Dear Colleagues,

Re: Minutes of the WP4 Autumn Meeting (07/09/2005)

Please, find hereafter the minutes of the WP4 meeting held in Lisbon on September 07th, 2005.

Sincerely,

Damien Féron
Chairman of the EFC WP4

Mylène Belgome
Secretary of the EFC WP4
EFC WP4 "NUCLEAR CORROSION" AUTUMN MEETING
Congress Centre of Instituto Superior Tecnico (IST)
Wednesday, September 07th, 2005
Attendance:

Mylène Belgome CEA/Saclay (France)
Gianluca Benamati ENEA (Italy)
Rik-Wouter Bosch SCK-CEN (Belgium)
Damien Féron CEA/Saclay (France)
Alessandro Gessi ENEA (Italy)
Dolores Gomez Briceño Ciemat (Spain)
Harald Hoffmann VGB Powertech (Germany)
Renate Kilian Framatome-ANP GmbH (Germany)
Petri Kinnunen VTT (Finland)
Bruno Kursten SCK-CEN (Belgium)
Valérie L’Hostis CEA/Saclay (France)
Anders Molander Studsvik Nuclear AB (Sweden)
Antoine Pourbaix Cebelcor (Belgium)
Stefan Ritter Paul Scherrer Institute (Switzerland)
Filippo Sevini European Commission (The Netherlands)
Andrea Szabo University of Veszprém (Hungary)
David Tice Serco Assurance (United Kingdom)
Mirna Urquidi-Macdonald Penn State University (USA)
François Vaillant EDF (France)

Apologies for absence received from:

Marc Le Calvar IRSN (France)
Yves Rouillon EDF (France)
Hans-Peter Seifert PSI (Switzerland)
Bernhard Stellwag Framatome-ANP GmbH (Germany)
Kalman Varga University of Veszprém (Hungary)
Peter Wood Nirex (United Kingdom)

Diffusion:

Present and apologized participants
WP4 Members
P. MacIntyre (EFC Scientific Secretary)
J. Vogelsang (STAC Chairman)
Ph. Berge (EFC Secretariat in France)
Summary:

1. Opening and welcome – Approval of the agenda (Annex I) 5
2. Approval of the minutes of the Antwerp meeting (Annex I) 5
3. EFC WP4 publications 6
   3.2. "Corrosion of metallic heritage artefacts" - by D. Féron (Annex Ib) 6
   3.3. Electrochemistry at high temperature - by R.W. Bosch (Annex II) 7
   3.4. Corrosion issues in Light Water Reactors – by D. Féron (Annex I) 7
   3.5. Other planned publications – by D. Féron (Annex I) 8
4. EFC WP4 Events 9
   4.1. EFC Event 284: NUCPERF 2006 - by V. L’Hostis (Annex III) 9
   4.2. EFC Event 283: Fontevraud 6 – by D. Féron (Annex I) 9
   4.3. Future events – by D. Féron (Annex I) 9
5. EFC Groups 11
   5.1. ECG-COMON – by St. Ritter (Annex IV) 11
   5.2. EEG-CILWR – by F. Sevini (Annex V) 11
   5.3. Revised stability diagrams – by A. Pourbaix (Annex VI) 11
6. EUROCORRs – by D. Féron (Annex I) 12
   6.1. EUROCORR’2005 12
   6.2. EUROCORR’2006 12
   6.3. EUROCORR’2007 and 2008 12
7. EFC WP4 Specific matters (Annex I) 13
   7.1. Up-dating of WP4 Members’ list 13
   7.2. Status of the co-ordinated action “Nuclear Corrosion” 13
8. EFC News - by D. Féron (Annex I) 14
9. Missing items 15
   9.1. EFC/WP4 website – by D. Féron 15
   9.2. Integrated Infrastructure Initiative VELLA – by G. Benamati (Annex VII) 15
   9.3. EFC/WP4 up-coming meetings – by D. Féron (Annex I) 15
10. Closure 15
1. **Opening and Welcome – Approval of the Agenda** (Annex I)

D. Féron opened the meeting and welcomed the audience before presenting the apologies for absence received before the meeting.

He presented the agenda and informed the attendance that EFC WP4 events will be presented before EFC WP4 groups activities.

