

MINUTES OF THE WP4 FALL MEETING
HELD IN THE ACROPOLIS, NICE, FRANCE
WEDNESDAY, SEPTEMBER 09TH, 2009



Written by:

Laure Martinelli, Fabien Rouillard and Damien Féron

Diffusion:

Present and apologized participants

WP4 Members

Paul MacIntyre (EFC Scientific Secretary)

Marcel Roche (EFC General Secretary in France)

Gerhard Kreysa (EFC General Secretary in Germany)

EFC WP4 "NUCLEAR CORROSION"

Chairman	Damien Féron	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex
Vice-Chairman	Thierry Couvant	EDF	DMMC - Les Renardières	BP46	F-77818 MORET SUR LOING Cedex
Secretary	Mylène Belgome	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex

Attendance:

Ales Cesen	ZAG (Slovenia)
Bob Cottis	University of Manchester (UK)
Thierry Couvant	EDF (France)
Cécilie Duhamel	ENSM-P (France)
Damien Féron	CEA/Saclay (France)
Maria Del Sol Garcia Redondo	CIEMAT (Spain)
Linda Goldberg	NACE (USA)
En-Hou Han	IMR (China)
Jaka Kovac	ZAG (Slovenia)
Bruno Kursten	SCK-CEN (Belgium)
Andraz Legat	ZAG (Slovenia)
Christina Lilja	Svensk Kärnbränslehantering AB (Sweden)
Stuart Lyon	University of Manchester (UK)
Digby Macdonald	PennState University (USA)
Virginia Madina	INASMET (Spain)
Laure Martinelli	CEA/Saclay (France)
Anders Molander	Studsvik Nuclear AB (Sweden)
Cristiano Padovani	Nuclear Decommissioning Authority (UK)
Juha Piippo	Cormet Oy (Finland)
Stefan Ritter	Paul Scherrer Institute (Switzerland)
Fabien Rouillard	CEA/Saclay (France)
Petr Sajdl	Institute of Chemical Technology (Czech Republic)
Janos Schunk	Paks Nuclear Power Plant Ltd (Hungary)
Roger W. Staehle	Staehle Consulting (USA)
Jianqiu Wang	IMR (China)
Krzysztof Wolski	ENSM-SE (France)
Jei-Won Yeon	Kaeri (Korea)

Apologies for absence received from:

Mylène Belgome	CEA/Saclay (France)
Dolores Gomez Briceño	CIEMAT (Spain)
Jens Ganswind	VGB PowerTech e.V (Germany)
Catherine Guerre	CEA/Saclay (France)
Marc Le Calvar	IRSN (France)
Valérie L'Hostis	CEA (France)
David Tice	Serco (UK)
Peter Wood	Nuclear Decommissioning Authority (UK)

EFC WP4 "NUCLEAR CORROSION"

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Enclosures (only for WP4 Members and EFC addressees):

- ✓ Slides presented by D. Féron
- ✓ Slides presented by D. Féron: Announcement of "Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA - Coriou effect" (EFC Event #333)
- ✓ Slides presented by Th. Couvant: Announcement of "International workshop on Coupling Mechanisms to improve lifetime prediction of LWRs" (EFC Event #331)
- ✓ Slides presented by B. Kursten: "4th International Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems" (EFC Event #329)
- ✓ Slides presented by D. Féron: Proposition for a workshop on "Ageing Management of Nuclear Structures and Installations"

EFC WP4 "NUCLEAR CORROSION"

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1. OPENING AND APPROVAL OF THE AGENDA

D. Féron opened the meeting. He thanked the audience for coming.

D. Féron presented the apologies received for the absentees.

Then, D. Féron presented the agenda and engaged the participants not to hesitate to express themselves if they see a missing item.

As no comment was made; the agenda was approved.

2. APPROVAL OF THE MINUTES OF THE PARIS SPRING MEETING

D. Féron made a review of the minutes of the previous WP4 Spring Meeting held in Paris on March 2009.

As no comment was made, the minutes of the Paris Meeting were approved.

3. EFC WP4 PUBLICATION

3.1. EFC Green Book n°56

St. Ritter affirmed that the EFC Green Book n°56 "Corrosion monitoring in nuclear systems: research and applications" will finally be published around July 2010. D. Féron stated that P. MacIntyre currently performs the English language corrections and that Maney agrees to perform English review of the future EFC books.

3.2. EFC Green Book n°59

Considering the EFC Green Book n°59 on "Sulphur Assisted Corrosion in nuclear disposal systems", B. Kursten (Editor) reported that most of the reviewers have not provided with their comments on time, which would certainly lead to a delay of the publication. But reviewers have made excellent and detailed reviews of the papers, which will be valuable for the technical and scientific quality of the book.

3.3. Other publications

Considering other publications, a Green Book on "Corrosion Issues in Nuclear Industry Today" (Springer Editor), has been proposed (leader: Th. Couvant, assisting: St. Ritter and B. Kursten). For this document Th. Couvant proposed a new title "Degradation, Modelling and Mitigation of SCC in LWRs", because people involved considered that too many papers have already been written on the original subject, which is too wide. They proposed, then, more focussed issues that deal with degradation, modelling and mitigation separately. As a first step, the targeted issues will be specified together with the expert group of writers (P. Combrade, etc.) and the writing will start at the beginning of 2010. The outlook for this Green Book will be discussed at the end of 2009.

Th. Couvant gave an assurance that if some problems appeared for the publication, MAI could publish the book.

Other publications have occurred in scientific journals, such as the proceedings of EFC Event #301 in Journal of Nuclear Materials (Special issue, Volume 379 n°1-3, 2008) or in collaboration with other Scientific societies such as the proceedings of the EFC Event #317 published in a RILEM Book (ISBN 978-2-31158-072-1).

EFC WP4 "NUCLEAR CORROSION"

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4. EFC WP4 FUTURE EVENTS

D. Féron presented the future events for 2010.

4.1. Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA - Coriou effect (Enclosure 2)

The next meeting is organised by the Service of Corrosion (CEA) in January 26, 2010 at the CEA/Saclay entitled "Jubilee day: Stress Corrosion Cracking of Nickel Base Alloys at CEA/50 ans de Corrosion Sous Contrainte au CEA - Effet Coriou/Coriou Effect". However, D. Féron needs an internal agreement from CEA to validate the Jubilee event at Saclay. He showed the agenda for the meeting.

4.2. International workshop on Coupling mechanisms to improve lifetime prediction of LWRs (Enclosure 3)

Th. Couvant continued the discussion on the next workshop which will be held at EDF on "Coupling Mechanism to Improve Lifetime Prediction of LWRs". For this meeting, the oral presentation duration will be 30 min plus 30 min for questions. The reason for the 30 min question time is to encourage audience participation in the discussion. The aim of the workshop is to improve our knowledge of and our ability to mitigate stress corrosion cracking.

