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Are conveyor systems still a workplace hazard?

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Experience and depth of resources are what gives B&E International the competitive edge in the local market. The company has positioned itself as a 'partner of choice' for the mining and construction industries, through its integrated crushing, screening and mineral processing solutions. The company is more than able to meet a range of customer requirements.



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The new generation Cat 988K builds on the premium features of previous models to set standards for high production loading in its weight class, combined with significant savings in fuel consumption. Barlorld Equipment is the Cat dealer for Southern Africa. See full story on page 10.



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P O Box 140
Bedfordview, 2008
Tel: +27 11 622 4770
Fax: +27 11 615 6108
www.crown.co.za

Average circulation
2 521

Printed by:
Tandym Cape

www.modernquarryingmagazine.co.za



The views expressed in this publication are not necessarily those of the editor or the publisher.

INTRODUCING THE FINLAY DUAL POWER CRUSHING AND SCREENING RANGE



Dual Power crushers and screeners are electrically driven machines allowing the end user to run from the mains supply with the aim of giving **significant savings on energy costs**. These machines are also fitted with an on-board gen-set allowing the operator to move and use the machine where there is no electrical supply, giving them the flexibility and versatility of the current standard models.

There are two crusher models in the Dual Power range: the J-1175 Dual Power and the C-1540 Dual Power, adding to the already available 694+ Dual Power. Bell is proud to introduce this market leading technology into Southern Africa which is backed by **Bell Equipment's strong reliable support.**

DUAL POWER



J-1175



694+



C-1540

FINLAY

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www.bellequipment.com

Ownership – a contentious issue in Mining Charter

The year 2014 was the year in which the mining industry was expected to aim towards reaching the targets set in the 2010 Amended Mining Charter. And at the end of last month government, organised mining and organised labour agreed to work collaboratively to obtain a court ruling on the crucial issue of BEE ownership of mines.

At a media briefing in Pretoria on 31 March – the day of the Mining Charter deadline – Mike Teke, president of the Chamber of Mines said that its members fully supported the transformation objectives encapsulated in the MPRDA, and have taken meaningful steps to give effect to them. “However, an area where the DMR and the Chamber have a difference of opinion is the understanding of the ownership element. The DMR’s understanding of the ownership element indicates that empowerment transactions concluded after 2004 where the BEE ownership level has fallen due to BEE disposal of assets or for other reasons, should not be included in the calculation of the progress made.

“This means,” Teke said, “that the DMR may find certain components of the mining sector not to have achieved the ownership target as per its definition.”

The Chamber believes that previous deals should be included in the ownership calculation, as it represents meaningful economic participation by HDSA beneficiaries since before 2002. The industry believes the Mining Charter does not require mining companies to maintain a 26% HDSA ownership once it has been achieved. The exclusion of past HDSA transactions would result in a material misrepresentation of all the meaningful economic HDSA participation facilitated by mining companies in good faith and with the approval of the DMR.

The DMR, in issuing mining rights, had agreed with the transformation plans of the companies. “In addition, the industry had met the original spirit and intent of the Mining Charter by broadening ownership and transferring significant value to BEE groups. The fact that various BEE companies had sold their assets in mining, or that the global financial crisis had materially impacted on the share price performance of companies should not be used to penalise the efforts of mining companies to meet the objectives of the Chamber,” Teke urged.

“From the Chamber’s perspective, the mining industry has achieved the Mining Charter ownership targets, having provided meaningful economic participation for HDSAs represented through identifiable beneficiaries, substantial cash flow and full shareholder rights.”

In an attempt to break the impasse and to avert any confusion that may be damaging to investor perceptions, the DMR and the Chamber

have jointly agreed that the court be approached to seek clarity on the matter. This will be done through a declaratory order which will provide a ruling on the relevant legislation pertaining to the continuing consequences matter.

“This is a proactive and necessary step to promote regulatory certainty for the mining industry and shows that both the DMR and Chamber recognise the need for the court to provide certainty,” he said.

DMR Minister Ngoako Ramatlhodi believes that it is better to seek the wisdom of the courts rather than impose a unilateral decision on a contentious issue. “My sense is why not work collaboratively and agree; this is the shortest route to certainty,” he said.

Once there is a ruling from the court, the ideal would be to negotiate outcomes in order to mitigate the possibilities of appeal. There will undoubtedly be appeals, and these are going to have to be managed by the DMR.

The Minister indicated some of the highlights from the assessment report as of 29 March including:

- Housing and living conditions, where 63% of right holders with hostels have converted hostels to either family and/or single units.
- Employment equity, where the percentage of right holders that met the 40% target for each category are: top management (board) 73%; senior management (EXCO) 50%; middle management 56%; junior management 68%; core and critical skills 79%.
- Procurement and enterprise development where 42% met the target of procuring capital goods from HDSAs; 33% met target of procuring services from HDSAs; 62% met the target of procuring consumables from HDSAs.
- Human resource development where 36% of companies have spent the targeted 5,0% of total annual payroll on training.
- Mine community development where 47% of mine community development projects are between 75% and 100% completion.
- Sustainable development where except for samples in SA, the performance on sustainable development has not met expectations.

“From these statistics, it is clear that there is still some way to go before we can truly transform the industry and fully realise the objectives set out in the Charter and the MPRDA,” Minister Ramatlhodi said.

On a positive note, the Chamber and the majority of its members, large and small, have invested significantly in transforming the sector – a positive process and one that is pretty much irreversible.



Paul Kelly

Portland cuts carbon footprint

Portland, situated on the Vissershok Road, between the picturesque Durbanville Hills has imported and installed a Bibko concrete recycling system, resulting in a major influence on the production and environmental benefits of the Portland Readymix plant.

For any readymix supplier, wastage and concrete returns are a problem. This system completely eliminates the need to waste concrete, to dump returns and to pay for the removal of waste. The reuse of resources means that the plant will, in effect, be paid back within three years from installation. At the time of writing, in two months over 300 t of aggregate had been recovered.

After every delivery, the trucks return to be quickly and efficiently washed. All aggregates are recovered and the cement water is pumped into a separate dam, and

re-used during the mix of new loads. The system is user-friendly and can be used by a general labourer. There is no need for special training and each driver cleans his own truck with this automatic system. There are two buttons: one for rinsing and one for mixing. The machine requires basic ongoing maintenance in order to be kept clean.

The constant recycling ensures a clean plant without slush, leaving a smaller carbon footprint. The trucks are constantly clean and there is no build up of residue in the mixing drums. The rapid cleaning

and loading operation has resulted in better turnaround times for the operation.

Portland has incorporated this recycling plant into the improvements and facelift the group is undertaking, which includes the recent upgrade of electrical wiring at the aggregate plant and the current upgrade of the precision hollow-core factory. New machinery is on its way from Weiler in Germany for the installation of new casting beds, a new casting machine and the resultant upgrade of the stock yard. In terms of hollowcore, the group is expanding rapidly, with Phil Surridge from Bobcrete joining the management team.

The Portland group is home to Portland Quarry, Readymix and Hollowcore.

www.portland.co.za
Report by Dale Kelly, photographs courtesy Portland



Recently imported from Germany, the Bibko recycling plant is already reaping benefits for the Portland group.



Simple to use, drivers are able to clean their own trucks with the automatic system.

AECI blasts off Down Under

Leading African explosives and chemicals company AECI, and Thiess, a major global mining contractor, have signed a five-year agreement signalling AECI's entry into Australia. In terms of the agreement, AEL

Mining Services (AEL), a wholly-owned subsidiary of AECI, will provide leading edge explosives, initiating systems and technical services to Thiess in Australia.

AECI's entry into Australia is aligned with the company's clearly defined growth strategy. In addition to Australia, other places of interest are Africa, Brazil, Chile and Indonesia. Australia is one of the world's largest producers of metallurgical and thermal coal, and ferrous and non-ferrous metals. The explosives industry is nearly six times the size of that of South Africa.

To prepare the groundwork,

AECI Australia was registered as a legal entity in 2014. At the same time, a MD was appointed, an office opened in Brisbane and a site developed in Bajool near Rockhampton in Queensland. The site includes an ammonium nitrate emulsion manufacturing facility imported from South Africa, as well as storage space. The modular design of the manufacturing facility is deployed globally and gives AEL the flexibility to grow capacity easily in the future. All the necessary regulatory approvals are in place.