2. **Approval of the Minutes of the Antwerp Meeting** (Annex I)

D. Féron proposed not to get back through the whole document as everybody received it. Instead, he asked if someone had any comment about the minutes.

As no comment was made, the minutes of the WP4 Spring Meeting held in Antwerp are approved.
3. EFC WP4 PUBLICATIONS


The proceedings of this 2nd workshop have just been published by the French agency for nuclear waste management (ANDRA), in the "ANDRA Science and Technology Series".

D. Féron showed an exemplar of the book, informing the audience that every main author will receive one exemplar by the end of September or October 2005.

The book is available free of charges on demand to the ANDRA and should also be available in "pdf" file.

D. Féron exposed the content of the book, gathering 19 papers for 201 pages, divided in 3 chapters: Experimental, Archaeological analogues, Modelling.

The book also contains: a Preface by the ANDRA, an Introduction by the workshop organizers, a presentation of the EFC and the CEFRACOR by their Presidents.

D. Féron recalled that the proceeding of the 1st Workshop were edited as an EFC Series Green Book (# 36), available on demand to the EFC (price: about 180€).

3.2. "Corrosion of metallic heritage artefacts" – by D. Féron (Annex Ib)

D. Féron recalled that this Green Book follows a common session between "Heritage Artefacts" and "Nuclear Corrosion" WPs held in Nice during EUROCORR’2004.

This book will be EFC Series # 48. It contains 20 papers for about 250 pages, divided in 4 chapters: General overview, Mechanisms and prediction, Investigation and archaeology, Monitoring and conservation.

It also contains: a preface by A. Pourbaix and forewords by the editors and D. Féron.

D. Féron recalled that this book is the first one gathering people involved in corrosion and in conservation.

He hoped that it would be published by the end of 2005 but it is not sure as only 2 Green Books were edited in 2004 while 9 are still waiting to be published, due to some edition problems encountered by the EFC.
3.3. Electrochemistry at high temperature – by R.W. Bosch (Annex II)

R.W. Bosch presented the status of the Green Book which was originally a collection of papers presented during the LIRES Seminar "High temperature electrochemistry in Light Water Reactors" held in Leuven on November 30th, 2004.

Due to the addition of papers from the WP18 ("Tribocorrosion") session during EUROCORR’2004, the title of the book was changed into “Electrochemistry in Light Water Reactors: Focus on Reference Electrodes, Measurements, Corrosion and Tribocorrosion Issues”.

The editors are R.W. Bosch (organizer of the LIRES Seminar), D. Féron (Chairman of the EFC WP4) and J.P. Célis (Chairman of the EFC WP18).


R.W. Bosch informed that at the moment of the presentation, all the papers are received and reviewed, 10 of them are already modified and returned to him.

D. Féron thanked the orator for his presentation and hoped that this Green Book will soon be published.

3.4. Corrosion issues in Light Water Reactors – by D. Féron (Annex I)

D. Féron recalled that this Green Book, which was named "Corrosion issues in Light Water Reactors", was originally a collection of 27 papers presented during EUROCORR’2003 and 2004 in WP4/WP5/WP18 sessions related to LWRs, and divided in 6 chapters: Overviews, SCC susceptibility, SCC propagation, Zirconium behaviour, Tribocorrosion, Practical experience. While these papers, reviewed, were returned to the authors for modification, WP5 Chairman asked to include new papers.

That is why the content of the book has been modified, the title changed into "Corrosion issues in Light Water Reactors: Focus on Stress Corrosion Cracking propagation and Practical Experience", and the editors J.M. Olive and himself.

The book is now a collection of 26 papers mainly presented during EUROCORR’2003 and 2004, and is divided in 4 chapters: Overview, SCC susceptibility, SCC propagation and Practical experience.

D. Féron presented the status of this publication: papers have been reviewed, remarks sent to the authors by the end of June, and corrected papers were expected by the end of August. As some papers are still missing, a decision about eventual cancellation(s) will be made by the end of September.

