3Cb: Advertise the success of RP3C internal to ANS and the positive impact it can have on external organizations.

STATUS: An article on RP3C’s success and its 5th anniversary was published in Nuclear Newswire February 2025. This action should be closed out.

- (5) Item 3Cc: Develop a PowerPoint presentation to present accomplishments to other industry organizations, including industry forums, to publicize the progress that ANS has made.

STATUS: A slide has been created for use by RP3C and RARCC members to include in presentations to spread the word about RP3C. The slide, [embedded](#) below, should close out this action.



RP3C CoP Slide for
ANS Presenters_fina

When asked for his opinion as SB Vice Chair, Todd Anselmi had no problem with closing the SMART Matrix actions as suggested.

In closing, Chisholm recognized RP3C’s focus to expand socialization and advertising of RP3C and the CoP, coordination with JCNRM and SCoRA, and supporting the revision of the guidance document.

See slides 3-7 of the meeting presentation for additional details.

4. **Discuss Status of and Path Forward for RP3C Priorities**

Steven Krahn opened the discussion on the path forward for RP3C priorities. He recognized the following RP3C priorities (slide 8 of the meeting presentation):

- Support for working group chairs – looking for volunteers to “own” role as liaison between RP3C and working group chairs
- Concordance – looking for volunteers to start work (e.g., literature survey)
- CoP sessions – please keep socializing and identifying potential speakers

These priorities are discussed in more detail under items 6, 9, and 11 respectively.

CATEGORY II: **KEY INTERFACES AND INTERACTIONS OUTSIDE OF ANS**

5. **Report from SCoRA**



5_SCoRA -
RP3C_Jun 2025 (202!

Greg Hudson presented the [embedded](#) slides on behalf of SCoRA. The slides are also incorporated into the meeting presentation and can be found as slides 9-19. The purpose of the SCoRA

presentation is to keep RP3C members informed of recent, ongoing, and upcoming SCoRA activities and facilitate cooperation when necessary and beneficial. RP3C leadership will similarly interface on a regular basis with SCoRA membership at their regularly scheduled meetings. A copy of the Security Working Group's white paper was distributed to the RP3C for reference during the SCoRA presentation. RP3C members may access the presentation at <https://collaborate.ans.org/viewdocument/risk-informed-security-framework-wh?CommunityKey=629361b7-5038-4ba2-81fa-977fcf05789f&tab=librarydocuments> (Log onto ANS Collaborate required).

6. **RIPB Expert Representation and Participation on ANS Standards WGs, including RP3C and JCNRM/SCoRA** (see slide 20 of the meeting presentation)

- RP3C leadership wants to ensure that coverage of RIPB experts on ANS working groups is sufficient to support any needs/asks of the working group
 - Desire to have at least 1 RP3C member and 1 JCNRM/SCoRA member on each working group
- Membership of each working group was evaluated to identify working group members belonging to:
 - RP3C and/or
 - JCNRM/SCoRA
- If a member of RP3C was not identified on a working group, Krahn or Chisholm were tentatively assigned
- RP3C leadership welcomes volunteers to serve as RP3C representatives, i.e., to communicate specific working group needs to RP3C (as appropriate)

The next step is to send team members the list of RIPB projects in development and ask members to volunteer to be an RP3C representative to a working group.

ACTION ITEM 6/2025-01: Pat Schroeder to send out the list of RIPB standards in development and ask members to volunteer to serve as an RP3C representative on a working group along with the responsibilities of the role.

DUE DATE: July 1, 2025

ANS-56.2, *Containment Isolation Provisions for Fluid Systems After a LOCA*, was used as an example of a working group that didn't use RIPB and was asked to go back and incorporate RIPB. The assignment of a representative from RP3C should support working groups in an earlier stage and hopefully minimize the likelihood of a draft having to be rewritten.

7. **Evaluating the Need for Additional Expertise on the RP3C**

ACTION ITEM 11/2024-04 was assigned to 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 (See slide 21 of the meeting presentation.). The list is [embedded](#) below.



RP3C_Members_AN
S_Committees_12-19

A good indicator of sufficient subject matter experts on RP3C would be to have enough members to serve as representatives to all RIPB projects in development. If RP3C does not get a sufficient response, it might be necessary to use the extended network that different folks have to support all groups.