4.3. 4th International Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems (Enclosure 4)

B. Kursten spoke about the EFC Event n°329. For this meeting the oral presentation duration will be 30 min plus 10 min for questions.

4.4. Others (Enclosure 5)

D. Féron added some information about the next 2010 workshop on concrete structure: "Ageing Management of Nuclear Structures and Installations", which will be held in Toronto.

5. SUMMER SCHOOL "NUCLEAR CORROSION"

D. Féron recalled that the organisation of a Summer School on "Nuclear Corrosion", initially planned by SCK-CEN, was cancelled during the Paris Meeting.

A. Legat said that he could organise the first edition but he needs an internal agreement.

Indeed in Manchester University, a new module is carried out this year on nuclear issues for Master and PhD students (during 4 years). Different sessions are performed each year. In this module, there will be a part on corrosion issues in nuclear systems. It was assumed that some young foreign people could attend the module class. This must only be checked at University.

6. BRINCS

NACE presented the creation of a new expert group, the BRINCS group, which will screen materials for certification. There is an open symposium in January on corrosion and EFC WP4 members are welcome to this event. NACE would like to be more active on corrosion issues in the future.

EFC WP4 "NUCLEAR CORROSION"

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7. WEBSITE

D. Féron thanked St. Ritter for taking care of the WP4 website. It is planned, if possible, to add a private section to the WP4 website in order to exchange unpublished files and more confidential information.

St. Ritter agreed to ask for modifying the website in order to add a private domain for WP4.

8. EUROCORR'2010

J. Schunk proposed a special seminar on VVER as there are several VVER in Eastern Europe, India and China. This seminar would include material issues in VVER. It will be proposed for the next EUROCORR in Moscow.

9. MISSING ITEMS AND CONCLUSION

After discussions, D. Féron confirmed, with Th. Couvant's agreement, that the next Spring Meeting will be held at EDF in April 2010 during the workshop on "Coupling Mechanism to Improve Lifetime Prediction of LWRs".

St. Ritter suggested that the ECG-COMON could organize a 2nd workshop on corrosion monitoring during EUROCORR'2011 (maybe together with other WPs).

10. CLOSURE

D. Féron identified the future meetings:

- ✓ "Jubilee day: Stress Corrosion Cracking of Nickel Base Alloys at CEA - Coriou Effect"
26th January, 2010 at the CEA/Saclay (France)
- ✓ International workshop on "Coupling Mechanisms to Improve Lifetime Prediction of LWRs"
EFC event #331
08th-09th April, 2010, EDF (Material Ageing Institute), Les Renardières (France)
- ✓ ECG-COMON meeting
25th-26th May, 2010, Erlangen (Germany)
- ✓ 4th International Workshop on "Prediction of Long Term Corrosion Behaviour in Nuclear Waste Systems"
EFC event #329
28th June-02nd July, 2010, Bruges (Belgium)
- ✓ EUROCORR'2010
13th-17th September, 2010, Moscow (Russia)
- ✓ International workshop "Ageing Management of Nuclear Structures and Installations"
08th-13th November, 2010, Toronto (Canada)

As no other point was raised, D. Féron thanked the audience for coming and closed the meeting.

EFC WP4 "NUCLEAR CORROSION"

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**EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION
FÉDÉRATION EUROPÉENNE DE LA CORROSION**

Enclosure 1:

- ✓ Slides presented by D. Féron

EFC WP4 "NUCLEAR CORROSION"

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Welcome to the EFC WP4 "Nuclear Corrosion" Meeting

Damien Féron, Chairman of the WP4
Thierry Couvant, Vice-Chairman of the WP4

Mylène Belgome, secretariat

1. Opening and approval of the agenda



Apologies for absence received from:

- * Mylène Belgome (CEA, France)
- * Gomez Briceño Dolores (CIEMAT, Spain)
- * Jens Ganswind (VGB, PowerTech e.V Germany)
- * Catherine Guerre (CEA, France)
- * Marc Le Calvar (IRSN, France)
- * Valérie L'Hostis (CEA, France)
- * David Tice (Serco, UK)
- * Peter Wood (NDA, UK)

1. Opening and approval of the agenda



1. Opening and Approval of the agenda
2. Approval of the minutes of the Paris "Spring Meeting"
3. EFC WP4 internal matters : Application of the new directives
4. EFC WP4 Publications
5. EFC WP4 future events
6. EFC WP4 Website
7. EUROCORR's
8. Missing items
9. Closure

2. Approval of the minutes of the Paris Meeting



[Paris - Minutes \(09-003\).pdf](#)

3. Internal matters : Application of the EFC WP new directives



- **Vice-Chairman : Thierry Couvant (EDF-MAI)**
- **Members - what's new:**
 - **§4.1.4:** "In addition to delegates proposed by the Member Societies (see para. 1.3), the Chairman may propose and approve with the consent of the WP, the nomination and re-election of WP members;
NOTE: Each period of office for WP members is of three years.
At the end of each such period, re-election for further periods of three years may be allowed at the discretion of the WP chairman."
- **Proposal:** ask to all members if they still want to be WP4 members (with the duties of the members §4.4)
 - planned mid-2009 / postponed to the end of 2009
- **Discussion:** is it possible to be more active and to attract new members?

3. Internal matters : Application of the EFC WP new directives



- **Recall: Duties of members (§4.4)**
 1. Members are expected to attend meetings of the WP on notification from the Chairman or Secretary;
 2. Members should participate in the technical and scientific activities of the WP by providing reports and, wherever possible, by participating in collaborative experimental work;
 3. Members are required to give full support, notably by submission of high quality papers, to the annual EUROCORR conference of the EFC.

4. EFC WP4 Publications



• EFC Series (Green Books) published in 2007

- EFC N°48 "Corrosion of metallic heritage artefacts: investigation, conservation and prediction for long term behaviour" Editors: Philippe Dillmann, Henning Mathiessen, Paolo Piccardo, Gérard Béranger - **March 2007**
- EFC N°49 "Electrochemistry in Light Water Reactors: Focus on Reference Electrodes, Measurements, Corrosion and Tribocorrosion Issues", editors: R.W. Bosh, J.P. Celis and D. Féron - **May 2007**
- EFC N°51 "Corrosion issues in Light Water Reactors: Focus on Stress Corrosion Cracking and Practical Experience", editors: D. Féron and J.M. Olive - **June 2007**

- Other publications

- Proceedings of the 3rd International Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems, *Guest editors: D. Féron and D.D. Macdonald*, Special issue of the Journal on Nuclear Materials, Volume 379 (Issues 1-3), 30 **September 2008**
- Long Term Performance of Cementitious Barriers and Reinforced Concrete in Nuclear Power Plants and Waste Management - **EFC event 317**, RILEM editions book (PRO 64, ISBN: 978-2-31158-072-1, **October 2009**)

