

WELCOME - WELCOME - WELCOME

South African Coal Ash Association (SACAA) would like to welcome the following corporate members who recently joined the association:



We welcome Martin Ginster and the team from Sasol who are key ash producers at their sites in Sasolburg and Secunda. With their expertise and history in ash management at Sasol, they are going to add a lot of value to SACAA going forward.



SACAA would also like to welcome our friends from Kempton Park namely, Kelvin Power Station to the association. While the lifespan of Kelvin is limited, their ash management challenges remain and SACAA have the assurance from Jaco van der Merwe and Donald Bennett of their full support to play an active role in the association.



While Sephaku Cement is not new to SACAA, their participation was infrequent until Johan Delpont got involved Sephaku are now active. Welcome to Johan and the team. Your contributions of the past are greatly appreciated.

SACAA TECHNICAL TALK: 17 MAY

The Maputo Bridge and Link Roads Project

Lawrence Greene from GAUFF Engineering who is a consulting engineer gave a very interesting talk on Africa's largest suspension bridge in Mozambique. Unfortunately, there were not many SACAA members present, but this did not distract Lawrence from sharing the enormity of the project and the benefits that it would bring to the Region including South Africa, especially from a KZN travel connection route.

The Project is one of the massive capital investment projects by the Government of Mozambique who appointed the China Road & Bridge Corporation (CRBC) as the main contractor and GAUFF Engineering as the consultant. The suspension bridge is being constructed over the Bay of Maputo and has an open span of some 680m with a clearance height of 60m to accommodate the very active shipping lane and will eventually link the towns of Maputo to Catembe, thus opening up new investment opportunities in future.

Due to SUSTAINABLY being a critical objective, balancing social, environmental and economic factors required innovative thinking. This led to the choice of substituting at least 35% of the cement in the concrete with South African fly ash. The emissions of the fly ash at 2kg CO₂e/ton compared to cement at 840kg CO₂e/ton providing a substantial reduction in emission.

The Main Cables are anchored into two massive “anchor” blocks on the north and south side of the bay at 260m and 284m from the main pylons respectively. The South Bank anchor block weighs 177 000 tons. This is a concrete block the size of a rugby field 15m high.

The bridge is made up of three different types of bridge construction methods, the North approach utilises the balanced cantilever method one of the most technically challenging bridge constructions currently used and is further compounded by the fact that it is on a curve, the main span being a suspension bridge and the South approach consisting of a Post Tensioned T Beams of 30m and 45m respectively. The North Bank pylon is 135m tall and the South Bank stands at 136m.

The siliceous fly ash utilised complies to the SANS specification. It provides the following benefits:

- Increased later age strength e.g. at 90 days
- Reduced the rate of chloride diffusion through the concrete
- Prevents or retards alkali-silica reaction
- Reduces rate of heat generation by up to 20%
- Reduction of shrinking due to lower water demand
- Significantly reduces the risk of thermal cracking
- Improves sulphate resistance

Very high workability of the concrete was one of the main design parameters. Having piles 110m deep and being able to pump the concrete to a height of 140m meant that a very non-viscous concrete had to be used.

You can view the news clip on the bridge by going to:

<http://www.702.co.za/articles/235044/transformation-maputo-catembe-bridge-project-nears-completion>



SACAA would like to thank Lawrence Green for taking time out of his diary as well as the Management of GAUFF for authorising the trip to South Africa. This is truly a success story for the African continent.

The project has also been nominated for the prestigious Fulton's Awards due in June 2017.

HOT OF THE PRESS

As highlighted in AshFlashes, Issue No 23, The Minister of Environmental Affairs is seeking comments on the **Waste Exclusions Regulations** that included ash. The proposed legislation can be downloaded from our SACAA website by following the link on our home page: www.coalash.co.za

SACAA becoming an associate member of ASPASA- what does this mean?

ASPASA (Aggregate and Sand Producers Association of Southern Africa) is an association established some 25 years ago by the quarrying industry that plays an active role in steering the industry towards global standards.

They operate under an Executive Director (Nico Pienaar) and have a full-time support staff and dedicated office, that handles administration, communication, training and development, events, conducts compliance audits and confronts legislative and procedural matters on behalf of all its members.

SACAA, while also having a 30-year history with a wealth of knowledge, operated the association by members playing different administrative roles over and above their normal work commitments. With the SACAAs new strategic objective of enhancing our voice as an association, representing the entire Ash value chain and providing a “more value to our members” identified the requirement of getting dedicated staff to run the association. The establishment of an office comes at a cost, so all alternative solutions were explored.

As an interim solution within SACAAs current budget, it was decided to become an associate member of ASPASA who will support SACAA with all administration, finance support, and guidance on a one-year trial basis and at the same time SACAA appointed Mark Hunter as the GM on a short-term contract to become a full time representative with the responsibility of focussing on the following aspects:

You are all encouraged to participate and assist in making SACAA the association of choice as we are committed to make a difference in the Ash utilisation and so create more jobs in South Africa. Please feel free to send all comments, suggestions and ideas to Mark Hunter: mehunter22@icloud.com

World of Coal Ash Conference (WOCA) 8-11 May 2017

The conference with the theme Science, Applications & Sustainability was jointly organised by the American Coal Ash Association (ACAA) and the Centre for Applied Energy Research (CAER) at the University of Kentucky. WOCA 2017 was the largest event in the series.

- 1055 delegates
- 265 papers
- 16 posters.
- 86 exhibitors

Papers were presented on beneficial use of coal construction products (CCP's) in cement and concrete, the prevailing regulations landfill, extraction of alumina and rare earth elements (REE's), use of ash from disposal sites, fillers for polymers, processing & beneficiation and agricultural uses were the key themes. With such a diverse range of applications it was necessary to schedule up to 7 parallel sessions to complete the programme in 3 days. It may have been more prudent to restrict the number of parallel sessions to 4 and extend the duration of the conference by a day.

The aspect that found most encouraging at WOCA was the number of universities involved in developing applications and the support they received from federal and state institutions as well as the power generating and coal mining industry. All this points to maintaining a vibrant and committed industry.

While use in cement and concrete featured, it no longer plays a dominant role. The environmental aspects of managing ash ponds, potential groundwater contamination, capping and closure of disposal sites provided the greatest number of papers.

The development of competing processes for the recovery of rare earth elements as well as alumina extraction are cutting edge technologies that could provide huge financial profits to those that succeed.

A comprehensive report-back on WOCA 2017 will be given at the AGM of the SACAA on 16 August 2017.

ASTM has decided to give attention to the standardisation of alternate binders

ASTM International announced the appointment of a new technical subcommittee of the organisation's Committee on Cement (C01) focused on exploring non-hydraulic alternatives to Portland cement. The group will hold its inaugural gathering on 15 June in Toronto, Canada during ASTM's International's Committee Week of meetings.

C01 launched Subcommittee C01.14 to develop standards for non-hydraulic cements because of a growing interest by design, engineering and construction professionals. Committee members invite cement and concrete producers, contractors and other parties with an interest in non-hydraulic cements to join the new subcommittee.

ASTM committees are made up of over 32 000 volunteers and include manufacturers and consumers, as well as other interest groups such as government or academia. Any interested individual can participate on a technical committee through ASTM membership.