KZN COAL INDABA

After a relaxing morning at the Protea Hotel in Hluhluwe, the sixth KwaZulu-Natal (‘KZN’) Coal Indaba conference kicked off on Thursday afternoon the 23rd of August 2012 with a welcome from Mr Bill Lamont, the President of the Fossil Fuel Foundation (‘FFF’).

Dr John Hancox (CCIC Coal) then gave the Opening Address on the topic of the Karoo basins of south-central Africa. John’s presentation (the first of three) focussed on the nature of the preserved stratigraphic successions and their economic potential, with a focus on the coal deposits and new developments, particularly in Mozambique.

John then also presented the second talk of the afternoon. Entitled “The Klip River Coalfield: Rising Phoenix or Postulating Peacock” this talk looked at the potential of the Klip River Coalfield to drive the rebirth of the KZN coal economy, with a focus on current exploration and exploitation within the field.

Continuing the geological trend, Professor Mike Watkeys (University of KZN, Durban) delved into the realm of coal, dolerites and faults in KZN. Jurassic aged dolerite intrusions are ubiquitous in KZN and Mike showed that the shape of the dolerite is important and that one can use this feature to work out the direction of flow of the magma that created the dikes and sills. Furthermore Mike showed that the faulting in the KZN region is the result of a combination of normal and strike-slip faulting related to extensional events during Gondwana break-up.

After the afternoon tea break, Dr Rolf Becker of the South African Council for Natural Scientific Professions (‘SACNASP’) presented a number of very compelling reasons why one should be SACNASP registered and showed that the organisation was on the move with an annual increase of 700 members in 2012, bring the total to near 5000 (39% of which are in the Geological and Earth sciences).

Brian Roberts (ZYL) took us firmly back into the realms of geology and exploration discussing the companies two advanced metallurgical coal (anthracite) projects in KZN and Mpumalanga, but with the focus on their Mbila Project in KZN. According to Brian Mbila is on schedule to become KZN’s first new anthracite mine since Somkhele came on stream.

Sozithi Tovel (Beacon Rock) continued the geological theme of the afternoon with a talk based on his honours project which was undertaken on the sequence stratigraphy of the Emakhwezini Formation on Beacon Rock’s Fuleni Project area. It was really good to see that some academic work is still being undertaken on the coalfields of KZN, especially work which has direct application to the exploration industry.

The afternoon session was brought to a close by David Dodd of BSC Resources, who talked about the company’s exploration programme in KZN and some of the economic, political, social and geological challenges they have had to overcome. Dave however showed that KZN still offers diverse opportunities for coal exploration companies.

The day’s proceedings were followed by a question and discussion session and networking drinks and a light supper by the hotel pool, with much lively discourse as to some of the topics raised during the day.
Day two began a little too early for some, but for those who made it Andrew (Rocky) Kinghorn began the day by presenting the first of two talks by Dave Collins (MAC Consulting), who unfortunately could not attend. The first tackled the ever provocative topic of climate change (in perspective). Dave (via Rocky) showed that climate change is a scientific fact and that today, all but a tiny handful of climate experts are convinced that the Earth’s climate is heating up, and that human activities are a significant cause.

Karin van der Merwe (Shanduka Coal) got us back to geology and coal mining with her talk on Shanduka’s Springlake Colliery (Klip River Coalfield) and the impact that the geology has played on the underground mining conditions. The role of dykes in particular received renewed attention, much to the delight of Prof Watkeys and Karin concluded by re-iterating that drilling to a grid is not going to solve the issue of structural complexity.

Geoff Campbell (GAP Geophysics) rounded out the morning session with a talk on geophysics contribution to Coal Exploration, with a focus on case studies of work he has undertaken in KZN. Geoff re-enforced the fact that dolerites are potentially responsible for a lot of evils in the KZN coalfields, and showed that the dolerite dykes and sills which constitute the main mining “loss-of-ground” features are usually characterized by unique (in the coal-field environment) magnetic signatures which may be readily mapped from ground or (more commonly) airborne magnetometer surveys. Geoff further discussed a whole suite of geophysical applications that can aid the exploration geologist and resource estimator in accurately assessing the geological environment.

