

Preface

After the successful NUCPERF 2006 (Cadarache, France, March 2006) & 2009 (Cadarache, France, April 2009) Workshops on long-term performance of cementitious barriers and reinforced concrete in nuclear power plants and waste management structures, the organizers and the sponsor organizations proposed to hold a third NUCPERF 2012 meeting. The NUCPERF 2012 Workshop hosted by Dr. Valérie L'Hostis and Dr Laure Chomat from the Commissariat à l'Énergie Atomique (CEA) was held in Cadarache from November 12-15 2012. This event was a part of the activities of the RILEM Technical Committee "Concrete in the context of the nuclear management" (TC 226-CNM). The event was sponsored by the European Federation of Corrosion (EFC), Nuclear Corrosion (WP 4) Working Party.

About 70 participants representing the main stakeholders (regulators, designers, researchers and operators) from 20 countries attended the three-days meeting. A total of 54 papers were presented in 6 sessions namely: (1) Physical, Chemical and Mechanical Behaviour (Physico-chemical Effect), (2) Aging Management of NPP, (3) Test Approaches, (4) Performance and Safety Assessment, (5) Physical, Chemical and Mechanical Behaviour (Coupled Chemical and Mechanical Effect), (6) Metallic Corrosion. Professor Mark Alexander, President of the RILEM, gave a keynote lecture dealing with corrosion in cracked concrete and the related issues of structural durability and service life.

Many of the facilities and structures used for the processing, the temporary storage and the disposal of radioactive waste materials generated by the nuclear power plant fuel cycle use concrete in their construction. These structures are required to function safely and reliably in challenging and varying environments for periods of time that can potentially range up to thousands of years. During their operational life, these structures will in all likelihood be subjected to a number of environmental stresses or ageing factors that may adversely affect their performance and result in shortened service lives.

At the end of the workshop a summary session was conducted providing an overview of the main outcomes, questions & answers, and recommendations arising during NUCPERF 2012.

All the participants are gratefully acknowledged for their high-quality contribution to the workshop, panel discussion and to the proceedings. The quality and the success of the workshop were also linked to the important endeavour of the local organizing committee who worked continuously for having every detail fixed for the best possible hosting conditions of the participants of the workshop.

The editors want to warmly thank members of the committee for their active scientific and practical contributions. The editors would also like to thank the authors who presented papers of outstanding scientific content and who responded enthusiastically to the discussions and questions raised during the Workshop, and finally the reviewers of the papers presented in this special issue.

Valérie L'Hostis and Robert Gens,
Editors of this Special Issue