4. EFC WP4 Publications



• Publications (EFC Series) - work in progress

- **EFC #56**: "Corrosion monitoring in nuclear systems: research and applications" (Editors: Stefan Ritter & Anders Molander) Stefan Ritter
- **EFC #59**: "Sulphur Assisted Corrosion in nuclear disposal systems" (Editors: Bruno Kursten & ...) Bruno Kursten
- Green book with the papers presented during the **workshop "Computer modelling of corrosion"** at EUROCORR 2008 & EUROCORR 2009 (Marc Vankeerberghen)

• Other publications (EFC series) in preparation

- Green book "Corrosion issues in future high temperature nuclear systems" (Eurocorr 2009 Workshop - WP4 & WP3)

• Other publications

- "Corrosion issues in nuclear industry today", Springer Publishing, (Thierry Couvant - Stefan Ritter & Bruno Kursten.)
« Degradation, modelling and mitigation of SCC in LWRs » Thierry Couvant

4. Publication of workshop papers



- **Journal of Nuclear Materials (JNM)**
Oral agreement no more valid
- **International workshop on "Coupling mechanisms to improve lifetime prediction of LWRs"**, - EDF-MAI publication
- **Corrosion Engineering Science and Technology (former British corrosion Journal)**
Proceedings of the 4th international workshop on long term prediction ... June 2010 (special issue)
- **Materials & Corrosion**
Discussion for the proceedings of the "Ageing Management of Nuclear Structures and Installations", November 2010 (special issue)



EFC WP4 past events

- a- [SACNUC 2008 workshop](#) on Sulfur Assisted Corrosion in NUClear disposal systems
website : www.sckcen.be/sacnuc,
EFC event 311, 21-23 October 2008, Brussels, Belgium
- b- Symposium NUCPERF'2009
EFC event 317, March 30 - April 2, 2009, Cadarache, France
website : www.nucperf2009.fr

5. EFC WP4 future events



- **Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA - 50 ans de corrosion sous contrainte des alliages de nickel au CEA - Effet Coriou effect-** January 26, 2010 at CEA-Saclay (D. Féron)
- **International workshop on "Coupling mechanisms to improve lifetime prediction of LWRs"**, EFC event 331, 8-9 April 2010, Les Renardières (France), EDF (Material Ageing Institute)
👤 Th. Couvant
- **4th International Workshop on "Prediction of Long Term Corrosion Behaviour in Nuclear Waste Systems"**, EFC event 329, Bruges, Belgium, SCK-CEN, 28 June - 2 July 2010
👤 B. Kursten
- **International workshop "Ageing Management of Nuclear Structures and Installations"**, Toronto, Canada, November 8-13, 2010 (with AECL)
- **Summer School on "Nuclear Corrosion"**



Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA 50 ans de corrosion sous contrainte des alliages de nickel au CEA

- Effet Coriou Effect -

*CEA-DSIN, Saclay (near Paris), France
Mardi 26 janvier 2010 - Tuesday January 26, 2010*

Agenda provisoire / Preliminary agenda

Matin / Morning

Bienvenue et ouverture de la Journée / Welcome and opening

Gerard Pinard Legry : La saga de l'Alliage 600 au CEA (Alloy 600 saga at CEA)

*Roger Staëlle : "Historical views on the stress corrosion cracking of Ni base alloys."
(Histoire de la corrosion sous contrainte des alliages de nickel)*

Philippe Berge : Histoire et petites histoires de la corrosion sous contrainte des alliages de nickel (History and small novels of the SCC of Nickel base alloys)

Après-midi / Afternoon

Peter L. Andresen : Understanding and prediction of Stress Corrosion Cracking (Derniers développements de la Corrosion sous contrainte des bases nickel)

Emmanuel Herms : Amorcage de la Corrosion sous contrainte au CEA : derniers résultats et développements (R&D on initiation of stress corrosion cracking at CEA)

Toshio Yonezawa : Corrosion crack experience in Japanese PWRs and its mitigation (L'effet Coriou dans les centrales à eau pressurisée au Japon et son contrôle)

Colin Gaultier : Propagation de la corrosion sous contrainte : derniers résultats et développements au CEA (R&D on crack propagation of stress corrosion cracking at CEA)

Dagfinn Macdonald : Stress corrosion cracking and electrochemistry (corrosion sous contrainte et électrochimie)

Jacques Châze : Corrosion sous contrainte et fissuration par l'hydrogène (Stress corrosion cracking and hydrogen embrittlement)

Philippe Boivin : Moyens d'essais de CSC au CEA (SCC test facilities at CEA)

Cliôtre / Closure

A simultaneous translation French-English is planned the whole day for all the conferences

*Mercredi : Visite des laboratoires de corrosion du CEA-Saclay - nombre limité de personnes
Wednesday: Visit of CEA-Saclay corrosion facilities - limited number of participants*

Waiting CEA final agreement ...



EFC WP4 Nuclear Corrosion

The MAI is a research facility created by EDF, EPRI (USA) and TEPCO (Japan) to carry out a R&D program in order to better understand and anticipate how materials in power plants age and contribute to plant component degradation. Scientific findings from the MAI help power companies to optimize the operations and lifetimes of existing plants and support the design of future plants.

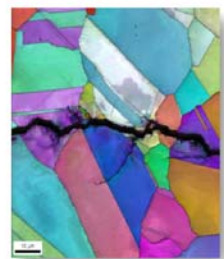
Venue

The workshop will be held at the Materials Ageing Institute (EDF R&D center) Moret-sur-Loing, France. The R&D center is located in the southeast of Paris (75 km), 10 km from Fontainebleau. The MAI is easily accessible by car or by train (50 min from Paris).

Registration and Accommodation

Registration to the workshop is only valid by completing and sending the registration form before 28 February 2010 to the conference office. The registration form is available on the website. The registration fee will include the list of participants, the proceedings of presented papers, lunches, coffee breaks and conference dinner. Expenses for travel and hotel accommodation are not included in the registration fee. Travel and accommodation arrangements should be made by each participant personally. A list of hotels is available on the website.

International workshop on Coupling Mechanisms to improve lifetime prediction of LWRs



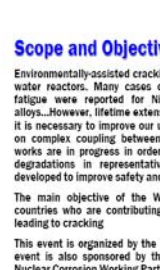
8 - 9 April 2010
Les Renardières, Moret-sur-Loing (France)

EFC Event N°331





WP4 Meeting - September 9, 2009 - Nice., France
D. Féron
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EFC WP4 Nuclear Corrosion

Scope and Objectives of the Workshop

Environmentally-assisted cracking is a limited factor for the lifetime of light water reactors. Many cases of stress corrosion cracking and corrosion fatigue were reported for Ni-based alloys, stainless steels, zirconium alloys... However, lifetime extension to 60 year are expected. In this context, it is necessary to improve our understanding of degradations usually based on complex coupling between material, loading and environment. Many works are in progress in order to characterize, to model and to simulate degradations in representative operating conditions. Tools are being developed to improve safety and operating conditions of nuclear plants.

