



**1st Kashiwazaki International Symposium on Seismic Safety
of Nuclear Installations**
“Mission for Technology Innovation toward Next Generation”

Organized by
**Japan Nuclear Energy Safety Organization (JNES) and
International Atomic Energy Agency (IAEA)**

Hosted by
**Japan Nuclear Energy Safety Organization (JNES) ,
Niigata Institute of Technology (NIIT) , Tokyo Electric Power Company (TEPCO),
Japan’s Nuclear and Industrial Safety Agency (NISA) and Nuclear Safety Commission (NSC)**

24-26 November 2010

Niigata Institute of Technology, Kashiwazaki, Niigata, Japan

Preliminary Announcement and Call for Papers

Abstract Submissions Deadline:	31 August 2010
Notification of acceptance:	30 September 2010
Registration to the Symposium:	15 October 2010
Presentation material deadline:	31 October 2010

1. ORGANIZATION AND HOST

The 1st Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations will be held from 24th to 26th November 2010 at the Niigata Institute of Technology, Kashiwazaki, Niigata, Japan, as organized by Japan Nuclear Energy Safety Organization (JNES) and the International Atomic Energy Agency (IAEA); and hosted by Japan Nuclear Energy Safety Organization (JNES), Niigata Institute of Technology (NIIT), Tokyo Electric Power Company (TEPCO), Japan's Nuclear and Industrial Safety Agency (NISA) and Nuclear Safety Commission(NSC) of Japan.

This first announcement is to inform you of this symposium and call for papers to be submitted for presentation at the symposium.

2. BACKGROUND OF THE SYMPOSIUM

During the 2007 Niigata-ken Chuetsu-oki Earthquake, the seismic ground motion observed at Kashiwazaki-Kariwa Nuclear Power Plant (K-K NPP) exceeded far higher than the design basis seismic ground motion that was determined in accordance with Japanese former Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities. Although some equipment and facilities of lower seismic design class were damaged, it was identified through the full investigation by Japanese experts, as well as in the fact-finding expert missions carried out by the IAEA that the four reactors in operation or in start-up status were safely shutdown, and the events identified after the earthquake had no significant affect to safety. The soundness and integrity of Structures, systems and components (SSC) that are important to safety were also secured. However, it was necessary to investigate that the design-basis ground motion was underestimated, to share internationally the experiences learned in this K-K NPP, and to address the issues identified. A detailed survey by the owner-operator of the plant and intensive reviews by the Japanese regulator and technical support organization have been conducted especially on the specific seismic source mechanism, on impacts of the strong ground motion and on plant response in case where events beyond design-basis occurred. There are still a number of issues that need to be studied by international nuclear community.

This fact was the largest incentive of the establishment of International Seismic Safety Centre (ISSC) in the IAEA, and the reason why The Japan Nuclear Energy Safety Organization (JNES) has been providing contributions to ISSC. Also JNES, Niigata Institute of Technology (NIIT) and Tokyo Electric Power Company (TEPCO) has decided to establish the "Nuclear Seismic and Structural Research Core Center" at Kashiwazaki as a basis for nuclear seismic safety study which has intension to work as a hub for international seismic safety. This international symposium will be held with the opening ceremony for the Research Core Center.

This symposium is being held to share the most of the experiences of K-K NPP with the international nuclear society. An epoch in nuclear seismic safety was initiated in Kashiwazaki experience, and an occasion is now provided for discussion of the state of the art insight and findings on seismic safety, and international utilization of the technical practices. In this Symposium, the future direction of technology innovation will be provided and opportunity of capability building will also given for next generations, which will contribute to “safe and reliable” new plant construction. This Symposium will be held biennially. The theme of the 1st symposium will be “Lessons Learned from Kashiwazaki and their applications”.

3. OBJECTIVES, CONTENT AND TOPICS OF THE SYMPOSIUM

The objectives of this symposium are to discuss and disseminate recent findings and issues on seismic safety of the Nuclear Installations, and their effect on seismic assessment of Nuclear Installation’s SSC as follows:

Session A: Earthquake and Ground Motion

A-1: Strong Ground Motion

Experts from IAEA member states will report their present status how the Design Basis Ground Motion (DBGM) is determined based on the country-specific seismic safety regulations for Nuclear Installations. Current results and remaining issues on DBGM are to be summarized.

