



## THE SOUTH AFRICAN COAL ASH ASSOCIATION (SACAA)

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No 27, October 2009

# ASH @ WORK

COMMUNIQUÉ OF THE SOUTH AFRICAN COAL ASH ASSOCIATION  
*from your Editors and President of the SACAA*

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### Editorial

In this, the fourth issue of 2009 there is feedback on the AGM held in August, photos taken at a function in honour of an old-timer, and the usual information on activities of the Council. On the technical side, we report on the De Hoop Dam, CCS, the leaching of ash and provide feedback from ECHA.

### Council Matters

The 91<sup>st</sup> Council meeting was held at SAICE, Midrand on 16 September 2009. It was the first meeting of Council after the AGM the previous month. There is now an extended Council, partly due to the new corporate membership of Sephaku Ash and Ulula Ash.

One of the first activities of the Council meeting was the election of office bearers. There were no changes and the positions previously held by Richard Kruger (President), Wayne Truter (Vice President) and Dieter Heinichen (Treasurer/Administrator) were confirmed. The full list of Council members and alternates appears at the end of this newsletter.

The Council discussed the following matters that were raised at the AGM:

- Awareness of the Competition Commission
- Reporting of ash sales
- Lobbying for new specifications and EN 450
- Cooperative ash research
- Eskom and environmental strategies

Some follow-up actions are envisaged and members can expect feed-back in due course.

Due to the huge ash spill at TVA's Kingston power station last year (see **Ash@Work No 24**), the EPA proposes a declaration of ash a hazardous waste. Immense efforts are under way in the USA to prevent this as utilisation would in effect be stopped. Steps need to be taken locally to enlighten and educate decision makers about the beneficial effects of fly ash; **it is not a waste, but a valuable resource.**

SACAA's website has been updated and now features the logos, with direct links, of all corporate members. A further update of the contents of the website is envisaged. Members are encouraged to advise on potential improvements and updates.

The envisaged Workshop/Seminar on Clean Development Mechanisms (CDM) has now been postponed to some time next year. The delay is partly due to the problem of selecting dates that suit the potential speakers.

## Feedback: SACAA 20<sup>th</sup> Annual General Meeting, 26 August 2009

There was a reasonable turnout of members and proceedings smoothly followed the set agenda. The minutes of the previous AGM and of the audited financial statements were approved, as was the new budget and revised membership fees. This was followed by the President's report, where Richard Kruger detailed attendances at Council meetings, topics of technical meetings and emphasised the importance of maintaining SACAA's international contacts. Because of the latter we are in a position to tap into the valuable information overseas and are made aware of specific trends, especially in the environmental sphere, which sooner or later will impact on the local ash industry. He concluded with thanks to all concerned, especially our sponsors.

After the official part of the AGM members were treated to a very informative illustrated lecture "Concrete Innovations and Architectural Responses", by architect Daniel van der Merwe, of C&CI. Finally there was a social gathering with refreshments sponsored by Ash Resources.

## Liquid Stone with Soul

Daniel van der Merwe provided several copies of CONCRETE, LIQUID STONE WITH SOUL, a supplement to VISI, a Media 24 Publication. In his capacity as editor of this supplement, he listed the following attributes of the new generation of concretes:

- New high-strength composite concrete mixes allow for thinner, more elegant structures to be cast faster and higher.
- Adding fibres or casting with fibre-textile reinforced fabric reduces the use of steel, resulting in a more environmentally friendly, strong and lightweight product.
- By incorporating additives, concrete mixes can be coloured or stained.
- Concrete can be used under extreme temperature conditions.
- Adding super-plasticisers creates a high-performance self-compacting or flow concrete with a superior finish.
- Surface retarders allow the designer to choose any range of exposed aggregate concrete surfaces, while surface impregnation mixtures protect against stains with a gloss or matt finish.
- Adding a photo catalytic agent such as titanium dioxide, results in a self-cleaning concrete ideal in polluted environments.
- In the future look out for photo engraving, which creates a photo-like effect, luminous concrete that adsorbs energy in daytime to reflect a glow at night, and translucent and optic-fibre concretes that open up a new world of design and lighting possibilities.

**Editorial comment:** In many of these applications fly ash, as cement extender, plays an important role. Also see *Ash Usage in Full Swing*, Ash @Work No 24, Feb 2009, p3.

## National REACH and CLP Helpdesks form a common network - Help Net [ECHA/NA/09/24]

A new, joint network of REACH and CLP (Classification, Labelling and Packaging) helpdesks has been formed and is called Help Net. The objectives of the network are:

- to provide consistent, harmonised answers and the best possible advice to industry
- seeking to fulfill their obligations under the REACH and CLP Regulations, Helsinki, 27 October 2009 [[http://echa.europa.eu/doc/press/na\\_09\\_24\\_helpnet\\_20091027.pdf](http://echa.europa.eu/doc/press/na_09_24_helpnet_20091027.pdf)]

## **ECHA welcomes all stakeholders [ECHA/NA/09/23]**

On 7 December 2009, the European Chemicals Agency (ECHA) organises its third Stakeholders' Day at the Helsinki Exhibition and Convention Centre, Finland. Up to 500 participants are expected to attend. The Day can also be followed on the Internet via webstreaming live and after the event. Participation is free of charge. The ECHA Stakeholders' Days aim to contribute to the development of a constructive relationship, transparency and dialogue between ECHA and its stakeholders. As before, the programme is divided into three sessions, each followed by a Q&A:

- 1. Classification and labelling:** ECHA will provide an update on the state of play of the new CLP regulation and the C&L inventory that will be established in 2011. In addition, industry will explain how companies are preparing to fulfill their duties.
- 2. REACH enforcement:** ECHA will explain the activities of the Forum for Exchange of information on Enforcement. The European Commission and a Member State representative will provide an overview of enforcement across the EU and at national level.
- 3. Registration dossiers and compliance:** ECHA experts and industry representatives will update the audience on best practice in preparing a registration dossier.

You can register via the Events section of the ECHA website. The Stakeholders' Day is open to all but is particularly relevant for organisations working with REACH and CLP, industry associations, companies, public bodies, NGOs, and the media.

The draft programme and further information about the event are available on the ECHA website: [http://echa.europa.eu/news/events/3rd\\_stakeholders\\_day\\_en.asp](http://echa.europa.eu/news/events/3rd_stakeholders_day_en.asp)

## **Carbon Capture and Storage (CCS)**

Significant resources need to be put into transforming coal into a cleaner technology. This holds particularly true for South Africa where coal will be an irreplaceable part of the energy mix for a considerable time. Over 400 million tons of CO<sub>2</sub> is emitted annually by South Africa of which 240 million tons can be captured and is available for CCS.

CCS is not a new technology and has been used for decades to enhance oil recovery by pumping CO<sub>2</sub> into nearly depleted oil wells to force out the remaining oil. This has economic advantages but, with the exception of Norway which has a carbon tax, CCS has yet to be commercially deployed purely for reasons of geological storage.

Most advances in CCS are taking place in developed countries, largely to comply with targets agreed to under the Kyoto Protocol.

While South Africa currently lags behind countries in Europe, the USA, Canada, China and Australia the recent establishment of The South Africa Centre for CSS is addressing the situation by facilitating technology transfer.

Sasol is in a good position to implement CCS. They already produce concentrated CO<sub>2</sub> which could be used to demonstrate CCS on a commercial scale.

**ECOBA news about next year's conference** (see forthcoming events, 16 October 2010, Aachen, Germany)

The conference will consist of three parallel sessions with papers solicited from the three themes Textiles Reinforced Concrete, Modelling of Heterogeneous Materials, and Additions Improving Properties of Concrete. The last session is also addressing **The Use of Fly Ash in Concrete**.

## **De Hoop Dam**

Fly ash is playing its role in assuring the future supply of water to our country.

The De Hoop Dam on the Steelpoort River is an innovative Roller Compacted Concrete (RCC) dam designed by the Department of Water Affairs. When completed in October 2010 it will be the largest RCC dam in the country with a wall just over 1 km long and almost 100 metres in height.

The mix design is a wet high-paste concrete containing 30% fly ash (Dura-Pozz®) Being more workable this mix is easier to compact and accelerates construction.

The denser concrete is suitable for the upstream face of the dam wall. The addition of conventional concrete on the face of the dam to form the water barrier is no longer required saving time and cost.

