Ash Development Association of Australia

COAL ASH matters

10 OCTOBER

CCPs - *a valuable resource*

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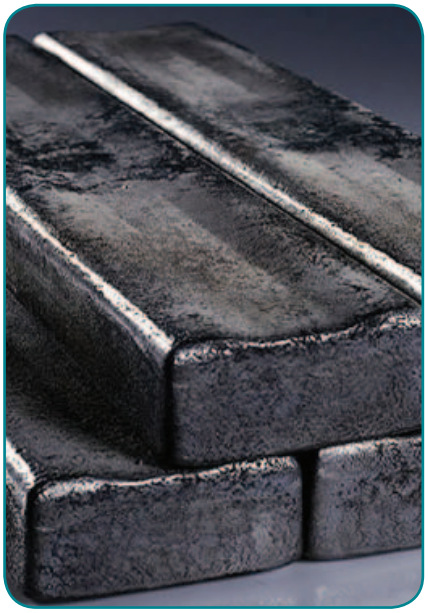
THIS ISSUE - OCTOBER 10



Editorial:
Going Strong, Going Green

The last few months have proven that a little more conversation does lead to a little more action. Peers and affiliates of the Association – from the Department of Environment and Resource Management, Victorian Environmental Protection Agency, NSW Roads and Traffic Authority, to the American Coal Ash Association and United States Environmental Protection Agency – have sought the Ash Development Association of Australia (ADAA) for its advice on various policy and projects developments relating to the use and management of coal combustion products (CCPs).

Opportunities embraced with open arms, consultations of this nature are precisely what the ADAA identifies as one of its core objectives: striving to increase awareness of the benefits arising through the effective utilisation of CCPs through information exchanges and discussions with relevant stakeholders.

But the Association isn't all talk. In keeping with promises, the ADAA has finally taken the step of publishing Coal Ash Matters electronically only, effective from this edition, and feels greener already.

So without further adieu, we welcome you to this edition of Coal Ash Matters featuring an array of updates, announcements and news briefs on the latest developments in the industry.

Latrobe Magnesium

Latrobe Magnesium (LMG) proudly circulated a press release mid-August this year, announcing the success of their recent endeavour to increase the magnesium metal recovery rate of Victorian brown coal ash.

Whilst the average commercial recovery rate typically ranges between 73 - 75%, LMG boast an impressive 78% magnesium recovery, which they attribute to an increase in ferrosilicon in the retort feedstock, as opposed to the traditional method of using dolime in a thermal reduction process.

Although the increased use of ferrosilicon comes at an added cost, LMG confidently anticipate that such costs can be effectively offset by the reduced energy costs associated with the processing of the coal combustion products. Furthermore, as announced in their press release, LMG looks towards investigating new ways in which to eventually reduce the utilisation of ferrosilicon, namely by changing the mix of retort feedstock and reducing the sulfur, iron and silicon contained in the fly ash even further.

An achievement specific to Latrobe and the brown coal ash industry, the Association nevertheless embraces this successful endeavour for its contribution in creating an innovative, efficient and effective process of producing a value-adding product.

For more information visit Latrobe Magnesium at www.latrobemagnesium.com or call +61 2 9251 0400.

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Membership

COMPANY MEMBERS
A primary role of the ADAA is to bring together producers and marketers of coal combustion products (CCPs). Our activities cover research and development into CCP usage, advocacy and technical assistance to CCP producers and users, as well as a forum for the exchange and publication of CCP information.

For more information on the Association, visit us as **www.adaa.asn.au**

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- Calera Corporation
- Cement Australia Pty Ltd
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UK Quality Ash Association
www.ukqaa.org.au

American Coal Ash Association
www.acaa-usa.org

Around the Power Stations: TRUenergy

Yorrick Nicholson

TRUenergy, a wholly owned subsidiary of China Light and Power Group (a Hong Kong based company), operates power stations in the Latrobe Valley (Yallourn) in Victoria, in Jamestown (Hallett) in South Australia and near Wollongong in New South Wales (Tallawarra) and owns and operates the IONA Gas storage facility.

As a retailer of both gas and electricity TRUenergy also services around 1.3 million household and business electricity and gas accounts throughout the eastern seaboard.

The TRUenergy Yallourn plant generates 1480 MW of electricity and represents 22% of the electricity requirements for the state of Victoria.