The manuscript is planned to be sent to the EFC by October to be edited by the end of 2005/beginning of 2006, if the edition delay is respected, which is not certain regarding the actual EFC edition difficulties.
3.5. Other planned publications – by D. Féron (Annex I)

There are two other planned publications:

- Proceedings of the Lisbon Workshop "Corrosion Issues in Future Nuclear Reactors"
  They are planned to be published as an EFC Series Green Book.
- Papers from the WP4 general session of EUROCORR'2005
  Some papers are going to be published in the Journal of Nuclear Materials, following the
  agreement get by D. Féron before the Congress.

D. Féron took the occasion to propose the creation of a Committee gathering WP4 members that would
be in charge of the mangement of the WP4 publications, that is to say: choice of papers, follow-up of
the reviewing/correction process untill edition.

D. Féron asked for candidates among the audience and informed that he will contact some people by
mail. If members agree, this "Publication Committee" would be officialized during the WP4 Spring
meeting.
4. EFC WP4 Events


V. L’Hostis recalled that this Workshop about "Corrosion and Long Term Performance of Reinforced Concrete in Nuclear Power Plants and Waste Facilities", organised by the CEA and EDF with the support of the EFC (specially the WP4) and the OECD/NEA, will take place in Cadarache (France), on March 27-30th, 2006.

After thanking the sponsors of this up-coming event, she recalled the context and objectives of this Workshop, and presented the Organising and Programme Committees, focusing the presence of the WP11 Chairman among the Programme Committee.

She also recalled that the proceedings will first be sent to the participants on CD-ROM just after the meeting, together with the main recommandations made during discussions. Then, the proceedings will be published as an EFC Series Green Book, after reviewing.

V. L’Hostis reminded to the audience the key-dates and the web site address for more information and registration: www.NUCPERF2006.fr.

She informed that about 300€ will be charged to the participants, covering meals, coffee breaks and all practical arrangements during the Workshop; only travel and accomodation expenses are not covered by the fees charged.

D. Féron thanked the orator and encouraged the attendance to registare and spread the information around to their colleagues, since not only corrosion of concrete will be discussed, but also corrosion in concrete reinforcement, problems of radiolysis in concrete and radiolysis linked to corrosion, etc.

4.2. EFC Event 283: Fontevraud 6 – by D. Féron (Annex I)

D. Féron presented this Congress organised by the SFEN that will take place in Fontevraud on September 18-22nd, 2006.

He gave the Congress website address: www.sfen.fr/fontevraud6 and recalled that the deadline for abstracts submission is on October 31st, 2005.

He insisted on the fact that not only presentations on PWRs are welcome, but also on BWRs, as well as on concrete materials that will be discussed in a special session.

He reminded that as EUROCORR takes place the week after, the general topic has been modified, to avoid repetitions between the two Congresses.

4.3. Future events – by D. Féron (Annex I)

4.3.1. 3rd International Workshop on Prediction of Long Term Corrosion Behaviour in Nuclear Waste Systems

As these workshops were decided to be held exclusively in Europe, instead of alternatively in Europe and in the USA, after Cadarache (November 2001) and Nice (September 2004), D. Féron asked for places where to organise the 3rd edition in 2007/2008.
This workshop could either take place during EUROCORR as an "open meeting" or as a "close meeting" in Cadarache or any other country.

As D. Féron asked for proposals, Sweden or Belgium were mentioned, as well as Cadarache. The decision will be made during next WP4 Meeting.

4.3.2. Future “NUPERFs”

D. Féron proposed the organisation of regular “NUPERFs”, every year or every two years, that would be specific workshops or meetings on specific topics.

He recalled that the Seminar organised at the end of the LIRES Programme was well appreciated by EU Officers. That is why he proposed, for instance, to organise global seminars as "close events" for UE funded programmes, to spread the acquired information and state-of-the-art situation.

A seminar by the end of the PERFECT programme is evoked, in 2008.

D. Féron approved and asked for other proposals.

4.3.3. Summer Schools/Universities

D. Féron also proposed the organisation of Summer Schools and/or Universities, related to WP4 activities.

St. Ritter proposed a Summer School on SCC and D. Féron answered that such a project would receive WP4 support. St. Ritter will try to present a first proposal during next WP4 meeting.

D. Féron asked the audience to think about the organisation of a Summer University on “Nuclear Corrosion” and said that this subject will be discussed during next WP4 meeting.