## **Serial batch leaching procedure for characterisation of coal fly ash**

Although many leaching methods have been used for various purposes by research groups, industries, and regulators, there is still a need for a simple but comprehensive approach to leaching coal utilisation products in order to estimate potential release of heavy metals when these are exposed to natural fluids. A serial batch characterisation method has been developed at the National Energy Technology Laboratory in the USA that can be completed in 2-3 days to serve as a screening tool. The procedure provides an estimate of cumulative metals release under varying pH conditions, and leaching the sample at increasing liquid/solid ratios can indicate the rate at which this process will occur. This method was applied to eight fly ashes. The leachates were analysed for 30 elements; this has shown it to be a reasonably precise method for estimating the availability and long-term release of cations from fly ash.

*Journal of Environmental Monitoring and Assessment, ISSN 0167-6369, Reference PA Hesbach, AG Kim, ASP Abel and SC Lamey*

## **Ulula Ash's novel morning function and tribute to Jurgen Meyer**

Ulula Ash (Pty) Ltd invited the local ash fraternity to a morning function at Velmore Estate, Erasmia, Pretoria.

The audience was enlightened about the historic development of South Africa's ash industry by SACAA president, Richard Kruger. This was followed by Dave Bath recounting Jurgen Meyer's involvement in getting ash utilisation commercialised.

Finally, the official part was concluded when Calvin Billett presented Jurgen with a commissioned painting (on a distant view of Matla and Kriel) by the well-known artist Eric Bolsmann. A surprised and grateful Jurgen Meyer, who had retired to the Cape several years ago, thanked the sponsors.



[Photos by Theresa Gilmore of Ulula Ash (Pty) Ltd

The second part of the morning was enjoyed with good refreshments and impressive antics by the comedian Darren Maule, well-known by the weekly programme "Last Say on Sunday" on SABC3.

**Editorial comment:** A good time was had by all and the rather unknown venue is now on the map as it will serve as the base for the German National Team during the 2010 FIFA World Championship.

### **Another Award**

SACAA's Vice-President, Dr WF Truter, has gained another award, this time for the best paper presentation by a Young Scientist titled "*Re-vegetation strategies of cover soils and coal discard material*" at the 44th Annual congress of the Grassland Society of Southern Africa.

**Editorial comment:** Congratulations Wayne! Ash and agriculture needs your research dedication!



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## LAST SNIPPET

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### The Power of ONE:

- ❖ if all American households switched off their lights for ONE hour a year it will save 16 500 tons of CO<sub>2</sub> being emitted
- ❖ if the thermostats in every house in the USA were lowered by ONE °C in winter it would save 350 million barrels of crude oil
- ❖ if ONE passenger per flight in the world packed ONE kg less luggage, enough fuel would be saved to fly ONE Boeing 737 around the world 700 times

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## FORTHCOMING EVENTS

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**SACAA Technical Meeting, at SAICE, Midrand, 18 November 2009 at 15:00**

Presentation by Dave Miles , National Quality and Technical Manager , Lafarge, on self compacting concrete, utilizing fly ash.

**Advanced Concrete Materials, 17-19 November 2009, Stellenbosch**

Organiser: Concrete Society of Southern Africa and Stellenbosch University

Website: [www.concretesociety.co.za/acm2009](http://www.concretesociety.co.za/acm2009) Enquiries: admin@concretesociety.co.za

**4<sup>th</sup>International Cement Trade conference, 20 April 2010, Istanbul, Turkey**

Conference website: [www.cementtrade.net](http://www.cementtrade.net)

**Moscow Power Engineering Institute, Ash Workshop, 22-23 April 2010, Moscow, Russia**

Conference website: [www.ecopower.ru](http://www.ecopower.ru)

**International Conference on Sustainable Construction Materials, June 2010, Ancona, Italy**

**International Conference on Material Science and 64th RILEM Annual Week, 16 October 2010, Aachen, Germany**

Conference website: [www.matsci2010.rwth-aachen.de](http://www.matsci2010.rwth-aachen.de)

## YOUR SACAA COUNCIL

Elected Members:	Corporate representatives [& alternates]:
Richard Kruger (President)	<b>Afrisam:</b>
Wayne Truter, UP (Vice President)	Mike McDonald
Dieter Heinichen (Treasurer/Administrator)	[Amit Downeeringen]
William Burtone, PPC	[Eunice Mguqulwa]
Karen Surrige, UP	<b>Ash Resources:</b>
Sabine Verryn, XRD Analytical and Consulting	Matthew Reynolds
	[Andrew McKeen]
	<b>C&amp;CI:</b>
	John Goodman
	<b>Eskom:</b>
	Tyrone Singleton
	<b>Lafarge SA:</b>
	Lebogang Mandiwana
	<b>PPC:</b>
	Eduardo Auger
	[Walter Wirth]
	<b>Sephaku Ash:</b>
	Hennie van Heerden
	<b>Ulula Ash:</b>
	Theresa Gilmore
	[Mark Hovy]

The editorial team would welcome any information for publication in forthcoming **Ash@Work** newsletters.

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 e-mail: hafrika@absamail.co.za

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**Disclaimer:** *The views expressed in this newsletter are not necessarily those of the Council of the South African Coal Ash Association*



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No 28, February 2010

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### **Editorial**

With this first issue of the new year we wish all our readers a successful 2010, with lots of good fortune and minimal stress! We also would like to encourage you all to submit information on new technologies, on interesting happenings, on relevant company developments to us for inclusion in ASH @ WORK, so that the ash community can share in and benefit from these developments. The address for communications appears at the end of this newsletter. So, please keep communicating!!!

There is the usual feedback on the Council's deliberations and the last Technical Meeting. On the technical side there is some information on fly ash use in the Gautrain project and on a couple of applications in the USA. We have also included some information on the expansion of local coal mining, the prime source of ash after conversion.

### **Council Matters**

The 92nd Council meeting was held at SAI CE, Midrand on 18 November 2009.

The Council is still actively engaged in establishing contacts within the Department of Environmental Affairs in order to achieve a positive view on the environmental merits of ash utilisation. The compilation of a compact

informative paper on the virtues of ash is being considered that could serve as a tool with decision makers. Also, closer involvement with the country's foremost coal ash generator, Eskom, is being pursued.

On the topic of local ash research the Council hopes to obtain inputs from the country's tertiary institutions and research organisations as to the type and number of projects that are conducted on ash-related research. Hopefully a database can be generated from this, which should assist in directing the country's research efforts and, at the same time, stimulate the interests of the younger generation in this area.

With regard to the latter it is envisaged to annually honour the best research paper of a young scientist/engineer, provided funding can be generated.

In similar vein the compilation of a CD detailing the current status of coal ash as a cement extender in South Africa is under consideration.

The next Council meeting is set for 10 February 2010 and SACAA's members are urged to submit their ideas and proposals for the enhancement of activities to the Administrator.



## Feedback: SACAA Technical Meeting, 18 November 2009

Mr Hennis van Zyl, Marketing Manager Lafarge Readymix South Africa, gave an illustrated presentation, including a short video screening, on **The Effects of Fly Ash on Self Compacting Concrete**. There were some case studies of recent applications which demonstrated the virtues of fly ash. The presentation ended with a lively question and answer session. This was followed by networking interactions over refreshments sponsored by Lafarge.

### Some Local News on Fly Ash *(source: Concrete Trends, Vol 12, No 4, Nov 2009)*

Under the heading **Classified Fly Ash contributes to world-class Gautrain Concrete**, Cyril Attwell, the research manager at Murray & Roberts (a Bombela Civils Joint Venture -BCJV partner) remarks as follows:

"Traditionally, a high-productivity precast yard uses CEM I 52.6 or 42.5R cement. However, when the Gautrain project was 'building up a head of steam', the local construction industry was experiencing peak demand and there was insufficient availability of those grades, which in any case would not have been as cost-effective. After two months of trials using a foundation of advanced recrystallisation (ARC), a South African-developed technology attributed to Attwell, a 30-35% DuraPozz® concrete mix was used. Fly ash does not generally give high early strength but, by getting the other materials right, an accelerated mix was achieved that allowed the moulds to be turned around within 12-18 hours, obviating the need for steam.

Getting compressive strengths in the region of 30 MPa within 24 hours using 30-35% fly ash replacement with 300 kg/m<sup>3</sup> of CEM I cement, 140 kg fly ash and approximately 200 litres of water is generally considered impossible. However, BCJV is achieving the 24-hour strength and averaging 28-day strengths of 74 MPa in winter! To match this, a precast business would normally expect to use 400 kg/m<sup>3</sup> of a CEM I 52.5R cement."