According to Mark Dytors, AECI CE, the first 140 t of emulsion was manufactured in November 2014 and a trial blast involving 550 electronic detonators was completed in January this year. Full explosives supply will commence shortly.

www.aeci.co.za / www.thiess.com.au

Beltcon 18 set for August

Now in its 36th year, the biennial International Materials Handling Conference and Exhibition – Beltcon 18 – takes place from August 5-6, at the Birchwood Hotel and Conference Centre. The prestigious conference is recognised worldwide as a value resource in bringing the latest developments in materials handling to a wide audience.

The latest research, new conveyor techniques, report backs on methodology and new technology and installations are presented by some of the most eminent international conveying specialists. www.beltcon.org.za

Mining infrastructure in Africa

Mining infrastructure is an important driver for development in mineral-rich countries. Sub-Saharan Africa has the biggest untapped mineral and natural resources in the world, due to a lack of infrastructure. Mines, more than most industries, depend on infrastructure to operate and to transport their products to other countries.

Tapping into the rich mineral resources of the region will generate royalties and taxes as well as local employment opportunities needed for broad-based economic development in the region, but infrastructure is required before this can be done. While mining operations in developed countries are supported by infrastructure created by governments, the infrastructure deficit in Sub-Saharan Africa cannot be handled alone by governments that already face many financial challenges.

According to the World Bank's Africa Infrastructure Country Diagnostic, Sub-Saharan Africa faces an annual infrastructure funding gap of US\$31-billion. This gap can be filled by mining where operations can be leveraged to build long-term assets, such as infrastructure, to support sustainable and inclusive growth.

Economic development in the region has been driven largely by mining in countries such as South Africa, Zimbabwe and Nigeria. However, where mining resources were primarily exploited for foreign agendas, countries faced huge challenges when foreign entities withdrew. The resulting lack of capacity resulted in infrastructure failures in governments, regions and societies.

"Mining is a catalyst for business where the value chain starts at mining, with value-add driving the rest of the economy through beneficiation to manufacturing and on to industry," says Frans Pienaar, chairman of Inyatsi Construction, a company involved in building infrastructure in the region. "From our experience, we have found that it is better to view mining infrastructure from a regional rather than a country point of view, because cooperation between regions improves profitability as well as the ability to compete internationally in the world markets. Obviously different countries have different needs and



The development of mining infrastructure that can contribute to economic growth in Sub-Saharan Africa can be the catalyst for encourage economic growth, which in turn will fulfil a major role in alleviating poverty.

priorities, but it is important to align as far as possible to regional players to exploit cooperation and learning experiences."

The involvement of mines in Africa will generate sustainable development when the infrastructure constructed for the operational purposes of the mines will also be available for employees and their families, as well as communities around the operation during and after the mining process.

Infrastructure plays an important role in the social and economic development of communities. Regions without sufficient access to effective infrastructure are characterised by high levels of poverty. The development of mining infrastructure that can contribute to economic growth

New Atlas Copco VP

Frans van Niekerk has been appointed VP, Atlas Copco South Africa Holding. With 16 years extensive experience in the group, his knowledge of the operations spans four continents. Previously based in South Africa for eight years, Van Niekerk also worked in Southeast Asia and South America (Chile). In 2011, he moved to Europe where he took up the reins as VP Controlling, at the newly-formed Mining and Rock Excavation Service division in Sweden.



He is based at Atlas Copco's world-class 78 000 m² facility in the east of Johannesburg. Atlas Copco House brings together the group's business areas and divisions under one roof for the sustainable and streamlined delivery of end-to-end product and service solutions to Southern Africa's mining industry.

Van Niekerk succeeds Bernie Hanaray, who has returned to his native country, New Zealand, to take up the position as GM at Ash Air, a compressor distributor acquired by Atlas Copco in 2014.

www.atlascopco.co.za

in Sub-Saharan Africa can be the catalyst for encourage economic growth, which in turn will fulfil a major role in alleviating poverty.

www.inyatsi.net

Award-winning AEL paper

The International Society of Explosives Engineers (ISEE) has awarded AEL Mining Service's Ashlin Pillay with the sought-after Paper of the Year Award at this year's ISEE Conference in New Orleans.

Pillay, an electronics field technician for AEL Mining Services, a South African-based supplier of commercial explosives, initiating systems and blasting services, presented a paper that gave insight into the project at Ho Man Tin Station in Hong Kong. The station is a cross-cut interchange station between the Kwun Tong Line Extension and Shatin Central Link, which carries over 8-million passengers daily. The project needed to deliver on the construction of a sub-surface transportation network at this interchange. Due to



ISEE Paper of the Year recipient, AEL Mining Services' Ashlin Pillay.

the high volume of passengers, the project had to be executed safely and under strict physical constraints and city regulations.

Pillay's paper gave insights on innovative means of tunnelling and blasting applications offered by AEL.

www.aelminingservices.com

'Go for Gold' makes headway



'Go for Gold' Phase 1 learners in a science laboratory.

'Go for Gold', a non-profit, education-to-employment organisation, aims to make inroads into the mining and construction industry in Gauteng after its successful debut in the construction industry in the Western Cape.

"We are starting to make headway," says 'Go for Gold' director Bridget-Ann Mullins. "We have some good solid partners in both Cape Town and Johannesburg." Notable partners in the Western Cape include Murray & Roberts, Neil Muller Construction (NMC), Haw & Inglis, Martin & East, WBHO and the Power Group. This has allowed Go for Gold to establish reciprocal links in both provinces.

"Companies can support us through their corporate social responsibility programmes as well as their skills

development initiatives as they stand to gain BBBEE points towards their scorecard," Mullins adds.

The 'Go for Gold' initiative was established in 1999 in response to the high level of youth unemployment in South Africa. "One of the factors that make us unique is that we were actually started by a company in the construction industry seeking to transform the built environment and technical professions in South Africa," she explains.

'Go for Gold' has developed a four-phase model aimed at developing future skilled graduate professionals. Phase 1 consists of scholars being transported to a 'Go for Gold' campus to further their studies in mathematics and science in particular. They are also taught computer skills and life skills. This training continues until the end of Grade 12 when all the candidates are interviewed for built environment internships, which comprises Phase 2.

Phase 3 involves attending a tertiary institution, with these studies sponsored by the relevant companies. The final phase is full-time employment in the construction industry. Each phase's successful candidates become involved in mentoring those candidates in lower phases.

Mullins reveals that 'Go for Gold' in the Western Cape has already seen over 100

candidates successfully placed in employment. "These are our success stories. The candidates often talk about the opportunities provided to them by 'Go for Gold' – and which they grabbed, as obviously it is up to them to take the responsibility of utilising such opportunities to help them get to where they are today."

These ambassadors mentor younger phase candidates. "Peer education is very powerful, and they really take it to heart it when it comes from someone from the same circumstances as them, and yet who took the initiative to change their lives and really make great strides. Thus we always say that we do not have an exit point in 'Go for Gold'. In the 'Go for Gold' family you are with us for life."

Mullins explains that 'Go for Gold' is linked to the Bargaining Council for the Civil Engineering Industry (BCCEI). "We have had a few meetings with them and continue to utilise their endorsement and support. In terms of the Construction Education and Training Authority (CETA), we were a strong partner with them before they went under review, and are now engaging with them again as they emerge from this process. Our partner companies are working with us to help rebuild that relationship."

Looking at 2015, Mullins reveals that 'Go for Gold' aims to consolidate its presence in Gauteng with the establishment of its new branch in that province. "We are piloting in Gauteng and we really want to ensure it works because we believe that, due to its size, Gauteng can be three times as big and successful as the Western Cape."

'Go for Gold' is also working in partnership with another non-profit organisation in Port Elizabeth in order to set up a similar education-to-employment initiative in the Eastern Cape. "This is really exciting as it is the first time we are collaborating in such a joint venture, and if successful, it can be another form of growth."