Yallourn recently completed its Unit 3 major outage. The outage, spanning a total of 54 days, involved a significant capital works program which included the installation of a new High and Intermediate Pressure (HIP) turbine.

Pictured above is the new HIP turbine travelling to site and being offloaded within the station.

The major outage encompasses works on all aspects of the asset. One key suite of work was to improve boiler efficiency and the combustion processes thereby aiding in effective operation of our coal combustion products (CCPs) collection plant.

As part of improving CCPs handling facilities, the major outage included the replacement of the existing furnace bottom ash hopper, and incorporated design improvements to improve collection and transfer of the material.

An ‘ash hopper’ is essentially a large water-filled vessel situated immediately beneath the opening in the base of the furnace enclosure to assist in the collection of furnace bottom ash (FBA). Furnace ashing is a cyclic process; as pulverised brown coal is burnt in the combustion chamber, larger ash particles agglomerate and fall into the water-filled hoppers in preparation for sluicing.

The FBA forms a slurry with the water in the hoppers which must be sluiced out periodically, and the hoppers refilled with water. The ash sluicing system carries out this process in an automatic sequence, which is initiated by timers at predetermined intervals.

Coincident with this project, the ADAA Sustainability Capacity Building program worked closely with Latrobe Valley Generators to achieve sustainability improvements by finding beneficial reuses for an industry by-product, CCPs, which are not currently being effectively utilised. Several new low carbon product opportunities have been identified during an 18-month exploration of ways to utilise CCP in the La Trobe valley. See full story on page 8.

Old Ash Hopper

New Ash Hopper Section

The ash hopper replacement project successfully managed the design, construction and installation phases of the work. Installation activity was particularly challenging, given the requirement to manage key interface areas both on the bottom of the boiler and in the surrounding milling plant area.

A Fresh New Flyash Australia

David Farah

Flyash Australia has recently re-branded itself with a fresh new logo. The new logo emphasises the core business of Flyash Australia and the positive environmental contribution provided through the sale of quality fly ash products.

Additionally, Flyash Australia have recently launched a new, revamped website to complement their fresh new logo. The new website provides information on the history and current activities of Flyash Australia; describes how fly ash is sourced and the performance benefits derived from the use of its end products; and features various technical information sources such as Material Safety Data Sheets and Product Data Sheets.

Attractive and user-friendly, the new website also provides users with various quick links and shortcuts to contacting Flyash Australia, their shareholders and related industry websites.

Flyash Australia invite you to visit their new site as www.flyashaustralia.com.au

The Next Batch: more technical data sheets on their way

Dak Baweja

Following on from the recent release of a series of data sheets on coal combustion products and their use in cement, concrete, structural and agricultural applications, the Association is continuing to expand these industry resources through the development of additional technical data sheets on areas of key interest to the industry. At a recent national technical meeting, the committee considered four short-listed reference data sheets and technical notes targeted for production in 2010. It was decided that *FBA Technical Note 1: Controlled Low Strength Materials* will be updated as will *FBA Technical Note 2: Controlled Low Strength Materials*, given the increasing interest in the use of ash in broader applications where opportunities to improve products exists.

It was also decided that a new technical note on *Roller Compacted Concrete*, highlighting the beneficial use of fly ash in current projects, would be developed. Thought has also been given to redrafting *Reference Data Sheets 5 and 6: Service Life of Concrete in a Marine Environment*. These data sheets relate specifically to a major project concerning fly ash in concrete conducted by CSIRO some years ago.

Furthermore, the technical committee is considering publishing some of the more topical findings of this major research project – having never before been published in Australia - in a technical paper at the Concrete Institute of Australia Biennial Conference in Perth in 2011. The idea for this is to also include some recent examples of fly ash in concrete in major desal plant projects across Australia, a current topical issue in many industry circles.

DERMinology

The Queensland Department of Environment and Resource Management (DERM) approached all stakeholders in Queensland for comments and feedback in relation to the *Queensland's Waste Strategy 2010-2020; Waste Avoidance and Recycling Consultation Draft* paper.

Queensland Government

As imagined, the Association embraced the request as an opportunity to advocate to the Department the need for the reinstatement of long-term exemptions for CCPs used in industry applications, namely, cement, concrete and road-making. Our submission was based on sound science and more than 20 years of accepted industry practice in the use of more than 1.8 million tonnes annually of CCPs in these end use applications.

