



NUCPERF 2009

EFC Event 317

**Long-Term Performance of
Cementitious Barriers and
Reinforced Concrete in Nuclear
Power Plants and Waste
Management**

30 March – 2 April 2009

Cadarache - France

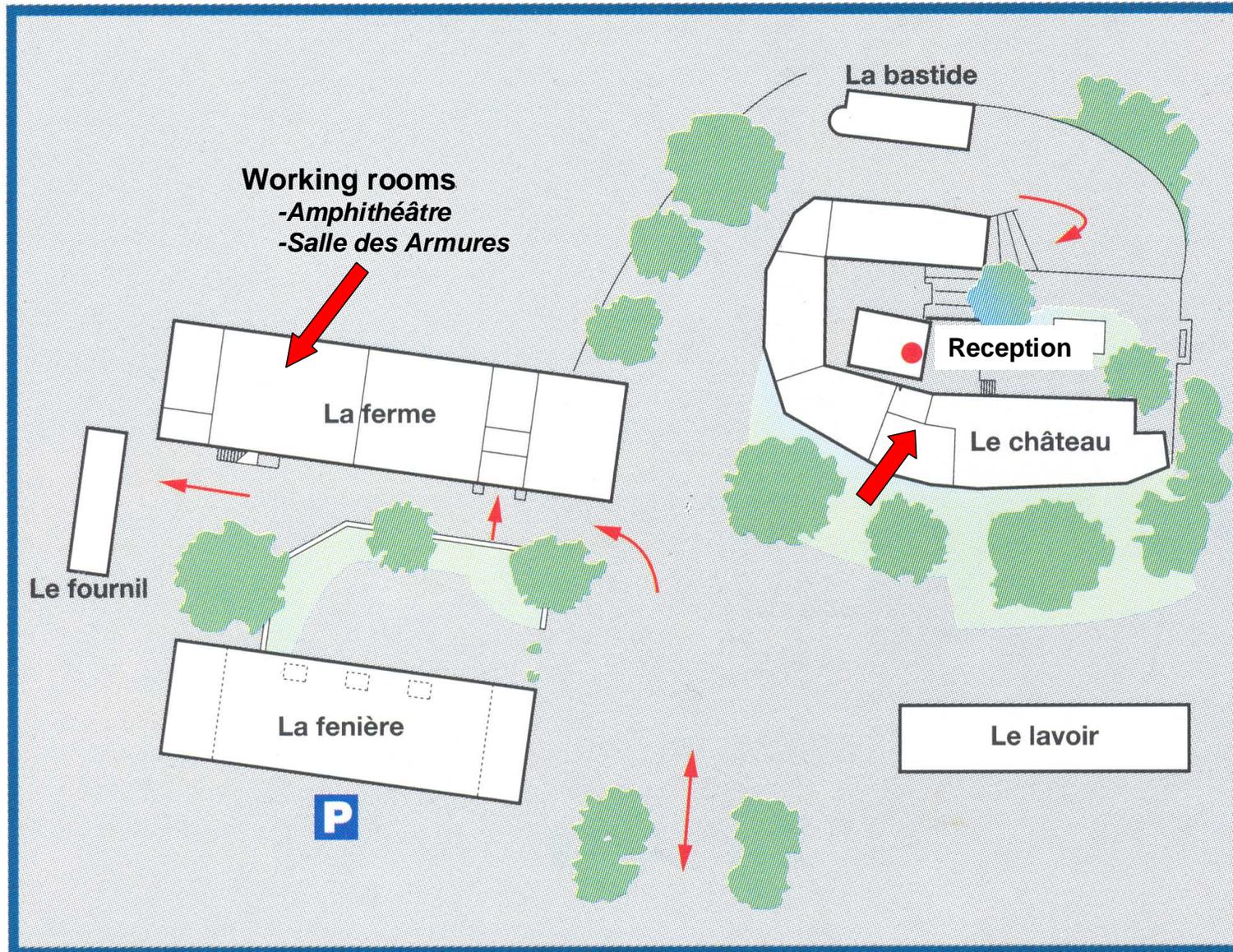


FINAL PROGRAMME

Organized by

Co-Sponsored by





	Monday 30th	Tuesday 31th	Wednesday 1st	Thursday 2nd		
8h-8h25		Opening session / Keynote Lecture by J.M. Torrenti				
8h25-8h50				Craeye	Burger	
8h50-9h15				Zreiki	Segura	Reichling
9h15-9h40				Yamada	Nakarai	Schneck
9h40-10h05				Kari	Messad	Brem
10h05-10h30				Break	Break	Panel
10h30-10h55				P. Zuloaga	Millard	Briffaut
10h55-11h20				G. Duffo	Arnold	Fennell
11h20-11h45				A. Huerta	Stora	Ragueneau
11h45-12h10				R. François	De Larrard	Castellote
12h10-12h35				Panel	Panel	Panel
12h35-13h				Lunch	Lunch	Lunch / End of the Workshop
13h-13h25						
13h25-13h50						
13h50-14h15						
14h15-14h40						
14h40-15h05				Mac Donald	Snyder	Philipose
15h05-15h30				Nasser	Garcia Calvo	Weiss
15h30-15h55				Smart	Kinomura	Kosec
15h55-16h20				Farina	Sanchez	Mozarin
16h20-16h45		Berthaud	Rougelot	Han		
16h45-17h10		Break	Break	SESSIONS: Present / Future Expectations THMC Corrosion Modelling Tests Methodologies Aging management		
17h10-17h35		Harnisch	Elakneswaran			
17h35-18h		Charles	Brue			
18h-18h30-19h	REGISTRATION	Panel	Gutsch			
19h-21h	Welcome Cocktail	Panel	Panel			
		Dinner	Wine Party + Conference Dinner			

Tuesday 31th March 2009

08h00

OPENING SESSION

Opening and Welcome by S. Durand
Director of the CEA Cadarache - France

Practical arrangements
V. L'Hostis
Chairperson of the NUCPERF 2009 Organising Committee

08h30

KEYNOTE LECTURE

J.-M. Torrenti
Laboratoire Central des Ponts et Chaussées, France
“Concrete and Nuclear Energy – from Research to Safety”

9h15

Present and future expectations

Chair : C. GALLÉ
Commissariat à l'Energie Atomique, France

Co-Chair : R. GENS
ONDRAF, Belgium

- 9h15** **[O#54]** **F. Glasser**
University of Aberdeen, United Kingdom
“Progress in the Cementation of Radioactive Wastes – Activities of the International Atomic Energy Agency”
- 9h40** **[O#46]** **P. Bouniol**
Commissariat à l'Energie Atomique, France
“The Part of Iron in the Radiolysis of Cement Materials”
- 10h05** **Coffee Break**
- 10h30** **[O#45]** **P. Zuloaga**