"We have also started looking at consulting work to see how we can share our model and our expertise while still remaining true to our core purpose. We want to grow nationally, so that we are able to use this successful education-to-employment model to influence other industries. Thus it is a very exciting year ahead," Mullins adds.

www.goforgold.org.za

No power quick fix available

While stakeholders scramble to keep the lights on, the South African Alternative Energy Association (SAAEA) warns that there is no quick fix for South Africa's power crisis.

Speaking ahead of the POWER-GEN Africa and DistribuTECH Africa power generation and distribution conferences to be held in Cape Town later this year, Alwyn Smith, spokesman for the SAAEA, says any fix will take years. "We have left it too late. There are few, if any, solutions that could be put in place to turn the situation around in the short term. To be fair, this is not just the fault of Eskom. Eskom has been warning for years that this would happen unless more budgets are allocated for maintenance."

He says in the long term, energy sources such as nuclear, solar and wind power, have the potential to deliver cost-effective power on a large scale. "But

currently, independent power producers and alternative energy plants deliver too little capacity to significantly improve the power situation. A nuclear reactor that could generate a significant amount of power could take nearly a decade to build. The region has an abundance of gas which could cost-effectively run turbines, but this too will take time to implement.

"There is no quick fix. The best we can do now is to bite the bullet and try to catch up on overdue maintenance on our generators," Smith says.

The South African and African power sector and the role of alternative energy in South Africa will be among the issues under discussion at the upcoming POWER-GEN Africa and DistribuTECH Africa conference and expo at the Cape Town International Conference Centre from July 15-17.

www.powergenafrika.com

After-sales service seals deal

Mpumalanga mining contractor Opsicol Mining Services recently added a Sandvik QA331 mobile screen to its fleet of equipment. What is significant about the sale is that while Opsicol is an enthusiastic user of Sandvik equipment, this was its first purchase of a new machine.

"Our association with Opsicol began when it bought a used Sandvik product from another contractor and contacted us for assistance in providing replacement spares and servicing advice," says Nicolan Govender, national sales manager for Sandvik distributor Pilot Crushtec International. "This relationship has grown owing to the mine's ability to draw from the knowledge and experience of our regional sales and technical team which keeps in regular contact with operators of Sandvik equipment."

When Opsicol was

faced with the need to increase its fleet to swell its output of export coal production, it was decided that firstly it had to be a Sandvik and secondly, that a new machine presented a better business proposition.

"Having been exposed to Pilot Crushtec International's service standards, it made sense to take advantage of the many benefits that this brings," Govender says. "These include on-site commissioning, training and a 12-month warranty."

The QA331 has been on site since January and Opsicol is well satisfied with its investment. www.pilotcrushtec.com



The Sandvik QA331 en route to Opsicol in Mpumalanga.

Petro.t.ex addresses SA's challenges

Africa's petroleum and petrochemical industry faces many challenges, including climate change issues, fuel security and the falling oil price. These will be addressed at the upcoming Petro.t.ex Conference and Exhibition, a major mid-and down-stream event focused on showcasing products, services and business opportunities across Sub-Saharan Africa. Petro.t.ex Africa is a component of the multi-sector South African Industry & Technology Fair and takes place at Gallagher Convention Centre, Midrand, from May 20-22.

"The key focus of the conference is the updates for the liquid fuel and downstream industry," says organiser Bette McNaughton. "It will also cover numerous current topics such as the overall status of the liquid fuel industry in South Africa, climate change, alternative fuels, and the revised Broad-Based Black Economic Empowerment (BBBEE) Codes for the retail fuel market."

www.exhibitionsafrica.com

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Partnership benefits industry



An example of load-haul operations. Concor Opencast Mining has both soft- and hard-rock operations.

While Concor Opencast Mining positions itself as a mid-tier niche specialised mining contractor, its partnership with Downer Mining of Australia gives it the capability to tackle Tier 1 projects if need be. Downer Mining has extensive experience in running ultra-class mining equipment, comprising some of the largest in the world, such as 800 t class excavators and 300 t class dump trucks.

"In principle, what this agreement means is that, when there are projects of mutual interest that are suitable for both of our objectives, we will partner with Downer Mining," says Concor

Opencast Mining contracts director, Gert Buitendach.

The Australian mining giant has also developed proprietary systems to ensure the efficient and effective utilisation of this ultra-class equipment. In terms of its own fleet, Concor Opencast Mining has access to Murray & Roberts Plant, a sister company.

"We procure equipment for specific projects as contract requirements differ," he explains. "Our fleet ranges from typical road milling machines through to 120 t excavators and 100 t dump trucks.

Concor Opencast Mining also has

access to some of the largest mobile crushing trains in the country, giving it the capability to carry out significant crushing projects and crush to the required specification. The advantage in this competitive market is the company's proven capability to deliver results and meet the requirements of its clients. It has operations in both soft- and hard-rock mining, from coal to platinum and iron ore.

"We have experience in the full commodity spectrum. We have also diversified into certain value-added mining requirements by offering crushing solutions, drawing on the construction infrastructure we have at our disposal," Buitendach says.

Having full access to the group resources of Murray & Roberts itself gives Concor Opencast Mining a distinct advantage. "We have a cross-functional platform in terms of underground mining, civils, infrastructure and engineering. We are part of a diversified group and have a significant knowledge base to draw upon," he adds.

www.construction.murrob.com

Celebrating 100 years of innovation

April 12, 1914, marked an auspicious day on South Africa's mining and industry calendar when SKF opened its doors at No 23 Pritchard Street, Johannesburg. This global knowledge engineering company, then known as Skefko (South Africa) Ball Bearing Company Limited, went on to become Africa's market-leading specialist

in the delivery of innovative, world-class product and service solutions.

To celebrate this 100-year milestone, SKF South Africa (Pty) Ltd, hosted a special customer day in November last year, in the Solutions Factory based at the company's headquarters in Boksburg, Gauteng. The formal proceedings



SKF's Ian Cillié (right) and Vartan Vartanian pictured at the customer day.

included presentations by SKF MD Ian Cillié, who welcomed guests and introduced SKF president Industrial Market Regional Sales and Services, Vartan Vartanian. Special guest, economics analyst Mike Schussler, gave guests a glimpse into the economic future of South Africa and the rest of the African continent.

After key SKF customer Vesuvius shared its SKF experience, SKF Solutions factory manager Sarel Froneman, invited guests on a guided tour through the Solutions Factory to experience SKF's engineering knowledge, core technologies and capabilities combined under one roof.

www.skf.co.za

New head of Wits mining school

Professor Cuthbert Musingwini has been appointed head of the University of the Witwatersrand's School of Mining Engineering. Having lectured at Wits since 2004, Professor Musingwini has over 20 years of experience in the mining sector – including mine production management and planning, consulting and academia. He began his career in the Zimbabwean gold mining industry then as a research fellow – and later a lecturer – at the University of Zimbabwe.

He is senior VP and honorary treasurer of the Southern African Institute of Mining and Metallurgy (SAIMM), a Fellow

of the SAIMM, a registered professional mining engineer with the Engineering Council of South Africa (ECSA), and holds a PhD in Mining Engineering from Wits. He is a managing editor of the International Journal of Mining, Reclamation and Environment published by the Taylor and Francis Group (UK). He was awarded a National Research Foundation (NRF) C3 rating in 2014, and has published and presented extensively, both locally and abroad.



www.wits.ac.za

Liqui Moly director appointed

On his recent visit to South Africa, Liqui Moly's Ernst Prost, owner-partner of Liqui Moly Worldwide, announced the appointment to the board of current GM for the brand in South Africa, Melicia Labuschagne.

"Melicia launched Liqui Moly in South Africa in 2007 and officially started trading in June 2008. She has been with us for eight years and has done an excellent job for the brand, growing it year after year," Prost confirms. "The board is very impressed with the results to date and believe the appointment is well deserved. It's been a tough eight years for her and her team and the appointment is



Newly-appointed Liqui Moly director, Melicia Labuschagne.

well overdue; we welcome her to the Liqui Moly family of senior management."

www.liqui-moly.co.za

Environmental calendar highlight

This year's Sustainability Week is set to accelerate the total number of sustainability projects under the theme 'Get ready to put ideas in motion'. Thought leaders, policymakers, practitioners and producers within the country and beyond will share their knowledge at Sustainability Week, hosted by alive2green from June 23-28 at the CSIR International Convention Centre in Pretoria.

