International Experts’ Meeting
on
Decommissioning and Remediation after a Nuclear Accident

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

PROGRAMME

28 January – 1 February 2013
Vienna, Austria
Chairperson of the Meeting: C. M. Larsson, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

Organizing Committee Members:

J. Rowat, International Atomic Energy Agency (IAEA)
V. Michal, IAEA
G. Proehl, IAEA
P. O’Sullivan, IAEA
M. Balonov, Russian Federation
K. McConnell, United States Nuclear Regulatory Commission (USNRC), USA
T. Inoue, Central Research Institute of Electric Power Industry (CRIEPI), Japan
C. Negin, Project Enhancement Corporation, USA
J. Mathieson, Nuclear Decommissioning Authority (NDA), UK
J-G Nokhamzon, CEA, France
S. Thierfeldt, Brenk Systemplanung, Germany

IAEA Secretariat:

Scientific Secretaries: J. Rowat
V. Michal
G. Proehl

Meeting Organizer: J. Zellinger

Administrative Support: S. Gutierrez

Conference Venue: Plenary Sessions and Parallel Sessions:

Vienna International Centre,
Board Room A and Conference Room M1, 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, 28 January 2013

09:00–14:00  
Registration of Delegates, Vienna International Centre, Gate 1

14:00–18:30  
**Session I (Plenary):** Board Room A, M Building  
*Decommissioning, Environmental Remediation and Associated Waste Management Challenges Resulting from Nuclear and Radiological Accidents*

**Chairperson:**  
C. M. Larsson, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

**Opening addresses:**

14:00–14:20  
D. Flory, Deputy Director General  
Department of Nuclear Safety and Security (IAEA)  
A. Bychkov, Deputy Director General  
Department of Nuclear Energy (IAEA)

14:20–14:30  
C. M. Larsson, Chief Executive Officer, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

**Keynote presentations:**

14:30–15:00  
M. Gilbertson and D. Huizenga, U.S. Department of Energy (DOE), *Overview of the DOE-EM Environmental Legacy: current status and long-term strategies for decommissioning and environmental restoration* (USA)

15:00–15:20  

15:20–15:40  

15:40–16:10  
*Coffee Break*

16:10–16:40  
O. Mykolaichuk, State Nuclear Regulatory Inspectorate, *Regulatory Challenges Relevant to Decommissioning and Remediation* (Ukraine)

16:40–17:00  

17:00–17:30  
T. Lazo, the Organisation for Economic Co-operation and Development Nuclear Energy Agency, *Programme and Perspectives on Post-Accident Decommissioning and Remediation* (OECD-NEA)

17:30–18:15  
*General Discussion*

18:30  
*Welcome Reception, Ground Floor, M Building*  
*Hosted by the IAEA*
**Tuesday, 29 January 2013**

09:00–12:30  **Session II (Plenary):** Board Room A, M Building  
*Review of Experience and Strategic Lessons Learned from Past Accidents or Legacy Situations*

**Co-Chairpersons:** V. Holosha, Ministry of Ukraine for Emergency Situations and Public Protection from the Consequences of the Chernobyl Accident (Ukraine) and L. Camper, US Nuclear Regulatory Commission (USA)

09:00–09:30  J. DeVine, *Critical Lessons from the TMI-2 Recovery Program* (USA)

09:30–10:00  M. Cross, Nuvia Ltd, *Decommissioning Preparations for the Accident-Damaged Pile 1 Reactor at Windscale, UK* (UK)

10:00–10:30  V. Seyda, Chernobyl Nuclear Power Plant and V. Holosha, State Agency of Ukraine for Exclusion Zone Management, *Chernobyl NPP Decommissioning and Remediation Activities and End State of the Chernobyl Site following the Remediation* (Ukraine)

10:30–11:00  **Coffee Break**

11:00–11:30  Y. G. Mokrov, Mayak Production Association, *The Accident at Kyshtym* (Russian Federation)