ENRESA, Spain
“Leaching of reinforced concrete vaults subjected to variable water content due to capillary suction created by seasonal temperature changes”
- 10h55** **[O#11]** **G. Duffó**
Comisión Nacional de Energía Atómica, Argentina
“Studies concerning the reinforcement corrosion of concrete vaults for intermediate-level radioactive waste disposal”
- 11h20** **[O#51]** **A. Huerta**
OECD/NEA
“Activities of the OECD/NEA in the Fields of Ageing Management of Concrete Structures”
- 11h45** **[O#15]** **R. François**
Université Paul Sabatier de Toulouse – LMDC - INSA, France
“Long term performance in both serviceability and ultimate load of reinforcement concrete element kept in chloride environment”
- 12h10** **Panel Discussion**
- 12h35- 14h15** **Lunch Time**

14h15

Parallel Sessions

Corrosion

Chair : C. ANDRADE

Institute of Construction Science "Eduardo Torroja", CSIC, Spain

Co-Chair : N. SMART

Serco Technical and Assurance Services, United Kingdom

- 14h15 [O#49] **D. MacDonald**
Pennsylvania State University, USA
“The Passivity and Corrosion Resistance of Carbon Steel in Simulated Boom Clay HLNW Environments”
- 14h40 [O#31] **A. Nasser**
Université Paul Sabatier de Toulouse – LMDC - INSA, France
“Influence of steel-concrete interface condition on passive corrosion rate”
- 15h05 [O#50] **N. Smart**
Serco Technical and Assurance Services, United Kingdom
“Effect of irradiation on corrosion of steel in alkaline media”
- 15h30 [O#13] **S. Farina**
Consejo Nacional de Investigaciones Científicas y Técnicas, Universidad Nacional de Gral, Argentina
“Corrosion of Steel Drums Containing Cemented Ion Exchange-Resins”
- 15h55 [O#02] **Y. Berthaud**
Laboratoire de Mécanique et Technologie - Cachan, ENS de Cachan/CNRS/Université Pierre et Marie Curie, France
“Damage of the steel-concrete interface due to accelerated corrosion”
- 16h20 **Coffee Break**
- 16h45 [O#19] **J. Harnisch**
Institute for Building Materials Research, RWTH Aachen University, Germany
“Time dependence of chloride induced macro cell corrosion with large cathodes”
- 17h10 [O#07] **S. Charles**
Commissariat à l’Energie Atomique, France
“Impact of moisture parameters on the chloride induced corrosion in concrete”
- 17h35 **Panel Discussion**
- 19h30 **Dinner**