The tea break saw lots of animated discussion regarding the evils of dolerite in the KZN coalfields and following on this welcome break, Wynand Marais (Mindset Coal) looked at one of the other perils of exploitation in KZN, that of the thin nature of the seams and the difficulties this poses for underground mining. Wynand covered the definition of thin seam mining (1.2-1.6 m), mining challenges including dolerites, production capabilities, explosives development, brushing and stone handling innovations, as well as the challenges of the available mining equipment in KZN (a lot of the thin seam mining equipment in KZN is obsolete and not fit for purpose). Wynand’s talk was the last of the geology and mining talks, and the rest of the conference focussed on processing and the issues of coal and the environment.

Mike Andrews (OEN Enterprises) kicked off the processing talks with a look at the problems with burning South African coals. Those of you who have seen one of Mike’s talks will know that they involve lots of video footage of what goes on inside a boiler, and the thermal damage that the burning of coals they were not designed for can do to them.

After all the talks on geology and mining, a somewhat nervous Lauren Beviss-Challinor (a design Engineer in the Industrial Watertube Boiler Division of John Thompson) regaled us with an account of dual fired boilers, what they can do (an emphasis on co-generation using renewable and fossil fuels) and how one should design one. I for one found this a very informative talk as it is not something we often see at the KZN indabas.

Ravi Baoolal (Coal Concepts) steered us into the lunch break with a talk on quality checks in coal laboratories and the use of proficiency testing and control samples. He showed that such use lends
confidence to laboratory performance to their customers and to accreditation bodies. Furthermore proficiency testing allows for the identification of inter-laboratory differences and the initiation of corrective action where and when appropriate.

The last session of the conference began with a second Keynote Address, this time by Brendan Beck (SANEDI) on Carbon Capture and Storage (‘CCS’) in South Africa. In a beautifully illustrated talk Brendan covered what CCS actually is, how the process is monitored, CCS in the and CCS in South Africa and the activities of the South African Centre for Carbon Capture and Storage (‘SACCCS’).

Charles Makuwerere (WWF-SA) presented a talk entitled “Coal Water Futures in South Africa: A Case for ‘No Go Areas’ for Coal Mining”. This talk summarised the impacts coal mining has had on water resources and presented the deterioration of the Olifants Catchment area as a case study. He further demonstrated that current planning for coal mining does not take account the importance of water resources and recommended some critical changes that are needed for integrated development and land-use planning that will improve our water security in the future. His take home message was that no mining should be allowed in high conservation value and high water yield areas – all in all some sobering thoughts for the coal resource exploiters in the audience.

The environmental issues continued, with a jointly presented talk by Christopher Wright and Elizabeth Lees (GCS Water & Environmental Consultants). Their talk on planning for environmental risk covered an overview of key pieces of environmental legislation, as well as forward planning and risk management. It showed that in the past there was often not great compliance with best practice, with a tendency to adhere only to minimum legal/regulatory requirements. Environmental legislation has however been heavily tightened up in the past few years, and those working outside of the legislation now face heavy penalties and fines and even imprisonment.

The final talk of the day was given by Rocky Kinghorn (again posing as Dave Collins) and looked to the role of coal in the future. Dave chose to focus on a single reality, that none of the world’s possible energy paths are likely to be compatible with the required emissions reduction path, and that the world will not be able to reduce its emissions in time to avoid disruptive climate change. More sobering words to end the speaker’s session and to kick off some lively debate in the final discussion slot.

Most then dispersed to the bar to continue the “discussion” and to imbibe sufficient of the amber nectar to fortify themselves for the Conference Dinner talk. This talk, the third by John Hancox, focussed on Life in an Early Triassic Lake, and had absolutely nothing to do with coal (given that as John pointed out – there is no coal of this age anywhere on earth). Collecting in the Lower Burgersdorp Formation in the Free State over the last twenty years has uncovered an exceptionally diverse and abundant fauna, including remarkable microfauna. Reeling from scientific names like Cynognathus craternalis and Lissodus africanus the delegates then retired to the boma for a starlit dinner and further fortification.

All in all a very well attended and successful conference – and one in the spirit for which the KZN Indabas have become known. As a final note I would like to thank the various sponsors for helping to make the event such a success.