11:30–12:00  M. Gilbertson, US Department of Energy (DOE), *Experience and Strategic Lessons Learned from Decommissioning and Remediation of Large Nuclear Legacy Sites* (USA)

12:00–12:30  **General Discussion**

12:30–14:00  **Lunch Break**

14:00–18:00  **Session III (Parallel Sessions)**  
*Challenges in Decommissioning and Remediation*

**Parallel Session III-A:** Board Room A, M Building  
*Remediation Challenges and Determination of End States*

**Co-Chairpersons:** I. Salati, Brazilian Nuclear Energy Commission (Brazil) and O. Mykolaichuk, State Nuclear Regulatory Inspectorate (Ukraine)

14:00–14:30  L. Ramos Salvador, Nuclear Safety Commission (CSN), *Regulatory Framework for Remediation* (Spain)

14:30–15:00  M. Balonov, St. Petersburg Scientific Research Institute of Radiation Hygiene, *Site and Exposure Scenario Characterization and Assessment of Radiological Impacts* (Russian Federation)
15:00–15:30  H. Belencan, US Department of Energy (DOE), *Experience with in Situ Decommissioning as a Remediation End Point* (USA)

15:30–16:00  *Coffee break*

16:00–16:30  A. Nisbet, Health Protection Agency, *Recovery Handbooks: Their Application and Future Development* (UK)

16:30–17:15  **Oral Presentations of Posters** - *Each presenter may speak for a maximum of 5 minutes*

 T. Ichiki, *Evaluation of Redistribution Effects of Cs by Wild Fire in Evacuation Area after Accident at Fukushima Daiichi Nuclear Power Site* (Japan)

 M. Kato, *Investigation of Secondary Off-site Radiological Effect due to Living Activities after Fukushima Accident* (Japan)

 S. Nakayama, *Cleanup of Farmland Contaminated by the Fukushima Nuclear Accident* (Japan)

 M. Okumura, *Prior Estimation of Dose Reduction as a Result of Decontamination in Fukushima Pilot Projects* (Japan)

 M. Sneve, *International Cooperation on Regulatory Supervision of Legacies Arising from Nuclear Accidents* (Norway)

 D. Sugiyama, *Fundamental Consideration on Reference Levels in Radiological Protection for Implementation of Practical Off-site Remediation* (Japan)

 O. Voitsekhovych, *Chernobyl Cooling Pond Remediation Strategy* (Ukraine)

17:15–18:00  **General Discussion**

14:00–18:00  **Session III (Parallel Sessions)**

**Challenges in Decommissioning and Remediation**

Parallel Session III-B: Conference Room M1, M Building

**Challenges in Planning and Implementation of Decommissioning**

Co-Chairpersons:  M. Ziakova, Nuclear Regulatory Authority (Slovakia) and E. Kudryavstsev, Rostechnadzor (Russian Federation)

14:00–14:30  L. Barrett, L. Barrett Consulting LLC, *Development Post Accident Decommissioning & Remediation Implementation Plans* (USA)

14:30–15:00  M. Bozik, JAVYS, Nuclear and Decommissioning Company, *Organizational and Managerial Aspects of Decommissioning after an Accident* (Slovakia)

15:00–15:30  M. Chevallier, GIE Intra, *Development and Application of Equipment and Tools for Intervention after an Accident* (France)

15:30–16:00  *Coffee Break*

16:00–16:30  L. Camper, US Nuclear Regulatory Commission (USNRC), *U.S. NRC Regulatory Process for Decommissioning of Nuclear Facilities and Actions Related to Damaged Facilities after Accident* (USA)
16:30–17:15  Oral Presentations of Posters - Each presenter may speak for a maximum of 5 minutes

H. Ikeuchi, Selection of Fuel-debris Properties Required for Defueling Work at Post Severe Accident (Japan)

V. Slugen, Strategy of Back-end of Nuclear Energy in Slovak Republic and Financing of Decommissioning of NPP A1 (Slovakia)