"Old concrete technology relied purely on water : cement ratios with very limited account taken of the other materials, even though they make up 60-70% of the mix," says Attwell. "Our approach is to look at mechanical and chemical properties of the total ingredients: we consider voids content and how different sizes fit together, as well as the chemistry of how the fly ash interacts with dolomitic materials. There is no linear trend; each mix must be engineered separately. Our 15 MPa design has the best synergy of all our mixes; after numerous development revisions, it is currently using 30% DuraPozz® and achieving 40 MPa at 28 days. There are other sources of fly ash but they are not as reactive or consistent as this product, and only Ash Resources could guarantee product availability, which is vital for a project of this size."

When the construction of the Sandton Station is discussed it is pointed out that:

"There are no precast elements in the station, everything has had to be done on the site with 200-250m<sup>3</sup>/day of readymix, using Attwell's fly ash 'synergy' mixes, delivered from the Bombela batch plant at Marlboro and pumped into place. The completed station, including the diaphragm walls to the various shafts will require 65 000 m<sup>3</sup> of concrete. The slabs have been poured using 40/50 MPa mixes and the diaphragm walls were built by a subcontractor using specialised German machinery

According to Peter Bredahl, BCJV's senior contract manager for Sandton Station, "we are using wooden shuttering and the results from the fly ash concrete mixes have been exceptional". Bredahl's team poured the foundations, piers, decks, columns and, in spite of the difficult supply logistics, constructed one shaft by sliding. 'The underground slide was an interesting first for me', says Bredahl".

With regard to the Centurion Station, Ian Connellan, BCJV's senior contracts manager said, "We have had to put down close to 100 000 m<sup>3</sup> of grouting using a CEM I cement and fly ash mix for good pumpability, together with bentonite. Aesthetics are also important on the prestigious and very visible project. The fly ash has given excellent workability while reducing bleeding, contributing to good off-shutter finishes that require minimal rubdown".

Attwell concludes:

"Although the huge scale of the increasingly visible concrete structures of Gautrain is impressive, behind the scenes the achievements on reducing the project's carbon footprint have been equally impressive. I am speaking as a committed environmentalist who is very aware that cement is the second biggest contributor to greenhouse gases in the world. Creative management of three materials in particular on Gautrain has achieved enormous environmental benefits. Unusually for a project of this size and pressured timeline, more than 90% of the spoil from tunnelling and blasting is crushed at BCJVs Marlboro site and reused as aggregate. Wash water recycle has not only saved water cost and the environment but the suspended materials in the water gain us about 4 MPa and a corresponding saving in cement. Thirdly, the use of fly ash throughout our concrete mixes has made a major contribution, being a recycled waste product from power stations and an excellent cement extender."

### **Some Ash News from the USA** *(source: www.smartash.info)*

#### ❖ **EPA Delays Coal Ash Decision** *(EPA 12-17-2009)*

EPA's pending decision on regulating coal ash waste from power plants, expected this month, will be delayed for a short period due to the complexity of the analysis the agency is currently finishing.

As part of the commitment to ensuring the protection of public health and the environment regarding coal ash, the EPA Administrator has set a deadline to complete the regulatory decisions. However, the agency is still actively clarifying and refining parts of the proposal.

#### ❖ **Update from Richard Kruger**

On 27 January, 2010, the American Coal Ash Association (ACAA) met with the EPA Administrator and senior staff members. This meeting was to discuss potential disposal regulations with the senior executives of organisations directly involved with the beneficial use of coal combustion products (CCPs).

Testimony was provided by each ACAA representative, including evidence that firms with competing materials are now using negative labels against CCP marketers, casting a shadow on the safety of CCPs. The team emphasised the reluctance and refusal of investors based on potential litigation exposure. The agency was reminded that regulation which affects markets will have a dramatic impact on CO<sub>2</sub> emissions potentially adding millions of tons of emissions to the atmosphere each year.

The EPA expressed its strong support for specific beneficial uses – notably cement and concrete. They expressed reservations about unconfined uses in structural fills. They said they would work with the ACAA to ensure preferred beneficial uses go forward no matter what regulatory path is taken.

#### ❖ **Studies of the Tennessee Ash Spill** *(The Appalachian 11-12-2009)*

Geology Professor Roy C Sidle has received approximately \$80 000 from the National Science Foundation (NSF) to conduct research evaluating the downstream impact of the coal fly ash spill in Kingston, Tennessee. An earth dike at Tennessee Valley Authority's Kingston power plant that held sediment for over 50 years gave way on 22 December 2008, releasing roughly 1.1 billion gallons of coal fly ash slurry into the Emory River. The volume of the spill characterises it as the largest in United States history.

### ❖ **Developer of Chesapeake Golf Course Made with Fly Ash Speaks Out**

The developer of a golf course, made with coal ash, speaks to TV cameras - against the advice of his lawyer - for the first time about the lawsuit against his company. "My reaction to the lawsuit is that it contains more fiction than a Harry Potter novel." Neil Wallace is talking about the \$2 billion dollar lawsuit claiming coal ash used to create the Battlefield Golf Course in Chesapeake is contaminating ground water with toxic metals.

## **Environmental - National Ambient Air Quality Standards**

The national ambient air quality standards were published on 24 December 2009 (Government Gazette 32816). These standards are for sulphur dioxide, nitrogen dioxide, particulate matter, ozone, benzene, lead and carbon monoxide. The Government Gazette will be available on the NACA website under the "Legislation" tab.

## **Coal Mining Developments**

*(Source: Mining Weekly, 23 October 2009 and AfriCoal Energy Review, No 001, November 2009)*

### **Developments at SASOL**

Sasol Synfuels is in the process of a 4% expansion while the prefeasibility into additional 16% growth is under way. The two expansions combined will put an additional 20% onto Sasol Synfuel's already burgeoning capacity of 160 000 bbl/d of transport fuel.

The company also has coal assets in the Free State, where the original Sasol One was established in 1950, and in Limpopo province, where it is conducting a prefeasibility study into the building of a fourth Sasol, which had been code-named Project Mafutha; Mafutha being the Zulu word for 'oil'.

In preparation Sasol is developing new sources of coal:

- Thubelisha Mine to replace Twistdraai Colliery, production to start in 2012
- Impumulelo Mine to replace Brandspruit Colliery, production to start in 2014
- A still-to-be-named mine will replace Middelbult Mine between 2015 and 2017, production to start in 2015.

### **Strategic Natural Resources (SNR) achieve first revenue from coal sales**

Coal sales by SNR during the financial year that ended on 31 August 2009, were worth US\$0.12M. This is expected to ramp up in the second half of 2010. SNR's operating loss decreased to US\$0.23M during the reporting period. Progress was reported on its power supply agreement with Independent Power South Africa (Ipsa). Ipsa has finalised an option agreement for the purchase of a building site for the mine-mouth power plant. The power supply agreement secures 1Mt/a of thermal coal over a 20 year period.

### **Coal of Africa (CoAL) to acquire NuCoal Mining**

CoAL has indicated its intention to acquire South African junior NuCoal Mining for R715M. This positions CoAL for a long-term supply of coal to Eskom's Hendrina power station which is situated in close proximity to NuCoal's Woestalleen Colliery and CoAL's Mooiplaats project. NuCoal has invested R150M in the Woestalleen project in order to boost production capacity from its present 120kt/month to 350kt/month. CoAL is an AIM/ASX/JSE listed coal development company.

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## NEWS SNIPPET

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### Happy Event

On Friday evening 8 January 2010, Karen Surridge, a Council Member, married Norman Talbot in Pretoria.

The wedding was followed by a reception overlooking the Silver Lakes Golf Course.

Karen and Norman have been dating for 6 years before Norman made his bold move !

In the photo on the left is the happy couple flanked by Karen's parents, Tony & Joan Surridge.

The SACAA and its Council Members wish them well as they embark on their future life together.