This year's Sustainability Week programme boasts an impressive 14 seminars which offer excellent opportunities for

various stakeholders to share ideas to ultimately improve environmental and economic performance. An exciting addition to the programme, African Capital Cities Sustainability Forum, hosted by the City of Tshwane, will seek to lay the foundation for African cooperation at city level and urban scale.

In addition to the extended Green Building and Sustainable Energy programmes, three new seminars on Mining, Manufacturing and Infrastructure, have been introduced. www.sustainabilityweek.co.za

Government committed to Eskom

Eskom is on solid ground with government committed to deliver on its mandate of providing a reliable electricity service to the country, according to Public Enterprises Minister Lynne Brown.

The renewal of the short-term power purchase contract that will supply at least 827 MW to the system was signed recently under the leadership of Deputy President Cyril Ramaphosa with the help of Energy Minister

Tina Joemat-Pettersson.

"Given the tight electricity supply, the renewal of the co-generation is essential to ensure that this 827 MW is retained in the system," the Minister says.

Additionally, she says she has received the resignation letter of Zola Tsotsi as chairman and non-executive director of the Eskom board.

– SAnews.gov.za

Excitement mounting for A-OSH Expo

A-OSH Expo 2015, which is being held at Gallagher Convention Centre from May 12-15, emphasises the importance of appropriate and adequate risk assessments through its exhibitors and a comprehensive educational programme.

"We have a great selection of products and services from diverse suppliers

in the traditional occupational health and safety arena," confirms Joshua low, A-OSH Expo event director from show organiser Specialised Exhibitions Montgomery. "In addition, in line with our goal to emphasise the environmental management element of SHEQ, we have just signed up our first exhibitor in this sector." www.aosh.co.za

Cat primary loading in eco-mode

The new generation Cat 988K builds on the premium features of previous models to set new standards for high production loading in its weight class, combined with significant savings in fuel consumption. Innovation improvements include a redesigned loader linkage, drive train modifications, greater serviceability, and enhancements in safety. Barloworld Equipment is the Cat dealer for Southern Africa.

Production efficiencies on the Cat 988K are enhanced by the patented optimised Z-bar loader linkage, which replaces the mono-boom design on the previous generation Cat 988H series model.

From the onset of its initial launch in 1963, the Cat 988 model series has established itself as a leader in the large wheel loader class for primary applications in quarrying and mining, as well as for more specialist roles that include dimension stone block handling.

Each successive model has benefitted from Caterpillar's intensive research and development programmes, designed in consultation with customer requirements worldwide. The end result has

been a constant refinement in the 988 journey, with the latest Cat 988K being the most definitive model to date and also the seventh generation unit to see service. There are currently six models in Caterpillar's large wheel loader line-up, namely the Cat 986H, Cat 988K, Cat 990K, Cat 992K, Cat 993K and Cat 994K.

In standard lift, the Cat 988K is a respective three- and four-pass match for the Cat 770 and Cat 772 off-highway truck. In high-lift configuration, the Cat 988K loads Cat 773 and 775 units in five and six passes, respectively.

The rated payload is 11,3 tonnes, with a selection of Performance Series buckets available, ranging in capacity from 6,4 to 7,6 m³. Rock buckets are designed for face loading tightly compacted materials. General purpose buckets, in turn, are configured for loading loose stockpile material. To protect these buckets, Caterpillar fields a range of ground engaging tools (GET). These include side-bar protectors, general duty and penetration tips,





and standard and half arrow segments.

"As with any mining or related concern, lowest owning and operating cost management has become the overriding consideration, with savings in fuel burn being a major factor in driving down the cost per tonne," comments Barloworld Equipment group product and application manager, Johann Venter.

"In these respects, the Cat 988K delivers with up to a 20% improvement in fuel consumption compared to the previous Cat 988H machine (depending on operator training), plus there are notable mechanical improvements that help to maximise availability and boost overall longevity, given Caterpillar's second and third life rebuild philosophy."

Powering the Cat 988K is a Tier 2/Stage II Cat C18 ACERT™ engine generating a 403 kW net power rating (SAE J1349), with the machine coming to market with an operating weight of around 51 062 kg.

The all new Advanced Productivity Electronic Control Shifting (APECS) transmission controls provide greater momentum on grades and fuel savings by carrying that momentum through the shift points. Whilst in operation, electronic fuel control ensures optimum performance and throttle response. Additional fuel savings accrue with the 988K ECO (Economy) Mode (on-demand throttle), and engine-idle shutdown and engine-idle kick-down/auto-resume systems. Utilising on-demand throttle, operators maintain routine operation with the left pedal and implements, while the Cat 988K manages the engine speed.

The exclusive Cat impeller clutch torque converter (ICTC) enables operators to maximise



efficiency via the machine's rimpull control system (RCS), whilst putting more horsepower to hydraulics. Advantages include reduced tyre slippage and wear, full throttle shifts for faster cycle times, and a smooth approach to the dump target for less spillage. The use of the standard lock-up clutch function also provides direct drive to boost fuel economy.

Meanwhile, the Cat 988K's Automatic Retarding Control (ARC) system utilises an optional compression brake to maintain desired downhill speeds and

Above: The Cat 988K's rated payload is 11,3 t, with a selection of Performance Series buckets available, ranging in capacity from 6,4 to 7,6 m³.

Top: Powering the Cat 988K is a Tier 2/Stage II Cat C18 ACERT™ engine generating a 403 kW net power rating (SAE J1349), with the machine coming to market with an operating weight of around 51 062 kg.

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reduce service brake wear. Positive Flow Control implement hydraulics use a variable displacement, electronically controlled pump to precisely apportion oil flow based on control lever movement.

Onboard, fuel monitoring is provided by an all-new operator station, which features the Cat Next Generation Vital Information Management System (VIMS) display. This enables expanded capabilities, including real-time fuel consumption and fuel efficiency (material loaded per unit of fuel) data, through an interactive touch screen.

Production efficiencies are further enhanced by the patented Optimised Z-bar loader linkage, which replaces the 988H's mono-boom design. "The new design, using solid steel lift arms in either a standard or high-lift configuration, reduces machine height at maximum lift yet increases dump clearance," explains Venter. "The design also shortens machine length for greater manoeuvrability." This is also a much quieter machine. In-cab sound levels are considerably reduced to 71,1 dB(A), down from 74,2 dB(A) in the 988H, and the cab temperature control system is automatic and continuously variable. The Cat Comfort III seat features integrated controls for smooth and comfortable operation; whilst the transmission controls, integral with the STIC™ (Steering and Transmission Integrated Control System) steering lever, allow convenient travel control.

STIC enables maximum responsiveness, combining directional selection, gear selection and steering into a single lever. A simple side-to-side motion turns the machine right or left, minimising operator movements. On the move and for added safety, a standard rearview camera system provides crisp images via the in-cab monitor.

For added safety, a remote panel houses a stairway light switch, engine shutdown switch, and lockouts for the transmission and engine starter: a second panel provides convenient access to the battery disconnect switch and a jump-start receptacle. Routine maintenance points are easily accessed, including hydraulic pressure taps and oil sampling ports.

Options for the 988K include the Cat Payload Control System and Cat Detect Object Detection. The latter builds on the standard Cat camera system with radar coverage: in-cab software provides notification to the operator when an object is detected. Other options include an integrated axle cooling package, ride control, a fast-fill fuelling system, automatic lube system, three-spool valve, high-speed oil-change system, LED lighting, and cold-start package.

The Cat 988K is fitted standard with Caterpillar's Product Link™ telematics system. Product Link is the transmitting hardware for Caterpillar's internet portal, VisionLink™ which provides a



host of services forming part of the Equipment Management Solutions (EMS) condition monitoring suite. This includes near real-time monitoring of fuel burn rates, machine utilisation, operator performance data, and mechanical health.