Focusing on the evaluation of near-source ground motion, Characteristics of seismic source and strong motion will be clarified in this session, and presented and discussed state-of-the-art knowledge and technologies of ground motion evaluation. The analysis of uncertainties in ground motion evaluation is also a main subject to be discussed in this session. Subjects discussed in this session will be reflected in discussion at Session A-2.

TOPICS

- Characteristics of near-source ground motions
(Identification and summarization of historical observation features)
- Methods for evaluating near-source ground motions
(Empirical attenuation equation, Finite fault source simulation)
- Identification of faults by geophysical exploration, geomorphology etc
- Evaluation of uncertainty in seismic sources and ground motions (logic tree)
- Design Basis Ground Motion
- Rule or Guide for DBGM

A-2: Uncertainties associated with Seismic Source

In this session, discussion will focus on how to establish the design basis seismic ground motion (DBGM) in order to secure seismic safety for nuclear power plants against earthquakes for which a survey does not easily lead to identification of the source and determination of its magnitude in advance (earthquakes without specified source faults). This will be an important issue for both high and middle to low seismicity member states. Main points in discussion will be: i) how to assume the seismic source and identify the subject earthquake; ii) how to assess seismic ground motion and evaluate DBGM; and iii) what kind of issues should be studied based on each country's situation of geological survey and ground motion assessment.

TOPICS

- Active faults
- The ability to detect buried/concealed faults based on seismic reflection profiling
- Earthquakes without specified source fault
- Seismic Hazard Assessment, probabilistic and deterministic
- Handling of uncertainty (logic tree)
 - Source characteristics, propagation, site effect
- DBGM

Session B: Earthquake accompanying events

B-1: Slope and foundation ground Stability

Safety assessments of the slope and building foundation ground stability have been carried out by using safety margin (sliding safety factor). However, overestimation may be introduced by this approach. In this session, state-of-the-art assessments for the slope and foundation ground will be introduced, and remaining issues for these events will be discussed. Current approaches and future direction for this topic will be summarized in this session. Consequently, rational approach to the stability evaluation of the slope and foundation ground will be discussed based on realistic phenomenon. Main issues will be followings:

TOPICS

- Properties, strength, deformational characteristics of soil/rock materials
- Modeling (dynamic properties and strength, non-uniformity, variability)
- Survey and investigation on actual issue
- Shaking table experiment, etc. (motion, slope collapse patterns, effects of input motion characteristics)
- Analysis and evaluation

analysis of continuous and discontinuous model, large deformation and collapsing behavior, response before and after collapse, evaluation by stress, evaluation by strain and deformation

- Application of probabilistic assessment (seismic PSA, uncertainty)
- Effectiveness of seismic reinforcement for slopes and foundation ground

B-2: Tsunami

The Kalpakkam Nuclear Power Plant in India was inundated due to the Indian Ocean Tsunami in December 2004. Triggered by this incident, IAEA has promoted the revision of Safety Guide DS417 pertaining to the safety assessment of nuclear facilities regarding tsunami, and the spread of tsunami analytical techniques among IAEA member states. Also IAEA and JNES conducted Tsunami EBP from 2007 to 2010, propagating tsunami analysis techniques and seismic information dissemination system. In February 2010, the Chile Earthquake occurred and generated tsunami. To prevent recurrence of giant tsunamis disasters in the future, issues on the safety assessment of nuclear power plants regarding tsunami will be identified in lessons learned through the past tsunamis, and the recent approach and future directions will be discussed.

TOPICS

- 2004 Indian Ocean Tsunami
- 2010 Chilean Tsunami
- Probabilistic Safety Assessment against Tsunami
- Tsunami Deposits, Sediment move, River run up
- Tsunami database

Session C: Seismic safety margin

C-1: Seismic safety margin as a plant

At the 2007 Niigata-ken Chuetsu-oki Earthquake, the seismic ground motion observed at K-K NPP was far higher than the design basis seismic ground motion (DBGM), but the soundness and integrity of structure, systems and components (SSCs) that are important to safety were secured. It seems that the main reason for this success was that the nuclear power plant had enough seismic safety margin (SSM). It seems that it is important to explain to the public clearly not only the integrity of facilities but also how much SSM the nuclear power plant had, in order to gain further confidence of citizens (public) regarding the safety of the nuclear power plant for its restart.

