

International Experts Meeting on Protection against Extreme Earthquakes and Tsunamis in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant (IEM3)

PROGRAMME

Date: 4-7 September 2012

Venue: Board Room (A), IAEA headquarters

Background:

- In the last ten years, a number of extreme natural events have occurred that have had an impact on a number of NPPs in many parts of the world.
- Valuable experience and many lessons have been and are being learned by MSs and operators in managing NPPs under adverse conditions.
- The IEM will provide an opportunity to discuss the latest insights and findings relevant to the protection of NPPs, to share lessons learned and to exchange knowledge and research results on the latest technologies.

Objective:

- To share lessons learned from recent extreme earthquakes and tsunamis, including the Great East Japan Earthquake and Tsunami of 11 March 2011;
- To exchange information on the development of recent technologies and the results of ongoing research programmes relating to site evaluation and NPP safety that aim to provide protection against earthquakes and tsunamis; and
- To identify issues which should be further investigated.

Thematic areas and topics:

- Technical session 1: Seismic and Tsunami Hazard:
 - Databases
 - Hazard Assessment
 - Characterization of Loading Effects
- Technical session 2: Seismic and Tsunami Safety:
 - Safety Assessment
 - Protective Measures
 - Lessons Learned
 - Event Warning Systems

Cooperates:

Chairperson:

- GODOY Antonio, Argentina

Co-chairpersons:

- Technical Session 1: Seismic and Tsunami Hazard
 - GÜLKAN Polat (Çankaya Univ.), Turkey
 - SATAKE Kenji (Univ. of Tokyo), Japan
- Technical Session 2: Seismic and Tsunami Safety
 - CHOKSHI Nilesh (US-NRC), USA
 - CONTRI Paolo (ENEL), Italy

Rapporteurs:

- Technical Session 1: Seismic and Tsunami Hazard
 - COMAN Ovidiu (IAEA)
- Technical Session 2: Seismic and Tsunami Safety
 - BASU Prabir (IAEA)

Keynote presenters:

- APOSTOLAKIS George (US-NRC), USA
- ABRAHAMSON Norman (UC Berkeley), USA
- YALCINER Ahmet Cevdet (METU), Turkey
- KAMEDA Hiroyuki (Kyoto Univ.), Japan
- KOSTAREV Victor (CVS), Russia
- HUERTA Alejandro (OECD/NEA)

Meeting Organizer:

- CARUSO Gustavo (IAEA)

Scientific secretariat:

- SAMADDAR Sujit (IAEA)
- VINCZE Pal (IAEA)

Administrative support

- MCKAY Andrew (IAEA)

Organizing Committee Members

- CHAI Guohan (NRC), China
- CHOKSHI Nilesh (US NRC), USA
- EBISAWA Katsumi (JNES), Japan
- HIJIKATA Katsuichirou (TEPCO), Japan
- KAMEDA Hiroyuki (Kyoto University), Japan
- LABBE Pierre (EDF), France
- SAMADDAR Sujit (IAEA)

Technical Program Committee Members

- VINCZE Pal (IAEA)
- FUKUSHIMA Yoshimitsu (IAEA)

- MAHMOOD Hamid (IAEA)
- HIBINO Kenta (IAEA)
- COMAN Ovidiu (IAEA)
- ALTINYOLLAR Ayhan (IAEA)
- BASU Prabir (IAEA)

Program and Presentations:

