



International Experts' Meeting

on

**Reactor and Spent Fuel Safety in the Light of the Accident at the Fukushima
Daiichi Nuclear Power Plant**

Organized in connection with the implementation of the
IAEA Action Plan on Nuclear Safety

PROGRAMME

19 – 22 March 2012

Vienna, Austria

Chairperson of the Meeting:

Richard A. Meserve, Chairperson, International Nuclear Safety Group (INSAG)

Programme Committee (IAEA):

**G. Caruso
P. Hughes
P. Vincze
G. Dyck
H. Khartabil
K-S. Kang
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IAEA Secretariat:

**Scientific Secretaries: P. Hughes
P. Vincze**

**Meeting Organizer: M. Neuhold
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Conference Venue: Plenary Sessions and Parallel Sessions:

Vienna International Centre:
Board Room A and Conference Room M3, M Building
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Working Language: English

Resolutions: No resolutions may be submitted for consideration on any subject; no votes will be taken.

Monday, 19 March 2012

- 12:00 -16:00** **Registration of delegates, Vienna International Centre, Gate 1**
- 14:00 -15:45** **Plenary Session 1:** Board Room A, M Building
Background and update on the Fukushima accident
- Chairperson:** R. A. Meserve, International Nuclear Safety Group (INSAG)
- Opening addresses:**
- D. Flory, Deputy Director General,
Head of the Department of Nuclear Safety and Security (IAEA)
A. Bychkov, Deputy Director General,
Head of the Department of Nuclear Energy (IAEA)
- 14:20 – 15:00** **(Keynote)** D. Flory, *One year after Fukushima: Lessons for a safer nuclear energy* ,
(IAEA)
- 15:00 – 16:00** **(Keynote)** M. Yasui, Deputy Director General for Nuclear Safety Regulation
Reform, *Causes and Countermeasures - The Accident at TEPCO's Fukushima
Nuclear Power Stations* (Japan)
- 16:00 - 16:30** *Coffee break*
- 16:30 – 18:00** **Plenary Session 1:** Board Room A, M Building
Background and update on the Fukushima accident (continued)
- 16:30 – 17:15** **(Keynote)** V. Asmolov, President of the World Association of Nuclear Operators,
Prevention and Mitigation — Equal Priorities (WANO)
- 17:15 – 18:00** **(Keynote)** L. Echávarri, Director General, OECD Nuclear Energy Agency, *Response
to the Fukushima Daiichi Nuclear Power Plant Accident* (OECD/NEA)
- 18:00 – 20:00** **Welcome Reception, Ground Floor, M Building**
Hosted by the IAEA

Tuesday, 20 March 2012

- 09:00 – 10:30** **Plenary Session 2:** Board Room A, M Building
Lessons learned from international activities
- Chairperson:** R. A. Meserve, International Nuclear Safety Group (INSAG)
- 09:00 – 09:30** **(Keynote)** P. Jamet, ASN Commissioner, *European Union Response to Fukushima – European Stress Tests and Peer Review* (France)
- 09:30 – 10:00** **(Keynote)** B. Borchardt, Executive Director for Operations (USNRC), *U.S. NRC Fukushima Lessons-Learned Actions* (USA)
- 10:00 – 10:30** **(Keynote)** M.G. Zheng, President, Shanghai Nuclear Engineering Research and Design Institute (SNERDI), *Nuclear Safety Measures of China for NPP After Fukushima Accident* (China)
- 10:30 – 11:00** *Coffee break*
- 11:00 – 11:30** **(Keynote)** H. Masui, Seismic Research Group Manager, TEPCO, *Comprehensive Safety Assessment for Kashiwazaki Kariwa NPS* (Japan)
- 11:30 – 12:00** **(Keynote)** A. Shutikov, Deputy Director General JSC “Concern Rosenergoatom”, *Technical Aspects Of Enhancing Resistance And Lessons Learned From The Accident At The Fukushima Daiichi Nuclear Power Plant* (Russian Federation)
- 12:00 – 12:30** **Panel Discussion: Updated lessons from the Fukushima accident**
- 12:30 – 14:00** *Lunch break*