A discussion was engaged related to the advantages/disadvantages of an EFC support. Getting an EFC Event number obliges the event to be an "open meeting”. In counterpart, an EFC Event number gives kind of caution to the event, it allows to avoid any conflicts of date with any other event and permits the publication of the proceedings of the event as an EFC Series Green Book free of charge, with one exemplar free to each main author. At this point, A. Pourbaix recalled that EFC STAC President, BoA and Scientific Secretary are creating a committee to implement rules about EFC Series publication.

R. Kilian informed that a “close meeting” on MIC in NPP will occur on January 2006, meeting that could be followed by an opened by an EFC Event.
5. **EFC Groups**

5.1. **ECG-COMON – by St. Ritter** (Annex IV)

St. Ritter recalled the objectives, fields of interest and organisation of this group gathering people from 21 organisations (nuclear organisations, non-nuclear organisations and universities) of 13 countries around a confidential agreement.

He presented a short summary of the 1st annual meeting held in Ljubljana (SL) on June 2005 that was said successful and very interesting by the 20 participants.

During this meeting, it was decided that a small "Fall Meeting" would occur in Lisbon (after the WP4 Autumn Meeting) and that the 2nd annual meeting would take place in Nyköping on June 12-13th, 2006.

St. Ritter also informed the audience of the implementation of an ECG-COMON homepage dedicated to members only, and recalled the contact addresses for people whom may be interested in joining the Group: chairman@ecg-comon.org (A. Molander), executive-committee@ecg-comon.org, or vice-chair@ecg-comon.org (St. Ritter).

5.2. **EEG-CILWR – by F. Sevini** (Annex V)

F. Sevini recalled the structure of the AMALIA Group, its membership and objectives. AMALIA is now gathering 13 societies from 9 countries (+ 2 candidates) around a confidential agreement since its kick-off meeting held in Nice on September 15th, 2004 (nota: EEG-CILWR is a mirror-group of AMALIA inside the EFC WP4).

F. Sevini informed that a new President has been elected (St. Van Dyck, SCK-CEN), since the former one (M.L. Castaño, ex-CIEMAT) changed of professional activities and left.

He also informed that the AMALIA activity is focussed on the Network of Excellence SIRENET (renamed NULIFE).

D. Féron proposed this group to organise a workshop in connection with EU programmes. F. Sevini agreed and added that it could be a target for the group; he will present a first proposal during next WP4 meeting.

5.3. **Revised stability diagrams – by A. Pourbaix** (Annex VI)

A. Pourbaix recalled that the objective is to update E-pH data to revise stability diagrams on major steels, then to provide new diagrams on more complex systems.

The first step was to find sponsors and funds to carry out this action. A. Pourbaix exposed the proposition he is about to present to the EU/RFCS (see annex for details) and informed that deadline for submission is September 15th, 2005, the answer being expected from EU by the end of 2005.

He recalled that the next step is to find people available and capable to go through E-pH data collection and validation.

He also reminded the audience that he is still opened to any proposal.
6. EUROCORRS – by D. FÉRON (Annex I)

6.1. EUROCORR’2005

D. Féron recalled that the WP4 organised a day and a half workshop (# 8) on "Corrosion Issues in Future Nuclear Systems" and half a day general session on "Nuclear Corrosion".

Both events were of good quality and followed by good attendance.

He recalled that the proceedings of the workshop will be edited as an EFC Series Green Book, while some papers of the general session will be published in the Journal of Nuclear Materials.

6.2. EUROCORR’2006

D. Féron recalled that EUROCORR’2006 will take place in Maastricht (NL) on September 25-28th, 2006.

The general topic is “Reliability management of Technical Systems”.

WP4 will organise:

✓ a Nuclear Corrosion session,
✓ a workshop on "Corrosion Issues in Reprocessing Plants" for which D. Féron already received the agreement of BNFL and AREVA and the expression of great interest of JNFL.

He recalled that this is a major topic, as Europe possesses the two main reprocessing plants in the world, that is why a good participation is awaited.

D. Féron informed that he will soon send the announcement for this WP4 workshop and encouraged the audience to widely distribute it to their colleagues.