1st day, Tuesday, 4 September 2012		
08:30-10:00	Registration	
Opening session:		
10:00-10:10	General logistics	<i>SAMADDAR S. (IAEA) and VINCZE P. (IAEA)</i>
10:10-10:50	Welcome speech	<i>FLORY D. (IAEA) and BYCHKOV A. (IAEA)</i>
10:50-11:10	Opening remark	<i>GODOY A. (Argentina)</i>
Special session, CH: GODOY A. (Argentina)		
11:10-11:45	Special presentation 1: MEASURES AGAINST EARTHQUAKES AND TSUNAMIS IN VIEW OF THE ACCIDENT AT FUKUSHIMA DAIICHI NUCLEAR POWER STATION (<u>SP01</u>)	<i>MORIYAMA Y. (NISA, Japan)</i>
11:45-12:00	Special presentation 2: REPORT OF THE IAEA's ONAGAWA MISSION (<u>SP02</u>)	<i>SAMADDAR S. (IAEA)</i>
<i>Lunch break</i>		
Plenary session, CH: GODOY A. (Argentina)		
13:30-14:15	Keynote speech 1: ROLE OF PRA IN ENHANCING EXTERNAL EVENTS SAFETY - THE PAST, PRESENT, AND FUTURE (<u>KE01</u>)	<i>APOSTOLAKIS G. (COMMISSIONER, US-NRC / USA)</i>
14:15-15:00	Keynote speech 2: ADVANCES IN TSUNAMI NUMERICAL MODELING WITH EXAMPLES RELATED TO SAFETY OF NPPs (<u>KE02</u>)	<i>YALCINER C. A. (METU / Turkey)</i>
15:00-15:45	Keynote speech 3: SEISMIC HAZARD EVALUATION AND BEYOND DESIGN BASIS EVENTS CONSIDERING NEW EARTHQUAKE SCIENCE INFORMATION (<u>KE03</u>)	<i>ABRAHAMSON N. (Univ. of California / USA)</i>
<i>Coffee break</i>		
Plenary session (Cont.), CH: GODOY A. (Argentina)		
16:15-17:00	Keynote speech 4: TECHNOLOGY GOVERNANCE FOR NUCLEAR SAFETY UNDER EARTHQUAKE-TSUNAMI HAZARD – ENGINEERING MISSION TO OVERCOME THE 3.11 FUKUSHIMA DISASTER – (<u>KE04</u>)	<i>KAMEDA H. (Kyoto Univ. / Japan)</i>
17:00-17:45	Keynote speech 5: ROBUSTNESS OF RUSSIAN DESIGN NPPs AGAINST EXTREME EARTHQUAKE AND TSUNAMI (<u>KE05</u>)	<i>KOSTAREV V. (CVS / Russia)</i>
17:45-18:30	Keynote speech 6: INITIATIVES OF THE NEA IN RESPONSE TO THE TEPCO FUKUSHIMA DAIICHI NPP ACCIDENT (<u>KE06</u>)	<i>HUERTA A. (OECD/NEA)</i>