- 14:00 - 18:00** **Plenary Session 3:** Board Room A, M Building
Re-evaluation of current design basis accidents and approaches to prevention and mitigation of consequences from severe accident initiating events (Joint Reactor/Fuel Session)
- Chairperson:** R. A. Meserve, Chairperson, International Nuclear Safety Group (INSAG)
- 14:00 – 14:30** **(Invited speaker)** R. Jammal, Canadian Nuclear Safety Commission, *Strengthening Nuclear Safety in Canada: Regulatory Perspective Post Fukushima* (Canada)
- 14:30 – 15:00** **(Invited speaker)** A. González, Autoridad Regulatoria Nuclear, *Focusing on Fukushima-Daiichi Deficiencies rather than on Generic Nuclear Safety Issues* (Argentina)
- 15:00 – 15:30** C. Lavarenne, *Main Conclusions Of The French NPP Stress-Tests In France: A Need For A "Hardened Safety Core"* (France)
- 15:30 - 16:00** *Coffee break*
- 16:00 – 16:30** T. Schimpfke, *First Recommendations And Research Needs From A TSO Perspective* (Germany)
- 16:30 – 17:00** W. Webster, *US Industry Response to the Fukushima Daiichi Nuclear Accident* (USA)
- 17:00 – 17:30** G. Lamarre, *OECD/NEA Technical Assessments and Nuclear Safety Research: Responding to the Members' Needs Post-Fukushima* (NEA/OECD)
- 17:30 – 18:00** **Panel Discussion (co-chairs and presenters)**

Wednesday, 21 March 2012

09:00 **Parallel Sessions:** Board Room A and Conference Room M3, M Building

Re-evaluation of current design basis accidents and approaches to prevention and mitigation of consequences from severe accident initiating events

Reactor Session: Board Room A

Chairperson: J. Repussard, Institut de Radioprotection et de Surete Nucleaire, (France)

09:00 – 09:30 A. Kawano, *The Facts in the Recovery Process of Fukushima Nuclear Accident* (Japan)

09:30 – 10:00 Y. Zinchenko, *Safety Improvement of Ukrainian NPPs in the Light of the Fukushima Daiichi Accident* (Ukraine)

10:00 – 10:30 C. Cook, *NRC Activities Related to the Fukushima Task Force Flooding and Seismic Hazard Recommendations* (USA)

Spent Fuel Session: Conference Room M3

Chairperson: S. Chande, Atomic Energy Regulatory Board, AERB, (India)

09:00 – 09:30 H. Abe, *Fukushima Dai-ichi Accident: Spent Fuel Pool - Facts, Action taken and Issues* (Japan)

09:30 – 10:00 V. Rondinella, *Properties And Behaviour Of Irradiated Fuel Under Accident Conditions* (EC/JRC)

10:00 – 10:30 V. Elbaz, *IRSN Approach Of The Safety Of The Spent Nuclear Fuels Storage Pools After Fukushima Accident* (France)

10:30 – 11:00 *Coffee break*

Reactor Session: Board Room A

- 11:00 – 11:30** G. Vayssier, *Present day EOPs and SAMG - Where do we go from here?* (Netherlands)
- 11:30 – 12:00** I. Kopytov, *New Approaches to Prevention of Severe Accidents and Mitigation of their Consequences in the Light of Events Occurred at the Fukushima-1 NPP* (Russian Federation)
- 12:00 – 12:30** D. Popov, *Prevention Of Early Containment Melt-Through During Severe Accident Of Light Water Reactor VVER-1000 V320 at Units 5 & 6 of NPP Kozloduy* (Bulgaria)

Spent Fuel Session: Conference Room M3

- 11:00 – 11:30** S. Komarov, *Experience in Handling Damaged Spent Nuclear Fuel* (Russian Federation)
- 11:30 – 12:00** M. Matkovic, *Spent Fuel Storage System Management for a typical two-loop PWR nuclear power plant during hypothetical complete loss of external cooling* (Slovenia)
- 12:00 – 12:30** R. Prior, *Spent Fuel Pool safety and performance: development and application of MAAP5 Spent Fuel Model for enhancement of EOPs and SAMGs in light of the accident at the Fukushima Daiichi Nuclear Power Plant and stress test evaluations* (USA)
- 12:30 – 14:00** *Lunch break*

14:00 **Parallel Sessions** (continued): Board Room A and Conference Room M3

Reactor Session: Board Room A

- 14:00 – 14:30** J. Rempe, *Possible Reactor Safety Enhancements from Sample Examination and Evaluation at Fukushima Daiichi* (USA)
- 14:30 – 16:00** **Panel Discussion** (short presentations by panellists followed by discussion)
- F. Dermarkar, *Strengthening Nuclear Safety in Canada: Post-Fukushima Strategies* (Canada)
- F. Menage, *Methodology To Assess The Safety Vulnerabilities Of Nuclear Power Plants Against Site Specific Extreme Natural Hazards* (France)
- M. Lankin, *Requirements for Safety Analyses in the Light of Fukushima Daiichi Accident* (Russian Federation)

A. Pietrangelo, *An Integrated Safety-Focused Approach to Expediting Implementation of Fukushima Daiichi Lessons Learned* (USA)

J-E. Yang, *Post Fukushima Nuclear Safety Actions in Korea to Enhance the Safety of Nuclear Installations* (Republic of Korea)