As with machine design, the wheel loader configuration, operator technique, and job site layout form an essential component in downstream efficiencies that will impact fuel consumption, either positively or negatively. Key factors to consider here include the correct work tool and tyres (plus correct inflation pressures) based on machine application.

"Also spot loading targets in the right position and avoid travelling more than 1,5 tyre revolutions during truck loading cycles," adds Venter. "Operators should also load in first gear, avoid lift lever detent and use impeller clutch, and throughout, we recommend using the ECO mode setting for maximum efficiency."

Machine access: left and right-hand stairs with 45° angle enhance safety for operators getting on and off the Cat 988K.

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'Effecting change through more than a vision for Midmar



Managing director Derryn Fourie and his wife Cassy, who is business systems development manager.



Man with a vision: Midmar Group director Louis Fourie.

Below: Increased efficiency: Midmar Concrete Products' VB2 block making machine.

Centre: Impressive block stockpile on the Midmar Concrete Products site.

Modern Quarrying last visited Midmar Crushers in March 2011 and came away then with the sound belief that this was an honest operation in every sense of the word. On my recent drive from King Shaka International to Howick, I wondered if this operation's vision had changed somewhat. Times have been tough for the quarrying industry in recent years, and Midmar Crushers has gone through a fair amount of challenges.

Heading directly for the Midmar Crushers quarry, MQ drove past an impressive brick building and premises before realising that this was in fact the group's headquarters. Meeting up with managing member Derryn Fourie and his dynamic wife Cassy once again was an absolute pleasure and it was good to feel the energy and excitement as they took me through the expansion.

Midmar Crushers has been the enabling factor in allowing the directors to expand and grow the company into what is now the Midmar Group, consisting of Midmar Crushers, Midmar Concrete Products, Canton/Taylor's Halt Quarry and Midmar Building Supplies.

"It was our excess dust at Midmar Crushers that started us looking at the Concrete Products



division together with the problems associated with the small block yard we started for the local community several years back," Fourie explains. "We had started the development and enhancement of local block yards. We first assisted with funding, mentorship and training of local yards to improve the quantities and quality, but it never satisfied the demand. We then bought out one of the small block yards, put in bigger machinery and offered it to a local entrepreneur to run for a one-year period, but even that was unsuccessful. So we



positive contact' –



established Midmar Concrete Products, a block yard to include a lintel and kerb production line.”

On MQ's visit some four years back, the formation of Canton Quarry, near Taylors Halt, was on the cards, and Fourie was waiting for the mining right approval. The mining licence was issued shortly afterwards but as everyone in the industry knows, it takes a long time before implementation and the first sale to take place, which incidentally for Midmar was two days before MQ's recent visit.

Canton Quarry, which has a reserve in excess

of 80 years, has significantly exceeded the 26% BEE ownership requirements. The local community is also one of the key beneficiaries in this structure, and they have been faced with a number of challenges through this process of community consultation.

“We believe that involving the community will create mutual benefit, provided that it is structured correctly and that the trustees have a holistic view. DMR assisted us to resolve a situation where certain members of the community were acting for

Midmar Crushers has been the enabling factor in allowing the directors to expand and grow the company into what is now the Midmar Group.

Initially when the lintel beds were put down, the idea was to produce brick lintels. However, the bed size has been increased as demand in the area is for concrete blocks.





Landscape view of the plant. Just below the green drums in the distance, is the workshop, with the admin building in the foreground. From there, one can see the plant and the stockpile area. The entire operation has been fenced off.



Midmar Crushers quarry manager Bronwyn Moore.

their personal interests," he tells *MQ*. "We have gone through many hurdles including having to move off site. We also had our 18 m steel weighbridge stolen together with two shipping containers, but these are challenges to be overcome."

Fourie's father Louis, has built the initial plant for Canton, utilising surplus equipment acquired over the years and is currently planning the next phase.

"There are some exciting developments for the Midmar Group with a 26% BEE worker's ownership agreement in Midmar Crushers, which will hopefully be a benchmark for similar industries wanting to do the same," he says. "Our feeling is why enrich a BEE partner who already is privileged? We believe it is important to empower our own employees rather than an outside entity. The aim of our empowerment initiative is that everybody in the company is able to work together for a mutual goal in terms of our vision, which is 'effecting change through positive contact'. The empowerment shares will be unencumbered and managed through an employee trust."

Another part of the expansion is Midmar Building Supplies, which *MQ* noticed on entering the 1 000 m² building, and which Fourie attributes to his father's vision. "We make our own blocks and offer the entire package," he says.

"This was also born from customers arriving here and seeing our products, and asking to purchase cement. So based on the demand, it made sense for us to expand to the next level," Cassy explains. "It's not a fully ranged hardware as we only stock the basic requirements for local housing."

"Our market is predominantly low-cost housing in the area. So we deconstructed a four-roomed house, and decided that whatever was needed

to build this house is what we would supply. We opened up the doors in mid-October, and things are going well," Fourie says.

Maritzburg Mix Concrete is renting space on the premises, which is beneficial for the group, as every quarry needs a readymix outlet. This allows the group to focus on its core activities.

What is interesting is that the group is in the process of providing another offering, through a company which it has named Malleo Equipment. Translated from Latin, the word malleo means hammer. The hydraulic hammers and attachments are a product line from South Korean manufacturer Sangdo International. At the time of writing a shipment of products and spares was on the water, and Fourie was nervously watching the exchange rate!

Eire Contractors, a well-known Durban-based company, is utilising various models of these hydraulic hammers and is very complimentary about the product. "However, availability of spares is vital to the success of this endeavour and we have established a workshop on site to service the hammers. We have built our own hydraulic test bench for testing the product. We are still in the early stages, but initially we will do repairs on this site, which includes repairs to other makes of hammers as well."

Fourie says there has been a good feedback in terms of Malleo and the Sangdo product.

Midmar Crushers

As mentioned earlier, Midmar Crushers has been the enabling factor for the expansion of the Midmar Group, and *MQ* was excited to hear about how the quarry has developed over recent years, especially in the light of it being voted top independent quarry by Aspasa for two years in a row,



following stringent environmental and safety audits.

Fourie is modest about the accolades, and is concerned that, "it is Showplace for the day, but is it Showplace every day?" He attributes the recent award to his newly-appointed quarry manager Bronwyn Moore, who has taken the initiative to manage the operation through difficult times, with Deon Bosman coming in as acting manager for a while. "Deon has helped us tremendously and his experienced recommendations have set us on the right track; but Bronwyn, who took the initiative to carry the operation and the team through some very tough times, has been the solid person amongst the various management changes we have had.

"When I removed myself operationally from Midmar Crushers to focus on growing the group, this resulted in reduced quarry efficiencies. She has been the liaison for the teams on the floor and has pulled the quarry through some tough times. We have appointed her as quarry manager from March 1, this year, and believe that she really is the best person for the job."

Chatting to Bronwyn Moore about her appointment, she says she is still waiting for the reality to settle in. "I am ecstatic, excited to be in this position and to work through the challenges. I am passionate about what I do; I enjoy the people and couldn't be happier in this position. I want to learn each day, and look forward to every day on the quarry.

"In our weekly meeting with the entire team I emphasise our values and our vision," she says. MQ experienced this personally when walking into the office at the quarry (notwithstanding the lovely orange marigolds and neat stonework around the building). I immediately felt welcomed and at home on the premises.

Moore recently attended the Examiner Make Safe course in Johannesburg, run by Monty and Lynne Montgomery of Xtract Training. She came third in her class, achieving a well-earned 87% and this amongst experienced quarrymen.

Asked how the quarry has grown over the last few years, she says the quarry on its own has allowed the directors to grow the Midmar Group. "We have upgraded some of our machinery and plant, which includes a new Sandvik CH430 crusher and a vast increase in utilisation efficiencies.

"Our team is very motivated and we work well together. I have a real open-door policy and believe in sorting out problems as they arise."

The quarry has certainly equipped itself with better equipment. It has recently invested in Bell ADTs, a Volvo L120 front end loader and a Volvo 480 excavator as the primary loaders. The Cat 996 front end loaders are being utilised, with one being moved to Canton, and the new Sandvik is proving its worth. Plant 1 built by Louis, is still very much involved in daily activities. Plant 2, which was also built by Louis, consists of a 25 x 36 jaw with a scalping screen, Sandvik CH430 into the 16 x 6 triple deck, and through the HP 200 shorthead, which goes to the VSI and onto a 16 x 4 double deck screen.