8. **Invite Additional Input on High Value Opportunities for Interactions with Other Organizations and/or Individuals** (See slide 22 of the meeting presentation)

- **Advanced Reactor Codes and Standard Collaborative (ARCSC) Update**
Don Eggett is the chair of ARCSC. ARCSC was formed in response to the North American Advanced Reactor Roadmap (NAARR) prepared by the Nuclear Energy Institute (NEI) and the Electric Power Research Institute (EPRI). Development of an RIPB product is an action assigned to ARCSC in the NAARR which is overseen by the Roadmap Implementation Board (RIB). The RIB is made up of a number of different members from utilities and suppliers. ARCSC recently formed an RIPB Task Group which is chaired by Prasad Kadambi. The Task Group has 6 to 7 members made up of advanced reactor designers, NEI, and others. They've held a few meetings and are currently involved in a literature search of RIPB documents. The Task Group will be making a recommendation to ARCSC whether a generic standard or guideline needs to be developed, tentatively by September of this year. ARCSC expects to have an idea of how to move forward on this action by the end of this year. Prasad Kadambi added that the Task Group has acquired a long list of RIPB documents and are trying to identify the top 10 that offer guidance. The list of documents was circulated to RP3C members during the meeting and is available to RP3C members at <https://collaborate.ans.org/viewdocument/list-or-ripb-documents-as-discussed?CommunityKey=629361b7-5038-4ba2-81fa-977fcf05789f&tab=librarydocuments>. RP3C members were encouraged to become involved with the Task Group. Amir Afzali expressed concern with duplication of work under ARCSC and RP3C and the need to stay in your own swim lane. Andrew Sowder doesn't see a conflict and believes there to be enough connection between what's going on within the two groups. The RIPB Task Group will help determine what is needed by the industry. ARCSC is not developing guidance for RP3C. The product (i.e., the Guidance Document) developed by the RP3C is for us—ANS standards but can be helpful to the broader industry. ARCSC is made up of independent standards development organizations (SDOs) that have to remain independent in order to do their function. Any product developed by ARCSC would be of benefit to industry and a number of SDOs including ANS.
- **ANS Certification Courses**
Eggett provided an update on ANS certification courses. ANS started to develop certification courses a few years ago. The course Nuclear 101 has been completed and was held at the last meeting and this meeting. An online course on licensing and regulatory is now ready. Several courses are in development. The Fuel Cycle & Waste Management Division is working on a course on fuel and waste. The Operations and Power Division is working on an economic course and a course on RIPB. Eggett has the lead on developing the course on RIPB and will be looking to RP3C for support. Eggett added that Steven Arndt has agreed to help with the RIPB course and that he will also be looking to NEI and EPRI for support.

ACTION ITEM 6/2025-02: Don Eggett to provide RP3C the outline for the ANS RIPB certification course.
DUE DATE: July 1, 2025

CATEGORY III: **INCREASING ALIGNMENT ON RIPB CONCEPTS AND TERMINOLOGY**

9. **Introducing the Concept of a Concordance to Support Improvements to RP3C Guidance Document and Other Related Initiatives** (See slides 23 – 26 of the meeting presentation)

When interfacing with working group chairs, Steven Krahn often receives feedback that they need something more to help define the terminology of RIPB, that the Guidance Document is not sufficient. Working groups do not understand what they need to do to use RIPB in ANS standards. His first thought was to look at a glossary type of treatment, but an effort several years ago by an *ad hoc* committee under the Standards Board experienced a great amount of difficulty reaching closure on a

glossary of terms in ANS standards. The challenge with a glossary is that it implies one approved definition, but people with different perspectives may have trouble reaching consensus on a single definition. Krahn stated that a concordance frequently predates a glossary. A concordance is an analysis tool that gathers together each of the uses of a term in one spot and recognizes where the term was defined. It strives to develop understanding of the concepts by listing them together including the concepts, the terms, the context in which they're used, and the references. The first step to prepare a concordance is information gathering from our membership—to have them identify where they have seen these terms used and defined in the past. Then as terms are accumulated, a couple of the members of the committee would be delegated the responsibility to flesh out the information for the terms. The interim goal would be a briefing at a CoP session on the effort before the next RP3C meeting to better inform the discussion at the meeting. The concordance would help with revising the Guidance Document. The task for RP3C is to make the best Guidance Document for ANS working groups.

Dennis Henneke stated that he is one of the individuals that brought up the issue that the Guidance Document is not providing the help needed to working groups. The Guidance Document needs specific examples of risk-informed applications and of how to write the words of a RIPB standard.

