

AGENDA

**IAEA 2nd Research Coordination Meeting of a CRP
“Small Reactors without On-site Refuelling”**

**4-8 June 2007,
Room ACV-U1U-642 in Austria Centre (Plenary Session)
Rooms ACV-U1U-642, C0753 and C0755 in Vienna International Centre (Group
Sessions)**

Scientific secretary: V. Kuznetsov (NENP/NPTDS) v.v.kuznetsov@iaea.org

Agenda Structure

PLENARY SESSIONS (All days)

Topical sessions of Group 1 (4 and 5 June 2007)

Topical sessions of Group 2 (4, 5 and 6 June 2007)

Topical sessions of Group 3 (4, 5 and 6 June 2007)

PLENARY SESSIONS (1)

Day 1: Monday, 4 June 2007

Plenary session (Room ACV-U1U-642 in Austria Centre)

09:30	Introduction and Welcome	A. Omoto, DIR NENP A. Rao (NENP/NPTDS)
9:45	Self-introduction of participants	All participants
9:50	Election of a meeting Chairman and of Chair Persons for Group Sessions 1, 2, and 3; approval of the Agenda	All participants
10:00	Presentation “Objectives of the meeting / how we proceed”	V. Kuznetsov (IAEA)
10:20	Presentation “Emergency Planning Zone Redefinition Methodology: Preliminary Application to the IRIS Reactor” , Questions and Answers (Q&A)	A. Maioli (Westinghouse, USA)
11:15	<i>Coffee break</i>	
11:30	Presentation “Progress Report for Evaluation of Accident Sequences in IRIS Relevant for Revising the Need for Relocation and Evacuation Measures Unique to NPPs for Innovative SMRs , Q&A	N. Cavlina, D. Grgic (FER, University of Zagreb, Croatia)
12:20	Presentation of plans for future work of the Group “Revising the Need for Relocation and Evacuation Measures Unique to NPPs with Innovative SMRs” , Q&A	A. Maioli (Westinghouse, USA)
12:50- 14:00	<i>Lunch</i>	
14:00- 18:00	<i>Topical Sessions in groups (see below)</i>	
	Group 1 - Room ACV-U1U-642	Group 1
	Group 2 - Rooms C0753	Group 2
	Group 2 – Room C0755	Group 3
17:50	<i>End of Sessions for Day 1</i>	
18:00 20:00	Wine and Cheese party at VIC restaurant, hosted by IAEA	

PLENARY SESSIONS (2)

Day 2: Tuesday, 5 June 2007

Plenary session (Room ACV-UIU-642 in Austria Centre)

09:00	Presentation “Economics of EPZ reducing and using small and medium reactors for cogeneration” , Q&A	J. Augutis (LEI, Lithuania)
9:50	Presentation “Influence of SMR to the energy security of supply (plan of future work)” , Q&A	J. Augutis (LEI, Lithuania)
10:20	<i>Coffee break</i>	
10:35	Presentation “Idealized 100 Year Nuclear Growth Scenarios in a Two-Region World Model of Slow-growing Industrialized and Fast-growing Developing nations” , Q&A	D. Wade (ANL, USA)
11:25	Short discussion to indicate possible new participants to scenario studies	Chairman of the meeting All participants
11:50	Presentation on INPRO Coordinated Project Proposal “Legal, Institutional and Technical Issues of Introduction of Non-stationary NPPs to Developing Countries” , Q&A	Y. Busurin (INPRO/IAEA)
12:30-14:00	<i>Lunch</i>	
14:00-18:00	<i>Topical Sessions in Groups (see below)</i>	
	Group 1 - Room ACV-UIU-642	Group 1
	Group 2 - Rooms C0753	Group 2
	Group 2 – Room C0755	Group 3
18:00	<i>End of Sessions for Day 1</i>	

PLENARY SESSIONS (3)

Day 3: Wednesday, 6 June 2007

Plenary session (Room ACV-U1U-642 in Austria Centre)