T. Sushko, Transformation of the Object Shelter into an Ecologically Safe System. Arrangement of the New Safe Confinement Arch Assembly Platform for the Object Shelter (Ukraine)

V. Paloor, National Framework for Decommissioning and Environmental Remediation following a Nuclear Accident (India)

T. Tsukada, R&D back-ups for Operation of the Highly Contaminated Water Treatment System in Fukushima Daiichi Nuclear Power Station (Japan)

I. Yamagishi, Safe Storage of Zeolite Adsorbents used for Treatment of Accident-generated Water at Fukushima Daiichi Power Station (Japan)

S. Oue, Decommissioning a Post-nuclear Accident in Canada (Canada)

17:15–18:00  General Discussion

Wednesday, 30 January 2013

09:00–12:30  Session IV (Parallel Sessions)

Challenges in Decommissioning and Remediation (ctd.)

Parallel Session IV-A: Board Room A, M Building

Case Studies for Remediation

Co-Chairpersons: I. Salati, Brazilian Nuclear Energy Commission (Brazil) and O. Mykolaichuk, State Nuclear Regulatory Inspectorate (Ukraine)

09:00–09:20  T. Inoue (on behalf of Fukushima Prefecture), Current Issues on Remediation in Fukushima and Creation of Newborn Fukushima (Japan)

09:20–09:40  J. Lochard, ICRP, The Human Dimension of Remediation after a Nuclear Accident: from Experience to ICRP Recommendations (France)

09:40–10:00  I. Bogdevitch, Research Institute for Soil Science & Agrochemistry of National Academy of Sciences of Belarus, Remediation in Areas affected by the Chernobyl Accident (Belarus)

10:00–10:30  Coffee break

10:30–10:50  K. Miyahara, Fukushima Environmental Safety Centre (JAEA), Overview of the Results of Fukushima Decontamination Pilot Projects (Japan)

10:50–11:10  E. Amaral, Brazil, Remediation following the Goiania Accident (Brazil)
11:10–11:30  C. Sancho Llerandi, CIEMAT, *Remediation after the Palomares Accident: Scientific and Social Aspects* (Spain)


11:50–12:30  Discussion on Challenges for Implementation of Remediation Measures, including R&D Needs

12:30–14:00  *Lunch Break*

09:00–12:30  **Session IV (Parallel Sessions)**

*Challenges in Decommissioning and Remediation (ctd.)*

**Parallel Session IV-B:** Conference Room M1, M Building

*Challenges in Planning and Implementation of Decommissioning ctd.*

Co-Chairpersons:  M. Ziakova, Nuclear Regulatory Authority (Slovakia) and E. Kudryavstsev, Rostechnadzor (Russian Federation)

09:00–09:30  V. Tokarevsky, Institute for Chernobyl Problems, * Establishment of Interim Facilities on Site during the Stabilization/Clean-up Phase: Chernobyl Experience* (Ukraine)

09:30–10:00  Y. Desnoyers, Geovariances, *Radiological and Physical Characterization of Accident Damaged Facilities* (France)

10:00–10:30  S. Suzuki, TEPCO, *Demolition and Removal of Structures Damaged or Contaminated as a Result of the Fukushima Accident* (Japan)

10:30–11:00  *Coffee break*

11:00–11:30  J. Feinhals, DMT GmbH & Co. KG, *Global Experience with Implementation of Clearance* (Germany)

11:30–12:00  S. Slater, Sellafield Ltd, *Decontamination, Segmentation and Dismantling of Accident-Damaged Facilities* (UK)

12:00–12:30  Discussion on Challenges for *Decommissioning of Accident-Damaged Facilities, Including R&D Needs*

12:30–14:00  *Lunch Break*

14:00–18:00  **Session V (Parallel Sessions)**

*Management of Radioactive Waste and Damaged Fuel*

**Parallel Session V-A:** Board Room A, M1, M Building

*Generation and Management of Materials and Waste*
Co-Chairpersons: W. Blommaert, FANC, (Belgium) and Cheng Hui Ma, Ministry of Environmental Protection (China)