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## FORTHCOMING EVENTS

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**SACAA Technical Meeting, at SAICE, Midrand, 10 February 2010 at 15:00**

Presentation by **Mr Bryan Perrie**, Managing Director, Cement & Concrete Institute, on:

**Ultra Thin Concrete Pavements and an Overview of the Gauteng Freeway Improvement Projects**

**5 day International Environmental Auditor Course, Carnival City, 8 - 12 March 2010**

Information: [crystal.clear@mweb.co.za](mailto:crystal.clear@mweb.co.za)

**4<sup>th</sup> International Cement Trade conference, 20 April 2010, Istanbul, Turkey**

Conference website: [www.cementtrade.net](http://www.cementtrade.net)

**Moscow Power Engineering Institute, Ash Workshop, 22-23 April 2010, Moscow, Russia**

Conference website: [www.ecopower.ru](http://www.ecopower.ru)

**EuroCoalAsh Conference 2010, ECOBA Meeting, 26-28 May 2010, Copenhagen, Denmark**

*EuroCoalAsh serves as synonym for a series of European conferences to highlight the use of CCPs as valuable raw and construction materials in the European construction industry.*

Website: [www.ecoba.org](http://www.ecoba.org)

**International Conference on Sustainable Construction Materials, June 2010, Ancona, Italy**

**15th World Clean Air Congress, 12 to 16 September 2010, Vancouver, British Columbia, Canada**

Congress theme: **Achieving Environmental Sustainability in a Resource Hungry World**

Congress website: [www.uappa2010.com](http://www.uappa2010.com)

**International Conference on Material Science and 64th RILEM Annual Week, 16 October 2010, Aachen, Germany**

Conference website: [www.matsci2010.rwth-aachen.de](http://www.matsci2010.rwth-aachen.de)

## FROM SACAA's PAST - 10 years ago

Japie Krüger had been corresponding with Graeme Hastie of Gold Star Cement in New Zealand who had enquired about fly ash. Japie had sent him copies of the ash booklets along with other info  
*[Source: Minutes of the 50<sup>th</sup> Council Meeting]*

**Editorial comment:** Even then SACAA operated internationally !

## TO THE FUTURE →

Japie has been approached to update the information on the very successful CD "South African Fly Ash: A cement extender" to take cognisance of development over the past 10 years. To ensure the technical relevance, all corporate members will be approached to supply information

**Editorial comment:** This is your opportunity to promote Fly Ash !!!

## YOUR SACAA COUNCIL

### Elected Members:

Richard Kruger (President)  
 Wayne Truter, UP (Vice President)  
 Dieter Heinichen (Treasurer/Administrator)  
 William Burtone, PPC  
 Karen Surrige, UP  
 Sabine Verryn, XRD Analytical and Consulting

### Corporate representatives [& alternates]:

#### Afrisam:

Mike McDonald  
 [Amit Downerangen]  
 [Eunice Mguqulwa]

#### Ash Resources:

Matthew Reynolds  
 [Andrew McKeen]

#### C&CI:

John Goodman

#### Eskom:

Tyrone Singleton

#### Lafarge SA:

Lebogang Mandiwana

#### PPC:

Eduardo Auger  
 [Walter Wirth]

#### Sephaku Ash:

Hennie van Heerden

#### Ulula Ash:

Theresa Gilmore  
 [Mark Hovy]

The editorial team welcomes any information for publication in forthcoming **Ash@Work** newsletters.

**Please contact Dieter Heinichen at:**

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**or write to:**

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No 29, June 2010



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### **Editorial**

Since the previous issue of ASH @ WORK we have had two Council and two Technical Meetings. Feedback on these is given below.

There are also some very interesting news items and comments on the ash scene in the USA, which has rubbed off onto the local situation.

It seems our members are too busy in their respective jobs as we have received no information on new technologies, interesting happenings, or relevant company developments for publication in ASH @ WORK. Please get the communications flowing so that the ash community can share and benefit from such developments. The address for communications appears at the end of this newsletter.

By the time our members receive this issue the soccer frenzy, caused by staging the FIFA World Cup in South Africa, will have reached fever pitch and lots of people will have little time to attend to the normal daily chores. We wish all the soccer friends a super experience and may your favoured team be the winner!

### **Council Matters**

The 93<sup>rd</sup> Council meeting was held at SAICE, Midrand on 10 February 2010 and the 94<sup>th</sup> on 28 April 2010.

The Council has established contacts with the Department of Environmental Affairs and our chairman, Dr Richard Kruger, now represents SACAA on the working group tasked with the formulation of amendments to the National Environmental Management Waste Act. He is working hard to rectify many misconceptions that were in place prior to his involvement as it was the intention that ash be declared a hazardous waste and thus its utilisation may come under severe pressure.

Closer involvement with the country's foremost coal ash generator, Eskom, has been achieved with Environmental Manager Deidre Herbst now representing Eskom on Council.

One of SACAA's Councilors serves on the SABS working group tasked with the review of specifications concerning the application of fly ash and other materials. The working group put proposals to the SABS that would replace the existing specification SANS 1491-2 with EN 450-1 and 450-2 (Fly ash for concrete) and also entail adoption of EN 451-1 and 451-2 (Method



of testing fly ash). Furthermore it was suggested that SANS 1491-3 be replaced by EN 13263-1 and EN 13263-2 (Silica fume for concrete). It was also proposed to adopt some sections of EN 934 (Admixtures for concrete mortar and grout). It will take some time before a decision is reached on these draft proposals by the SABS.

On the topic of local ash research Council hopes to obtain inputs from the country's tertiary institutions and research organisations as to the type and number of projects that are conducted on ash-related research. An investigation of this is currently conducted at the University of Pretoria from which hopefully a database can be generated. This should assist in directing the country's research efforts and, at the same time, stimulate the interests of the younger generation in the subject.

With regard to the latter Ash Resources has promised to sponsor an annual award of R5000 for the best presentation by a 4<sup>th</sup> year student in civil engineering at the University of Pretoria.

SACAA's website, [www.coalash.co.za](http://www.coalash.co.za), has been rejuvenated and members log in now also provides a link to the ash website of the US company Separation Technologies. SACAA's newsletter ASH @ WORK, which previously was only accessible by members, has been placed into the open domain.

The next Council meeting is set for 28 July 2010 and SACAA's members are urged to submit their ideas and proposals for the enhancement of activities to the Administrator.

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### **Feedback: SACAA Technical Meeting, 10 February 2010**

**Mr Bryan Perrie**, Managing Director, Cement & Concrete Institute, gave an illustrated presentation on **Ultra Thin Concrete Pavements and an Overview of the Gauteng Freeway Improvement Projects (GFIP)**. Both topics are interlinked as the ultra thin technology is employed in parts of the GFIP. While the costs of the Ultra Thin (50 to 60 mm in thickness) are about the same as for conventional concrete pavements, the construction takes only about half the time. Both topics were of special interest to everyone as we are all road users on a daily basis and any improvements are most welcome.

The presentation was followed by the usual networking over refreshments.

### **Feedback: SACAA Technical Meeting, 28 April 2010**

**Mr Graeme Smith**, Managing Director, Ash Resources, gave an illustrated presentation on the **Burj Khalifa Tower, Dubai**

Towering over the impressive Dubai sky-line, the recently renamed Burj Khalifa (Khalifa Tower), at 828 metres high, is the tallest man-made structure ever built. Ash Resources (South Africa), through their UAE Marketing Office, are extremely proud as a South African supplier to have been involved in this incredible feat. Fly Ash was used on the project for the benefits it imparted to fresh and hardened concrete, notably workability and durability. Ash Resources classified fly ash proved to be a critical constituent in the pouring of the approximate 45,000m<sup>3</sup> concrete foundations including some 192 piles.

The presentation ended with a lively question and answer session. This was followed by networking interactions over refreshments sponsored by Ash Resources.

## Some Local News on Fly Ash

**Sephaku** has been very much in the news lately. Roy Cokayne reports in Business Report of 3 June 2010 as follows: "Nigerian manufacturing conglomerate Dangote Industries has invested an additional R779 million in Sephaku Cement, which will fund the equity requirements for Sephaku's R3,3 billion, 2,2 million tons-a-year cement project that is scheduled to come on stream in 2012. Sephaku Cement is a subsidiary of listed empowered minerals exploration, development and investment company Sephaku Holdings. On Tuesday Sephaku reported it had signed a heads of agreement with Dangote for its further investment in the company. The capital injection follows Dangote's initial R350million investment. The project involves the construction of two new cement manufacturing facilities: a clinker and cement producing facility in the North West and a cement grinding facility at Delmas in Mpumalanga."

It has come to our attention that the ash section of Sephaku's website ([www.sephakucement.co.za](http://www.sephakucement.co.za)) now lists two products *Smart Ash* and *Hard Ash* with Material Safety Data Sheets.

## Some Ash News from the USA (main source: [www.smartash.info](http://www.smartash.info))

### EPA ANNOUNCES PLAN TO REGULATE COAL ASH

(EPA 4 May 2010). The U.S. Environmental Protection Agency today is proposing the first-ever national federal rules to ensure the safe disposal and management of coal ash from coal-fired power plants.

### EPA'S PROPOSED COAL ASH REGULATION RELEASED MAY 4, 2010

To view the full EPA Proposed Coal Ash Regulation please go to: <http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ccr-rule/ccr-rule-prop.pdf>

### EPA BACKED OFF "HAZARDOUS" LABEL FOR COAL ASH AFTER WHITE HOUSE REVIEW

(New York Times 7 May 2010). U.S. EPA's proposed regulation of coal ash as a hazardous waste was changed at the White House to give equal standing to an alternative favored by the coal industry and coal-burning electric utilities. The Obama administration is now considering two competing rules for regulating the ash that contains toxins that include arsenic, lead and mercury. The first would set binding federal disposal requirements for the ash, and the second would label the ash nonhazardous and leave enforcement to the states (E&ENews PM, May 4).