"In terms of human capital, we haven't had much turnaround, and aside from the management changes, we still have guys who have been here for pretty much the 20 years the quarry has been in operation," she says.

The staff complement at Midmar Crushers is 49 with contractors and 44 without. The quarry produces a range of products, which include 9,5 mm, 13,2 mm and 19 mm concrete stone; 9,5 mm, 13,2 mm and 19 mm road stone; slurry seals and

Close-up view of the admin buildings with the plant in the foreground and the stockpiles.



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concrete dust which is mostly used for making concrete blocks as well as sub-base and base coarse, G7, G5 and G2.

Blasting is carried out on a monthly basis by Eire Contractors, and it was good to see the neat stockpiles on our drive through. "In July through to August, we always have a larger demand for roadstone, so in May we need to do a production blast, which is the bluestone," Moore says. "At the moment we have a lot of base course on the stockpile due to all the new tenders which are beginning to come in."

Monthly production averages between 15 000 and 35 000 t.

There is a significant improvement in the benches, which she says, have been somewhat of a problem. "Reserves are competent and we estimate another 15 years of life, or longer. We are currently busy with expanding our mining footprint to secure future reserves."

We drove past the plant and the main base course stockpile, which is looking impressive. "This has grown into a mini-mountain since January in



Above: Midmar Crushers' Plant 2.

Left: Most of the plant at Midmar Crushers has been built by Midmar Crushers founder Louis Fourie. He opened the quarry in 1992 using a mobile crushing plant built entirely by himself. Now, he has a workshop of his own on the 4,0 ha site to refurbish old quarry equipment which will be utilised at the new Canton quarry.

spite of me cutting overtime," she says proudly. "We are not where I want to be and so there is still a lot of work to be done. With planning and organisation, the quarry should be neat and organised, and this is one of my focus points."

Asked about her philosophy as quarry manager she says: "My philosophy is to take one step at a time, and to make that step count. It's a huge learning curve for me, and I am learning with each



The company's first offices are on the far left with the workshop behind the offices. This is now being turned in the Malleo offices to house the Sangdo hydraulic hammer business.

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**AT THE QUARRY FACE
WITH MIDMAR**



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step. The bottom line is that I work for an amazing company. To have directors such as we have, with their vision for the group as a whole, is exactly where I want to be. Since the day that I started here I knew that I would be here for a very long time."

As part of its growth, Midmar Crushers has also gone through some testing times. It has had to negotiate strikes as well a deal with a community that, at times, has taken Midmar Crushers to task on various issues. Last year, the quarry was accused of damaging houses through its blasting activities. Authorities conducted several investigations. However, Midmar remained true to its values and was able to, despite damaging media coverage, show that it was not responsible. The disputes have been resolved and Midmar continues showing the community its integrity through participation. This includes, amongst others, the building and equipping of a crèche, and training and building additions to a local school

"I am very excited about going forward," Fourie tells MQ. "Yes, it's been tough, but our dream team is coming together. All I need to do now is to make sure that the company is living by its values and its vision, and as long as it is doing that, I am happy. I am unwavering on this as what we have is the ability to affect people. Right now we have about 100 employees within the Midmar Group, which we affect directly. They, in turn, affect their families, which is about five more people per person.

"The integrity of our business is very important to me," he says, "but we will always strive to be more efficient in all our operations and more responsible in our conduct." **MQ**



The feminine touch is clearly seen from the entrance to Midmar Quarry and around the admin building.

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B&E International – a partner of choice

Experience and depth of resources are what gives B&E International the competitive edge in the local market. The company has positioned itself as a 'partner of choice' for the mining and construction industries, due to its integrated crushing and screening and mineral processing solutions.

According to B&E managing director Dewald Janse van Rensburg, the company is currently busy with a range of diverse contracts, from supplying aggregates for roadworks and infrastructure development to mining projects. "This showcases our diversity and flexibility in being able to meet a range of customer requirements."

B&E International was established in 1972 in the Eastern Cape. It soon formed its own mobile and static crushing division, followed by further diversification into mining services and bulk mining and minerals processing and beneficiation. B&E International was acquired by the Raubex Group in 2009, completing its transformation as a total solutions provider in the mining and construction industries.

"There was a time in the infrastructure sector when a lot of contractors opted for in-house crushing, but this has changed significantly over the years. There are very few contractors that choose this option, as it is now correctly perceived as a specialist skill set. With this follows the recognition that it requires the knowledge and applications experience of a seasoned operator," Janse van Rensburg says. "B&E International is that operator."

Centre: The major differentiator for B&E International is that it can deliver tailor-made packages for specific client applications.

Below: B&E International invests in premier OEM brands such as Finlay and Metso Minerals on the crushing and screening side.



What gives B&E International the leading edge in this highly competitive market is its extensive fleet of equipment and machinery, which caters for a range of applications from mobile crushing and screening to surface mining and mineral processing, in addition to specialised equipment such as Comar batch and continuous asphalt plants. This extensive range of equipment gives the company the flexibility to be able to respond to its customers' specific requirements by offering customised solutions.

"A lot of competitors think it is relatively straightforward to offer such a complete package, but in the long run they realised they could not make it work. They do not have the necessary experience to give customers a single solution for all their needs. Thus the trend is definitely towards outsourcing on the contracting side, especially in terms of infrastructure development," Janse van Rensburg says. "We are uniquely placed to be able to offer such a comprehensive service, not to





mention the expert advice and assistance we are able to give to our customers."

In terms of its fleet of equipment, B&E International has a wide range in order to cater for the diverse sectors it operates in. "We have a major fleet of earthmoving and ancillary equipment, in addition to crushing and screening equipment. We also have major design, engineering and manufacturing facilities."

The company not only invests in the latest technology, but also supports premier OEM brands such as Volvo, Bell Equipment and Caterpillar on the infrastructure and construction side, and Metso Minerals and Finlay on the crushing and screening side. For example, B&E International boasts some of the most modern crushers in the market. It produces road stone and quality concrete sand, base course, concrete aggregates, water-bound Macadam, ballast and filter media. The high quality aggregates produced are deployed from Greenfield sites through to projects at existing



commercial quarries in Sub-Saharan Africa.

"Our aim is to become involved right from the beginning and to provide our services from the design through to the manufacturing and engineering." Janse van Rensburg points to B&E International's ongoing Build, Operate and Own (BOO) contract for the crushing, agglomeration and stacking plant for the Tschudi copper mine in northern Namibia. "We started with this contract at the beginning of the year and are ramping up." This is not only B&E International's first contract in the copper sector, but is also its first Greenfield mining project and is anticipated to be its largest engineering contract to date.

Tschudi is a sterling benchmark for the company's total solutions approach. "Historically we

The company provides integrated crushing and screening solutions.

B&E International has been supplying aggregates to Eskom's Kusile power station in Mpumalanga since 2011, with about 1,7-million tons crushed to date.





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Above: A crushing operation in Maputo, Mozambique. B&E International is also active in Namibia and Botswana.

Right: A jaw crusher in Queenstown. The high quality aggregates produced by B&E International are deployed from Greenfield sites through to projects at existing commercial quarries in Sub-Saharan Africa.

focused on contract crushing, but this gradually evolved to encompass the processing side as well, as we found this was an area where we could really deliver the greatest value for our clients," Janse van Rensburg says. "As a result we are now able to service a much broader client base, which ranges from local contractors to international mining houses."

The major differentiator for B&E International is that it can deliver tailor-made packages for specific client applications. "We determine what our clients require in terms of product output and volumes a month and then we size a plant appropriately in terms of the ore reserve. Thereafter we design, engineer and manufacture the plant and, where necessary, we can even run that plant in order to give them complete peace of mind," he says.

The advantage of this 'single source' approach is that B&E International assumes the risk on behalf of the client. Janse van Rensburg explains that mining houses traditionally operated their own plants, which meant they had to cope with any teething problems or optimisation issues themselves. "What B&E International prides itself on is being able to offer a single solution to achieve the required targets."