The key recommendations for *Queensland's Waste Strategy 2010-2020; Waste Avoidance and Recycling Consultation Draft* paper from ADAA were essentially two-folded; in summary:

- The recommendation that DERM reinstate longer-termed measures for legal certainty in regards to the use of CCPs - namely ' fly ash' and 'furnace bottom ash' – in general, civil, construction and product manufacture applications in Queensland; and
- To incorporate into any resulting Act or subordinate regulations, exemptions and/or exclusions from the category of 'wastes' for the commercial and productive recovery and/or use of CCPs (specifically for CCPs produced at Australian coal fired power stations which are destined for beneficial reuse)

In support of these recommendations, the ADAA emphasised to DERM the extensive consultations and research conducted by the Association which have continuously served to reaffirm the benefits associated with the reuse of CCPs for the industry, environment, government and community.

Furthermore, attention was drawn to various examples of existing CCP exemptions and approvals, namely the NSW Department of Environment Climate Change and Water exemptions for Fly Ash Use in Agriculture and for CCP Application to Land, proposed amendments to the National Environment and Protection Council to have fly ash removed from Schedule 1 of the Waste Transfers and Movements Measures, as well as DERM's existing Beneficial Use Approvals for CCP Application to Land, and Use in Bound Products.

The Association hopes that its proposed recommendations will be considered by the Department, to ensure Queensland's continued beneficial reuse of CCPs in industry applications.

Dam Good

Peter Dennis

The Wyaralong Dam Project is located on the Teviot Brook, approximately 14 kilometres northwest of Beaudesert in the Logan River Catchment. The dam is regarded as an integral part of the Queensland Government's plan to ensure a safe and sustainable water supply for South East Queensland's growing population.

The Wyaralong Dam will work in conjunction with the Cedar Grove Weir and the Bromelton Offstream Storage to improve reliability of the Logan River Water Supply Scheme in drought conditions. It will help meet the area's growing demand for water for urban and industrial development, and provide additional supply into the South East Queensland Water Grid.

Construction of the dam commenced in late 2009 and the project is expected to be completed by late 2011 at a total cost of $348 million. The full supply area of the project is 1230 hectares and the dam, when full, will have a total capacity of 103,000 megalitres, with an expected annual yield of 21,000 megalitres (when operated with Cedar Grove Weir).

Construction of the Wyaralong Dam has been awarded to the Wyaralong Dam Alliance, comprising of Macmahon Contractors, Queensland Water Infrastructure Pty Ltd, Wagners Quarries, ASI Constructors, Hydro Tasmania, Rizzo Australia and SMEC.

Over 280,000 tonnes of rock have been excavated to prepare the foundations for the 500 metre long dam wall. All aggregates for the roller compacted concrete (RCC) have been sourced and sized on site. When completed, the dam wall will have utilised some 172,000m^{3}of RCC.

RCC has three key properties that make it uniquely suited for dams: economy, performance, and high-speed construction. The RCC used by the Wyaralong Dam Alliance has similar ingredients as conventional concrete: cement, fly ash, water and aggregates, but is much drier and has zero slump. The RCC mix consists of 6% cementitious material, comprising of an even proportion of cement and fly ash. The RCC for the dam wall is mixed by an Aran 400 continuous mixer and is transported for placement using articulated dump trucks fitted with specialised ejector bodies. The concrete is placed using D5 sized bulldozers and compacted by vibratory rollers. Sections are built lift-by-lift in successive horizontal layers. Once a layer is placed, it can immediately support the earthmoving equipment to place the next layer. Placement occurs overnight between the hours of 5.30pm and 4.30am.

Both fly ash and cement are transported to site using predominantly 20ft iso tankers carried on skel trailers. Trucks are unloaded in a lay down yard by a 30 tonne container lift and are then reloaded with emptied containers for refilling. This has enabled rapid turnaround and better utilisation of transport equipment and has also vastly reduced the number of vehicles required into the dam site.

Classified fly ash for the production of both the conventional and roller compacted concrete used is being supplied from the Millmerran Power Station by Millmerran Flyash Pty Ltd. Over the period of construction, over 20,000 tonnes of fly ash (or over 500 B Double loads) will be delivered to the project, a significant beneficial reuse utilisation of coal combustion products. Millmerran Flyash has been supplying concrete grade fly ash into QLD and NSW since late 2008 from their state-of-the-art ash classification plant.

For all operations and sales enquiries, contact Peter Dennis on 0428 756 528.