14h15

Parallel Sessions

THMC Behaviour

Chair : D. KOSSON
Vanderbilt University, USA

Co-Chair : F. GLASSER
Aberdeen University, United Kingdom

- 14h15 [O#39] **K. Snyder**
National Institute of Standards and Technology, USA
“Stable Hydrated Phases in Engineered Barriers Composed of Blended Cementitious Mixtures”
- 14h40 [O#16] **J. Garcia Calvo**
Institute of Construction Science "Eduardo Torroja", CSIC, Spain
“Low pH cement formulations based on CAC for underground repositories of HLRW. Resistance against ground water aggression”
- 15h05 [O#24] **K. Kinomura**
Taisei Corporation, Japan
“Pore structure and transport properties of high-volume fly ash materials used for radioactive waste disposal facilities”
- 15h30 [O#53] **F. Sanchez**
Vanderbilt University, USA
“Effect of decalcification on the performance of carbon microfiber reinforced cement-based materials”
- 15h55 [O#48] **T. Rougelot**
Laboratoire de Mécanique de Lille, France
“Influence of pre-cracking over water desorption in cement pastes and mortars”
- 16h20 **Coffee Break**
- 16h45 [O#12] **Y. Elakneswaran**
Hokkaido University, Japan
“An integrated model to predict the relations between electrical double layer properties and chloride ingress in cement-based materials”

- 17h10** **[O#47]** **F. Brue**
Laboratoire de Mécanique de Lille, France
“Effect of saturation degree and temperature on behaviours of three different concretes”
- 17h35** **[O#47]** **A. Gutsch**
Technical University of Braunschweig, Germany
“Experimental Results on Salt Concrete and Results of Calculations of Restraint Stresses of Barrier Elements made of Salt Concrete in a Repository for Radioactive Waste in a Salt Mine”
- 18h00** **Panel Discussion**
- 19h30** **Dinner**

Wednesday 1st April 2009

08h30

Parallel Sessions

Modelling

Chair : **J. PHILIP**
Nuclear Regulatory Commission, USA

Co-Chair : **S. WILLIAMS**
Nuclear Decommissioning Authority, United Kingdom

- 08h30 [O#08] **B. Craeye**
Ghent University, Belgium
“Concrete buffers for the containment of high-level radioactive waste: casting conditions and early age behaviour”
- 08h55 [O#44] **J. Zreiki**
Laboratoire de Mécanique et Technologie - Cachan, France
“Modelling early age behaviour of massive concrete structures”
- 09h20 [O#21] **K. Yamada**
Taiheiyo Cement Corporation, Japan
“Modeling for prediction of alkali ion concentrations in cement pore solution using thermodynamic phase equilibrium”
- 09h45 [O#23] **O.-P. Kari**
Helsinki University of Technology, Finland
“Modelling the Durability of Concrete for Nuclear Waste Disposal Facilities”
- 10h10 **Coffee Break**
- 10h30 [O#28] **A. Millard**
Commissariat à l’Energie Atomique, France
“Application of an atmospheric corrosion model to the prediction of induced damage in reinforced concrete structures”
- 10h55 [O#52] **J. Arnold**
Vanderbilt University, USA
“The Impact of Mineral Deposition by Carbonation and Dissolution on Tortuosity for Leaching of Constituents from a Cementitious Waste Form”

- 11h20** **[O#40]** ***E. Stora***
Lafarge, France
“Investigation of the atmospheric carbonation mechanisms of cementitious materials through numerical modelling”
- 11h45** **[O#09]** ***F. De Larrard***
Laboratoire de Mécanique et Technologie - Cachan, France
“Correlations between measures and development of a predictive model for the long-time behavior of concrete structures subjected to leaching”
- 12h10** ***Panel Discussion***
- 12h35- 14h15** ***Lunch Time***