9:00	Presentation “Strategies for Implementation of the SRWORS” , Q&A	F. Sefidvash (UFRGS, Brazil)
9:50	Presentation “Spherical coated particles fuel for small light water reactors: Atom For Peace Reactor (AFPR) Concept” , Q&A	G. Tsiklauri (PNNL, USA)
10:40	<i>Coffee Break</i>	
10:55	Presentation “Principles of Providing Passive Safety and Passive Safety Characteristics of SVBR Type Reactor Installations for Small Nuclear Power Plants without On-site Refuelling” , Q&A	G. Toshinskiy (IPPE, Russian Federation)
11:40	Presentation “Optimizing Economy of Scale for the STAR Energy Supply Architecture” , Q&A	D. Wade (ANL, USA)
12:30	Presentation “Approach to Selection of the Reactor Type for Developing Countries with Account of Safety Characteristics” , Q&A	G. Toshinskiy (IPPE, Russian Federation)
13: 00	<i>Lunch</i>	
14:00- 18:00	<i>Topical Sessions in Groups (see below)</i>	
	Group 1 - Room ACV-U1U-642	Group 1
	Group 2 - Rooms C0753	Group 2
	Group 2 – Room C0755	Group 3
18:00	<i>End of Sessions for Day 3</i>	

PLENARY SESSIONS (4)

Day 4: Thursday, 7 June 2007

Plenary session (Room ACV-UIU-642 in Austria Centre)

9:00	<u>Presentation “Progress Report for the Design of a Multipurpose Nuclear Power Pack for Satisfying Energy Related Needs for Remote Indian Villages”</u> , Q&A	P.D. Krishnani (BARC, India)
9:50	<u>Presentation “Recent Research of CANDLE Reactor”</u> , Q&A	A. Nagata (TokyoTech, Japan)
10:45	<i>Coffee break</i>	
11:00	<u>Presentation “Consumption of Natural Uranium by SVBR-75/100 Reactors”</u> , Q&A	G. Toshinskiy (IPPE, Russian Federation)
11:30	Presentation “Economic advantages of lead-bismuth cooled SVBR-type reactor concepts with extra long core lifetime with reference to floating NPPs”, Q&A	A. Dedul (“Gidropress”, Russia) – cancelled
12:00	<i>Lunch</i>	
13:30	Short presentation of the status and plans of Group 1 “Revising the Need for Relocation and Evacuation Measures Unique to NPPs with Innovative SMRs”, <i>based on a written summary submitted by Session 1 chairperson</i>	V. Kuznetsov (IAEA)
13:50	Presentation of the status and plans of Group 2 “Design and Technology Development for LWRs with Coated Particle Based Fuel”	Chairperson Session 2
14:20	Presentation of the status and plans of Group 3 “Design and Technology Development for Lead, Lead-Bismuth, and Molten Salt Cooled Reactors”	Chairperson Session 3
14:50	Discussion of possible new directions of work for the next year	Chairman of the meeting All participants
<i>Circa 15:30</i>	<i>End of Day 4 for all participants</i>	
15:30	Drafting Conclusions and Recommendations of the Meeting	V. Kuznetsov (IAEA) - Scientific Secretary
Circa 18:00	<i>End of Plenary Session for Day 4</i>	

PLENARY SESSIONS (5)

Day 5: Friday, 8 June 2007

Plenary session (Room ACV-U1U-642 in Austria Centre)

9:00	Presentation “Status of INPRO Activity on Common User Criteria for NPPs for Developing Countries”, Q&A	M. Moriwaki (IAEA/INPRO)
9:30	Election of Group Leaders for the next period of work	Chairman of the meeting Scientific secretary
9:45	Commenting on Draft Conclusions and Recommendations of the Meeting (<i>reading and writing session – draft conclusions will be prepared by the scientific secretary and distributed prior to the session; written comments will be collected at the end of the session</i>)	Chairman of the meeting Scientific secretary All participants
10:45	Going through and finalizing Conclusions and Recommendations of the Meeting	Chairman of the meeting Scientific secretary All participants
11:40	Closing address	A. Omoto DIR NENP A. Rao SH NPTDS

Circa End of the Meeting
12:00

Note:

Whenever not occupied by dedicated sessions, Rooms ACV-U1U-642, B0753 and B0755 can be used for work by individual participants or groups of participants. Please, check with the timetables given below.