Sustaining Updates: the latest on the Sustainability Capacity Building Program

Niribi Charker

The ADAA Sustainability Capacity Building program aims to enhance current sustainability initiatives by finding beneficial reuses for an industry by-product which are not currently being effectively utilised.

The ADAA program, supported by Sustainability Victoria's Business Partnerships program and delivered in association with Link Strategy, has conducted a series of supply chain workshops with industry stakeholders in the coal combustion products (CCPs) sector. The participant companies recognised that beneficial results from the program would only accrue if they tackled the inherent complexity of the supply chain and challenge current practices of simply depositing CCPs into storage awaiting some future opportunities.

Progress to date

Several new low-carbon product opportunities have been identified throughout the program and their application were assessed by the participants. This analysis has lead to the development of a series of case study that explore how the supply chain approach is resulting in the identification of new product opportunities for underutilised brown CCPs and new business partnerships for brown coal power stations.

These case studies identify new construction material product opportunities for Biochar and large-scale civil road base applications have been prepared by the participating parties and are available for download. In addition, an industry efficiency benchmarking report to establish current publically available knowledge about CCPs material from companies participating in the program has been prepared. *See full story on these initiatives on page 8 for more information.*

For all enquires regarding the program please contact the Program Manager, Niribi Charker, on 02 4228 1389.

New case studies on biochar and construction materials from brown coal combustion products

Several new low-carbon product opportunities have been identified during an 18 month exploration of ways to utilise coal combustion products (CCPs) produced by La Trobe valley coal fired power stations. The Ash Development Association of Australia's (ADAA) 'Sustainability Capacity Building Program' aims to achieve sustainability improvements by finding beneficial uses for an industry by-product, CCPs, which are not currently being effectively utilised.

These new low-carbon product options, and their application, were assessed by members participating in the program and their resulting discussions have lead to the development of two case studies. The first explores developing biochar product opportunities from brown CCPs combined with local biomass whilst the second identifies new construction material product opportunities in large scale civil road base applications.

To benchmark the current knowledge of CCPs as held by the participating companies, an industry efficiency benchmarking report was developed. The report analyses the CCP supply chain from three perspectives: energy use; products; and participant attitudes to issues that impact on effective utilisation of the material in Victoria.

Case studies can be downloaded from http://www.adaa.asn.au/literature.php

WOCA 2011 Calls for Early Birds

The early bird catches the worm. But he also benefits from a cheaper registration fee for the 2011 World Of Coal Ash (WOCA) Conference.

Early bird registration for next year's WOCA conference ends on April 1st 2011. The 2011 conference, scheduled for the 9 – 12th May in Denver, Colorado, in the United States marks the 4th WOCA conference hosted by the American Coal Ash Association (ACAA) and University of Kentucky Center for Applied Energy Research (CAER).

In their own words, the 2011 WOCA conference is promised to "provide a forum to meet and discuss the science and applications for coal ash, and to transfer knowledge and ideas that will benefit from their innovative utilisation, handling, storage and disposal".

Anticipated to attract a crowd of over 500 international participants and with an impressive list of topics, the 2011 WOCA conference looks like a promising event. Representing the Association, Craig Heidrich is an international member of the 'Technical Program Committee'. Mr Heidrich said, "we are keen to have another strong Australian level of participation at the conference, as in previous years".

For those interested, a call for papers to be presented at the conference has been made, with a request that abstracts be submitted before 1st December 2010. Abstracts can be submitted online at the following link: http://www.worldofcoalash.org/presenters/callforpapers.html.

Please contact the Association if you intend to submit a paper or attend the conference.

A Tribute to a True Gentlemen

Alan Forbes

It is with sorrow that we advise of the passing of one of the true gentlemen of the cement and ash industries, Mr Alan Forbes. Alan passed away peacefully on the night of Thursday 3rd June 2010, at 70 years of age, after a 6-month battle with cancer.

Alan commenced his career as a cadet railway engineer in Brisbane and spent some time working in a number of locations across QLD in places such as Charleville and Hughenden. He also operated his own civil engineering business in the Gold Coast, but is best known for his time with Adelaide Brighton Cement where he worked for 14 years in the positions of General Manager of Sunstate Cement, General Manager of Swan Cement and General Manager Development for Adelaide Brighton.