Wednesday 1st April 2009

08h30

Parallel Sessions

Tests Methodology

Chair : F. SANCHEZ
Vanderbilt University, USA

Co-Chair : P. ZULOAGA
ENRESA, Spain

- 08h30 [O#10] **E. Burger**
Commissariat à l'Energie Atomique, France
“A contribution to very long term alteration modelling of iron rebars in concrete : cathodic reaction localisation in corrosion products”
- 08h55 [O#37] **I. Segura**
Instituto de Automatica Industrial, CSIC, Spain
“Estimation of degraded depth in decalcified cement mortars by simplified modeling and ultrasonic velocity measurements”
- 09h20 [O#30] **K. Nakarai**
Gunma University, Japan
“Evaluation of long-term durability of concrete contact with bentonite mixed with NAHCO₃ by electrical migration technique”
- 09h45 [O#27] **S. Messad**
Université Paul Sabatier de Toulouse – LMDC - INSA, France
“Development of a performance test for external sulfate attack of concrete structures”
- 10h10 **Coffee Break**
- 10h30 [O#03] **M. Briffaut**
Laboratoire de Mécanique et Technologie - Cachan, France
“A new analysis of the restrained ring shrinkage test”
- 10h55 [O#14] **P. Fennell**
Serco Technical and Assurance Services, United Kingdom
“The Long Term Prediction of Corrosion damage in nuclear waste containers”

- 11h20** **[O#33]** **Y. Berthaud**
*Laboratoire de Mécanique et Technologie - Cachan, ENS de Cachan/CNRS/Université
Pierre et Marie Curie, France*
“Properties of steel concrete interface in presence of corrosion”
- 11h45** **[O#06]** **M. Castellote**
Institute of Construction Science "Eduardo Torroja", CSIC, Spain
“Chloride transport within the bulk of hardened cementitious materials”
- 12h10** **Panel Discussion**
- 12h35- 14h15** **Lunch Time**

14h15

Aging Management

Chair : D. FÉRON
Commissariat à l'Énergie Atomique, France

Co-Chair : K. PHILIPOSE
Atomic Energy Canada Limited, Canada

- 14h15** **[O#32]** ***K. Philipose***
Atomic Energy Canada Limited, Canada
“Ageing Management of CANDU Concrete Containment Buildings”
- 14h40** **[O#043]** ***C. Weiss***
US Army, USA
“Role of innovative reactive vitreous coatings in reinforced concrete in nuclear plant construction”
- 15h05** **[O#26]** ***T. Kosec***
Slovenian National Building and Civil Engineering Institute, Slovenia
“Use of stainless steel reinforcement in the engineered barriers of LILW repository”
- 15h30** **[O#29]** ***T. Mozaryn***
Building Research Institute, Poland
“Service life of coating systems applied on cooling towers - laboratory study and in-situ investigations”
- 15h55** **[O#18]** ***S. Han***
Korean Ocean Research and Development Institute, South Korea
“Evaluation of Carbonation-induced Corrosion Initiation for Coastal Concrete Structure”
- 16h20** ***Departure for the Wine party at “Château de Vignelaure”***
- 19h30** ***Conference Dinner***

Thursday 2nd April 2009

08h30

Aging Management (continuation)

Chair : D. FÉRON
Commissariat à l’Energie Atomique, France

Co-Chair : K. PHILIPOSE
Atomic Energy of Canada, Canada

08h30

[O#34]

K. Reichling

Institute for Building Materials Research, RWTH Aachen University, Germany
“BETOSCAN - A robotic system for simultaneous diagnoses of reinforced concrete structures”

08h55

[O#36]

U. Schneck

Citec, Germany

“Informative results from a non-destructive corrosion survey of the soffit of an 80 cm thick post-tensioned bridge deck”

09h20

[O#04]

M. Brem

SGK, Swiss Society for Corrosion Protection

“Online Corrosion Monitoring and Cathodic Protection of a Steel Structure in Concrete”

09h45

Panel Discussion

10h10

Coffee Break

10h55

SUMMARY SESSION

Chair : R. GENS
Ondraf, Belgium

Co-Chair : V. L'HOSTIS
Commissariat à l'Energie Atomique, France

10h55

Restitution of the panel discussions conclusions by the chairmen of the sessions:

- *Present and Future Expectations*
- *Corrosion*
- *THMC Behaviour*
- *Modelling*
- *Tests Methodology*
- *Aging Management*

12h00

CLOSURE

12h00

Lunch Time