2nd day, Wednesday, 5 September 2012		
Technical session 1: Seismic and Tsunami Hazards, CH: GÜLKAN P. (Çankaya Univ./Turkey) and SATAKE K. (Univ. of Tokyo/Japan)		
08:30-09:00	Invited lecture 1: SOURCE OF MARGINS AVAILABLE FOR DEALING WITH BEYOND DESIGN EARTHQUAKES (IN01)	<i>LABBE P. (EDF / France)</i>
09:00-09:30	Invited lecture 2: THE OUTLOOK FOR NUCLEAR IN CANADA AFTER FUKUSHIMA (IN02)	<i>BLAHOIANU A. (CNSC / Canada)</i>
09:30-10:00	Invited lecture 3: WHAT WE LEARNED FROM THE 2012 MEGATHRUST EARTHQUAKE ALONG THE JAPAN TRENCH – PALEOSEISMOLOGICAL PERSPECTIVES – (IN03)	<i>OKUMURA K. (Hiroshima Univ. / Japan)</i>
<i>Coffee break and Poster Session</i>		
Technical session 1: Seismic and Tsunami Hazards (Cont.), CH: GÜLKAN P. (Çankaya Univ./Turkey) and SATAKE K. (Univ. of Tokyo/Japan)		
10:30-10:50	CURRENT ISSUES AND FRONT LINE OF STRONG MOTION RESEARCH AFTER THE 3.11 TOHOKU EARTHQUAKE AND FUTURE PERSPECTIVE FOR NUCLEAR SAFETY (PR01)	<i>IRIKURA K. (Kyoto Univ. / Japan)</i>
10:50-11:10	CHECKING OF SEISMIC AND TSUNAMI HAZARD FOR COASTAL NPP OF CHINESE CONTINENT (PR02)	<i>CHANG X. (NSC / China)</i>
11:10-11:30	STRONG GROUND MOTION OBSERVED AT FUKUSHIMA DAIICHI NPS DURING THE 2011 GREAT EAST JAPAN EARTHQUAKE (PR03)	<i>MIZUTANI H. (TEPCO / Japan)</i>
11:30-11:50	TSUNAMI GENERATING POTENTIAL OF MAKRAN SUBDUCTION ZONE (PR04)	<i>HUSSAIN J. (PAEC / Pakistan)</i>
11:50-12:10	PAST TSUNAMI EVALUATION AND TSUNAMI OF MARCH 11TH IN 2011 AT FUKUSHIMA DAIICHI NPS (PR05)	<i>TAKAO M. (TEPCO / Japan)</i>
12:10-12:30	TSUNAMI EVALUATION OF COASTAL NUCLEAR POWER PLANTS IN INDIA (PR06)	<i>SINGH R. K. (BARC / India)</i>
<i>Lunch break</i>		
Technical session 1: Seismic and Tsunami Hazards (Cont.), CH: GÜLKAN P. (Çankaya Univ./Turkey) and SATAKE K. (Univ. of Tokyo/Japan)		
14:00-14:20	LESSONS TO BE LEARNED FROM THE FUKUSHIMA NPP ACCIDENT WITH PARTICULAR FOCUS ON NEW BUILD PROJECTS (PR07)	<i>GURPINAR A. (Turkey)</i>
14:20-14:40	RESEARCH & DEVELOPMENT PROGRAMME ON SEISMIC GROUND MOTION ASSESSMENT: SIGMA (PR08)	<i>SENFAUTE G. (EDF / France)</i>
14:40-15:00	THE CONSIDERATION OF CHINESE NUCLEAR POWER PLANT SAFETY TECHNOLOGY RESEARCH PROGRAM AFTER FUKUSHIMA ACCIDENT (PR09)	<i>PAN R. (NSC / China)</i>
15:00-15:20	SAFETY REQUIREMENTS IN FRANCE FOR THE PROTECTION AGAINST EXTREME EARTHQUAKES (PR10)	<i>PIERRE R. (ASN / France)</i>
15:20-15:40	EXPECTING THE UNEXPECTED: RECCURENCE, FAT TAILS, AND TSUNAMI PRA (PR11)	<i>EPSTEIN W. (SRM / USA)</i>
15:40-16:00	RECIPE FOR ASSESSING DESIGN TSUNAMI IN LIGHT	<i>IWABUCHI Y. (JNES /</i>

	OF THE 2011 TOHOKU EARTHQUAKE AND TSUNAMI (PR12)	Japan)
<i>Coffee break and Poster Session</i>		
Technical session 1: Seismic and Tsunami Hazards (Cont.), CH: GÜLKAN P. (Çankaya Univ./Turkey) and SATAKE K. (Univ. of Tokyo/Japan)		
16:30-16:50	FUKUSHIMA DAINI INDEPENDENT REVIEW AND WALKDOWN (PR13)	RICHARDS J. (EPRI / USA)
16:50-17:10	ELABORATION OF TUNISIAN EARTHQUAKE CATALOGUE (PR14)	LIMAM W. (STEG / Tunisia)
17:10-18:30	Panel discussion	-