Topical sessions of Group 1 (4 and 5 June 2007))

Day 1: Monday, 4 June 2007

14:00-18:00	Dedicated Session of Group 1 “Revising the Need for Relocation and Evacuation Measures Unique to NPPs with Innovative SMRs” <i>(Room ACV-UIU-642 in Austria Centre)</i>	Chairperson Session 1 Group 1: A. Maioli, N. Cavlina, D. Grgic, J. Augutis
14:00	Intra-group discussions and preparation of a short written statement of the status of work and of a work plan for the next year; <i>producing an input for the meeting report</i>	Chairperson Session 1 Group 1
15:45	<i>Coffee Break</i>	
16:00	Definition of the scope of reports to be produced by Group 1 for this CRP; identification of deadlines and assigning responsibilities to certain members of Group 1 for compilation and drafting of these reports ; <i>producing inputs for the work plan</i>	Chairperson Session 1 Group 1
18:00	<i>End of Session for Day 1</i>	

Day 2: Tuesday, 5 June 2007

14:00-18:00	Dedicated Session of Group 1 “Revising the Need for Relocation and Evacuation Measures Unique to NPPs with Innovative SMRs” <i>(Room ACV-UIU-642 in Austria Centre)</i>	Chairperson Session 1 Group 1: A. Maioli, N. Cavlina, D. Grgic, J. Augutis
14:00	Review of a short written statement of the status of work and of a work plan for the next year with Dr. J. Augutis, who may not be present at the session on the previous day; <i>producing an input for the meeting report</i>	Chairperson Session 1 Group 1
15:00	<i>Coffee break</i>	
15:15	Review of the scope of reports to be produced by Group 1 for this CRP; identification of deadlines and assigning responsibilities to certain members of Group 1 for compilation and drafting of these reports ; <i>producing inputs for the work plan</i> , with participation of Dr. J. Augutis, who may not be present on the previous day	Chairperson Session 1 Group 1
18:00 or earlier	<i>At the end of this session the Chairperson hands over written inputs to the meeting report (shaped up as a short presentation) to the Scientific secretary</i>	Chairperson Session 1

Topical sessions of Group 2 (4, 5 and 6 June 2007)

Day 1: Monday, 4 June 2007

14:00-18:00	<i>Dedicated Session of Group 2 “Design and Technology Development for LWRs with Coated Particle Based Fuel” (Room C0753 in Vienna International Centre)</i>	Chairperson Session 2 Group 2: G. Tsiklauri, Y. Shimazu, A. Chetaine, F. Sefidvash, E. Grishanin,
14:00	Presentation “The study of the PFPWR50 with APPOLLO(2D) and CRONOS(3D)” , Q&A	A. Chetaine (Mohammed V University, Morocco)
14:50	Presentation “Advances in FBNR Calculations”, Q&A	F. Sefidvash (UFRGS, Brazil)
15:40	<i>Coffee Break</i>	
16:00	Presentation “Benchmark results of various particle fuels for small reactors without on-site refuelling” , Q&A	Y. Shimazu (Hokkaido University)
16:50	Presentation “Benchmark results for uranium depletion in a BWR-PB fuel assembly” , Q&A	E. Grishanin (VNIAM, Russia)
17:40	Short discussion on the presentations of the day	Chairperson Session 2 Group 2
Circa 18:00	<i>End of Session for Day 1</i>	