The main objective of the Workshop is to draw experts from various countries who are contributing to predict and to understand interactions leading to cracking.

This event is organized by the Materials Ageing Institute of EDF R&D. The event is also sponsored by the European Federation of Corrosion (EFC); Nuclear Corrosion Working Party (WP4).

Topics

The workshop will address the main items related to the coupling of mechanisms in order to improve lifetime prediction in light water reactors where environmentally-assisted cracking can occur:

- Cross characterizations
 - Deformation
 - Oxidation
 - Microstructure
 - Water chemistry
 - Environmentally-assisted cracking
- Modeling interactions
 - At the scale of the components
 - At the scale of the mechanism of cracking
- Simulating interactions

Key Dates

September 2009	Announcement and call for papers
1st December 2010	Deadline for abstracts
1st January 2010	Notification of paper acceptance
28 February 2010	Deadline for registration
8-9 April 2010	Workshop

Local Organizing Committee

Thierry COUVANT MAI, EDF R&D, France
Veronique BORDIER-VINERON MAI, EDF R&D, France

Scientific Committee

Georges CAILLETAUD	ENSMF, France
Thierry COUVANT	EDF R&D, France
David DELAFOSSE	ENSMSE, France
Damien FERON	CEA, France
Gabriel LEVBARE	EPRI, California
Sylvain LECLERCQ	EDF R&D, France
Philippe Marcus	ENSCP, France
Tetsuo SHOJI	Tohoku University, Japan

Conference Office

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Website

Registration form, hotel information and program are available on the website: <http://www.themai.org>

WP4 Meeting - September 9, 2009 - Nice., France
D. Féron
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Registration and Accommodation

Registration to the workshop is only valid by completing and sending the registration form before 31 May 2010 to the conference office. The registration form is available on the website.

- The registration fee will include the list of participants, book of abstracts, lunches, coffee breaks, welcome cocktail and conference dinner.
- Expenses for travel and hotel accommodation are not included in the registration fee.
- Travel and accommodation arrangements should be made by each participant personally.
- A limited number of rooms have been reserved at the Hotel 'Novotel Brugge Centrum' at a special rate of 113€/night (single room) or 132€/night (double room). Breakfast is included in the rate (www.novotel.com). The Novotel Brugge Centrum is a 3 ★ hotel situated in the historic center of Bruges (only 5 minutes walk from the conference center). Reservations can only be made by fulfilling the reservation request, available at the website of the workshop, and sending it by fax to +32(0)50 33 65 56. To have advantage of the special rate, the reference 'LongTermCor2010' should be mentioned on the reservation request form.



Hotel Novotel Brugge Centrum

<http://www.sckcen.be/LongTermCor2010>



EFC Event N° 329




4th International Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems

28 June – 2 July 2010
Bruges, Belgium

Organized by




WP4 Meeting - September 9, 2009 - Nice,, France

D. Féron

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Scope and Objectives of the Workshop

The intensive industrialisation worldwide requires an ever-increasing production of energy. Currently, almost one fifth of the world's total electricity production arises from nuclear power plants. Besides producing electricity for the benefit of society, nuclear power is also leaving a legacy of dangerous radioactive residues for which a safe long-term solution has to be found to protect the many generations to come.

Among the options considered for dealing with high-level nuclear waste, geological disposal is the one recommended at the international level. Predicting the degradation rate of the metallic barrier in a robust and reliable manner represents one of the greatest scientific and technical challenges currently known to mankind, because its lifetime largely exceeds that of any industrial application.

This issue was already explored during three previous, successful Workshops (Cadarache, France, 2001; Nice, France, 2004 and Pennsylvania State University, USA, 2007).

The main objective of the Workshop is to bring together scientists and engineers from various countries who are developing high level nuclear waste disposal technologies, with the goal of promoting scientific and technical exchanges concerning long term behavior of metallic containment materials and engineered barrier systems. In particular, the workshop will compare the approaches that are being developed worldwide for predicting long term corrosion phenomena, including corrosion strategies for interim storage and geological disposal.

This event is a joint organisation of the Belgian Nuclear Research Center (SCK-CEN) and the Belgian Agency for Radioactive Waste and Enriched Fissile Materials (NIRAS/ONDRAF). The event is also sponsored by the European Federation of Corrosion (EFC): Nuclear Corrosion Working Party (WP4). Moreover, it takes part of the activities of the RILEM Technical Committee "Concrete in the context of the nuclear management" (TC 226-CNM).

Topics

The workshop will address the main items related to the long-term corrosion behaviour, with a major emphasis on:

- Overview of the different (national) programmes
 - Similarities, common challenges, different approaches, ...
 - Legal issues
 - Retrievability
- Experimentation
 - Laboratory
 - In situ
- Modelling
 - Fundamentals of prediction
 - Long-term prediction (e.g. localized corrosion after induction time, ...)
- Archaeological artefacts
 - How can this information help in the long-term prediction ?
- Regulatory issues
- Corrosion behaviour of steel reinforcements in concrete (e.g. mechanical stresses, ...)

Proceedings

- A booklet of the abstracts will be distributed to the participants at the beginning of the workshop
- Proceedings will be published, after reviewing, as a special issue of 'Corrosion Engineering Science and Technology' after the workshop

WP4 Meeting - September 9, 2009 - Nice,, France

D. Féron

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Venue

The workshop will be held at the Conference Center 'Oud Sint-Jan' in Bruges, Belgium. Bruges is located in the northwest of Belgium at 100 km from Brussels, the capital city of Belgium, and 100 km from Antwerp. The center of Bruges is approximately 20 km from the Belgian coast. Bruges is often called 'the Venice of the North' due to its picturesque canals which are found throughout the city center. Bruges boasts a number of museums in which a.o. the work of the Flemish Primitives (15th – early 16th century) is exposed.

The conference center is an old hospital from the 19th century, located in the historic center of Bruges. The center is easy accessible (only a 5 min walk from the train station).

www.oudsintjan.eu



Conference Center 'Oud Sint-Jan'



Bruges – The Venice of the North

Local Organising Committee

Bruno Kursten	SCK-CEN, Belgium
Frank Druyts	SCK-CEN, Belgium
Robert Gens	NIRAS/ONDRAF, Belgium
Monique Van Geel	SCK-CEN, Belgium

Scientific Committee

Bruno Kursten	SCK-CEN, Belgium
Frank Druyts	SCK-CEN, Belgium
Robert Gens	NIRAS/ONDRAF, Belgium
Damien Féron	CEA, France
Digby D. Macdonald	Pennsylvania State University, USA
Tae M. Ahn	NRC, USA
Carmen Andrade	IETCC, Spain
Hidekazu Asano	RWMC, Japan
Gustavo Duffo	CNEA, Argentina
En-Hou Han	IMR, China
Lawrence Johnson	NAGRA, Switzerland
Fraser King	Integrity Corrosion Consulting Ltd., Canada
HyukSang Kwon	KAIST, Korea
Timo Saario	VTT, Finland
Lars Werme	Uppsala University, Sweden
Steve Williams	NDA, UK