3rd day, Thursday, 6 September 2012		
Technical session 2: Seismic and Tsunami Safety, CH: CHOKSHI N. (US-NRC/USA) and CONTRI P. (ENEL/ Italy)		
08:30-09:00	Invited lecture 4: IMPROVEMENT MEASURES FOR NPPs IN CHINA IN LIGHT OF FUKUSHIMA ACCIDENT (IN04)	CHAI G. (NSC / China)
09:00-09:30	Invited lecture 5: SAFETY MARGIN ASSESSMENT OF BELENE NPP PROJECT FOR EXTERNAL EVENTS (IN05)	KOSTOV M. (Risk E / Bulgaria)
09:30-10:00	POST FUKUSHIMA ACTIONS RELATED TO SEISMIC RISK/MARGIN IN THE UNITED STATES (PR15)	Hardy G. (SGH / USA)
<i>Coffee break and Poster Session</i>		
Technical session 2: Seismic and Tsunami Safety (Cont.), CH: CHOKSHI N. (US-NRC/USA) and CONTRI P. (ENEL/ Italy)		
10:30-10:50	SAFETY RE-EVALUATION AND RELATED RESEARCH ACTIVITY AGAINST EXTREME EXTERNAL EVENTS FOR KOREAN NUCLEAR POWER PLANTS (PR16)	CHOI I. (KAERI / Korea)
10:50-11:10	TSUNAMI ANALYSIS AND PROTECTION AGAINST EXTERNAL FLOODING BEYOND DESIGN BASIS (PR17)	ZHU S. (CNEPC / China)
11:10-11:30	PERSPECTIVES OF SEISMIC PROBABILISTIC RISK ASSESSMENT AND SEISMIC MARGIN ASSESSMENT TO ENHANCE SEISMIC SAFETY FOR NEW REACTORS IN THE UNITED STATES (PR18)	CHOKSHI N. (USNRC / USA)
11:30-11:50	DEVELOPING NEW REGULATORY GUIDELINE ON SEISMIC ISOLATION OF JAPAN AND US (PR19)	ABE H. (JNES / Japan)
11:50-12:10	SAFETY MARGINS OF ETRR-2 CORE COOLING SYSTEM DUE TO SEISMIC LOADS (PR20)	AHMED K. (NRRRA / Egypt)
12:10-12:30	STRUCTURAL INTEGRITY OF FUKUSHIMA DAIICHI SSCS AFTER THE 2011 GREAT EAST JAPAN EARTHQUAKE (PR21)	NAGASAWA K. (TEPCO / Japan)
<i>Lunch break and Poster Session</i>		
Technical session 2: Seismic and Tsunami Safety (Cont.), CH: CHOKSHI N. (US-NRC/USA) and CONTRI P. (ENEL/ Italy)		
14:00-14:20	WAY FOR ESTABLISHING TSUNAMI RESISTANT TECHNOLOGY FOR NUCLEAR FACILITY IN JAPAN (PR22)	TAKAMATSU N. (JNES / Japan)
14:20-14:40	EARLY WARNING AND COMMUNICATION SYSTEM FOR EARTHQUAKES AND TSUNAMI IN KENYA (PR23)	KIEMA E. K. (NDOC / Kenya)
14:40-15:00	EU STRESS TESTS: SPANISH RESULTS ON SEISMIC EVENTS (PR24)	SANCHEZ CABANERO J. G. (CSN / Spain)

15:00-15:20	PROTECTION OF RUSSIAN NPPs AGAINST EXTREME EARTHQUAKE AND TSUNAMI: RESULTS AND FINDINGS FROM THE IMPLEMENTATION OF RUSSIAN NPP EVALUATION PROCEDURES (PR25)	<i>SVIRDOV D. (Rostechнадзор / Russia)</i>
15:20-15:40	LESSONS LEARNED FROM POST EARTHQUAKE INVESTIGATIONS AT NORTH ANNA NUCLEAR POWER PLANT (PR26)	<i>LI Y. (USNRC / USA)</i>
15:40-16:00	“TiPEEZ SYSTEM” FOR INFORMATION MANAGEMENT AGAINST EARTHQUAKE, TSUNAMI AND NUCLEAR DISASTER, CONSIDERING NUCLEAR RISK COMMUNICATION (PR27)	<i>EBISAWA K. (JNES / Japan)</i>
<i>Coffee break and Poster Session</i>		
Technical session 2: Seismic and Tsunami Safety (Cont.), CH: CHOKSHI N. (US-NRC/USA) and CONTRI P. (ENEL/ Italy)		
16:30-16:50	THE SEISMIC SAFETY EVALUATION PROGRAMME OF THE ATUCHA I NPP-ARGENTINA IN THE LIGHT OF LESSONS LEARNED FROM FUKUSHIMA DAIICHI NPP ACCIDENT (PR28)	<i>JOHNSON J. (JJJ / USA) / GODOY A. (Argentina)</i>
16:50-17:10	CODE AND GUIDE OF SEISMIC AND TSUNAMI SAFETY FOR THE SOCIETY EXPERIENCED 3.11 EVENT AND FOR NEW COMER (PR29)	<i>SHIBATA H. (Univ. of Tokyo / Japan)</i>
17:10-18:30	Panel discussion	-