A. Kawano (Japan)

Spent Fuel Session: Conference Room M3

14:00 – 16:00

Panel Discussion (short presentations by panellists followed by discussion)

R. Versaci, *Ageing Management for Long Term Operation of Spent Fuel Facilities* (Argentina)

P. Gavrilov, *Safety of SNF Wet And Dry Storage Facilities* (Russian Federation)

P. Hallington, *The application of resilience learning to UK spent fuel management facilities* (UK)

M. Chiguer, *Rethinking Used Fuel Management* (France)

R. Tropasso, *Nuclear Fuel Storage in the U.S.* (USA)

H. Abe (Japan)

16:00 – 16:30

Hosted coffee break, MO2 Foyer, M Building

16:00

Poster Session: MO2 Foyer, M Building

Thursday, 22 March 2012

09:00 – 11:00

Plenary Session: Board Room A, M Building
Reports from Parallel Sessions

Discussion followed by the Chairpersons' Summary Reports

Closing Remarks

Poster Session

List of contributed posters

P001: A. Alves Vaz, *Spent fuel safety AT IEA-R1 RR* (Brazil)

P002: W.S. Pereira, *Evaluation of the first three month of release of radionuclides to the marine environment resulting from the accident at the Fukushima Daiichi Nuclear Power Station* (Brazil)

P003: B. de l'Épinois, *Behaviour of a Gen 3+ reactor in extreme conditions as in Fukushima - The EPR case* (France)

P004: H. Issard, *Dry storage systems and dual purpose casks: Safe and reliable solutions for the management of spent nuclear fuel* (France)

P005: T. Prevost, *AREVA support to the Fukushima Dai-Ichi Nuclear Power Plant Actiflo™-Rad Emergency Water Decontamination Unit* (France)

P006: T.J. Katona, *Possibility of use of noise analysis for identification of reactor conditions during accidents* (Hungary)

P007: G.Petofi, *Post-Fukushima stress-test of Paks NPP in Hungary* (Hungary)

P008: M. El-Shanawany, *Systematic Assessment of Robustness of Nuclear Power Plants against the Impact of Extreme Events* (IAEA)

P009: A. Lyubarskiy, *'Fail-Safe' Design Considerations in Integrated Risk Informed Decision Making* (IAEA)

P010: A.S. Zarkasi, *Long Term Natural Circulation (NC) Cooling Operation Mode Evaluation of the Indonesia 30MW MPR-GAS Reactor Using RELAP 5/MOD3.2* (Indonesia)

P011: H. Konishi, *Analysis of Isolation Condenser Behaviour at Unit 1 of Fukushima Daiichi NPS* (Japan)

P012: H. Hoshi, *Accident Sequence Study on Fukushima Dai-ichi NPS* (Japan)

P013: M. Ogino, *Analysis of Hydrogen Explosion at Fukushima Daiichi NPS* (Japan)

P014: J. R. Ramirez Sanchez, *Improved safety of spent fuel pools derived from the Fukushima accident* (Mexico)

P015: H. Mattsson, *Stress Testing of Nuclear Facilities in Norway* (Norway)

P016: M. Afzal Nagrah, *Regulatory Overview of Reactor and Spent Fuel Safety after Fukushima Accident* (Pakistan)

P017: I. Bucur – R. Zemdegs, *Assuring Nuclear Safety in Romania: European Stress Test and Post-Fukushima Strategies* (Romania-Canada)

P018: Y. Spirochkin, *On Applicability of Dynamic Analysis Methods in Russian Nuclear Industry Regulations for Integrity Assessment of NPP Components in Accidents* (Russian Federation)

P019: V. Reznik, *Non-standard tests performed in NPPs Bohunice and Mochovce as part of stress tests* (Slovakia)

P020: H. Janzekovic, *Robustness of the Radiation Protection Systems during a Severe Accident* (Slovenia)

P021: M. Matkovic, *Long term station blackout safety analyses for pressurized water reactor* (Slovenia)

P022: P. Rizzo, *Stress Test for Sites* (USA)

P023: R. Bowser, *Accident Management with Low Leakage Reactor Coolant Pump Seals* (USA)

P024: R. Easterling, *The AP1000® Nuclear Power Plant Design and its robustness against extreme external hazards* (USA)

P025: G. Merrifield, *Next Generation Nuclear Qualified Proximity Position Sensors In A Post Fukushima World* (USA)

P026: G. Miller, *ESBWR Response to Extreme External Events* (USA)

P027: R. Prior, *Optimizing Severe Accident Containment Filtered Vent Systems – Severe Accident Analysis and the Dry Filter Technology* (USA)

P028: M. Tessier, *Repair and Preventative Retrofit Against Natural Occurrences on Critical Reinforced Concrete Structures in Power Plants Using Fiber Reinforced Polymers* (USA)