Key Dates

August 2009	Announcement and call for papers and opening of website
15 January 2010	Deadline for abstracts
March 2010	Notification of paper acceptance
31 May 2010	Deadline for registration
28 June – 2 July 2010	Workshop

Conference Office

Monique Van Geel

SCK-CEN
Environment Health and Safety (EHS) Institute,
R&D Waste Packages (RDW) Unit
Boeretang 200 ☎: +32 14 33 32 29
2400 Mol ☎: +32 14 33 35 53
Belgium @: LongTermCor2010@sckcen.be

Website

Registration form, hotel information and programme are available on the website:

<http://www.sckcen.be/LongTermCor2010>

Proposition for a workshop on “Ageing Management of Nuclear Structures and Installations”

AECL Main Office, Toronto, Ontario, Canada
8th to 12th November 2010

Background and topics of concern

In the frame of the RILEM TC-226-CNM (Concrete in the context of Nuclear Waste Management) needs have been identified in the area of ageing management of Nuclear Installations. As a result of the two **NUCPERF (2006&2009) Workshops**, the following topics of interest were clearly identified:

- **Ageing Management Program Strategy** for reinforced concrete structures
- **Development of instrumentation and NDE techniques** such as :
 - To detect, measure and monitor parameters impacting ageing,
 - To measure parameters to meet the operating license requirements of nuclear installations,
 - To validate NDE techniques to detect and monitor ageing of NPP structures to meet regulator/user/owner requirements.
- Upscaling/validation of **new developments in NDA techniques** (from laboratory to field applications)
- **Implementation of inspection and monitoring survey strategy** for long-term structural integrity
- Interpretation of the raw measurement data (reliability, uncertainties, appropriateness), **treatment of field measurement data** (codes/models)
- Integration of model simulation outputs in **reassessment of service life**
- **Probabilistic tools for managing uncertainties** resulting e.g. from randomness in structure loads, time-dependent material properties changes etc ...

Proposed sponsors



• Financial sponsors:

- AECL and COG (Canada)
- CEA (France)



• Scientific sponsors

- RILEM (TC CNM – Concrete for Nuclear waste Management)
- EFC - WP4 (Nuclear corrosion) and WP11 (Corrosion in Concrete)
- OECD/NEA (Committee for Safety of Nuclear Installations)



Organizing and Scientific Committees



Organizing committee

K. Philipose (Chairman) – AECL Canada

Other from AECL, from COG and CNSC (To be confirmed)

V. L'Hostis – CEA France and RILEM TC-226-CNM

D. Féron – CEA France and EFC/WP4

Scientific committee

1) Active members of the RILEM TC-226-CNM

Valérie L'Hostis (CEA, France), Chairperson
Robert Gens (ONDRAF, Belgium), Secretary

C. Andrade (IETcc, Spain)
M. Castellote (IETcc, Spain)
D. Féron (CEA, France)
C. Galle (CEA, France)
F. Glasco (U. Aberdeen, UK)
D. Kossion (Vanderbilt U, USA)
B. Kunsien (SKC-CEN, Belg.)
J. Philip (NRC, USA)
K. Philipose (AECL, Canada)
F. Sanchez (Vanderbilt U, USA)
N. Smart (SERCO, UK)
S. Williams (NDA, UK)
P. Zuloaga (IETcc, Spain)

2) Other delegates

From EFC/WP11 (M. Raupach, other interested?)

From NEA/CSNI/IAGE (A. Blahoiianu, A. Huerta)

From EDF (D. Dauffer, etc.)

EFC
WP4
Nuclear Corrosion

“Ageing Management of Nuclear Structures and Installations”

Key dates

November 2009	Announcement, call for papers Web site opening (until this date, information available on www.nucperf2009.fr)
15 May 2010	Deadline for abstracts submittal
15 June 2010	Notification to the authors Workshop registration and accommodation
1st October 2010	Deadline for registration Deadline for full paper submission
8th to 12th November 2010 - Workshop	

WP4 Meeting - September 9, 2009 - Nice., France
D. Féron
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EFC
WP4
Nuclear Corrosion

5. EFC WP4 future events

Summer School “nuclear corrosion”

- Proposed in Maastricht (2006)
- WP4 Spring Meeting 2008 decisions
 - Target: young scientists and engineers
 - Topics: 3-days general session + 2-days focus on specific item (NPP, Gen IV, Nuclear Waste, ...)
 - The event will be organised in relation with others (ENEN / European Nuclear Education Network)
 - Task Force "Summer School": B. Kursten (Chair), B. Cottis, D. Féron, A. Legat, St. Ritter, D. Tice, P. Wood, M. Le Calvar
 - It is planned to have one event every (x) year(s)
- Planned initially in Belgium, SCK-CEN resigns (Spring meeting 2009)
- Andraz Legat (Slovenia) offered to organise the 2nd summer school -> the first edition (?)

WP4 Meeting - September 9, 2009 - Nice., France
D. Féron
B. Kursten



• EFC WP4 website (on the EFC website)

http://www.efcweb.org/Working_Parties-p-104085/WP_4.html

→ Items on the web site:

- ✓ **WP4 activities:** reports on WP4 activities and presentation of the WP4 at OCDE/NEA
- ✓ **WP4 groups:** ECG-COMON
- ✓ **Minutes of the WP4 meetings** (without overheads)
- ✓ **Future events/workshops of the WP4**
- ✓ **WP4 recent publications**
 - EFC series
 - Other publications

→ **EFC website has been "renewed"**

New presentation - easier to use

→ **Stefan Ritter** in charge of the WP4 web page: many thanks for the work done

→ Possibility to have a "private domain"



• EUROCORR'2009

→ Thematic: "Corrosion: from nanoscale to the plant"

→ 3 sessions are (co)-organised by EFC WP4

- ✓ Nuclear Corrosion general session (23 orals including 2 keynotes, 16 posters)
- ✓ Workshop "Corrosion issues in future high temperature nuclear systems", co-organised with WP3 (High Temperature Corrosion) and NACE (TEG 224X - Ron Miza/INL) 1 Keynote, 20 orals and 4 posters
- ✓ "Simulation, modelling and life prediction" (L. Oltra, B. Cottis, M. Vankeerberghen, Ph. Marcus) - 19 orals and 10 posters



→ **EUROCORR 2010 "from the Earth's Depths to Space Heights"**

13-17 September, Moscow, Russia

Session "nuclear corrosion"

Seminar on "corrosion issues in VVER" - organised by Janos SCHUNK (Paks NPP, Hungary) -?