4th day, Friday, 7 September 2012		
Closing session, CH: GODOY A. (Argentina)		
09:30-10:00	Summary of technical session 1	<i>SATAKE K. (Univ. of Tokyo / Japan)</i>
10:00-10:30	Summary of technical session 2	<i>CHOKSHI N. (US-NRC / USA)</i>
10:30-11:15	Summary of the IEM	<i>GODOY A. (Argentina)</i>
11:15-11:30	Closing speech	<i>FLORY D. (IAEA)</i>
11:30-	<i>Adjourn</i>	

Posters:

1	JANTI GUIDLINE FOR POST-EARTHQUAKE EQUIPMENT INTEGRITY ASSESSMENT (PO01)	<i>SEKI H. (JANTI / Japan)</i>
2	POST FUKUSHIMA SAFETY EVALUATION FOR A NUCLEAR FACILITY (PO02)	<i>BOSCO Benoit (AREVA / France)</i>
3	RISK BASED SEISMIC ANALYSIS OF NUCLEAR PLANT SYSTEMS AND STRUCTURES (PO03)	<i>SRINIVASAN Ram (AREVA Inc. / USA)</i>
4	FRENCH EXPERIENCE AND PRACTICE OF SEISMICALLY ISOLATED NUCLEAR FACILITIES (PO04)	<i>DIAZ M Sebastien (NUVIA Travaux Spéciaux / France)</i>
5	CANDU’S EXPERIENCE IN SEISMIC MARGIN ASSESSMENT AND PATH FORWARD AFTER	<i>LIU Wei (Candu Energy)</i>

	FUKUSHIMA ACCIDENT (PO05)	<i>Inc. / Canada)</i>
6	METHODOLOGY OF DYNAMIC PARAMETERS CONFIRMATION, DETERMINING SEISMIC STABILITY OF NPP's ELEMENTS (PO06)	<i>KASYANOV Konstantin (JSC "Atomtechenergo" / Russia)</i>
7	LESSONS LEARNED FROM THE SEISMIC POST FUKUSHIMA SAFETY EVALUATION OF THE FRENCH PWR. A LICENSEE POINT OF VIEW (PO07)	<i>PETRE-LAZAR I. (EDF / France)</i>
8	SAFETY ASSESSMENT OF INDIAN NUCLEAR POWER PLANTS AND LESSONS LEARNED POST FUKUSHIMA-2011 (PO08)	<i>BISHNOI L. R. (AERB / India)</i>
9	REGULATORY FRAMEWORK FOR PROTECTION AGAINST SEISMIC EVENTS IN LAGUNA VERDE NPP (PO09)	<i>SALGADO GONZALEZ J. R. (NCNS / Mexico)</i>
10	ARMENIAN NUCLEAR POWER PLANT (PO10)	<i>KARAPETYAN K. (MES / Armenia)</i>
11	EFFECTS OF BEYOND DESIGN BASIS EARTHQUAKES ON NPPs: TIME DOMAIN NONLINEAR MODELING AND SIMULATIONS USING THE NRC ESSI SIMULATOR (PO11)	<i>JEREMIC B. (Univ. of California / USA)</i>
12	SEISMIC RESPONSE ANALYSES AND UPGRADING WORKS FOR SSCs IN KASHIWAZAKI KARIWA NPS AFTER THE 2007 NIIGATAKEN CHUETSU-OKI EARTHQUAKE (PO12)	<i>KIYOURA H. (TEPCO / Japan)</i>
13	FORMULATION OF "TSUNAMI RESISTANT DESIGN STANDARD FOR NUCLEAR INSTALLATIONS" IN JAPAN (PO13)	<i>KIYOURA H. (TEPCO / Japan)</i>
14	TSUNAMI COUNTERMEASURES AT KASHIWAZAKI KARIWA NPS BASED ON THE EXPERIENCE OF FUKUSHIMA ACCIDENT (PO14)	<i>KIYOURA H. (TEPCO / Japan)</i>
15	SUCCESS PATH TO THE COLD SHUTDOWN IN FUKUSHIMA DAINI NPS (PO15)	<i>KIYOURA H. (TEPCO / Japan)</i>
16	RESTORATION EFFORTS FOR RESTART OF KASHIWAZAKI KARIWA NPS AFTER THE 2007 NIIGATAKEN CHUETSU-OKI EARTHQUAKE (PO16)	<i>KIYOURA H. (TEPCO / Japan)</i>