

IAEA Workshop on "Erosion-Corrosion including Flow Accelerated Corrosion and Environmentally Assisted Cracking Issues in NPPs"

*Organized by the International Atomic Energy Agency
Hosted by the JSC Concern Energoatom*

21-23, April 2009, Moscow, Russian Federation

21 April 2009 (Tuesday)

Opening Session (9:00-10:00):

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| 08:30-09:00 | Registration, Coffee |
| 09:00-09:10 | Opening address of State Corporation for Atomic Energy ROSATOM Representative, Russia |
| 09:10-09:20 | Opening address of Mr. N. Davidenko, JSC Concern Energoatom, Russia |
| 09:20-09:30 | Introduction of participants (based on Alphabetical Order of MSs) |
| 09:30-10:00 | IAEA Contributions on Plant Life Management focusing E-C, Mr. Ki-Sig Kang, (IAEA) |

Technical Issues (10:00-17:00)

Session 1: Erosion-Corrosion Processes Modeling, Chair: Mr. M. Bakirov, CMSLM Ltd, Russia

10:00-10:40: Keynote Presentation

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| 1. G. Tomarov | Scientific bases and practical methods for prevention of local erosion-corrosion of components of NPP equipment and pipelines, Geoterm-EM, Russia |
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10:40-11:00	Coffee Break
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11:00- 13:00

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| 2. A. Zander | The COMSY – Code for the Detecting of Piping Degradation due to Flow-accelerated Corrosion, AREVA, Germany |
| 3. S. Trevin | FAC prediction at EDF: A comparison of the versions 2 and 3 of BRT-CICERO™, EDF, France |
| 4. M. Chocron | Secondary Circuit Mapping of FAC and High Velocity-Two Phase Flow Mechanical Degradation Effects, CNEA, Argentina |
| 5. A.Shipkov | Computational modeling of metal local erosion-corrosion by means of the RAMEC-1 software set, Geoterm-EM, Russia |

13:00-14:20	Lunch Break
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Session 2: Operating /Industry Experience/Lessons learned, Session Chair: Mr. M. Chocron, CNEA, Argentina

14:20-15:00: Keynote presentation:

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| 6. | M. Bakirov | Methodology of NPP elements' FAC problem solving taking into account experience gained in Russia and Overseas, CMSLM Ltd, Russia |
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15:00- 16:00

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| 7. | T. Costa | Flow Accelerated Corrosion Programme in Angra NPP Units 1 and 2, Eletronuclea., Brazil |
| 8. | C, Gui | FAC Management an operation experience feedback of Chinese NPPs, RINPO, China |

16:00-16:20 Coffee Break

16:20- 17:20

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| 9. | S. H. Lee | Flow Accelerated Corrosion Program of Korean NPPs, KEPRI, Korea |
| 10. | A. Zander | The NPP Leibstadt Program for the Prevention of Piping Degradation due to Flow-Accelerated Corrosion Phenomena, AREVA, Germany |

22 April 2009 (Wednesday)

Technical Issues (09:20-16:00)

Session 3: Development and implementation of Pipe Wall Thinning, Session Chair: Mr. A. Zander, AREVA, Germany

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| 09:00-09:20 | First Day Summary & Second Day planning, Mr. Ki Sig Kang (IAEA) |
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09:20-10:00 Keynote presentation

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| 11. | V. Baranenko | Erosion – Corrosion of pipe walls in WWER NPP systems with single-phase and two-phase flow during various operational periods, VNIIAES, Russia |
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10:00-11:30

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| 12. | N.Razygraev | Methodical aspects of studies of a multifactor E/C process with assessment of the external factors influencing on the corrosion phase of the process and the uncertainties related to the nature and degree of damage, while performing diagnostics by ultrasound methods, SPA, TsNIITMASH, Russia |
| 13. | A. Sorokin | Development and implementation of NPP pipelines corrosion diagnostic system (SDKT-AES) based on electromagnetic-acoustic transducers, Gazproekt Institute, Russia |
| 14. | F.Inada | Japanese Pipe Wall Thinning Management Based on JSME Rules and Recent R&D Studies to Enhance the Rules, CRIEPI, Japan |

11:30 - 11:50 Coffee Break

11:50- 12:50

Session 4 : Pipe Wall Thinning Management (1), Chair: Mr. KUPCA, Ludovit, VUJE, Slovakia

15. V.Yurmanov Flow accelerated corrosion of pipelines and equipment at Russian NPPs: problems and solutions, **ENES, Russia**

16. A. J. CARLOS Flow accelerated corrosion in cooper-nickel 90-10 in sea water, **ININ, Mexico**

12:50-14:10 Lunch Break

14:10- 15:40

Session 5: Pipe Wall Thinning Management (2), Chair: Mr. KUPCA, Ludovit, VUJE, Slovakia

17. X. Xu Management of Secondary System Pipings on FAC in China, **SNERDI, China**

18. A. Usanov Implementation of the Personnel Support Software Set (PKPP) aimed at improvement of erosion-corrosion resistance of NPP pipelines and equipment, **VNIIAES, Russia**

19. A.Shipkov Optimization of operative control (thickness measurement) of components of WWER-1000 secondary circuit equipment and pipelines, **Geoterm-EM, Russia**

15:40-16:00 Coffee Break

Panel Session Chair : Mr. R. Awad CNSC, Canada

16:00- 17:30 Panel Discussion on identification of outstanding technical issues

Panelists are

- *Mr. G. Tomarov, Geoterm-EM, Russia*
- *Mr. TREVIN, Stéphane, EDF, France*
- *Mr. M. Bakirov, CMSLM Ltd, Russia*
- *Mr. A. Zander, AREVA, Germany*

23 April 2009 (Thursday)

Session 6: Corrosion Monitoring Programs of NPP Safety Related Components, Chair: Mr. AHONEN, Jorma, Finland, Fortum Power and Heat Oy Loviisa NPP

09:00-09:20 Second Day Summary & Third Day planning, **Mr. Ki Sig Kang (IAEA)**

09:20-10:00 **Keynote presentation**

20. R. Awad Regulatory Perspective on CANDU Feeder Pipe Degradation due to FAC and IGSCC, **CNSC, Canada**

10:00-11:30

21. M. Virtanen, OL3 FAC-Program, **TVO, Finland**

22. V. Baranenko About development and implementation of normative documentation related to technical conditions and residual resource of pipelines exposed to FAC, **VNIIAES, Russia**

23. M. Brezina Corrosion Monitoring Programs of NPP Safety Related Components , **VUJE, Slovakia**

11:30 - 12:00 Coffee Break

12:00- 12:30

24. X. Xu Research on Corrosion Fatigue of Structure Materials in LWR Environment, **SNERDI, China**

25. Discussion

13:00-14:20 Lunch Break

Wrapping Session (14:20-15:30), Chair: Mr. V. Lovchev

- 14:20- 15:20**
- Session summary: each session chairman
 - Recommendation to the IAEA
 - Identification of area for future research
 - Overall conclusions
 - Distribution of CD-ROMs with TM materials

15:20-15:30 Closing Remarks, **Mr.V. Lovchev** and **Mr. Ki-Sig Kang**