Post-Adelaide Brighton, Alan used his knowledge and contacts from within the industry to act as a business broker, a move instrumental to the formation of Independent Concrete Producers Pty Ltd and more recently, Independent Flyash Brokers Pty Ltd. Much of the success enjoyed by these businesses can be attributed to Alan's persistence in the face of obstacles and the level of trust that people held in his integrity.

A family man and committed Catholic, Alan was actively involved with the church throughout his life. Since contracting cancer, Alan was never one to ask 'why me?' but preferred to see the positives in a life well-lived, to say goodbye to family and friends, and take the time afforded to him to ensure his wife, Pat, and seven children would be well taken care of.

The Association remembers Alan for his invaluable contributions to the industry, and sends its deepest condolences to the Forbes family.

Australia gives the US EPA its 2 cents worth

The United States Environmental Protection Agency (US EPA) has been conducting a series of consultative webinar forums to discuss the future of the management of coal combustion products (CCPs).

Since its publication, the Resource Conservation and Recovery Act 2000 (RCRA) classified CCPs as 'non-hazardous wastes' under subtitle D. However, precipitated by the events of December 2008 where surface impoundment (ash storage pond) near Kingston, Tennessee, resulted in the release of CCPs onto nearby land and into the Emory and Clinch rivers, the US EPA came under significant pressure from lobby groups against coal fired power stations.

As such, the US EPA undertook to review the management of CCPs under the RCRA and responded by proposing two alternative approaches to its classification. The first proposed that the EPA class CCPs as 'special wastes' subject to regulation under subtitle C of the Act when destined for disposal in landfills or surface impoundments, whilst the second proposed that the EPA regulate CCPs under subtitle D of the Act, the section for 'non-hazardous' wastes, i.e. maintaining the status-quo.

Representing the Association, Craig Heidrich has participated in various meetings, teleconference calls, webinars to offer an international perspective on possible unintended consequences in Australia to US EPA representatives, in particular focusing on potential harm to industry investment and beneficial use by reclassifying CCPs under subtitle C.

RTA Specification 3051

The NSW Roads and Traffic Authority (RTA) has recently announced that a new version of Specification 3051 Granular Base and Subbase Materials for Surfaced Road Pavements has finally been approved and published.

The ADAA had engaged in regular consultation with the RTA throughout the last 18 months, offering pragmatic and scientifically-sound advice and experience on the use and application of CCPs in road building materials relevant to the 3051.

In their own words, the RTA exclaim that the changes made to 3051 'reflect the need to support and encourage the use of recycled and industrial by-products as road building materials' and likewise 'the need to address the technical demands placed on pavements by increasing numbers and masses of heavy vehicles'.

A copy of Specification 3051 is available for download from the RTA's website at http://www.rta.nsw.gov.au/doingbusinesswithus/specifications/materials.html

Departures and Arrivals at Flyash Australia

Flyash Australia says goodbye to its Business Development and Technical Manager, Mr Bob Marks, who has left the company in pursuit of other career opportunities. Bob has been an active member of the construction industry for over 30 years. During this time he held various senior technical and management positions in the precast, premixed and chemical admixtures businesses.

During the 4 years with Flyash Australia, Bob was closely involved in the development of 'ultrafine fly ash', and the commercial development and increased use of fly ash in concrete manufacture in the Western Australian market . Prior to this role, Bob served as the Technical Manager for EFA Fly Ash Technologies for a period of 3 years and somehow managed to study part-time to obtain his Bachelor in Civil Engineering and MBA along the way.

The ADAA thanks Bob for his contributions, passion and commitment to the Association's activities over the years. Bob has served as a member of the Technical Committee, representing the Association on various Australian Standard committees and was the 'industry champion' behind the development and publication of the Association's "Post-Tension Structural Fly Ash Concrete". We wish him all the best in his future endeavours.

Joining Flyash Australia from mid-October is Dick Barker and Roy Butcher. Dick will be joining the company in the role of Sales and Marketing Manager. He is well-known within the industry, having worked 25 years for Australian Cement Holdings and Cement Australia in a variety of sales and marketing and business development roles and is highly experienced in the development and management of S & OP processes.

Roy Butcher will be joining FAA in the role of Technical Manager. He is a degree-qualified Civil Engineer and has enjoyed a successful career in technical roles both within the cement manufacturing and pre-mix concrete industries in South Africa and Australia. Prior to joining FAA, Roy held the role of Regional Technical Manager - Eastern Region with Hanson Construction Material and is an expert in the use of construction materials.

Roy Butcher

Dick Barker

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