In this session, present situation of seismic safety assessment of NPPs, state-of-the-art research on SSM assessment and the utilization of a factor of SSM for judgment criteria for restarting a nuclear power plant struck by a large earthquake will be discussed to identify the challenges for further research and future directions.

TOPICS

- Present situation of seismic safety assessment of NPPs
- State-of-the-art research on SSM assessment
- SSM assessment of SSCs
- Capacity (Fragility) test for SSM assessment of SSCs
- SSM assessment on system and plant level
- SSM assessment of aged plants
- Relationship between SSM and seismic PSA/PRA)
- Restart and SSM (including seismic PSA/PRA)

C-2: Evaluation of seismic risk

In this session, approaches to the application of risk assessment on existing and new plants in each country will be discussed to share an ideal method of international risk assessment by exchanging views on the issues of risk assessment and the need for international guidelines.

The incident at K-K NPP turned out to be a clear example where risk evaluation is required.

In the light of the risks associated with the beyond-design-basis earthquake (In Japan, this is called as “Residual Risk”) and new plant construction expected in various countries, discussion will be held from the perspective of utilizing risk assessment for regulatory.

TOPICS

- Present situation of seismic PSA/PRA
- Performance and safety targets in risk assessment
- Issues and perspectives in residual risk assessment
- Establishment of international guidelines for risk assessment
- Evaluation method for core damage frequency in the multiple units site
- Evaluation method for level 1, 2, 3 under earthquake
- Restart and SSM (including seismic PSA/PRA)

Session D: Information dissemination system for seismic safety

At the 2007 Niigata-ken Chuetsu-Oki Earthquake, the integrity of important equipment and facilities in terms of safety at K-K NPP was secured and the nuclear reactors were shutdown safely. However, information of the situation of facilities after the earthquake was not promptly disseminated to the parties concerned, including local governments and residents living nearby. Consequently fragmentary information such as the one on transformer fire was spread, and a great deal of confusion was caused among the parties concerned.

In order to build an information system, which will contribute to the security and safety of local residents for disseminating information regarding seismic safety, the technical issues and latest findings will be discussed in this session, so as to promptly provide information, in an easy to understand manner, on nuclear facility behavior and related earthquake.

Discussions will include observation system of seismic ground motion and information dissemination system at nuclear facilities, techniques for disseminating information based on new communication methods. In addition, this session will accompany in depth discussions through the public panel.

TOPICS

- Earthquake observation and information dissemination at NPPs
- Seismic information dissemination system
- Understandability and visualization of seismic safety information
- Information required at the earthquake and its communication technique
- Understandability and visualization of seismic safety information
- Contribute to the regional security and safety

4. SCOPE AND STRUCTURE OF THE SYMPOSIUM

The symposium will consist of an opening plenary session, technical sessions devoted to technical presentations and panel sessions by participants on the topics outlined in the objectives and the closing plenary session. In the closing plenary session, discussions on subjects ranging from Session A to Session D will be summarized, and conclusions and recommendations to the international nuclear society will be summarized. All participants are encouraged to take part in the discussions and formulation of conclusions in the final session.

5. LOGISTIC AND PARTICIPATION IN THE SYMPOSIUM

Participants

For the 1st Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations, participation is open to experts from regulatory authorities, technical support organizations, research institutions, academic organizations, nuclear installation owners and operators, nuclear installation designers and vendors, industry associations, and observers from local residents living nearby nuclear installation. Nominations should be made through the Secretariat of the 1st Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations. Those wishing to make a

presentation at the symposium should submit an abstract with their preliminary registration form. The session program will be arranged by the Technical Program Committee.

Registration

Participants should fill in the attached registration form and send it by E-mail to the JNES secretariat by 15 October 2010.

JNES Secretariat

Yuichi UCHIYAMA
Seismic Safety Division
Japan Nuclear Energy Safety Organization (JNES)
Kamiya-cho MT Bldg., 4-3-20, Toranomon,
Minato-ku, Tokyo, 105-0001, Japan
Tel: +81 3 4511 1512
Fax: +81 3 4511 1598
E-mail: kashiwazaki-seis-sympo@jnes.go.jp
Note: JNES secretariat will confirm the acceptance of registration for the symposium.