CATEGORY III **INTERACTIONS WITH ANS STANDARDS WORKING GROUPS**

10. Recent and Ongoing Involvement with ANS Standards Working Groups (See slide 27 of the meeting presentation)

RP3C leadership recently held discussions with the Nuclear Criticality Safety Consensus Committee Chair and leadership of the working group developing new standard ANS-2.35, *Guidelines for Conducting Socioeconomic Impact Assessments of Nuclear Facility Sites*.

Dennis Henneke is on the ANS-54.8 Working Group. He will keep RP3C up to date on the progress of incorporating RIPB methods in the revision of ANS-54.8, *Liquid Metal Fire Protection*. Henneke will also document the work as a case study for use in the Guidance Document.

ACTION ITEM 6/2025-03: Dennis Henneke to keep RP3C updated on the ANS-54.8 Working Group's progress of incorporating RIPB and document the work as a case study for use in the update of the Guidance Document.
DUE DATE: June 1, 2026

The Standards Board strongly encourages ANS working groups to incorporate RIPB methods in ANS standards. The Standards Board acts as the police to ensure that RIPB methods are used where appropriate.

The Schedule of RIPB Standards in Development is [embedded](#) below for reference.



Proposed Schedule
for ANS RIPB Standa

The schedule provides a current list of RP3C interaction/input on standards in development using RIPB methods 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-2.35, Guidelines for Estimating Present & Projecting Future Socioeconomic Impacts from Construction, Operations, and Decommissioning of Nuclear Facilities
- 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-6.4, Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants
- ANS-15.11, Radiation Protection & Research Reactors
- 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 IV: **ADDRESS STANDARDS BOARD'S OBJECTIVES**

11. Community of Practice Sessions (See slides 28-29 of the meeting presentation)

A. Need for Presenters

Presenters are needed for the CoP, including for this June. Kent Welter will be making a presentation in July. There is notional interest from Doug Gerstner with Idaho National Laboratory for an upcoming presentation. Suggestions made for CoP future presentations include the ARCSC RIPB Task Group and the ASME Plant System Design Standard which is on the cusp of being issued for comment.

B. Recap of Recent CoP Sessions

Brandon Chisholm recapped the last year of CoPs. The list is provided below:

CoP Presentation Title	Presenter Name/ Affiliation	# of Attendees	# of YouTube Viewings
A Risk Informed Environmental Process for Microreactors (6/28/24)	Chanson Yang with Radiant Nuclear	32	720
Risk Informing Codes and Standards (8/30/24)	Jon Facemire with Nuclear Energy Institute	56	154
RI-PB Design with ASME PSD-1 (9/27/24)	Ralph Hill with Hill Eng Solutions Chair, ASME PSD-1 Chair	47	133

The Safety-in-Design (SiD) Methodology-As Applied to Advanced Fission Projects & Beyond (10/25/24)	Steve Krahn and Megan Harkema from Vanderbilt University	44	191
We Want Your (Input): Setting the stage for improving RIPB guidance in the RP3C Guidance Document (1/31/25)	Steve Krahn/RP3C Chair (Vanderbilt) & Brandon Chisholm/RP3C VC (Southern Co.)	31	57
EPRI Research on Risk Metrics for Advanced Reactors (2/28/25)	Eric Thornsburg with EPRI	83	144
Risk-Informed Performance-Based Structural Design for External Hazards (4/4/25)	Fred Grant with SIMPSON GUMPERTZ & HEGER	52	213
RIPB Design Approaches for Enhanced Safety and Reliability in New Nuclear (5/2/25)	Paul Amico with Jensen Hughes	64	219
Risk-Informing: When, Where, and How to Start (5/30/25)	Megan Harkema with Vanderbilt Univ	38	101

- B. Solicit Input on Path Forward & Plans for Next Year
No additional input was provided.

12. Review of Open Action Items

The following action items have been completed:

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

STATUS: Completed (find at <https://www.ans.org/news/2025-02-24/article-6782/rp3c-community-of-practices-fifth-anniversary/>)

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

STATUS: Completed

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

STATUS: Completed

ACTION ITEM 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

STATUS: Completed

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

STATUS: NA. Ian Jung is the NRC representative on RP3C.

13. Other Business

No other business was discussed.

14. Next Meeting

Upcoming ANS meetings:

- 2025 ANS Winter Conference and Expo in Washington, D.C., at the Washington Hilton, November 9–12, 2025
- 2026 ANS Annual Conference in Denver, Colorado, at the Sheraton Denver, May 31–June 3, 2026
- The RP3C expects to hold its next meeting on Monday afternoon of the 2025 ANS Winter Conference.

15. Adjournment

The meeting was adjourned.