ABHUG 2023
IAPWS Australasian Boilers & HRSG Users Group Conference and Workshops
14 - 16 November 2023
Brisbane Convention & Exhibition Centre, QLD

ABHUG2023 Highlights and Press Release

The annual meeting of ABHUG held on the 14th – 16th November 2023 in Brisbane, Australia was chaired by Barry Dooley of Structural Integrity Associates, UK and Bob Anderson, Competitive Power Resources, USA. This ABHUG conference included conventional fossil plant technology and issues closely related to those in HRSGs. ABHUG2023 attracted 100 participants from Australia, New Caledonia, New Zealand, Singapore, Switzerland, UK and USA. About 55% of the participants were Users.

ABHUG is supported by the International Association for the Properties of Water and Steam (IAPWS) together with the local National Committees of IAPWS in Australia (AUSAPWS) and New Zealand (NZAPWS). It is held in association with the European HRSG Forum (EHF) and the US HRSG Forum (HF). Combined Cycle Journal is the media partner and provides publishing opportunities for the presentations. For the 2023 meeting there were six exhibitors: Duff and Macintosh and Sentry, Flotech, HRL, Intertek, Precision Iceblast Corporation and Swan. The Gold Sponsor for this conference was HRL, with Swan Analytical Instruments acting as badge sponsors.

The meeting provided a highly interactive forum for the presentation of new information and technology related to HRSGs and fossil boilers, case studies of plant issues and solutions, and for open discussion among plant users, equipment suppliers, and industry consultants. ABHUG provided a unique opportunity for plant users to discuss questions relating to all aspects of HRSGs and boiler operation with the industry's international experts.

Key highlights from ABHUG2023 included:

- There were 26 presentations and two ABHUG Workshops.
- International updates on HRSG thermal transient aspects associated with attemperators, condensate generation, superheater/reheater drain management and steam turbine by-pass operation revealed common HRSG problems. The latest statistics were provided.
- Presentations on attemperator control and attemperator spray flow measurements in HRSGs were informative and may be relevant to some current issues in fossil plants.
- Flow-accelerated Corrosion (FAC) remains the leading cause of failure in HRSGs. The ABHUG participants requested an FAC workshop in 2024.
- The presentation on cleaning OD HRSG tube surfaces using dry ice-blasting was informative and participants were interested in possible applications in fossil plants.
- A presentation on analysis of the effect of low load operations on flow disturbances for evaporator and first stage superheater tubes illustrated that 'design' calculations can be undertaken for assessments. This may be able to be applied to better understand overheating failure of sloping waterwall tubes at a corner door offset that has occurred in a conventional boiler.
- Several presentations on improved attemperator control and startup procedures described situations where an understanding of the process

variables, steam flow, temperature, pressure, were able to assist in determining the root cause of failures. With this knowledge, changes to operation were able to be implemented to prevent reoccurrences.

- Several presentations looked at data storage and retrieval highlighting the benefits of historical and chronological databases from which past measurements, inspection results, failures and repairs can be drawn and analyzed, to identify generic trends and repeat failures.
- The replacement of an HRSG SH and RH was a massive project and provided pre- and post-learnings which will be invaluable for any who may have to embark on such a project in the future.
- An update on a presentation at ABHUG2022 on the non-invasive flow monitoring using a clamp-on ultrasonic flow meter for continuous or intermittent monitoring of attemperator spray water leakage highlighted the ease of attachment and excellent accuracy of these meters. Leaking spray water is often responsible for cracking in attemperator thermal liners, steam pipework, and superheater/reheater tubes.
- An update on hexavalent chromium provided a summary about this substance, including how to test for hexavalent chromium, how to neutralize it when found, and the necessary PPE.
- The ABHUG meeting's workshops were on NDE/Inspections and Cycle Chemistry:
  - One case study demonstrated that low frequency electromagnetic testing (LFET) could be used to rapidly screen reheater tubes for internal corrosion pitting. Another case described the ultrasonic inspection for superheater inlet stubs with a custom-made UT probe.
  - International updates were provided on HRSG and fossil plant cycle chemistry, instrumentation, internal deposition and FAC as well as on the recent IAPWS Technical Guidance Documents (TGD) in these areas. These included an update on the application of Film Forming Substances (FFS) and new IAPWS procedures for monitoring total iron in flexibly operating plant. The latest statistics on chemistry deficiencies again indicated that the most important aspects relate to corrosion product monitoring, assessment of internal heat transfer deposition and instrumentation. ABHUG2024 will plan for a special workshop session on internal deposition and analysis.
- The question/answer periods included impromptu discussions of inspection techniques, overall approaches to overheating tube failures, and the oxidation limits for steels used in the superheater/reheater of fossil and HRSG plants.
- The excellent number of steam generators owner/operators at the conference was extremely pleasing as this enabled the information that was shared to be transferred to a wide range of plants, which must ultimately benefit the industry and ultimately the consumer.
- The next meeting of ABHUG will be in Brisbane around early December 2024.
- Please contact Barry Dooley (bdooley@structint.com or bdooley@IAPWS.org) or Bob Anderson (anderson@competitivepower.us) for further information and with suggestions for ABHUG2024.