

Summary of the 24th Technical Advisory Committee (TAC) Meeting

Date: May 18(Monday)-21(Thursday), 2026

Place: Nuclear Risk Research Center (NRRC)
Central Research Institute of Electric Power Industry

Participants:

TAC: Mr. Stetkar (Chair), Mr. Afzali, Dr. Chokshi, Mr. Miraucourt, Dr. Takada, Dr. Takata, and Mr. Grantom

NRRC: Dr. Apostolakis (Director), and
Research staff of the Nuclear Risk Research Center

Proceedings:

In the 24th Technical Advisory Committee meeting, the following issues were reviewed:

- NRRC Research Plan (Draft) for FY2027
 - Risk-Informed Decision-Making Promotion Team
 - Risk Assessment Research Team
 - External Natural Event Research Team
- Current Status of the Model Plant Seismic PRA Project
- NRRC Guidance for Japanese Industry: Fire Event Data Collection, Screening, Classification, and Quantification of Generic Fire Ignition Frequencies*
- Risk-Informed Decision-Making (RIDM) Initiatives for Regulatory Engagement *
- Current Status of Multi-Unit PRA (MUPRA) Methodology*
- Data Collection Guide for Internal Flooding Events of Domestic Nuclear Power Plants*
- Current Status of PRA Peer Review Guide*

The following meeting was held as an open discussion (not publicly disclosed).

- Industry Full-Scope Level 2 PRA Initiative

Note: The meetings of the issues marked with an asterisk (*) were attended online by electric power companies.

Monday, May 18, 2026

Topic 1. NRRC Research Plan (Draft) for FY2027

– Risk-Informed Decision-Making Promotion Team

TAC's advice and comments are as follows:

- The NRRC does not need to postpone developing its RI-ISI guideline until the JSME code for RI-ISI is finalized.
- The practical guideline on integrated risk assessment should describe how utility personnel should consider all contributing factors to risk in the risk-informed decision-making process.

Topic 2. NRRC Research Plan (Draft) for FY2027

– Risk Assessment Research Team

TAC's advice and comments are as follows:

● Level 2 PRA

- From a risk-informed applications perspective, the research program priorities should be organized by the significance of the events.

● Risk Integration

- Risk-informed performance-based programs consist of three elements: risk assessment, risk management, and risk communication. The more sophisticated the risk assessment is, the easier it is to implement the other elements. However, even though you have not yet incorporated sophisticated risk assessment tools, a good risk management process enables sound risk-informed decision-making. You can implement effective risk-informed programs with the risk assessment tools available now, a good risk management process that complements those tools, and effective risk communication.
- Considering risk aggregation is needed before implementing individual hazard PRAs.

Topic 3. NRRC Research Plan (Draft) for FY2027

– External Natural Event Research Team

TAC's advice and comments are as follows:

● Seismic PRA

- We should discuss the probabilistic fault displacement assessment methodology as a topic in a future meeting.
- How will the NRRC seismic PRA guidelines complement the AESJ seismic PRA standard? We hope that the NRRC guidelines will be developed in collaboration with the AESJ.
- Although the Ikata SSHAC project was successfully completed, applications of the SSHAC methodology-based PSHA at other sites have not been deployed. NRRC might want to consider developing and deploying SSHAC methodology-based seismic hazard assessment in a more practical manner for individual sites, in addition to multi-site SSHAC applications.

● Tsunami PRA

- I understood that a tsunami assessment project needs to consider various sources for tsunamis. NRRC might want to develop screening methods for sources, such as volcanic tsunamis or submarine landslide tsunamis.

● Tornado and High-Wind PRA

- Are typhoon-induced tornadoes and salt-related hazards significant in terms of risk? If you are to examine this, you should not simply multiply superposed phenomena. You must consider their priorities based on their frequencies and impacts. For example, heavy rain and storm surges are additional superposed phenomena associated with typhoons.