### EPA STIFFENS COAL ASH RULES, BUT PROPOSAL ALLOWS RECYCLING

(Greensource 10 May 2010). The U.S. Environmental Protection Agency on May 4 unveiled a draft rule to regulate coal ash, for the first time, under Subtitle C of the Resource Conservation and Recovery Act. The proposal would require coal-fired power plants to retrofit existing impoundments, which typically store ash in liquid form, with composite liners. It also would provide strong incentives to eventually close surface impoundments and shift to dry storage in landfills. The new scrutiny follows a 2008 collapse of a Tennessee impoundment that spread ash over a 300-sq-mile area of land and water.

### EPA RELEASES MORE ELECTRIC UTILITY PLANS TO IMPROVE SAFETY OF COAL ASH IMPOUNDMENTS

(EPA 19 May 2010). The U.S. Environmental Protection Agency (EPA) is releasing action plans developed by 16 electric utility facilities with coal ash impoundments, describing the measures the facilities are taking to make their impoundments safer. The action plans are a response to EPA's final assessment reports on the structural integrity of these impoundments that the agency made public this February.

## **The EPA and Coal Ash – Disposal Proposals Bring More Questions**

*Authored By: Darrell Proctor, EUCI, and brought us by Richard from the Copenhagen meeting.*

What to do with coal ash – a byproduct of the coal burned at power plants – has been discussed (and sometimes cussed) by utilities and environmentalists for years.

The issue came to the forefront again in December 2008 when a spill at the Tennessee Valley Authority's facility in Kingston, Tenn., sent an estimated 5.4 million cubic yards of coal ash slurry flowing across 300 acres of land and into the Emory and Clinch rivers.

The cleanup continues and the Environmental Protection Agency in May announced two proposals as it considers the first-ever federal regulatory requirements for coal ash disposal. EUCI has scheduled a conference July 22-23 in Denver where legal experts, engineers and industry officials will discuss the EPA proposals and their potential impacts. John Kammeyer of the TVA will be on hand to discuss the cleanup and its challenges; conference registration is under way.

"The time has come for common-sense national protections to ensure the safe disposal of coal ash," said EPA Administrator Lisa Jackson in announcing the proposals. Utilities and others in the energy industry are concerned about the economic impact of new rules, while environmentalists say they're pleased the EPA is taking action but worry the regulations won't be strong enough.

One proposal would create a program of federal requirements for waste management and disposal. It would designate coal ash as a "special waste," generally subject to the same regulation as hazardous waste. It would allow for beneficial uses of ash, a key component since ash plays a large role in construction (concrete, drywall, asphalt) and "beneficial use" is a multibillion-dollar industry. In this case, ash would be regulated under Subtitle C of the Resource Conservation and Recovery Act.

The second proposal would give the EPA authority to set performance standards for waste management facilities, standards enforced primarily through citizen lawsuits. It also would allow for continued beneficial uses. Regulation would be under Subtitle D of the RCRA.

Some legal experts say the second option doesn't mean the federal government is forgoing oversight, but rather leaving responsibility to states. They also say having both proposals continue to allow beneficial use - the Beville exemption - is a nod to the economic consequences that could come from taking away the exemption.

"EPA supports the legitimate beneficial use of coal combustion residuals. Environmentally sound beneficial uses of ash conserve resources, reduce greenhouse gas emissions, lessen the need for waste disposal units, and provide significant domestic economic benefits," said Mathy Stanislaus, assistant administrator of the EPA's Office of Solid Waste and Emergency Response, whose office is responsible for implementing the proposals. "This proposal will clearly differentiate these uses from coal ash disposal and assure that safe beneficial uses are not restricted and in fact are encouraged."

But deciding whether regulation comes from Subtitle C or Subtitle D is just the beginning. Scott Holladay, an economist with New York-based nonprofit Institute for Policy Integrity who has researched coal ash disposal, told *The Iowa Independent*: "How we define beneficial use will be the meat of this. There is room to gut the regulations from within."

Even the EPA has noted that under Subtitle D, states could decide their own definition of "beneficial use." And states have varied uses for coal ash beyond a construction material.

In West Virginia (where Gov. Joe Manchin has told the EPA a hazardous waste designation for coal ash "could have devastating consequences"), ash is sent back to the coal mines. Alkaline coal combustion residuals neutralize the acid drainage from high-sulfur coal seams, making it possible to mine some of those seams. And the ash also is applied to land as part of the reclamation of surface mines.

In Nebraska, coal ash has been used to reduce the flood risk of the Platte River. The ash promotes melting that can prevent ice jams. Earlier this year, Sen. Robert Casey, D-Penn., told the EPA that a hazardous waste designation (limiting the use of coal combustion residuals) would shutter his state's 13 waste coal plants at a cost of about 10 percent of Pennsylvania's electricity.

Still, there are environmentalists who think Subtitle D is a better option because states would take a tougher stand – and provide more oversight – on coal ash disposal and recycling.

For its part, the EPA is looking at public comments and weighing the options. A recent response: "This rule continues to be under review, and we expect to issue a proposed rule in the near future."

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## LAST SNIPPET

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The huge volcanic ash cloud that disrupted aviation in Europe and consequently all the destinations serviced by the planes from Europe, showed that this type of uncontrolled ash release is beyond the legislative controllers. Luckily the ash we are dealing with comes from controlled combustion processes and with the necessary care this ash should never pose a problem; a valuable resource!!

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## FORTHCOMING EVENTS

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**SACAA Technical Meeting, at SAICE, Midrand, 28 July 2010 at 15:00**

Presentation by **SACAA Councillor Dr Karen Surridge-Talbot** on **Microbes in Ash**.

**SACAA AGM with Technical Meeting, at SAICE, Midrand, 18 August 2010 at 15:00**

**International Conference on Sustainable Construction Materials, 28 - 30 June 2010, Ancona, Italy**

Conference website: <http://www4.uwm.edu/cbu/ancona.html>

**15th World Clean Air Congress, 12 to 16 September 2010, Vancouver, British Columbia, Canada**

Congress theme "**Achieving Environmental Sustainability in a Resource Hungry World**"

Congress website: [www.uappa2010.com](http://www.uappa2010.com)

**International Conference on Material Science and 64th RILEM Annual Week, 16 October 2010, Aachen, Germany**

This conference is organised by the Institute of Building Materials Research Aachen University in cooperation with RILEM. The conference will consist of three parallel sessions with papers solicited from the three themes Textiles Reinforced Concrete, Modelling of Heterogeneous Materials and Additions Improving Properties of Concrete.

Conference website: [www.matsci2010.rwth-aachen.de](http://www.matsci2010.rwth-aachen.de) and [news2009/RilemMATSCI\\_conference.pdf](http://news2009/RilemMATSCI_conference.pdf)

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## YOUR SACAA COUNCIL

<b>Elected Members:</b>	<b>Corporate representatives [&amp; alternates]:</b>
Richard Kruger (President) Wayne Truter, UP (Vice President) Dieter Heinichen (Treasurer/Administrator) William Burtone, PPC Karen SurrIDGE-Talbot, UP Sabine Verryn, XRD Analytical and Consulting	<b><i>Afrisam:</i></b> Mike McDonald [Amit Downerangen] [Eunice Mguqulwa] <b><i>Ash Resources:</i></b> Matthew Reynolds [Andrew McKeen] <b><i>C&amp;CI:</i></b> John Goodman <b><i>Eskom:</i></b> Deidre Herbst <b><i>Lafarge SA:</i></b> Lebogang Mandiwana <b><i>PPC:</i></b> Eduardo Auger [Walter Wirth] <b><i>Sephaku Ash:</i></b> Hennie van Heerden <b><i>Ulula Ash:</i></b> Theresa Gilmore [Mark Hovy]

The editorial team would welcome any information for publication in forthcoming **Ash@Work** newsletters.

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e-mail: hafrika@absamail.co.za

**or write to:**

SACAA, PO Box 50172, Moreleta Village, 0097

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**Disclaimer:** *The views expressed in this newsletter are not necessarily those of the Council of the South African Coal Ash Association*



## THE SOUTH AFRICAN COAL ASH ASSOCIATION (SACAA)

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No 30, December 2010



COMMUNIQUÉ OF THE SOUTH AFRICAN COAL ASH ASSOCIATION  
*from your Editors and President of the SACAA*

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## ASH @ WORK

### Editorial

There has been a substantial gap between this issue of **ASH@WORK** and the previous one, but the communication with members was maintained by our new vehicle **ASH FLASHES** (1 July, 16 August, 3 and 30 October 2010).