Venue of the symposium

The symposium will be held at the Niigata Institute of Technology.
1719 Fujihashi, Kashiwazaki City, Niigata Prefecture 945-1195, Japan
(MAPS) <http://www.niit.ac.jp/english/access.html>

Accommodations

Travel agent for the symposium has reserved a sufficient number of rooms at several hotels in Kashiwazaki City and Nagaoka City. Detailed information will be provided in the Advance Program. If you have any inquiry, please contact JNES secretariat

Passport and visa requirements

For the citizens of most countries, a valid passport is sufficient. However, visitors coming from certain countries may need a tourist visa. Please consult your travel agent or the nearest Japanese consulate or embassy. JNES secretariat will be pleased to send you an official letter of invitation upon request.

6. LANGUAGE, ABSTRACTS AND SYMPOSIUM ARCHIVES

Official language

All presentations and discussions will be in English or Japanese, and simultaneous English-Japanese interpretation service will be provided.

Presentations should not exceed 20 minutes.

Abstracts

Participants wishing to make presentation shall submit an abstract. (less than 400 words in English). All abstracts should be submitted by 31 August with the registration form. (Note: All abstracts should be submitted electronically in MS-Word and “Times 11” or “Times New Roman 11” font.)

The Technical Program Committee will review abstracts for presentation and for poster session. Review result will be notified by 30 September. Presentation material in electronic file should be sent to JNES secretariat by the end of October.

Symposium archives

Presentation slides will be published at a later date in electronic form on CD-ROM, including the opening session, conclusions and recommendations from the Session A to Session D and a summary of panel discussions.

7. HALF DAY TECHNICAL TOUR

1. NPP site visit: Kashiwazaki-kariwa Nuclear Power Plant, Tokyo Electric Power Company (TEPCO) (prior registration required)
2. *Kashiwazaki Research Core Center visit : (on site registration)*

8. ORGANIZING COMMITTEE

Japan Nuclear Energy Safety Organization (JNES)	Katsumi Ebisawa (Deputy: Yuichi Uchiyama; Hiroshi Abe)
International Atomic Energy Agency	Ovidiu Coman
OECD/NEA Working Group on Integrity and Ageing of Components and Structures	Alejandro Huerta
United States Nuclear Regulatory Commission	Nilesh Chokshi
Électricité de France	Pierre Labbé
Tokyo Electric Power Company	Shin-ichi ITO
Niigata Institute of Technology	Mitsuhiko Wada
Nuclear and Industrial Safety Agency, METI	
Nuclear Safety Commission	

***1st Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations
and Embedded Topical Meetings***

24 – 26 November, Niigata Institute of Technology, Kashiwazaki-city, Japan

Registration/Accommodation/Abstract Form

Surname (Family Name): (Please indicate prefix whether Prof., Dr., Mr., Mrs., Miss, or Ms.)	
Given Name (s):	
Institution, Organization or Company:	
Address (full address):	
Address (Country):	
Address (ZIP code):	
Address (Mailing Address):	
Telephone No.:	
Fax No.:	
E-mail address:	
Kashiwazaki NPP site visit (on 25 Nov or 26 Nov) (Passport will be required.)	I prefer on <input type="checkbox"/> : 25 Nov <input type="checkbox"/> : 26 Nov
Accommodation request/Accompanying spouse/ Room Type(if any): (please contact secretariat if needed)	
Preferred participation place: (Please check the appropriate box.)	<input type="checkbox"/> : 1st Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations <input type="checkbox"/> : OECD/NEA IAGE/JNES Workshop of OECD/NEA Program to Study Earthquake Measurements in Deep Wells and their Applications <input type="checkbox"/> : JNES/ EDF Workshop on “Seismic Isolation of Nuclear Installations”
Title of the presentation, if any (abstract to be attached by 31/ Aug/ 2010):	
Abstract (less than 400 words):	

To be sent as soon as possible to

JNES secretariat

Yuichi UCHIYAMA

E-mail: kashiwazaki-seis-sympo@jnes.go.jp