→ **EUROCORR 2011**

5-8 September, Stockholm, Sweden

Workshop "corrosion monitoring in nuclear systems" (S. Ritter - ECG-COMON)

→ **EUROCORR 2012**

9-13 September, Istanbul, Turkey

8. Missing items



Some points to discuss?

How the Spring Meeting can be more attractive?

- including scientific and technical presentations
- visiting laboratories, workshops, plants, ...

Date and place of the next EFC WP4 Spring meeting

9. Closure



Upcoming events

- **Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA - 50 ans de corrosion sous contrainte au CEA - Effet Coriou effect-** January 26, 2010 at CEA-Saclay (D. Féron)
- **International workshop on "Coupling mechanisms to improve lifetime prediction of LWRs"**, EFC event 331, 8-9 April 2010, Les Renardières (France), EDF (Material Ageing Institute)
- **ECG-COMON meeting**, May 25-26, 2010, Erlangen, Germany
- **4th International Workshop on "Prediction of Long Term Corrosion Behaviour in Nuclear Waste Systems"**, EFC event 329, Bruges, Belgium, SCK-CEN, 28 June - 2 July 2010
- **EUROCORR 2010**, 13-17 September, Moscow, Russia
- **International workshop "Ageing Management of Nuclear Structures and Installations"** Toronto, Canada, November 8-13, 2010 (with AECL)



**Thank you
for your participation
to the
EFC WP4 "Nuclear Corrosion"
2009 Nice Meeting**



**EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION
FÉDÉRATION EUROPÉENNE DE LA CORROSION**

Enclosure 2:

- ✓ Slides presented by D. Féron: Announcement of "Jubilee day: Stress Corrosion Cracking of Nickel Base Alloys at CEA - Coriou Effect" (EFC Event #333)

EFC WP4 "NUCLEAR CORROSION"

Chairman	Damien Féron	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex
Vice-Chairman	Thierry Couvant	EDF	DMMC - Les Renardières	BP46	F-77818 MORET SUR LOING Cedex
Secretary	Mylène Belgome	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex

Jubilee day: Stress Corrosion Cracking of nickel base alloys at CEA
50 ans de corrosion sous contrainte des alliages de nickel au CEA

- Effet Coriou Effect-

CEA-INSTN, Saclay (near Paris), France
Mardi 26 janvier 2010 - Tuesday January 26, 2010

Agenda provisoire / Preliminary agenda

Matin / Morning

Bienvenue et ouverture de la Journée / *Welcome and opening*

Gérard Pinard Legry : La saga de l'Alliage 600 au CEA (*Alloy 600 saga at CEA*)

Roger Staehle : "*Historical views on the stress corrosion cracking of Ni base alloys.*"
(Historique de la corrosion sous contrainte des alliages de nickel)

Philippe Berge : Histoire et petites histoires de la corrosion sous contrainte des alliages de nickel (*History and small novels of the SCC of Nickel base alloys*)

Après-midi / Afternoon

Peter L. Andresen : *Understanding and prediction of Stress Corrosion Cracking* (Derniers développements de la Corrosion sous contrainte des bases nickel)

Emmanuel Herms : Amorçage de la Corrosion sous contrainte au CEA : derniers résultats et développements (*R&D on initiation of stress corrosion cracking at CEA*)

Toshio Yonezawa : *Coriou's crack experience in Japanese PWRs and its mitigation* (L'effet Coriou dans les centrales à eau pressurisée au Japon et son contrôle)

Catherine Guerre : Propagation de la corrosion sous contrainte : derniers résultats et développements au CEA (*R&D on crack propagation of stress corrosion cracking at CEA*)

Digby Macdonald : *Stress corrosion cracking and electrochemistry* (corrosion sous contrainte et électrochimie)

Jacques Chêne : Corrosion sous contrainte et fragilisation par l'hydrogène (*Stress corrosion cracking and hydrogen embrittlement*)

Philippe Bossis* : Moyens d'essais de CSC au CEA (*SCC test facilities at CEA*)

Clôture / *Closure*

A simultaneous translation French-English is planned the whole day for all the conferences

Mercredi : Visite des laboratoires de corrosion du CEA-Saclay – nombre limité de personnes
Wednesday: Visit of CEA-Saclay corrosion facilities - limited number of participants

****participation et/ou titre à confirmer***



**EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION
FÉDÉRATION EUROPÉENNE DE LA CORROSION**

Enclosure 3:

- ✓ Slides presented by Th. Couvant: Announcement of "International Workshop on Coupling Mechanisms to Improve Lifetime Prediction of LWRs" (EFC Event #331)

EFC WP4 "NUCLEAR CORROSION"

Chairman	Damien Féron	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex
Vice-Chairman	Thierry Couvant	EDF	DMMC - Les Renardières	BP46	F-77818 MORET SUR LOING Cedex
Secretary	Mylène Belgome	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex



The MAI is a research facility created by EDF, EPRI (USA) and TEPCO (Japan) in order to better understand and anticipate how materials in power plants age and contribute to plant component degradation. Scientific programs of the MAI help power companies to optimize the operations and lifetimes of existing plants and support the design of future plants.

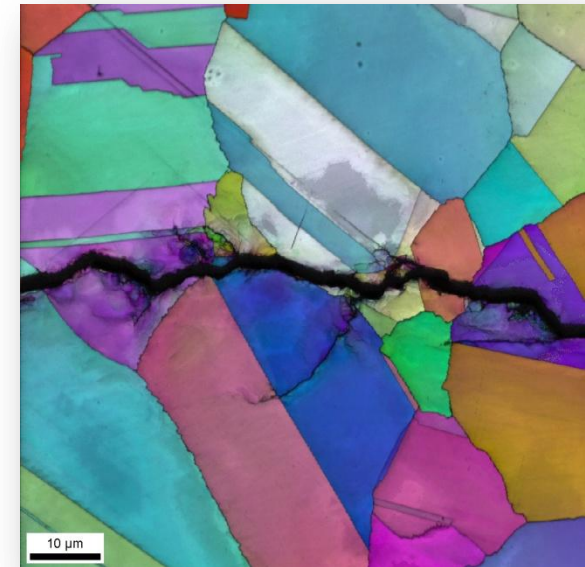
Venue

The workshop will be held at the Materials Ageing Institute (EDF R&D center) Moret-sur-Loing, France. The R&D center is located in the southeast of Paris (75 km), 10 km from Fontainebleau. The MAI is easily accessible by car or by train (50 min from Paris).