In this issue there is feedback on two Technical Meetings, the AGM with Technical Meeting and the usual feedback on Council Meetings. There are also some news items on ash developments in the USA.

Most members will be aware that SACAA's President, Dr Richard Kruger, has relocated to Somerset West in the Cape. This will not affect the running of the Association, whose activities are centred in Gauteng. We also wish Richard a speedy recovery from a shoulder operation.

We are still eager to obtain information from our members on new technologies, interesting happenings, or relevant company developments for publication in **ASH@WORK**. This time there is a lot of news on our corporate member Ash Resources.

By the time our members receive this issue the Christmas and holiday preparations are in full swing and before we know the New Year is upon us. To all of you our best wishes for 2011 and may

you stay healthy and rested for all the tasks and hurdles that the New Year may bring.

### Council Matters

The 95<sup>th</sup> Council meeting was held at SAICE, Midrand on 28 July 2010 and the 96<sup>th</sup> on 20 October 2010.

There is ongoing interaction by SACAA, by way of the involvement of Richard Kruger and Vivienne Thomson with the working group tasked with the formulation of amendments to the National Environmental Management Waste Act (NEMWA). SACAA's corporate members, involved with the sale and marketing of ash, have given full support to our efforts. However, the threat that ash be declared a hazardous waste has still not been averted.

On the topic of local ash research Council can report some progress. Ash Resources has provided sponsorship of an annual SACAA award of R5 000 for the best presentation by a 4<sup>th</sup> year student in civil engineering at the University of Pretoria. This should help in stimulating the interests of the younger generation on the subject of ash applications in civil engineering.

The next Council meeting is set for 2 February 2011 and SACAA's members are urged to submit their ideas and proposals for the enhancement of activities to the Administrator.



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### **Feedback: SACAA Technical Meeting, 28 July 2010**

SACAA Councillor Dr Karen Surridge-Talbot, University of Pretoria, gave an illustrated presentation on *Fly Ash and Soil Microbiology*. The University of Pretoria has been doing a project for the South African National Energy Research Institute (SANERI) to study the remediation potential of adding fly ash to crude oil polluted acidic soils. The broad aims of the project are to rehabilitate these soils using fly ash. This is a new approach in the **bioremediation** of agricultural lands previously thought to be too polluted for planting.

The presentation was followed by the usual networking over refreshments. **Eskom** was thanked for the sponsorship of this meeting.

### **Feedback: SACAA 21<sup>st</sup> Annual General Meeting, 18 August 2010**

There was a fair turnout of members and proceedings smoothly followed the set agenda. The minutes of the previous AGM and of the audited financial statements were approved, as were the new budget and revised membership fees. The SARS-mandated changes to SACAA's constitution were also approved. This was followed by the President's report, where Richard Kruger again emphasised the importance of maintaining SACAA's international contacts. Because of the latter we are in a position to tap into the valuable information overseas and are made aware of specific trends, especially in the environmental sphere, which now has become a very hot topic in the USA, and of late also in the RSA, due to the impending legislation on waste management. There is a strong threat that this may cause a negative impact on the local ash industry. He and SACAA member, Vivienne Thomson serve on the working group of NEMWA (National Environmental Management Waste Act) of the Department of Environment. As a result of their input the possibility of marketing ash for beneficial use has been included in the wording of the legislation. This concession is subject to approval by the Minister of Environmental Affairs and the process is underway.

Richard Kruger concluded with thanks to all concerned, especially our sponsors. The entire Council was re-elected, but there are two new faces, i.e. Belinda Heichler, alternate representative for Ulula Ash, and Gary Theodosiou who now is C&CI's representative.

Following the official business of the AGM participants were treated to a most interesting presentation by **Cyril Attwell, the Research Manager at Murray & Roberts**, on the topic of **"Concrete technology in the design and construction of the Gautrain infrastructure"**.

The afternoon was concluded with a lively social gathering over refreshments sponsored by **PPC Cement**.

### **Feedback: SACAA Technical Meeting, 20 October 2010**

SACAA member, Santie Gouws of the CSIR provided feedback from the International Conference on Sustainable Construction Materials, held in Ancona, Italy during June 2010 by means of an illustrated talk, entitled: **"Environmentally sustainable concrete structures"**. (Refer to SACAA's Ash Flashes of 30 October 2010 for more detail).

The presentation ended with an interesting question and answer session. This was followed by networking interactions over refreshments sponsored by **Ulula Ash**.

## Environment

Cabinet has approved the **draft carbon tax policy** which will be published for comment. The policy represents the environmental and economic rationale for carbon tax measures aimed at addressing climate change [Source: Sapa in Bus. Report, 10 Dec 2010].

## Green Building Council of South Africa

**Ash Resources** was one of the first members of the building materials industry to join the Green Building Council of South Africa (GBCSA). It is a commitment to assist the Green Building Council in leading the transformation of the South African property industry to ensure that all buildings are designed, built and operated in an environmentally sustainable way. The aim is to allow all people in our country to work and live in healthy, efficient and productive environments.

By requiring fly ash in concrete and other products, architects, engineers and regulators express a commitment to promote sustainable growth and exercise responsible building practices. Using fly ash is an exceptional way to "Build Green," without compromising cost or quality in concrete production [Source: [www.ashresources.co.za](http://www.ashresources.co.za)].

## Some Local News on the Fly Ash Scene

### New developments at Ash Resources:

1. Ash Resources has completed the commissioning of its new fly ash out-loading plant, at Eskom's Matimba power station. The plant will produce PozzFill, a product that enhances the performance of cement formulations and concrete mixes.

Ash Resources MD, Graeme Smith, says that the PozzFill's yearly production capacity will now be about three-million tons. The first load of PozzFill from the plant is expected before the end of May. This plant is an addition to the company's other two similar PozzFill facilities at Eskom's Lethabo and Kendal power stations [Source: [www.ashresources.co.za](http://www.ashresources.co.za)].

2. Ash Resources, currently based in Randburg, will from 24 January 2011 operate from its own separate wing in a newly-constructed building with one of its shareholders, Lafarge South Africa.

Graeme Smith, says the move has been prompted by a need for additional space. "We have outgrown our current premises and the move to Longmeadow Business Estate will also have several advantages in terms of a more central location, more direct access to the newly-widened freeways and closer proximity to OR Tambo International Airport", Smith stated.

Ash Resources' new address will be 35 Westfield Road, Longmeadow Business Estate Ext 11, 1609. Telephone No will be 011 657 2300 or (SHARECALL) - 0860 359274.

3. Graeme Smith has resigned from Ash Resources and from 1 January 2011 **Daniel Pettersson** will be the new MD. Pettersson was Strategy and Development Manager at Lafarge's head office in Paris in 2006 and in 2008 he became Lafarge's Business Development Director in the DRC. We wish him every success with the new appointment and hope that Ash Resources' cordial relationship with SACAA will be maintained. To the outgoing MD, Graeme, we say "Thank You and wish you every success in your new position".

## **Some Ash News from the USA** (Main Source: [www.smartash.info](http://www.smartash.info))

### **Wisconsin Could Become Coal Ash Model**

Research by the University of Wisconsin-Madison could influence federal policy on how to handle coal ash – the byproduct of burning coal, typically to generate electricity. Although some environmental advocates consider it hazardous waste, it has long been used in the State as aggregate material for road and construction projects. Wisconsin's rules on recycling of fly ash, enforced by its Department of Natural Resources, could become a national model for the US Environmental Protection Agency (Milwaukee Buzz 11-22-2010).

### **Tennessee Department of Health Found "No harm to health from touching coal ash"**

The Tennessee Department of Health released its final health assessment for the TVA Coal Ash Spill. The assessment found that "no harm to health should have occurred from touching the coal ash," a four-page assessment fact sheet says: "People had an opportunity to be exposed to the coal ash for about one month before TVA either relocated the families or fenced off the coal ash. While coal ash might cause skin irritation, the irritation will stop as soon as the coal ash is washed off."

### **Green Concrete Cuts 90 percent More Greenhouse Gases Than Ordinary Cement**

Louisiana Tech University is developing geopolymer concrete, an innovative and environmentally-friendly building material, with a lifecycle greenhouse gas reduction potential - as much as 90 percent, when compared with ordinary Portland cement (Aggregate Research 9-29-2010).

Developed by Dr Erez Allouche, research director for the TTC and his team, geopolymer concrete utilises "fly ash", one of the most abundant industrial by-products, as a substitute for Portland cement, the most widely produced manmade material on earth.