The company also enjoys a close relationship with a major coal producer in South Africa. "We have a presence at several of its coal-mining operations. Due to our level of service and professionalism, these contracts are also renewed for two to three years at a time. With the major mining houses it is possible to build up such a relationship based on the level of service we provide."

The main customer requirements in the currently constrained business environment are



reducing costs, managing risk and increased throughput. "In terms of the mining industry, we establish an interface with our clients' operations. We have to produce the required tonnages and cannot fall behind, as this will be costly for our clients. This means we have to comply with their production schedules. Another important factor is your safety record, especially in the mining industry, which requires strict adherence to health and safety protocols and a good track record," Janse van Rensburg says.

Looking to its involvement in Africa, he says B&E International is active in Namibia, Botswana and Mozambique. "We are looking at the Democratic Republic of the Congo for potential opportunities," Janse van Rensburg says. At the end of the day, B&E International's ongoing transformation has seen it develop into a major player that is able to provide cost-effective solutions for diverse projects in a range of commodities and sectors," he confirms.

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Alco-Safe director Rhys Evans.

Breath alcohol testing – a win-win situation

Alco-Safe is a major supplier of quality electronic breath alcohol detectors and accessories in South Africa with over 40 years of experience in manufacturing, distribution and support. **Dale Kelly** chats to director Rhys Evans about the importance of testing.

Alco-Safe was founded by Rhys Evans' father some 44 years ago. The company at that time was called Eco due to its involvement in weather testing instrumentation. When the weather test instruments were phased out, the name Eco was changed to Alco-Safe in the early 1990s.

Alco-Safe is a distributor for several key companies in the UK and the USA. One of these is UK-based Lion, which specialises in the field of breath alcohol analysis, exporting its products on a worldwide basis. With its US sister company CMI, Lion is regarded as a market leader in breath alcohol testing. "Lion is based in South Wales and is the original manufacturer of the electronic breathalyser using a fuel cell; while the US-based CMI was a sister company at one stage. CMI ended up buying Lion and is the majority shareholder now," Evans tells MQ.

"All our instruments are manufactured in the UK by Lion. We used to bring in the parts and manufacture here, but with labour costs, it actually paid us to bring them in fully set up from Lion itself. We

have a full repair and calibration facility at our premises. We can build the instruments up from nothing and we have had clients that are so confident in our technical team that they have brought in Lion Alco-Blow instruments that have been squashed by tipper trucks and booked them in for repair, rather than buying new equipment."

The company has been a member of the South African Institute of Occupational Safety & Health (SAIOSH) for many years. It has a diverse client base including Transnet, provincial government departments, Transnet Rail Engineering, Transnet Freight Rail, all petroleum refineries, ArcelorMittal, Eskom, Tongaat-Hulett, Sappi, major vehicle manufacturers and municipalities. Alco-Safe's products are also used by various mining groups and in the quarrying industry, including AfriSam and Wearne, among others. "We sell into the quarrying industry and into any high-risk environment because the implications of drug or alcohol abuse can seriously impact a company's bottom line with significant losses in terms of accidents and injury," Evans says.

"Workers are often required to handle heavy machinery, drive large vehicles and operate dangerous equipment – activities that are all risky even when undertaken by a completely sober individual. Workers who drink alcohol or take drugs while on the clock can seriously endanger the safety



The Alco-Blow Rapid is lightweight and easy to use.

of everyone on site, not to mention negatively impacting a company's operational ability, productivity levels and reputation."

He points out that damage to heavy machinery and equipment is not covered by insurance if the operator is found under the influence of drugs or alcohol. In terms of safety and health legislation it makes sense for a company to do drug and alcohol testing. But there are also other factors to consider.

"If you approach a company initially, their first objection is always the cost of starting up a programme like ours, but what we try and get across to them, is what it would cost if they don't. If you have one accident caused by a drunk driver the cost implications are in the R100 000s, but if you utilise our programme, it will only cost you a tenth of that. It really is about changing the mindset from a reactive to a proactive approach," he adds.

Asked if alcohol and drug-related accidents are a common occurrence in the country, he replies in the affirmative. "We are having huge amounts of accidents. The problem is that we don't have a central agency that collects all the data, but we have over 4 000 clients in the country and we speak to them on a regular basis. We have seen the number of accidents drop dramatically when they start these programmes, and most companies in a high-risk environment will see a reduction in accidents of at least 50% within three months once they start the alcohol testing."

Alco-Safe also offers assistance in



The Alco-Blow Rapid test in progress.

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developing substance abuse policies and control programmes. Elaborating further, Evans says: "The substance abuse policy is the first step. You can't just arrive at work with a breathalyser and decide that you are going to test your staff. It's not fair and it's not reasonable to do that; you have to have a substance abuse policy in place. So your policy will set out a strategy for testing; it will describe why the testing is being done; who is going to be tested; the different test scenarios – will it be random testing, or will it be compulsory? Is it just going to be testing after accidents or incidents? It sets out what the tolerable limit will be or if they are going to have a zero limit for alcohol. Some companies still choose to work with the drink driving laws, so they work with a professional driver limit of 0,02. The policy also includes the actions that would be taken if an employee is found under the influence of alcohol.

"This policy is extremely important and must be communicated to employees before it is implemented so that they are firstly aware of the policy, and secondly it puts power in the employer's hands. When a company doesn't have a policy and someone continuously arrives under the influence, they buy an instrument to test the employee, who refuses; and when this goes to a CCMA case, the first thing the company is asked for is to supply the policy. This sounds ridiculous," Evans says, "but it happens.

"One has to remember that the whole aim of the policy is not to catch people out, but rather that we are trying to create a safe environment. Without that policy, you don't have a leg to stand on and it would be very difficult to try and defend a case."

Discussing new equipment for drug and alcohol abuse, Evans says one of the most popular instruments for use at entrance points is the Alco-Blow range of instruments. "The Alco-Blow Rapid is a new version which is significantly faster and easier to use. It reduces queues and makes it easier for companies carrying out random testing to switch over to compulsory testing. Security officers often have the problem of a build-up of employees and visitors at the gates when it comes to compulsory testing, but with the new instrument, because it is so much faster, you can get rid of those queues fairly quickly."

Alco-Blow Rapid instruments do not require physical contact between the subject and the device, and use a pressure sensor that only requires a very small breath sample to deliver results. These devices deliver a simple 'pass or fail' result, which is much faster than giving a specific alcohol level. An electro-chemical fuel creates a chemical reaction resulting in an electric charge in the presence of alcohol. Using this new technology, health and safety officers can conduct on average three times the number of tests per minute, which means that more than 1 000 people can be tested in an hour.

The Occupational Health and Safety Act stipulates a zero tolerance policy for alcohol in the workplace, which means that any trace of alcohol in the system means workers are over the limit. However, it is up to quarrying companies to enforce this. This requires a comprehensive approach that includes the appropriate substance abuse policies, education, and the right equipment to deter alcohol and drug-related incidents. Even heavily-scheduled prescription medication can impair workers, and these too need to be included in drug policies and tested for.

Rhys Evans will be presenting his equipment at this year's Institute of Quarrying conference.

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Report by Dale Kelly and photographs courtesy Alco-Safe

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Aspasa – truly representative of its

It has been an extremely busy first quarter for the Aggregate and Sand Producers Association of Southern Africa (Aspasa) particularly in terms of legislation which is changing constantly. There are transport issues, the payment of royalties and the South African Revenue Services, which has thrown the cat among the pigeons with its new interpretation draft note.



Legal expert Camilla du Toit of Shepstone & Wylie Attorneys (courtesy Aspasa).



Attorney Freek van Rooyen of Shepstone & Wylie Attorneys (courtesy Aspasa).

Wherever MQ goes, the feedback from member companies is always positive. Aspasa works hard for its members, and non-members should join and become part of a very important organisation. Some of the key issues are covered below.

The South African Revenue Services (SARS) has thrown the cat among the pigeons with a new interpretation draft note classifying certain quarries as manufacturers rather than mines.

The interpretation note was issued as a result of the widely varying methods used to extract sand, stone and other minerals from quarries, pits, rivers and dunes, etc, with varying levels of processing required to bring the product to market.