Registration and Accommodation

Registration to the workshop is only valid by completing and sending the registration form before 28 February 2010 to the conference office. The registration form is available on the website. The registration fee will include the list of participants, the proceedings of presented papers, lunches, coffee breaks and conference dinner. Expenses for travel and hotel accommodation are not included in the registration fee. Travel and accommodation arrangements should be made by each participant personally. A list of hotels is available on the website

International workshop on Coupling Mechanisms to improve lifetime prediction of LWRs



April 8 – 9, 2010

Les Renardières, Moret-sur-Loing (France)

EFC Event N°331



Scope and Objectives of the Workshop

Environmentally-assisted cracking is a limiting factor for the lifetime of light water reactors. Many cases of stress corrosion cracking and corrosion fatigue were reported for Ni-based alloys, stainless steels, zirconium alloys... However, lifetime extension to 60 year is expected. In this context, it is necessary to improve our understanding of degradations usually based on complex coupling between material, loading and environment. Important progress is being made with respect to characterization, understanding and modeling degradation mechanisms in representative operating conditions. Tools are being developed to improve safety and operating conditions of nuclear plants.

The main objective of the Workshop is to bring together experts from various countries who are contributing to predict and to understand interactions leading to crack initiation or crack propagation.

This event is organized by EDF R&D in the scope of the Materials Ageing Institute. The event is also sponsored by the European Federation of Corrosion (EFC): Nuclear Corrosion Working Party (WP4).

Topics

The workshop will address the main items related to the coupling of mechanisms in order to improve lifetime prediction in light water reactors where environmentally-assisted cracking can occur:

- Cross characterizations
 - Deformation
 - Oxidation
 - Microstructure
 - Water chemistry
 - Environmentally-assisted cracking
- Modeling interactions
 - At the scale of the components
 - At the scale of the mechanism of cracking
- Numerical simulation of the interactions

Key Dates

September 15, 2009	Announcement and call for papers
December 1, 2009	Deadline for abstracts
January 1, 2010	Notification of paper acceptance
February 28, 2010	Deadline for registration
April 8-9, 2010	Workshop

Local Organizing Committee

Thierry COUVANT
Veronique BORDIER

MAI, EDF R&D, France
MAI, EDF R&D, France

Scientific Committee

Georges CAILLETAUD
Thierry COUVANT
David DELAFOSSE
Damien FERON
Gabriel ILEVARE
Sylvain LECLERCQ
Philippe MARCUS
Tetsuo SHOJI

MINES ParisTech, France
EDF R&D, France
ENSMSE, France
CEA, France
EPRI, California
EDF R&D, France
ENSCP, France
Tohoku University, Japan

Conference Office

Thierry COUVANT

EDF R&D
Materials Ageing Institute
Avenue des Renardières
77818 Moret-sur-Loing

☎: +33 1 60 73 62 92
☎: +33 1 60 73 68 89
✉: thierry.couvant@edf.fr



Website

Registration form, hotel information and program are available on the website: <http://www.themai.org>



**EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION
FÉDÉRATION EUROPÉENNE DE LA CORROSION**

Enclosure 4:

- ✓ Slides presented by B. Kursten: "4th International Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems" (EFC Event #329)

EFC WP4 "NUCLEAR CORROSION"

Chairman	Damien Féron	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex
Vice-Chairman	Thierry Couvant	EDF	DMMC - Les Renardières	BP46	F-77818 MORET SUR LOING Cedex
Secretary	Mylène Belgome	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex

4th Int. Workshop on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems

EFC Event N° 329

Bruno Kursten

SCK•CEN, Mol, Belgium

bkursten@sckcen.be

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EFC-WP4 Nuclear corrosion Autumn Meeting/EUROCORN2009
Palais des Congrès Acropolis/Nice, France, September 9, 2009

4th Int. Workshop on Long-Term Corrosion Prediction

Organized by



Co-sponsored by



■ **Previous Workshops**

- ◆ Cadarache, France (2001)
- ◆ Nice, France (2004)
- ◆ Pennsylvania State University, USA (2007)

■ **Objectives**

- ◆ bring together scientists and engineers from various countries who are developing high level nuclear waste disposal technologies, with the goal of promoting scientific and technical exchanges concerning long term behaviour of metallic containment materials and engineered barrier systems.
- ◆ in particular, the workshop will compare the approaches that are being developed worldwide for predicting long term corrosion phenomena, including corrosion strategies for interim storage and geological disposal.

■ **Specific Topics**

- ◆ Overview of different (national) programmes
 - Similarities, common challenges, different approaches, ...
 - Legal issues
 - Retrievability
- ◆ Experiments
 - Laboratory
 - In situ
- ◆ Modelling
 - Fundamentals of prediction
 - Long-term prediction (e.g. localised corrosion after induction time, ...)
- ◆ Archaeological artefacts
 - how can this information help in the long-term prediction
- ◆ Regulatory issues
- ◆ Corrosion behaviour of steel reinforcements in concrete (e.g. mechanical stresses, ...)

Venue

- ◆ Bruges, Belgium (northwest)
- ◆ ~100 km from Brussels
- ◆ ~100 km from Antwerp
- ◆ ~20 km from coast



Venue

- ◆ Conference center 'Oud Sint-Jan' (Bruges, Belgium)
www.oudsintjan.eu
- ◆ Located in the historic center of Bruges
- ◆ Located in a historic building: old hospital from the 19th century
- ◆ One of the first hospitals in Europe (during the Middle Ages)
- ◆ Easily accessible: 5 min walk from the train station
- ◆ Conference center has its own car park



Bruges – Sightseeing

Bruges is often called "The Venice of the North" due to its picturesque canals which are found through the city center. These canals can be explored on foot or by boat.



Bruges – Sightseeing

Three spires dominate the Bruges skyline each in their own way:

- **The Church of our Lady (122 m).** The brick tower is the highest of its kind in Europe
- **Saint Saviour's Cathedral.**
- **The Belfry (83 m).** This medieval bell tower has been the proud symbol of Bruges' independence for centuries. It served as an observation post for spotting fires and other danger.



Church of Our Lady
(Onze-Lieve-Vrouw Onthaalkerk)



Saint Saviour's Cathedral
(Sint-Salvatorskathedraal)



Belfry
(Het Belfort)

Bruges – Sightseeing

Bruges houses TWO main market squares:

- The Big Market Square (De Grote Markt) → Provincial Court and Guildhall
- The Burg → Townhall (dates from 1376, making it one of the oldest town halls in all of the Low Countries)



Townhall
(Stadhuys)



Provincial Court and Guildhall

Bruges – Sightseeing

In medieval times Bruges was surrounded by a city wall. Most of the wall was taken down in the 19th century, but city gates still mark the entrance points. The Kruispoort (to the east) is about 600 years old.



Kruispoort



Gentpoort

Bruges – Sightseeing

Bruges boasts quite a few museums that attract tens of thousands of visitors every year:

- **The Frietmuseum.** This museum is unique in the world. It is dedicated to french fries (its entire history from the origin of the potato to the first fries; collection of machinery used for cultivation, harvesting, peeling, sorting and frying of potatoes; Belgian fries in art, music and film)
- **The Chocolate Museum.** Production of chocolate truffles, chocolates, hollow figures and bars, ...
- **The Lace Museum.**
- **The Diamond Museum.** History of one of Belgium's most important export products, the diamond.



