

Summary of the 21st Technical Advisory Committee (TAC) Meeting

Date: November 18(Monday)-21(Thursday), 2024

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,
and Dr. Takata

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

Proceedings:

In the 21st Technical Advisory Committee meetings, the following issues were reviewed:

- Draft Guidelines for Risk-Informed Containment Vessel Leak Rate Testing (CVLRT)*
- Guidelines for Risk-Informed On-Line Maintenance (OLM)*
- RIDM Team Research Activities and Japanese Industry's Implementation of RIDM*
- Fire PRA for a Model Plant at NRRC (Presentation for PSAM17)*
- Methods and Models for Spent Fuel Risk Assessment*
- Preliminary Result of Probabilistic Tornado Hazard Assessment Using Logic Tree*

The following meetings were held as open discussions.

- Utilization of the Halden HTO Project (HTO Project members only)
- Tsuruga Unit 2 Seismic Fault Analyses*

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

Monday, November 18, 2024

Topic 1. Draft Guidelines for Risk-Informed Containment Vessel Leak Rate Testing (CVLRT)

TAC's advice and comments are as follows:

- In accordance with Japan's performance objective, the guidance should include the statement that the Japanese utilities must confirm that the change in the Type A test interval will not cause the release of more than 100 TBq of cesium-137 to exceed 10⁻⁶/y.
- Regarding risk compensation measures required when the risk assessment results fall within Region 2, it is necessary to implement them in an effective manner in order to mitigate the impact of the change in the Type A test interval.
- The descriptions of the three uncertainties of parameters, models, and completeness in the introduction of section 3.4.d of the report need to be revised. Please refer to NUREG-1855 Section 5, Stage C, for detailed information on completeness uncertainties and NUREG-1855 Section 7, Stage E, for detailed information on model uncertainties.

- Regulatory Guide 1.174 and the guide from the Atomic Energy Society of Japan specifically state that “uncertainties should be quantified as much as possible”. Please check the guidelines to avoid the misunderstanding that uncertainty quantification is unnecessary. The guidelines should state that such uncertainties must be addressed

Topic 2. Guidelines for Risk-Informed On-Line Maintenance (OLM)

TAC’s advice and comments are as follows:

- The guidelines state that external events should be evaluated qualitatively; however, the basic approach of IRIDM is to assess all hazards in all operational modes from a quantitative perspective, and qualitative assessment is only used when quantitative assessment is not possible. The guidelines should be revised to ensure that all hazards are assessed thoroughly; otherwise, there is a concern that sufficient information will not be provided for decision-making, and adequate compensation measures will not be taken.
- When using PRA, it is important to understand where the areas of uncertainty lie and to take compensatory measures for these areas of uncertainty through qualitative assessment.

Topic 3. RIDM Team Research Activities and Japanese Industry’s Implementation of RIDM

TAC’s advice and comments are as follows:

- It is important to take appropriate actions to close the issues raised when conducting overseas expert reviews.

Tuesday, November 19, 2024

Topic 4. Fire PRA for a Model Plant at NRRC (Presentation for PSAM17)

TAC’s advice and comments are as follows.

- The risk contribution of a fire-induced containment bypass event is often significant. The CFF should be evaluated in addition to CDF.
- Since walkdown verification was not performed in the model plant study, the NRRC’s report and the paper on the study should clearly state that.

Topic 5. Methods and Models for Spent Fuel Risk Assessment

TAC’s advice and comments are as follows:

- It is recommended that the spent fuel risk assessment group and the reactor risk assessment group jointly consider whether the risk indicators for spent fuel are consistent with those conventionally defined for reactors in terms of quantifying fission product releases. The reactor risk assessments have many possible release categories that are not quantified because they are judged not to have essential and measurable effects on human health.
- The point is how to integrate the risk of the SFP into the plant PRA for all initiating events.

Defining initiating events for a stand-alone SFP PRA is not a relevant issue. Many initiating events affect cooling for the reactor and the SFP simultaneously.

Topic 6. Preliminary Result of Probabilistic Tornado Hazard Assessment Using Logic Tree

TAC's advice and comments are as follows:

- Tornado risk assessment has recently been reevaluated in the U.S. The conservatism in the conventional tornado evaluations has been recognized as a key issue.
- Please note that the hazard curves obtained were evaluated under certain conditions.
- The validity of uncertainty sources must be examined, incorporating lessons learned from preceding practices such as those in seismic PRAs.
- Tornado hazard assessments should begin with a specific region of interest rather than a broad area such as contiguous Japan.
- The uncertainty assessment of tornado missile effects should also consider the dimensions and shapes of the SSCs to be assessed.

Thursday, November 21, 2024

Exit Meeting [Closed]