

Summary of the 4th Technical Advisory Committee (TAC) Meeting

Date: Oct. 26 – 29, 2015

Place: Central Research Institute of Electric Power Industry

Participants:

TAC: Mr. Stetkar (Chair), Mr. Afzali, Dr. Chokshi, Mr. Pouget-Abadie, Prof. Takada, Prof. Yamaguchi

NRRC: Dr. Apostolakis (Head), Experts of Nuclear Risk Research Center

Industry: Representatives of Federation of Electric Power Companies (FEPC), Experts of Shikoku EPCO and Mitsubishi Heavy Industries (MHI) for respective topics

Proceedings

All topics were discussed in full committee.

No focused sessions were held in the 4th TAC meeting.

Oct. 26 (Mon.)

Topic 1: Seismic Fragility Analysis Methodology

- NRRC presented the current status of evaluation methods for seismic fragility, slope stability analysis, and the use of earthquake experience data.
- TAC members commented that NRRC should make a comparison between the values used outside of Japan and those used in Japan regarding β values, standard deviations of uncertainty in seismic fragility evaluation.

(Handouts)

1-1. Progress of research regarding seismic fragility evaluation based on TAC discussions

1-2. Slope and foundation ground stability/fragility analysis and R&D

1-3. Seismic Experience Data

Oct. 27 (Tue.)

Topic 2: Ikata Unit 3 Level 1 Full Power PRA Status Update

- Shikoku EPCO presented the latest status of Ikata Unit 3 PRA project, such as upgrading the event trees (including reviewing the selection of initiating events), and upgrading PRA parameters.
- TAC member commented that the Ikata Unit 3 PRA Project team is making excellent progress. The event trees have improved substantially beyond what was examined before.

(Handouts)

2-1. Ikata Unit 3 Internal Event Level 1 Full Power PRA Status Update

2-2. Ikata Unit 3 Internal Event Level 1 Full Power PRA Status Update (I-2 Upgrade initiating events)

2-3. Ikata Unit 3 Internal Event Level 1 Full Power PRA Status Update (II Upgrade PRA parameters)

Topic 3: Seismic Hazard Analysis SSHAC Status Update

- NRRC presented the progress toward application of the Senior Seismic Hazard Analysis Committee (SSHAC) methodology.

(Handouts)

3-1. Current Status of SSHAC Project

Oct. 27 (Tue.) – 28 (Wed.)

Topic 4: NRRC Research Plan (Presentation of All Research Topics)

- NRRC presented its research plan which covers both risk assessment field and external natural events field.
- TAC members made the following comments

<Risk Assessment field>

- It is beneficial to refer to the US NRC task force report (SECY 15-0137) on the feasibility of evaluating seismic-induced internal fires, which will be released soon.
- Interpretation and communication of the updated PRA risk results will be an important issue.

<External natural events field>

- The results of the research on fault displacement will be useful not only for Japanese utilities but for others in the world.
- It is important to investigate the dependence and correlation among components in seismic fragility assessment.
- To the extent possible, modeling of natural phenomena such as tornadoes and typhoons should account for historical data and evidence.
- With regard to volcanoes, it is reasonable to give first priority to the assessment of volcanic ash influence.

(Handouts)

- 4-1. FY2016 Research Plan - Risk evaluation team -
- 4-2. R&D related to natural external events

Oct. 29 (Thu.)

Topic 5: Selected NRRC Research Topics

- NRRC presented the specific progress of the research on fire PRA and Human Reliability Analysis.
- Open discussion¹⁾ was held on multi-unit PRA methodology.
 - 1) Open discussion: the session does not reach any conclusions. Participants freely exchange their opinions based on their own experience and knowledge. This type of session is introduced starting from this meeting.

(Handouts)

- 5-1. Fire PRA
- 5-2. NRRC's HRA Upgrade
- 5-3. Open Discussion on multi-unit PRA methodology

Topic 6: (Discussion) "State-of-the-Practice" vs. "State-of-the-Art" PRA

- In the discussion on "Ikata PRA Scope and Project Plan" at the 3rd TAC meeting, TAC and NRRC agreed that the concepts of "state-of-the-practice" and "state-of-the-art" will be discussed and clarified further at the next TAC meeting. In this meeting, TAC, NRRC, and the PRA promotion task team of FEPC discussed it in an open

discussion manner.

(Handouts)

None.

Topic 7: (Discussion) TAC Role and Responsibilities

- TAC and NRRC looked back at TAC's activities in the first year, and exchanged opinions in open discussion to have a common understanding of TAC's role and responsibilities as TAC helps the NRRC to achieve its mission. Further enhancements will be discussed during the 5th TAC meeting in May 2016.

(Handouts)

7-1. TAC Role and Responsibilities