Tuesday, May 19, 2026

Topic 4. Current Status of the Model Plant Seismic PRA Project

TAC's advice and comments are as follows:

- The NRRRC might want to consider issuing a Phase 2 project report detailing the analysis assumptions, simplifications, integration of seismic events in the PRA plant response models, sources of conservatism, possible sources of non-conservatism, lessons learned, etc.
- The NRRRC seismic PRA guidelines should clearly state the importance of walkdowns.
- The research roadmap should specify milestones for when and what kinds of outcomes will be obtained.
- The evaluation method for seismic correlation should be developed with ample practical applicability.
- The points discussed in the multi-unit PRA should be considered for this project as well.

Topic 5. NRRRC Guidance for Japanese Industry: Fire Event Data Collection, Screening, Classification, and Quantification of Generic Fire Ignition Frequencies

TAC's advice and comments are on

- The appropriateness of whether thermal relay trip events should be counted in the screening process
- The definition of the exposure times used in calculating fire ignition frequencies. For example, data for most types of equipment-related fires apply during all plant operating modes.

Topic 6. Risk-Informed Decision-Making (RIDM) Initiatives for Regulatory Engagement

TAC's advice and comments are as follows:

- Risk-Informed In-Service Inspections (RI-ISI) are among the simpler risk-informed applications. We suggest adopting an interim approach, such as piloting RI-ISI for Class 1 piping only, even when an internal flooding PRA has not yet been developed. Because most Class 1 piping is installed inside the containment vessel, the impact of a pipe rupture is evaluated without an internal flooding PRA model.
- For developing a roadmap to implement risk-informed applications, communication with the regulatory authority is just as important as risk assessment and risk management methodologies. To foster a relationship of trust with the regulatory authority, their involvement from the pilot phase of the initiative and their verification of its effectiveness are essential.

Wednesday, May 20, 2026

Topic 7. Current Status of Multi-Unit PRA (MUPRA) Methodology

TAC's advice and comments are as follows:

- The framework and elementary evaluation methods for Level 1 MUPRA consist of general parts that are common across all hazards and hazard-specific parts. The revised Level 1 MUPRA report should clearly organize and describe the overall MUPRA framework and the elementary evaluation methods that are common to various hazards.
- The proposed methodology uses the frequency of a release of 100 TBq of Cs-137 as an example of a key risk metric. The NRRC should re-examine the technical basis for that metric and consider using other screening criteria.

Topic 8. Data Collection Guide for Internal Flooding Events at Domestic Nuclear Power Plants

TAC's advice and comments are as follows:

- The terminology used for data collection and screening of flooding sources, mechanisms, etc., should be consistent with that used in the NRRC Internal Flooding PRA Guide. For example, the Guide uses the term "pipe integrity breach" instead of "pipe rupture."
- If events such as flange gasket failure, pump or valve seal failure, expansion joint failure, and tank failure are to be included in the data collection, those requirements should be explicitly stated in the guide.
- In addition to the systems listed in the guide, other systems should also be considered as potential flooding sources.
- The input criteria for the nonconformity databases should be checked to determine whether they serve as a comprehensive data source. If the necessary data are not included, other records, such as work order requests, should be reviewed.
- Because the location of systems such as the service water system may vary by plant, the data source should be categorized by system rather than by indoor/outdoor location.
 - The limits for "controlled leakage" and "unexpected leakage" should be explicitly defined in the design documents for each system
- Bayesian methods to use Japanese data to update prior information on U.S. flooding frequencies should account for the uncertainty in the U.S. values.
- Similarly to the methods for collecting data on equipment failures or fire events, exposure data for reactor shutdown years should be collected, as well as those for reactor criticality years.
- When collecting and using data on internal flooding events, one should understand the internal flooding PRA methodology and the context in which the events occurred.

Topic 9. Current Status of PRA Peer Review Guide

TAC's advice and comments are as follows:

- The peer review schedule is too long. You should estimate the person-days required for each Technical Element and determine the total calendar duration.
- The reviewer training should be conducted for each technical element.
- Peer review is a tool for utilities to have applicable PRAs. On-site staff from the utilities

should be included in the peer review teams, not just vendors, contractors, and utility headquarters staff.

- Having risk experts on site is fundamental and essential. It is necessary to define the competencies required of PRA experts at the site and develop them accordingly, despite organizational challenges.

Thursday, May 21, 2026

Exit Meeting [Closed]