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## **LAST SNIPPET**

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The quote of the year, as pronounced by **Cyril Attwell**, Research Manager at Murray & Roberts, during his presentation at the Technical Meeting on the Gautrain: **"PFA (pulverised fuel ash) is a gorgeous thing!"**

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## **FORTHCOMING EVENTS**

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**2 FEBRUARY 2011:**

**SACAA Technical Meeting, at SAICE, Midrand, 15:00**

Presentation by the **University of Pretoria** on **"The utilisation of ash in the rehabilitation of mine dumps"**

**24-25 FEBRUARY 2011:**

The Directorate of Professional Programmes of the  
**GEOLOGICAL SOCIETY OF SOUTH AFRICA**

presents

***DRILLING METHODS AND TECHNIQUES IN EXPLORATION AND MINING  
A PRACTICAL OVERVIEW OF ALL METHODS OF DRILLING FOR PRACTICING GEOLOGISTS  
AND RELATED PROFESSIONALS***

A TWO-DAY COURSE

GLEN HOVE CONFERENCING, 52 GLENHOVE ROAD, MELROSE, JOHANNESBURG

**COURSE LEADER - MR COLIN RICE**

[ Details at: <http://www.delitech.biz/fff/Drilling%20Registration%20Form.doc>]

**17-18 MARCH 2011:**

**EcoBuilding Conference and Exhibition in Mauritius**

The second annual EcoBuilding Conference, is perfectly timed to provide the property and construction sectors in Mauritius with the latest developments in relation to projects, regulations, initiatives and their implications, as well as to deliver another world class panel of experts who will speak under the theme: **Urban Planning and Building Design in a Tropical climate.**

**14-15 JUNE 2011:**

**Workshop: Performance-based Specifications for Concrete** to be held in Leipzig/Germany

Details are available from: Dr-Ing Hans Beushausen

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## YOUR SACAA COUNCIL

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**Elected Members:**

Richard Kruger (President)  
Wayne Truter, UP (Vice President)  
Dieter Heinichen (Treasurer/Administrator)  
William Burtone, PPC  
Karen SurrIDGE-Talbot, UP  
Sabine Verryn, XRD Analytical and Consulting

**Corporate representatives [& alternates]:*****Afrisam:***

Mike McDonald  
[Amit Downerangen]  
[Eunice Mguqulwa]

***Ash Resources:***

Matthew Reynolds  
[Andrew McKeen]

***C&CI:***

Gary Theodosiou

***Eskom:***

Deidre Herbst

***Lafarge SA:***

Lebogang Mandiwana

***PPC:***

Eduardo Auger  
[Walter Wirth]

***Sephaku Ash:***

Hennie van Heerden

***Ulula Ash:***

Belinda Heichler  
[Mark Hovy]

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The editorial team would welcome any information for publication in forthcoming **Ash@Work** newsletters.

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**Disclaimer:** *The views expressed in this newsletter are not necessarily those of the Council of the South African Coal Ash Association*



## THE SOUTH AFRICAN COAL ASH ASSOCIATION (SACAA)

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No 31, February 2011

# ASH @ WORK

COMMUNIQUÉ OF THE SOUTH AFRICAN COAL ASH ASSOCIATION

*from your Editors and President of the SACAA*

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### Editorial

The year 2011 is speeding along at a fast pace and this issue of **ASH@WORK** is the first in the New Year. However we have communicated with our members by means of two **ASH FLASHES** (25 and 31 January 2011).

In this issue there is feedback on the last Council Meeting and on the Technical Meeting.

Since there have been some changes to our membership profile we have initiated a new column: **Corporate Corner**. We even gained a new Corporate Member! So, all you individuals and corporate members, please fill us in on developments at your organisations, be they of a technical or personal nature; anything that may be of interest to the local ash fraternity.

The section on **Forthcoming Events** has been updated and the dates for SACAA's meetings have been scheduled for the full year.

Lastly we can report SACAA's President, Dr Richard Kruger, has recovered well from his hospital stint and once again is extremely busy in matters ash, locally and internationally (a special award was given him in Poland and this has been documented further down in this newsletter!).

There is also a short review of NEMWA and its relevance to the ash industry.

### Council Matters

The 97<sup>th</sup> Council meeting was held at SAICE, Midrand on 2 February 2011.

There are still ongoing interactions by SACAA (involvement of Richard Kruger and Vivienne Thomson) with the working group tasked with the formulation of amendments to the National Environmental Management Waste Act (NEMWA). The threat that ash be declared a hazardous waste has still not been averted. Likewise in the USA the categorisation of ash has as yet not been finalised. It was also noted that the US ash is completely different to the ash derived from coal of the southern hemisphere.

SACAA was invited to serve on SABS Subcommittee SC 59A Construction Standards-Cement, Lime and Concrete. Santie Gouws has agreed to represent SACAA, supported by Joe Mapiravana and Japie Kruger.

After negotiations with SAICE about the availability of our preferred venue for meetings, the dates of the meetings until the end of the year have been reserved (see section on Forthcoming Events for the dates to put in your diary). Except for the date of the AGM, the Technical Meetings will be preceded by Council Meetings. The next Council meeting is therefore set for 6 April 2011 and SACAA's members are urged to submit their ideas and proposals for the enhancement of activities to the Administrator.



## Corporate Corner

### CSIR Built Environment

After an absence of several years the CSIR once again has become a Corporate Member (without vested interest). The efforts of SACAA's member, Santie Gouws, were instrumental in resuscitating this membership. The CSIR member serving on Council is Dr Joe Mapiravana, Principal Researcher, Research Group Leader Materials & Methods in the CSIR's Built Environment.

### Lafarge

As from 17 December 2010, Lafarge's Aggregate, Cement and Readymix business units have relocated to 35 Westfield Road, Longmeadow Business Estate Ext. 11, 1609. The telephone numbers are 0860 523 274 and 0861 523 274.

### The Cement and Concrete Institute (C&CI) in a nutshell

The Cement & Concrete Institute (C&CI) is a marketing organisation which promotes sustainable concrete by providing advice, education and information to all those interested in concrete in southern Africa.

C&CI's Information Centre houses the most comprehensive collection of books, journals and technical reports on all aspects of cement and concrete in the southern hemisphere. Access is free through personal visits to the Centre or by electronic means. The Information Centre's portal on the website is the gateway to a vast volume of available information.

Most of the 45 C&CI publications currently in print can be downloaded from the website free of charge. The 9<sup>th</sup> edition of *Fulton's Concrete Technology*, the definitive handbook on concrete, is available for sale. A quarterly journal, *Concrete Trends* (free on request), is published to showcase the many and varied applications of concrete.

C&CI's School of Concrete Technology (SCT) offers professional courses at different levels of concrete theory and application. The portfolio ranges from basic introductory courses to the internationally recognised *Advanced Concrete Technology* course.

Independent, professional advisory and consulting services are provided for private and public sector clients. General technical advice is available through the free advisory service.

C&CI coordinates concrete research activities through its Research Advisory Committee.

The Institute oversees the review of existing concrete related standards and the introduction of new standards where necessary, with a view to ensuring effective implementation of StanSA standards.

More information from Hanlie Turner, [hanlie.turner@cnci.org.za](mailto:hanlie.turner@cnci.org.za) or [www.cnci.org.za](http://www.cnci.org.za)

## **NEMWA**

The National Environmental Management Waste Act (NEMWA) is going to have a profound influence on the utilisation, disposal and management of coal combustion products in South Africa. NEMWA represents a paradigm shift in the approach to waste and brings South Africa in line with Globally Harmonised System. NEMWA was promulgated primarily to address the shortcomings of previous waste management legislation which favoured landfill, encouraged dilution, co-disposal and dispersion of waste.

The aim of NEMWA is the protection of human health and the environment. This is achieved by the 4 R's: Reduce, Recover, Recycle and Reuse. NEMWA implements a legal framework that facilitates utilisation rather than disposal through a waste classification, categorisation and management system that favours reduction, recovery and treatment rather than disposal.

As far as ash is concerned NEMWA will encourage the development of new markets. One of the key aspects being the possibility of achieving end-of-waste (EOW) status.

This will allow coal ash to be regarded as a resource rather than a waste. In so doing it will open up new avenues in non-cementitious applications.

In order to achieve EOW status for the use of fly ash and bottom ash in the cementitious industry the SACAA will formally evoke Section 19(1) and 19(3)(a) of NEMWA and request the Minister of Environmental Affairs to favourably consider a motivation for listing fly ash recovery and processing facilities as Waste Management Activities that do not require a Waste Management Licence.