Day 2: Tuesday, 5 June 2007

14:00-18:00	<i>Dedicated Session of Group 2 “Design and Technology Development for LWRs with Coated Particle Based Fuel” (Room C0753 in Vienna International Centre)</i>	Chairperson Session 2 Group 2: G. Tsiklauri, Y. Shimazu, A. Chetaine, F. Sefidvash, E. Grishanin,
14:00	Presentation “Morocco Results for BWR-PB” , Q&A	A. Chetaine (Mohammed V University, Morocco)
14:45	Discussion of the results of cell benchmark calculations; analysis of discrepancies and missing data; suggesting pathways for amendment/ resolution; <i>producing inputs for the work plan</i>	Chairperson Session 2 Group 2
15:35	<i>Coffee Break</i>	
15:50	Discussion of the whole core or fuel assembly depletion benchmarking; <i>inputs for the work plan</i>	Chairperson Session 2 Group 2
16:40	Discussion of the results of optimum coated particle size selection; planning additional studies (if necessary); <i>producing inputs for the work plan</i>	Chairperson Session 2 All participants
17:10	Presentation “Russian Test Facilities” , Q&A	E. Grishanin(VNIAM, Russia)
18:00	<i>End of Session for Day 2</i>	

Topical sessions of Group 2 (4, 5 and 6 June 2007)

Day 3: Wednesday, 6 June 2007

14:00-18:00	<p><i>Dedicated Session of Group 2 “Design and Technology Development for LWRs with Coated Particle Based Fuel”</i> (Room C0753 in Vienna International Centre)</p>	<p>Chairperson Session 2 Group 2: G. Tsiklauri, Y. Shimazu, A. Chetaïne, F. Sefidvash, E. Grishanin,</p>
14:00	<p>Discussion on corrosion properties of ceramic fuel in water: a report on SiC/SiC composite workshop held in Boston, Massachusetts, USA, in 2004 (will be brought by Y. Shimazu); <i>producing inputs for the work plan</i></p>	<p>Chairperson Session 2 Group 2</p>
15:30	<p><i>Coffee Break</i></p>	
15:50	<p>Presentation “ASTRA Facility”, Q&A Discussion of options to perform corrosion tests using VNIIAM facilities</p>	<p>E. Grishanin (VNIIAM, Russian Federation) Chairperson Session2 Group 2</p>
17:10	<p>Definition of the scope of reports to be produced by Group 3 for this CRP; identification of deadlines and assigning responsibilities to certain members of Group 3 for compilation and drafting of these reports; <i>producing inputs for the work plan</i></p>	<p>Chairperson Session 2 Group 2</p>
18:00	<p><i>At the end of this session the Chairperson hands over written inputs to the meeting report (shaped up as a short presentation) to the Scientific secretary</i></p>	<p>Chairperson Session 2</p>

Topical sessions of Group 3 (4, 5 and 6 June 2007)

Day 1: Monday, 4 June 2007

<p>14:00-18:00</p>	<p><i>Dedicated Session of Group 3 “Design and Technology Development for Lead, Lead-Bismuth, and Molten Salt Cooled Reactors”</i></p> <p><i>(Room C0755 in Vienna International Centre)</i></p>	<p>Chairperson Session 3, Group 3: D. Wade, A. Nagata, G. Toshinskiy, P.D. Krishnani, Z. Su’ud, A. Dudnikov; S. Nishimura (CRIEPI, Japan – observer)</p>
<p>14:00</p>	<p>Presentation “The RBEC-M Lead-Bismuth Cooled Fast Reactor Benchmarking Calculations in RRC KI”, Q&A</p>	<p>A. Dudnikov (RRC KI, Russian Federation)</p>
<p>14:50</p>	<p>Presentation “The efforts of TokyoTech in Calculating the RBEC-M Depletion Benchmark”, Q&A</p>	<p>A. Nagata (TokyoTech, Japan)</p>
<p>15:40</p>	<p><i>Coffee Break</i></p>	
<p>16:00</p>	<p>Presentation “RBEC benchmark calculation results of ITB group”, Q&A</p>	<p>A. Su’ud (ITB, Indonesia)</p>
<p>16:50</p>	<p>Presentation “Results of Simulation of RBEC Lead Bismuth Cooled Reactor Benchmark”, Q&A</p>	<p>P.D. Krishnani (BARC, India)</p>
<p>17:40</p>	<p>Short discussion on the presentations of the day</p>	<p>Chairperson Session 3 Group 3</p>
<p>18:00</p>	<p><i>End of Session for Day 1</i></p>	

