

# BIAPWS Annual Report 2015

## 1 INTRODUCTION

The British and Irish Association for the Properties of Water and Steam (BIAPWS) is the UK and Ireland national committee of the International Association for the Properties of Water and Steam (IAPWS) and the representative body for Power Plant Chemistry in the UK and Ireland. BIAPWS is a not for profit organisation. This is the annual report of the activities of BIAPWS for the period from August 2014 to July 2015. A list of publications by BIAPWS members during this period is included in Appendix A. If you would like to know more about BIAPWS, please feel free to visit our web site [www.biapws.org](http://www.biapws.org) or e-mail BIAPWS at [contact.us@biapws.co.uk](mailto:contact.us@biapws.co.uk).

## 2 BIAPWS MEMBERSHIP AND MEETINGS

BIAPWS membership remains strong, with current support provided by twenty-three industrial sponsors, six honorary members, five ordinary members and eleven corresponding members.

BIAPWS committee meetings are held three times a year and attendance at these continues to be good, typically with around twenty people present. A recent change has been to expand the technical sessions at BIAPWS committee meetings to add value to meeting attendance. Industrial member's representatives are able to bring a colleague to the meetings to benefit from and contribute to the discussions.

In April 2015, BIAPWS had to pass on the sad news of the death of Barry Hughes, who was a very keen and active member of BIAPWS and IAPWS for many years.

## 3 BIAPWS POWER PLANT CHEMISTRY SYMPOSIUM

Each year, BIAPWS organises an annual symposia on power plant chemistry and water treatment. The 16<sup>th</sup> in this series of symposia was held at the Village Hotel, Nottingham, on 12 - 13 May 2015. The symposium consists of introductory sessions on the fundamentals of power plant chemistry and water treatment, followed by more detailed technical presentations. The event remains well supported, with around 90 delegates and 13 exhibition spaces taken up in 2015. A copy of the symposium programme is included in Appendix B. A paper summarising the proceedings of the 2014 event has been published in Power Plant Chemistry journal.

## 4 IAPWS ACTIVITIES

BIAPWS has continued to support IAPWS through its formal membership and participation in IAPWS activities. A number of BIAPWS committee members are represented on IAPWS working groups. At the 2015 IAPWS annual meeting in Stockholm, Sweden, BIAPWS will be represented by P. McCann and J. Cooper. In addition, BIAPWS is represented on the executive committee of IAPWS.

## 5 BIAPWS AWARDS

BIAPWS offers selected sponsorship opportunities for student placements and schools events that aim to raise the awareness and generate new interest amongst students in the areas of science and technology relevant to the properties of water and steam, including power plant chemistry. This initiative has in the past proven highly successful, with many previous winners of the BIAPWS Student Award going on to full time employment in power generation.

Over the last 12 months, BIAPWS sponsorship has supported student attendance at Royal Society of Chemistry (RSC) Energy Sector events through John Greene, one of our BIAPWS members, who is a member of the organising committees.

On 11 November 2014, a one-day event on Chemistry in Nuclear Power Generation was held at the Manchester Conference Centre. The topics covered embraced the *Operational Experience and Research from Gas-Cooled and Light Water Reactors*. The event attracted nearly seventy delegates. Seventeen students were given free registration as a result of a BIAPWS sponsorship grant.

BIAPWS is also sponsoring student attendance at the 1st RSC Chemistry in Energy Conference, which will be held at Herriot-Watt University, Edinburgh, UK, on 20-22 July 2015. The purpose of this Conference is to bring together scientists and technologists from academia and industry with interests in the applications of Chemistry in the Energy Industry. The scope of the conference will be broad and will include all energy forms and technologies.

## 6 BIAPWS WEBSITE

The BIAPWS website has now been re-designed. The public facing pages aim to promote a better understanding of what BIAPWS and IAPWS are and what our activities include. The members area now includes a library of technical information for our members from BIAPWS meetings and symposia. Further developments are planned to include training resources.

## 7 BSI REPRESENTATION

BIAPWS is currently represented on the three British Standards and Euro Norm Committees listed below of relevance to power plant chemistry and water treatment. However, there have not been any significant developments in recent years.