14:00–14:30 P. Brennecke, Germany, *The Waste Management Strategy and the Licensing Process Prior to and After an Accident* (Germany)


15:30–16:00 Coffee Break

16:00–16:30 M. Paul, WISMUT, *Experience of the WISMUT Project with Management of Large Volumes of Radioactive Residues* (Germany)

16:30–18:00 Panel Discussion: *Strategy, Planning and Licensing of Facilities and Activities for RWM*

F. Besnus, Institute of Radioprotection and Nuclear Safety, IRSN (France)
J. Deckers, Belgoprocess (Belgium)
T. Prévost, AREVA (France)
S. Suzuki, TEPCO (Japan)

14:00–18:00 Session V (Parallel Sessions)
*Management of Radioactive Waste and Damaged Fuel*

**Parallel Session V-B: Conference Room M1, M Building**
**Fuel Retrieval and Management of Fuel Element Debris**

Co-Chairpersons: S. K. Chande (India) and J.L. Lachaume, ASN, (France)

14:00–14:30 S. Bourg, CEA/DEN/MAR/DRCP, *Management of Damaged Fuel and Fuel Debris Resulting from Severe Reactor Core Melt Accident* (France)

14:30–15:00 R. Green, Exelon Corporation, *TMI Unit 2 Post-accident Defueling* (USA)

15:00–15:30 C. Negin, Project Enhancement Corporation, *Challenges for Removal of Damaged Fuel and Debris* (USA)

15:30–16:00 Coffee Break

16:00–16:30 S. Szucsán, ALEX-ENG Technical Advisory and Service Ltd. Co., *Management of Damaged Fuel at Paks Nuclear Power Plant* (Hungary)

16:30–17:00 B. Burakov, Khlopin Radium Institute, *Material study of Chernobyl Lava and Hot Particles* (Russian Federation)

17:00–18:00 Discussion on Challenges for Management of Damaged Fuel and Debris
Thursday, 31 January 2013

09:00–12:30  Session VI (Parallel Sessions)
Decommissioning and Remediation Standards and Technologies

Parallel Session VI-A: Board Room A, M Building
Decommissioning and Remediation Standards and their Application

Co-Chairpersons:  C. Clement, International Commission for Radiological Protection (ICRP) and T. Kirchner, European Commission (EC)

09:00–09:30  H. Nishiyama, Ministry of the Environment, Japan: Standards for Remediation (Japan)

09:30–10:00  W. Weiss, UNSCEAR, Understanding the Long-Term Implications of Severe Radiological Accidents (including Infrastructure and Resource Needs) (UNSCEAR)

10:00–10:30  G. Williams, ARPANSA, Remediation of Contaminated Lands: the Maralinga Lessons (Australia)

10:30 – 11:00  Coffee break

11:00–11:30  A.J. González, Autoridad Regulatoria Nuclear, The International Safety Regime for Decommissioning and Remediation after a Nuclear Accident: Lessons and Challenges from Fukushima (Argentina)

11:30–12:30  Discussion of the Adequacy of Current Standards for Application to Post-Accident Situations

09:00–12:30  Session VI (Parallel Sessions)
Decommissioning and Remediation Standards and Technologies

Parallel Session VI-B: Conference Room M1, M Building
Perspectives of Engineering and Technology Companies in Managing Complex Decommissioning and Remediation Projects

Co-Chairpersons:  I. Tripputi, Sogin (Italy) and M. Gilbertson, US Department of Energy (USA)

09:00–09:30  H. Kawamura, Obayashi Corporation, Environmental Remediation in Fukushima Prefecture (Japan)

09:30–10:00  O. Maekawa, Toshiba Corporation, Efforts for the Restoration at Fukushima Daiichi Nuclear Power Plants (Japan)
10:00–10:30  B. Adhemar, AREVA, Lessons learned from the experience of AREVA in Japan between March and July 2011 (France)