6.3. EUROCORR’2007 and 2008

6.3.1. EUROCORR’2007

D. Féron informed it will take place in Freiburg (Germany) on September 09-13th, 2007;

He asked for proposals on subjects that could be relevant for the WP4 workshop. St. Ritter proposed: "Corrosion monitoring" and A. Molander: "Corrosion issues related to up-rating and life extension". Decision will be made during next WP4 meeting.

6.3.2. EUROCORR’2008

D. Féron informed that it will take place in Edinburg (United Kingdom) on September 07-11th, 2008.
7. **EFC WP4 SPECIFIC MATTERS** (Annex I)

7.1. **Up-dating of WP4 Members’ list**

D. Féron recalled the reasons of this up-date: the list is quite old and many e-mail addresses are missing, which is very important since every exchanges are now made by e-mail.

M. Belgome informed that the list was sent to Steering Committee members and some answers already received. The next step, after the deadline fixed for returns, is to send air-mail to WP4 members for which information are still missing. Without return, members will be erased from WP4 data base.

D. Féron recalled that to become member, the individual has to be member of the EFC or of a scientific organisation member of the EFC. Up to now, no fees are charged.

7.2. **Status of the co-ordinated action “Nuclear Corrosion”**

D. Féron recalled that the project was presented to an EU Officer, then submitted as an EoI in June 2004. But the EURATOM call was cancelled in September 2004 and postponed to April 2005 (last call for FP6).

During a meeting at the EU in Brussels on July 2005, it was said that the June 2005 call was not related to Nuclear Corrosion, but there are two co-ordinated actions in which this topic could be included, as well as in a coming call for a NoE about "Sustainable integration of European research in residual lifetime prediction technologies".

D. Féron exposed his hopes for FP7.
8. **EFC NEWS - by D. Féron** (Annex I)

The EFC General Assembly approved:

- the joining of the "Israeli Corrosion Association" (CAMPI), which shows a change in the EFC, getting opened to countries out of Europe;
- the creation of a working party "Corrosion of polymer materials";
- the nomination of two new chairmen:
  - WP7 "Corrosion education and computer applications": R.A. Cottis
  - WP9 "Marine corrosion": U. Kivisäkk
- the nomination of a new President for 2006-2007: M. Schütze
- the nomination of a new vice-President for 2006-2007: Ph. Marcus
- the signature of an "International Corrosion Roundtable Agreement in principle" gathering 33 not-for-profit societies in the aims of:
  * promoting the corrosion world
  * creating a "corrosion day"
9. **MISSING ITEMS**

9.1. **EFC/WP4 website – by D. Féron**

D. Féron informed that, up to now, nothing has been made related to the WP4 website, but hopes are that the website will be active by the end of 2005.

The website should contain the minutes of the WP4 meetings (without annexes) and the announcement of coming events.

It is also proposed to create a "private" part for WP4 members only, where, for instance, the annexes to the minutes could be get, as well as information about Green Books under creation.


G. Benamati presented the VELLA project: scope, structure, objectives and tasks (see annex for details).

He informed that the project was presented as an EoI two years ago to EU, and that the final proposal will be presented next October.

D. Féron concluded that whether accepted or not, it would be possible to create a group on lead activities inside the WP4.

9.3. **EFC/WP4 up-coming meetings – by D. Féron (Annex I)**

D. Féron reminded the future meetings to occur:

- ECG-COMON (for members)
- NUCPERF 2006: March 27–30\(^{th}\), 2006
- WP4 Spring Meeting: March 31\(^{st}\), 2006

D. Féron proposed to hold this meeting after the NUCPERF workshop, in Cadarache but, if someone disagrees, he proposed to hold it in Paris. After a short discussion, D. Féron concluded that he will wait for the comments of WP4 members and the decision will be made by the end of 2005.

- EUROCORR’2006: September 25–28\(^{th}\), 2005 in Maastricht (The Netherlands) with a Nuclear Corrosion general session and a workshop on “Corrosion Issues in Reprocessing Plants”
- WP4 Autumn meeting: during EUROCORR’2006 on a date to be precised

10. **CLOSURE**

D. Féron thanked the attendance and, as no other subject was evoked, he closed the meeting.