The Frietmuseum



The Chocolate Museum



The Lace Museum



The Diamond Museum

Bruges – Sightseeing

The work of the *Flemish Primitives* (15th – early 16th century) is exposed in several museums. Primitives does not refer to a lack of sophistication; but it refers to a group of painters who were the first (= primus in Latin) to use new painting styles and techniques, for example the use of oil paint instead of tempera paint.



Gerard David, 1498 – Judgement of Cambyses



Jan Van Eyck, 1436 – Virgin of Saint Donat and Canon Joris van der Paele



Hubert & Jan Van Eyck, 1426-1432 – The Ghent Altarpiece: The Adoration of the Lamb

■ Key Dates

- ◆ August 2009: First announcement and call for papers
- ◆ 15 January 2010: deadline for abstracts
- ◆ March 2010: notification of paper acceptance
- ◆ 31 May 2010: deadline for registration
- ◆ 28 June – 2 July 2010: workshop

■ Abstracts should be sent to

LongTermCor2010@sckcen.be

■ Proceedings will be published

special issue of 'Corrosion Engineering Science and Technology'

■ Scientific Committee

Bruno Kursten
Frank Druyts
Robert Gens
Damien Féron
Digby D. Macdonald

Tae M. Ahn
Carmen Andrade
Hidekazu Asano
Gustavo Duffo
En-Hou Han
Lawrence Johnson
Fraser King

HyukSang Kwon
Timo Saario
Lars Werme
Steve Williams

SCK•CEN, Belgium
SCK•CEN, Belgium
NIRAS/ONDRAF, Belgium
CEA, France
Pennsylvania State
University, USA
NRC, USA
IETCC, Spain
RWMC, Japan
CNEA, Argentina
IMR, China
NAGRA, Switzerland
Integrity Corrosion
Consulting Ltd., Canada
KAIST, Korea
VTT, Finland
Uppsala University, Sweden
NDA, UK

■ Local Organising Committee

Bruno Kursten
Frank Druyts
Robert Gens
Monique Van Geel

SCK•CEN, Belgium
SCK•CEN, Belgium
NIRAS/ONDRAF, Belgium
SCK•CEN, Belgium

■ **Registration and Accommodation**

- ◆ registration fee will include list of participants, book of abstracts, lunches, coffee breaks, welcome cocktail and conference dinner
- ◆ expenses for travel and hotel accommodation are not included in the registration fee
- ◆ travel and accommodation should be made by each participant personally
- ◆ a limited # of rooms have been reserved at the hotel 'Novotel Brugge Centrum'
 - 113 €/night (single room)
 - 132 €/night (double room)
- ◆ to have advantage of the special rate, the reference 'LongTermCor2010' should be written on the reservation request form

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SCK•CEN
Studiecentrum voor Kernenergie
Centre d'Etude de l'Energie Nucléaire

Stichting van Openbaar Nut
Fondation d'Utilité Publique
Foundation of Public Utility

Registered Office: Avenue Herrmann-Debrouxlaan 40 – BE-1160 BRUSSEL
Operational Office: Boeretang 200 – BE-2400 MOL



**EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION
FÉDÉRATION EUROPÉENNE DE LA CORROSION**

Enclosure 5:

- ✓ Slides presented by D. Féron: Proposition for a workshop on "Ageing Management of Nuclear Structures and Installations"

EFC WP4 "NUCLEAR CORROSION"

Chairman	Damien Féron	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex
Vice-Chairman	Thierry Couvant	EDF	DMMC - Les Renardières	BP46	F-77818 MORET SUR LOING Cedex
Secretary	Mylène Belgome	CEA/Saclay	DEN/SAC/DPC/SCCME	Bât. 458 - PC 50	F-91191 GIF SUR YVETTE Cedex

Proposition for a workshop on “Ageing Management of Nuclear Structures and Installations”

**AECL Main Office, Toronto, Ontario, Canada
8th to 12th November 2010**

Background and topics of concern

In the frame of the RILEM TC-226-CNM (Concrete in the context of Nuclear Waste Management) needs have been identified in the area of ageing management of Nuclear Installations. As a result of the two **NUCPERF (2006&2009) Workshops**, the following topics of interest were clearly identified:

- **Ageing Management Program Strategy** for reinforced concrete structures
- **Development of instrumentation and NDE techniques** such as :
 - To detect, measure and monitor parameters impacting ageing,
 - To measure parameters to meet the operating license requirements of nuclear installations,
 - To validate NDE techniques to detect and monitor ageing of NPP structures to meet regulator/user/owner requirements.
- Upscaling/validation of **new developments in NDA techniques** (from laboratory to field applications)
- **Implementation of inspection and monitoring survey strategy** for long-term structural integrity
- Interpretation of the raw measurement data (reliability, uncertainties, appropriateness), **treatment of field measurement data** (codes/models)
- Integration of model simulation outputs in **reassessment of service life**
- **Probabilistic tools for managing uncertainties** resulting e.g. from randomness in structure loads, time-dependent material properties changes etc ...

Proposed sponsors

• Financial sponsors:

- AECL and COG (Canada)
- CEA (France)



• Scientific sponsors

- RILEM (TC CNM – Concrete for Nuclear waste Management)
- EFC - WP4 (Nuclear corrosion) and WP11 (Corrosion in Concrete)
- OECD/NEA (Committee for Safety of Nuclear Installations)



Organizing and Scientific Committees

Organizing committee

K. Philipose (Chairman) – AECL Canada
Other from AECL, from COG and CNSC (To be confirmed)
V. L'Hostis – CEA France and RILEM TC-226-CNM
D. Féron – CEA France and EFC/WP4

Scientific committee

1) Active members of the RILEM TC-226-CNM

Valérie L'Hostis (CEA, France), Chairperson
Robert Gens (ONDRAF, Belgium), Secretary

C. Andrade (IETcc, Spain)
M Castellote (IETcc, Spain)
D. Féron (CEA, France)
C. Galle (CEA, France)
F. Glasser (U Aberdeen, UK)
D. Kosson (Vanderbilt U, USA)
B. Kursten (SCK-CEN, Belg.)
J. Philip (NRC, USA)
K. Philipose (AECL, Canada)
F. Sanchez (Vanderbilt U, USA)
N. Smart (SERC, UK)
S. Williams (NDA, UK)
P. Zuloaga (IETcc, Spain)

2) Other delegates

From EFC/WP11 (M. Raupach, other interested?)

From NEA/CSNI/IAGE (A. Blahoianu, A. Huerta)

From EDF (D. Dauffer, etc.)

Key dates

November 2009

Announcement, call for papers
Web site opening (until this date, information
available on www.nucperf2009.fr)

15 May 2010

Deadline for abstracts submittal

15 June 2010

Notification to the authors
Workshop registration and accommodation

1st October 2010

Deadline for registration
Deadline for full paper submission

8th to 12th November 2010 - Workshop