10:30–11:00  Coffee break

11:00–11:30  R. Kury, CH2M Hill, Lessons Learned from Decontamination and Decommissioning Projects (USA)

11:30–12:30  Panel Discussion:
O. Maekawa, Toshiba Corporation (Japan)
H. Kawamura, Obayashi Corporation (Japan)
C. Austin, Energy Solutions LLC (USA)
P. Knollmeyer, Fluor (USA)
S. Rima, AMEC (USA)
B. Adhemar, AREVA (France)

12:30–14:00  Lunch Break

14:00–18:00  Session VII (Plenary): Board Room A, M Building
Improving National and International Cooperation for Managing the Post-Accident Phase of Nuclear and Radiological Accidents

Co-Chairpersons:  T. Inoue, CRIEPI (Japan) and F. Besnus, IRSN (France)

14:00–14:30  N. Pelzer, University of Göttingen, International Conventions and their Application to Remediation and Decommissioning after a Nuclear Accident – is the Current System Adequate? (Germany)

14:30–15:00  V. Novak, European Bank for Reconstruction and Development, Deployment of Financial Resources for Remediation and Decommissioning after an Accident (EBRD)

15:00–15:30  A. Bergmans, University of Antwerp, Decision-Making on Decommissioning and Remediation Strategies and Site End States – Involvement of Interested Parties (Belgium)

15:30–16:00  Coffee break

16:00–16:30  J. L. Lachaume, Autorité de Sûrete Nucléaire (ASN), Development of a National Doctrine for the Post-Accident Phase of a Nuclear Accident (France)

16:30–17:00  A. Omoto, Tokyo Institute of Technology, Long-Term Knowledge and Information Management Following Severe Accidents (Japan)

17:00–18:00  Panel Discussion:
Fostering Greater International Cooperation in Preparing for and Responding to Large Accidents Including Sharing of Technical Resources (Knowledge and People)

N. Pelzer, University of Göttingen (Germany)
Friday, 1 February 2013

09:00–12:30  **Session VIII (Plenary):** Board Room A, M Building  
**Closing Session**

Chair:  
C. M. Larsson, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

09:00–09:05  Chair’s Opening Remarks
09:05–11:00  Presentation of Summaries of Sessions I - VII
11:00–11:30  **Coffee break**
11:30–12:00  Summaries of Sessions - General Discussion
12:00–12:20  Presentation of the Chairperson’s Summary Report

12:20–12:30  **Closing Remarks**

D. Flory, Deputy Director General,  
Department of Nuclear Safety and Security (IAEA)
**Poster Sessions**

**List of Contributed Posters - Remediation**

IAEA-CN-211/1PR  
T. Ichiki, *Evaluation of Redistribution Effects of Cs By Wild Fire in Evacuation Area after Accident at Fukushima Daiichi Nuclear Power Site* (Japan)

IAEA-CN-211/2PR  
M. Kato, *Investigation of Secondary Off-site Radiological Effect due to Living Activities after Fukushima Accident* (Japan)

IAEA-CN-211/3PR  
S. Nakayama, *Cleanup of Farmland Contaminated by the Fukushima Nuclear Accident* (Japan)

IAEA-CN-211/4PR  
M. Okumura, *Prior Estimation of Dose Reduction as a Result of Decontamination in Fukushima Pilot Projects* (Japan)

IAEA-CN-211/5PR  
M. Sneve, *International Cooperation on Regulatory Supervision of Legacies Arising from Nuclear Accidents* (Norway)

IAEA-CN-211/6PR  
D. Sugiyama, *Fundamental Consideration on Reference Levels in Radiological Protection for Implementation of Practical Off-site Remediation* (Japan)

IAEA-CN-211/7PR  
O. Voitsekhovych, *Chernobyl Cooling Pond Remediation Strategy* (Ukraine)