The purpose is not that all coal ash be declared as having EOW status but only that fraction recovered from Eskom and sold by the ash marketing companies in accordance with credible national or international standards.

NEMWA is a far-reaching piece of legislation and anyone involved in the ash industry is encouraged to become familiar with its contents.

It appears in Government Gazette No 3200 of 10 March 2009.

The exemption criteria for procuring a Waste Management Licence is contained in Part 4 of NEMWA. As you will appreciate, coal ash is in an ideal situation to achieve EOW status since it conforms to all the listed criteria.

Members of SACAA will be kept informed on progress ..... so, watch this space !!!

## **Feedback: SACAA Technical Meeting, 2 February 2011**

SACAA Vice President, Dr Wayne Truter, University of Pretoria, gave an illustrated presentation on: ***What is the potential of using Class F Fly ash in the reclamation of surface coal mine cover soils and coal discard dumps?***

Surface coal mine soils, and especially discard material, are difficult to reclaim for successful re-vegetation. It is possible to re-vegetate the covering topsoil, but the sustainability of conventional procedures is often poor. Liming and fertilising the covering topsoil, does not necessarily ensure a viable growth medium for plants for prolonged periods. This covering topsoil is acidified over time, by the capillary action of water generated by the underlying coal discard material or spoil containing high levels of pyrite. Roots are unable to grow properly and vegetation eventually dies. As a result, the covering topsoil becomes unstable, and susceptible to erosion. The objective, continuous experimental work is to identify other amelioration strategies for the cover soil and coal discard, using the bituminous coal combustion by product - Class F fly ash as a soil ameliorant. The efficacy of this material in counteracting the acidic conditions prevalent in the cover soil was observed. Due to the lower CaCO<sub>3</sub> equivalent of Class F fly ashes compared with agricultural lime, heavier applications are required to neutralise such acidity. This research focuses on different techniques of amelioration for both the cover soil and the discard material.

One treatment also included the use of Class F fly ash as a barrier (buffer zone) between the covering topsoil and the coal discard. The cover soil was then planted with various grasses used in the reclamation process in rehabilitation in South Africa. This preliminary study focussed on the effect of different treatments on the production of these species and to the extent to which soil chemical status changes over a period of time. Significant increases in yield (up to 200%) were noticed for Class F fly ash treated soil and discards relative to the untreated control in a specific season. The pH of cover soil was the most strongly affected soil parameter during the experimental period.

The study concluded that as an ameliorant Class F fly ash has the potential to be used in creating a more sustainable soil environment to ensure a more stable vegetation to facilitate effective reclamation of coal cover soils and discard materials. This work provides the basis for more detailed follow-up research.

The presentation was followed by the usual networking over refreshments. **Sephaku Ash** was thanked for the sponsorship of this meeting.

## **Some Local News on the Fly Ash Scene**

### **Sheath cements position as CEO**

John Sheath has been appointed the first full-time chief executive of the Concrete Society of Southern Africa (CSSA)

Sheath, well known in concrete marketing circles, has relinquished his responsibilities as national president of the society for 2010/2011 to take up the new position.

CSSA is a public benefit organisation whose quoted mission is to "promote excellence and innovation in the use of concrete and to provide a forum for networking and sharing knowledge and information on concrete".

[Source The Star 2011/01/31]

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## LAST SNIPPET

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### A prestigious award for our President



Richard Kruger was recognised by the Polish CCP Union for his contribution towards the utilisation of coal combustion products (CCPs).

Richard became the first person outside of Europe to become the recipient of the Phoenix award. He received the acclaim of his peers during a Gala Dinner in Warsaw on 25 October 2010.

The President of ECOBA, the Polish Minister for the Environment and the President of the Polish CCP Union all paid tribute to Richard.

The award consists of a brass statue of the legendary Phoenix bird, rising from the ashes, and a certificate citing his contribution to the industry.

These include inter alia:

- Multi-directional research on processing and beneficiation of CCPs
- Successful development of high-added value markets for ultra fine fly ash
- Tireless efforts towards uniting scientific and practical aspects across the world under the theme of effective transformation of ash into products
- Exemplifying on the one hand 'soft', and the other hand 'unyielding' approach so necessary for stripping the stigma of waste from valuable raw materials like CCPs,
- Substantive presence in and support of turning Grey to Gold in Poland

- His visionary leadership in uniting all CCP roleplayers across the world into a cohesive entity under the World Wide Coal Combustion Products Union.

Attached is a photo taken at the event. For those of you who know Richard well you will notice a look of disbelief on his face. He was overwhelmed by the acclaim and humbly accepted the award by paying tribute to the scientists and engineers throughout the world who were working tirelessly in trying to understand the complexities and properties of CCPs !!

Members of the various coal ash unions, societies and associations join the SACAA in congratulating you, Richard.

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## FORTHCOMING EVENTS

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### **24-25 FEBRUARY 2011:**

#### **Geological Society of South Africa**

The Directorate of Professional Programmes of the GSSA presents a two-day course on:

#### **Drilling methods and techniques in exploration and mining**

#### **A practical overview of all methods of drilling for practicing geologists and related professionals**

Course Leader: Mr Colin Rice

Glen Hove Conference, 2 Glenhove Road, Melrose, Johannesburg

[Details: <http://www.delitech.biz/fff/Drilling%20Registration%20Form.doc>]

### **17-18 MARCH 2011:**

#### **EcoBuilding Conference and Exhibition in Mauritius**

The second annual EcoBuilding Conference, is perfectly timed to provide the property and construction sectors in Mauritius with the latest developments in relation to projects, regulations, initiatives and their implications, as well as to deliver another world class panel of experts who will speak under the theme: **Urban Planning and Building Design in a Tropical climate.**

### **28-30 MARCH 2011**

#### **Building Materials Analysis 2011**

Halle, Germany

The building materials analysis meeting is organised by the Mineralogical/Geochemical Group of the University of Halle/Saale in cooperation with PANalytical. The topics include the comparison of different analysis methods and software programs as well as case studies from cement plants. The main focus is on *sustainability* and how analytical methods, especially X-ray techniques can contribute in that respect. The workshop language is English.

Send your application before 26 February 2011

For more information please contact:

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**6 APRIL 2011:****SACAA Technical Meeting, at SAICE, Midrand, 15:00**

Presentation by the SACAA President, Dr Richard Kruger, Richonne Consulting, on **ECOBA and the European Legislation Concerning Ash**

**9-12 MAY 2011:****World of Coal Ash (WOCA) 2011**

Denver, Colorado/USA

Organised by the American Coal Ash Association (ACAA)

Details: [www.worldofcoalash.org](http://www.worldofcoalash.org)

**8 JUNE 2011:****SACAA Technical Meeting, at SAICE, Midrand, 15:00**

Presentation by SACAA member, Johan van Schalkwyk, on **The Application of Ash in Plastics.**

**14-15 JUNE 2011:**

**Workshop: Performance-based Specifications for Concrete** to be held in Leipzig/Germany

Details are available from: Dr-Ing Hans Beushausen

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**24 AUGUST 2011:****SACAA AGM, at SAICE, Midrand, 15:00****19 OCTOBER 2011:****SACAA Technical Meeting, at SAICE, Midrand, 15:00****16 NOVEMBER 2011:****SACAA Technical Meeting, at SAICE, Midrand, 15:00**

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## YOUR SACAA COUNCIL

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**Elected Members:**

Richard Kruger (President)  
 Wayne Truter, UP (Vice President)  
 Dieter Heinichen (Treasurer/Administrator)  
 William Burtone, PPC  
 Karen Surridge-Talbot, UP  
 Sabine Verryn, XRD Analytical and Consulting

**Corporate representatives  
 [& alternates]:****Afrisam:**

Mike McDonald  
 [Amit Downeeringen]  
 [Eunice Mguqulwa]

**Ash Resources:**

Matthew Reynolds  
 [Andrew McKeen]

**C&CI:**

Gary Theodosiou

**CSIR:**

Joe Mapiravana  
 [Santie Gouws]

**Eskom:**

Deidre Herbst

**Lafarge SA:**

Lebogang Mandiwana

**PPC:**

Eduardo Auger  
 [Walter Wirth]

**Sephaku Ash:**

Hennie van Heerden

**Ulula Ash:**

Belinda Heichler  
 [Mark Hovy]

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The editorial team would welcome any information for publication in forthcoming **Ash@Work** newsletters.

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 e-mail: hafrika@absamail.co.za

**or write to:**

SACAA, PO Box 50172, Moreleta Village, 0097

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**Disclaimer:** *The views expressed in this newsletter are not necessarily those of the Council of the South African Coal Ash Association*