Day 2: Tuesday, 5 June 2007

<p>14:00-18:00</p>	<p><i>Dedicated Session of Group 3 “Design and Technology Development for Lead, Lead-Bismuth, and Molten Salt Cooled Reactors”</i></p> <p><i>(Room C0755 in Vienna International Centre)</i></p>	<p>Chairperson Session 3, Group 3: D. Wade, A. Nagata, G. Toshinskiy, P.D. Krishnani, Z. Su’ud, A. Dudnikov, S. Nishimura (CRIEPI, Japan – observer)</p>
<p>14:00</p>	<p>Presentation “ANL Solution for the RBEC-M Neutronics Benchmark”, Q&A</p>	<p>D. Wade (ANL, USA)</p>
<p>14:50</p>	<p>Presentation “Inter-comparison of Calculations Performed for RBEC-M Fuel Cycle Benchmark”, Q&A</p>	<p>A. Dudnikov (RRC KI, Russian Federation)</p>
<p>15:40</p>	<p><i>Coffee Break</i></p>	
<p>16:00</p>	<p>Discussion of the results of RBEC-M benchmark calculations; analysis of discrepancies; suggesting pathways for the resolution; producing inputs for the work plan</p>	<p>Chairperson of Session 3 Group 3</p>
<p>17:10</p>	<p>Presentation “Fission product treatment for long-life fast reactors without on-site fuelling”, Q&A</p>	<p>Z. Su’ud (ITB, Indonesia)</p>
<p>18:00</p>	<p><i>End of Session for Day 2</i></p>	

Topical sessions of Group 3 (4, 5 and 6 June 2007)

Day 3: Wednesday, 6 June 2007

14:00-18:00	<i>Dedicated Session of Group 3 “Design and Technology Development for Lead, Lead-Bismuth, and Molten Salt Cooled Reactors”</i> <i>(Room C0755 in Vienna International Centre)</i>	Chairperson Session 3, Group 3: D. Wade, A. Nagata, G. Toshinskiy, P.D. Krishnani, Z. Su’ud, A. Dudnikov, S. Nishimura (CRIEPI, Japan – observer)
14:00	Presentation “Influence of the uncertainty of nuclear data for fission products on RBEC benchmark calculation”	A. Dedul (“Gidropress”, Russia) – cancelled
14:30	Short discussion on how to proceed with ITB benchmark/ fission product treatment modelling for long-life core reactors, <i>producing inputs for the work plan</i>	Chairperson Session 3, Group 3
15:00	Discussion of IPPE plans for performing tests of Pb-Bi coolant properties; <i>outlining further possible actions from the IAEA</i>	Chairperson Session 3, Scientific secretary, Group 3
15:15	Coffee Break	
15:30	Discussion on how to proceed with data exchange and compilation of a handbook of physical properties of Pb/Pb-Bi coolant, <i>producing inputs for the work plan</i>	Chairperson Session 3 Group 3
15:50	Presentation “Outputs of the Meeting of a Working Group on LBE Technology Benchmarking of Thermal-Hydraulic Loop Models for Lead-Alloy Coolant Advanced Nuclear Energy Systems of 17 May 2007/ Possible IAEA Participation in HELIOS Loop Benchmarking – model availability”, Q&A	V. Kuznetsov (IAEA) – Scientific Secretary
16:20	Discussion of liquid metal natural circulation benchmark model options and further actions from Group 3 participants	Chairperson Session 3 Scientific Secretary Group3
17:00	Discussion of the overall scope of future work, <i>shaping up the complete work plan of Group 3 for the next period of work</i>	Chairperson Session 3 Group3
17:30	Definition of the scope of reports to be produced by Group 3 for this CRP; identification of deadlines and assigning responsibilities to certain members of Group 3 for compilation and drafting of these reports; <i>producing inputs for the work plan</i>	Chairperson Session 3 Group3
Circa 18:00	<i>Note: Session Chairperson prepares a short presentation covering the status achieved and future plans, to be delivered to the whole meeting on Thursday, 7 June 2008</i>	Chairperson Session 3