- PVE/2: Water Tube and Shell Boilers. The UK standards committee has responsibility for BS EN 12952-12:2003: "Water-tube Boilers and Auxiliary Installations - Requirements for Boiler Feedwater and Boiler Water Quality" and BS EN 12953-10:2003: "Shell Boilers - Requirements for Feedwater and Boiler Water Quality".
- CII/62: Treatment of water for boilers. The UK standards committee also has responsibility for BS 2486:1997: "Recommendations for Treatment of Water for Steam Boilers and Water Heaters".
- EH/3/6: Water quality - sampling. The UK standards committee is responsible for BS 6068-6.7:1994 (ISO 5667-7:1993): "Guidance on Sampling of Water and Steam in Boiler Plants".

## 8 INTERACTION WITH PROFESSIONAL ORGANISATIONS

BIAPWS maintains correspondence with a number of professional bodies with the aim of sharing information and closer working.

- BIAPWS is represented on the Energy Sector Interest Group of the Royal Society of Chemistry by John Greene;
- BIAPWS is also represented on the Water Science Forum of the Royal Society of Chemistry by Eric Huff;
- Richard Hill, who is a committee member of the Institution of Chemical Engineers (IChemE) Water Subject Group, is also a Corresponding Member of BIAPWS.

Paul McCann  
Chair, British & Irish Association for the Properties of Water and Steam  
June 2015

### APPENDIX A:

#### LIST OF UK AND IRELAND ORIGINATED REFERENCE PAPERS IN AREAS OF INTEREST TO IAPWS, PUBLISHED BETWEEN JUNE 2014 AND JULY 2015

Dooley, B., Rziha, M. and McCann, P., (2015), "IAPWS Technical Guidance on Power Cycle Chemistry Monitoring and Control for Frequently Cycling and Fast-Starting of HRSGs", *PowerPlant Chemistry* 2015, 17 (3).

Atkinson, C.M. and Jones, R.J., (2014), "Trial Results for the Control of Stator Cooling Water Dissolved Oxygen Concentrations Using Palladium-Doped Resin", *PowerPlant Chemistry* 2014, 16 (5).

McCann, P. and Robson, M., (2014), "Highlights of the BIAPWS 2014 Power Plant Chemistry Symposium", *PowerPlant Chemistry* 2014, 16 (4).

Spellissy, F., Griffin, F. and Stack, E., (2014), "Analyzing the Influence of Increased Ammonia Dosing to CCGT Condensate Systems", *PowerPlant Chemistry* 2014, 16 (4).

**APPENDIX B:****PROGRAMME OF THE 16<sup>TH</sup> BIAPWS POWER PLANT CHEMISTRY SYMPOSIUM, 12-13 MAY, 2015****Introductions to Power Plant Chemistry & Water Treatment****Session 1: Fundamentals of Steam Turbine Corrosion**

Presenters: Alan Turnbull (National Physical Laboratory) and Joerg Sperling (Alstom Power AG)

**Session 2: Membrane Water Treatment Processes for Boiler Make-Up Water Production**

Presenters: Justyna Warczok (Dow) and David Bennett/Steven Hughes (Veolia)

**Environmental and Cycle Chemistry****Session 1: Environmental and Water Treatment Issues**

HSE and Local Authority Legionella Intervention Programme 2012-2014	Duncan Smith, Health & Safety Executive
Chlorine Dioxide as a Biocide for Cooling Water Treatment	Alistair Cameron, Scotmas
Demineralised Water Treatment Plant Monitoring and How This Should be Related to Resin Management	Brian Windsor, Purolite
Introduction to the UK Advanced Boiling Water Reactor and the Control of the Reactor Water Chemistry Regime to Minimise Corrosion and Dose Rates	Kathryn James, Horizon Nuclear Power

**Session 2: Power Plant Chemistry and Corrosion**

Operating Experience of AREVA's Film Forming Amine Technology in the Water-Steam Cycle of Pressurised Water Reactors	Ute Ramming, AREVA Gmbh
Managing the Risk of Off-Load Stress Corrosion Cracking in Stainless Steel Superheater Boiler Tubing by Feedwater Chemistry Control	James Meldrum, AMEC Foster Wheeler
Carryover Behaviour in Several CCGT Power Plants	John Greene, Consultant
The Relationship Between Ammonia Dosing and Corrosion Products in Dublin Bay Power HRSG	David Brazil, ESB