IAEA-CN-211/8PR  
A. Nisbet, *Decision Making for the Late-Phase Recovery from Nuclear or Radiological Incidents* (UK)

IAEA-CN-211/9PR  
O. Voitsekhovych, *Lessons learned to Mitigate Water Contamination after Chernobyl Nuclear accident* (Ukraine)

IAEA-CN-211/10PR  

IAEA-CN-211/11PR  
C.C. Oliveira de Tello, *Goiania’s Accident – Waste Management Aspects* (Brazil)

**Poster Sessions**

**List of Contributed Posters – Decommissioning and Waste Management**

IAEA-CN-211/1PD  
H. Ikeuchi, *Selection of Fuel-debris Properties Required for Defueling Work at Post Severe Accident* (Japan)

IAEA-CN-211/2PD  

IAEA-CN-211/3PD  

IAEA-CN-211/4PD  
V. Paloor, *National Frameworks for Decommissioning and Environmental Remediation following Accident* (India)
IAEA-CN-211/5PD  T. Tsukada, R&D Back-ups for Operation of the Highly Contaminated Water Treatment System in Fukushima Daiichi Nuclear Power Station (Japan)

IAEA-CN-211/6PD  I. Yamagishi, Safe Storage of Zeolite Adsorbents used for Treatment of Accident-generated Water at Fukushima Daiichi Power Station (Japan)

IAEA-CN-211/7PD  S. Oue, Decommissioning a Post-nuclear Accident in Canada (Canada)

IAEA-CN-211/8PD  U. Mirsaidov, Decommissioning of Nuclear Facilities - Radioisotope Thermal Generators (RTGs) in the Republic of Tajikistan (Tajikistan)

IAEA-CN-211/9PD  V. Lukanda Mwamba, P. Kankunku-Katubadi, J. Kobakozete-Itono, Preliminary Decommissioning Plan of the CREN-K Reactor Facilities and the Policy of Radioactive Waste Management in DR Congo (DRC)

IAEA-CN-211/10PD  A. Ezati, Event Bursting Tehran Research Reactor Neutron Source (Iran)

IAEA-CN-211/11PD  K. Bodor, Radioactive Waste Management in Hungary (Hungary)

IAEA-CN-211/12PD  M. Abdel Geleel, Management of Decommissioning Waste (Egypt)

IAEA-CN-211/13PD  P. Lichvar, Dowtherm Radwaste Management Process in A1 NPP at Jaslovské Bohunice Site (Slovakia)

IAEA-CN-211/14PD  N. Zeleznik, Radioactive Waste and Spent Fuel Management in Slovenia (Slovenia)

IAEA-CN-211/15PD  M. Toth, Decontamination and Dismantling of A-1 NPP Large Volume Gasholders at Jaslovské Bohunice Site (Slovakia)

IAEA-CN-211/16PD  V. Tikhonovsky and D. Chuyko, Experience of Implementation of Information Technologies for Preparation for the Decommissioning and Decommissioning of Nuclear Facilities (Russian Federation)

IAEA-CN-211/17PD  M. Nakamura, Decontamination of Radioactive Water from a Severe Nuclear Accident by Ferrocyanides Precipitation and Titanium Oxide Adsorption (Japan)

IAEA-CN-211/18PD  Y. Sekio, Integrity Assessment of Zircaloy Fuel Tube Experienced Transient Environmental History of Spent Fuel Pool in Fukushima Dai-Ichi Nuclear Power Plant (Japan)

IAEA-CN-211/19PD  K. Suyama, Requirement of the Criticality Control of Damaged Nuclear Fuel (Japan)

IAEA-CN-211/20PD  A. Rodna, Results of the Regulatory Review of the Decommissioning Plan – Version 8 for VVR-S Research Reactor Magurele (Romania)

IAEA-CN-211/21PD  S. Mikheykin, Decommissioning of Legacy Sites (Russian Federation)