API POWERCHEM CONFERENCE 2016

The API PowerChem conference is the pre-eminent power station chemistry conference, exhibition and training course in the southern hemisphere which the API is proud to be able to offer to the energy industry. This conference is the biennial event for power station chemists and their suppliers. The 2016 program began on the evening of Sunday 22 May and concluded on Thursday 26 May at the Novotel Wollongong Northbeach, in New South Wales.

This year’s program and events were well supported by experts and eminent speakers from Australia and around the world. The conference was composed of a diverse range of key speakers, exhibitors, and three days of presentations.

The primary aim of the conference is to provide up-to-date professional development for those working in the industry as well as those associated with it. The format of the conference allowed close interaction between speakers, presenters, exhibitors and delegates, with a number of training courses also available.

The conference dinner, sponsored by Dow Water & Process Solutions, allowed for an enjoyable networking opportunity and provided a platform for international industry professionals to come together and share knowledge.

CURRENT INDUSTRY

The power industry is currently experiencing ongoing change due to a number of influences, and these impact on the chemistry-related activities at thermal power stations. The factors which significantly influence the industry include:

i) Privatisation (Victoria privatised many years ago, NSW all generators now privatised, and Queensland quite likely to follow when politically expedient)
ii) Preferential dispatch of renewable generation, and
iii) Fluctuating fuel prices (coal and gas) with overseas influence.

CHALLENGES

The challenges this poses for chemists at power plants includes the obvious one of reducing operating costs to remain competitive, plus a changing mode of operation across the spectrum from traditional base load, to load following, two shifting and lay up of plant.

With downward pressure on the number of chemical personnel engaged at each site, the site chemist’s responsibility is now stretched across more plant thereby requiring access to smart instrumentation and control systems to provide reliable operation.

A SPECIAL THANK YOU

API extends a sincere thank you to Colin Gwynne from Aurecon and his organising committee who arranged the comprehensive technical program and provided invaluable networking opportunities for like-minded industry colleagues.

API would also like to recognise and thank the major sponsors (Gold Sponsor - Dow & Silver Sponsor – Purolite) and all other sponsors/exhibitors for their generous and ongoing support.

Finally, a genuine appreciation and thank you goes to The Meetings Manager conference organising team for successfully running this conference for the last 22 years. Your hard work and dedication has been very much appreciated. The API recognises that there are big shoes to fill and looks forward to upholding the positive reputation that TMM has traditionally created. Everyone involved wishes you all the best for the future.
The change in operating modes introduces higher risks of corrosion and its associated problems for the steam/water cycle and therefore require the site chemist to better understand, monitor and control how these operations impact on the plant and its life expectancy.

**TOPICS DISCUSSED**

The conference covered a range of topics including:

- i) European experience of the impact of renewables on generation, as an example of what may occur in Australia,
- ii) Corrosion issues in steam plant, and cooling water systems,
- iii) Problems with condensate polishing in ammonium form,
- iv) Azole performance in copper alloy corrosion protection,
- v) Alternate water sourcing for cooling systems, and
- vi) Plant safety improvements.

There are new and developing process technologies including:

- i) Amines (other than ammonia) with their potential benefits and problems for operation and lay up,
- ii) Disk filters,
- iii) Brine squeezers to extend the operating envelope of RO plant,
- iv) Membrane distillation, and
- v) Shallow shell technology for ion exchange resins.

The monitoring technologies discussed included:

- i) Smart data systems to improve chemical data confidence and accessibility,
- ii) Alternate methods of measuring corrosion product transport,
- iii) Alternate methods for low level chlorides and sulphates in steam,
- iv) Alternate technology for determining conductivity after cation exchange, and
- v) Improvements in Condenser leak detection.

There was also a timely reminder of site chemist’s broad responsibilities, which can often include treatment of potable water, and control of Legionella in cooling systems to be compliant with public health requirements.

**OUTCOMES & FINDINGS**

Delegates learned about changing modes of operation and displacement of traditional base load position to other modes including layup. The use of amines is further developing and is likely that these will become more widely used both in operation and for storage. Condensate polishers were discussed as new challenges have emerged in optimising their performance when operating in ammonia cycle.

There has been, and there is ongoing development in measurement and analytical technologies in areas of:

- Low level iron and copper in power steam/water cycles
- Low level chloride and sulphate in steam
- Cation exchange conductivity
- Leakage detection technologies

Delegates discussed problems that have been encountered in plant operations and the challenges in managing water supplies, identifying problems and rectifying these problems accordingly. This includes management of corrosion and scaling problems.
There was also a reminder of the broad responsibilities of a power station chemist in also managing issues other than mega watt plant issues. This included:
- Portable water production and quality control
- Legionella controls in cooling waters

As usual, the conference provided a forum to showcase latest developments in plant and equipment, plus the ability for chemists to share common problems. Networking is a key factor of the conference to discuss plant and process issues and potential solutions; the open forum sessions were well supported with many chemists returning back to their sites either with new ideas or reinforcing concepts which may have had some uncertainty.

The issues faced by power station chemists in Australia are also relayed to other international chemists via Australia’s representation in the IAPWS organisation. Based on the feedback to date the conference can certainly be considered a success.

API POWERCHEM CONFERENCE 2018
Organisation has already commenced for the next PowerChem conference, which is set to be held on the Sunshine Coast, Queensland from Sunday 20 May to Thursday 24 May, 2018. Stay tuned to the API website and/or subscribe to our monthly newsletter to stay up to date with the latest news and announcements. We hope to see you there!

2016 CONFERENCE FEEDBACK
- 90% of respondents rated the conference to be “Excellent/Good” value
- 91% of respondents said the amount of presentations was “about right”
- 86% of respondents reported the coverage of material was “about right”

“API PowerChem provides invaluable lesson's learnt opportunities to chemical staff no matter their level of experience within the power industry.”

“The conference was very well organised and provided a good venue to talk with industry colleagues about their experiences and learn about their innovations that may be applicable to our utility.”

“An essential tool in the on-going development of power station chemistry. An important opportunity for power station chemists to benchmark their knowledge and review/discuss current site chemical issues.”

“A great way to meet like-minded people within the industry and share knowledge and experiences. A good balance between new and existing chemical topics with a real feeling of being at the forefront of the industry with new research presented. Highly enjoyable and a valuable training module.”

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“The Australian Power Institute”