If the interpretation is accepted, it will have far-reaching effects on the industry and can lead to disproportionate costs between those that are classified as mines and those classified as manufacturers. While manufacturers will no longer have

to comply with onerous mining legislation nor pay royalties, they will also not be able to claim capital expenditure allowances, nor will they be able to make use of the diesel rebate scheme that miners enjoy.

Legal expert Camilla du Toit of Shepstone & Wylie Attorneys recently briefed a tax and financial workshop held by Aspasa. She has cautioned industry roleplayers to study the interpretation note and send comments to SARS by April 30, this year, to ensure that all concerns are considered and addressed before the finding takes effect.

“One of our concerns is that SARS’ new position in terms of classifying operations goes against the Treasury Department’s call for further beneficiation of products at our mines,” she says. “Yet when further processing of minerals takes place at our quarries, SARS wants to classify them as manufacturers rather than mines which, we fear may be counter-productive.”

In terms of the note, four main points



Sand and aggregate quarry operations may continue to claim diesel rebates following intense legal wrangling between the quarrying industry’s representative body and SARS.

can be used to determine what constitutes a mine or manufacturer:

- There must be a method or process to remove minerals from the earth.
- There must be a separation of valuable minerals from waste materials.
- Mining should take place for a mineral as defined by the inherent mineral qualities of a mineral with a value other than in bulk.
- The mineral must be extracted from the soil.

Manufacturers, by comparison, are deemed to make a new product that is different to what was originally mined. “It is clear that both descriptions are open to interpretation and for this reason, the industry needs to investigate this further and make a stand to assist SARS in finding an interpretation that benefits everyone,” Du Toit urges.

Aspasa will be making a submission to this draft interpretation, which has to be in by the end of April 2015.

Royalties

The payment of royalties is a hot topic among quarry owners and operators as to where the value of a mined product needs to be determined, in order to calculate exact payments. In most instances, disagreement with SARS exists over the first point of sale at which the value of royalties needs to be calculated. This is potentially different for different

members



operations and depends on the beneficiation of the product after it is removed from its natural state.

Du Toit says much work needs to be done in hammering out agreements on where and how the value of products should be determined in order to allow fair and equal payment of royalties across the industry.

“Some operations remove material directly from the natural state and load it onto a truck for sale, while others have to blast, transport, crush and move materials to a muck pile. Understandably, the cost and price of these materials are different and may drive the cost of royalties up. On the other hand, the calculations involved for each operation is complex and in some instances, leads to disparity in the cost-per-ton being claimed,” she says.

“Aspasa is therefore seeking simplification of the requirements of sand and aggregate quarries. In the meantime, if any Aspasa members believe that royalty calculations are incorrect, we strongly advise them to first ensure that they follow the necessary steps needed to comply with the payment of royalties, while simultaneously bringing the necessary applications to SARS in order to lodge a query.”

She explains that the industry is currently contending with various other problems relating to royalties, ranging from companies that are having difficulty even registering to pay royalties, while others have had their calculations disallowed by SARS due to technical disagreements, etc. Another area of some confusion is who and

when parties are liable to pay royalties.

“Firstly, it is important to know that if you are the holder of the mineral rights, old order rights or a lessee or a sub-lessee of rights, it is up to you to register and pay royalties,” Du Toit warns. “These then become due upon the transfer of minerals, ie, disposal, consumption, theft, destruction or loss (other than flaring). It is important to know that in the quarrying industry the definition of minerals includes sand, stone and clay, so quarries will usually always have to pay royalties in some form or another.”

Although it is widely accepted that the payment of royalties be calculated at the muck pile, there are, in some instances, extenuating circumstances where the calculations cannot be made at the muck pile, or where the muck pile is not the last mining process in a quarrying operation.

“For this reason, Aspasa is engaging with SARS and Treasury to gain more clarity on the situation to ensure that its members are able to fulfil their obligations without falling foul of royalty and tax legislation,” she says.

Diesel rebate victory

Sand and aggregate quarry operations may continue to claim diesel rebates following intense legal wrangling between the quarrying industry’s representative body and SARS.

Much confusion has plagued the industry following amendments to the diesel rebate scheme in 2011, which was interpreted by some SARS offices to effectively exclude quarries from receiving the rebate. Mounting numbers of

disqualifications later sparked Aspasa to enter into robust legal discussions with the revenue services, which led to the 2013 amendment to the scheme, which once again made allowances for quarries.

As a result of the amendments, Aspasa has appealed to its members to take up the issue with local SARS offices wherever claims were disallowed, to ensure that the correct requirements are in place to expedite future claims.

Attorney Freek van Rooyen from Shepstone & Wylie Attorneys, who acted on behalf of the industry, says that although quarries are allowed to claim diesel rebates for off-road vehicles and equipment, these are only applicable where they are used for the purposes of primary mining.

“In order to qualify, users should be registered for value-added tax, as well as diesel refund purposes as contemplated in Section 75(1A) and (4A) of the Act. They must also be the purchaser of the diesel and must be the holder of the required authorisation in terms of the Mineral and Petroleum Resources Development Act 28/2002,” he says.

“Fuel may only be used for the company’s own primary production activities in mining or by contractors on a dry (excluding fuel) basis only. Thereafter, SARS needs to know that activities are taking place only where mining operations are conducted and, in addition, equipment needs to be identified and all required records made available to show the usage and associated consumption.”

He adds that other requirements call for diesel to be purchased and used in the Republic and that claims by way of a VAT return are submitted within two years from purchase. Required records need to be available for inspection, if required, for a period of five years after a claim is submitted. Losses through theft, accident or leakage also need to be reflected.

“With tax season upon us, it is important for members to make themselves familiar with all the requirements for claiming and administering diesel rebates,” Van Rooyen urges. “Wherever uncertainty exists, or if there are special requirements needed by our members, then we suggest that they get in touch with the local tax office.”

If problems are encountered or if all the requirements are met and rebates are



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still disqualified, then members should contact the Aspasa office directly.

Environmental and H&S awards

Aspasa will be handling out the following awards to companies and individuals at the IQSA/Aspasa conference in Somerset West in April:

SHE Health and Safety

Top Performer 2014: AfriSam Newcastle
Top Independent Performer 2014: Midmar Crushers

Most Improved Operations: Umhali Quarry/Drift Supersand Laezonia

Consistency in Achieving Showplace: AfriSam Newcastle/Ladysmith/Coedmore/Verulam

Consistency in Achieving Showplace: Raumix SPH Centurion

Consistency in Achieving Showplace: PPC Laezonia

Safety & Health Management Excellence: AfriSam Northern Region, Letisha vd Berg

Safety & Health Management Excellence: AfriSam Southern Region, Chris Pillay

Safety Practitioner: AfriSam Newcastle/Ladysmith, Gerrie van Antwerp

Safety Practitioner: Lafarge Eastern Region, Elton Goosen

Safety Practitioner: Raumix Eastern Region, Bertus Rossouw

Safety Management Commitment & Support: Afrimat National, Katarien Deysel

Safety Management Commitment & Support: Afrimat National, Mogamet Bailey

Safety Management Commitment & Support: Afrimat National, Brian Wevell

Safety Management Commitment & Support: Afrimat National, Steven Jansen van Vuuren

About Face Environmental

Top Score 2014: PPC Mooiplaas

Top Score First Runner Up: AfriSam Peninsula

Best Physical Conditions: Lafarge Moregrove

Best Physical Conditions: AfriSam Newcastle

Top Non-Quarrying Operation: SPH Kundalilia Aggeney

Most Improved Quarry: Lafarge Komatipoort

Most Improved Quarry: Umhali Quarry

Best Performing New Member: Robberg Quarry Plettenburg Bay

Best Performing New Member: Infrasors Marble Hall

Consistent High Performer across a Group: Raumix Aliwal North/Cradock/Queenstown/Rosslyn/Willows

Top Performing Group: Lafarge Aggregates


Management Excellence Two or More Operations: AfriSam Pietermaritzburg/Umlaas, Prince Kwela

Management Excellence Two or More Operations: Afrimat Harrismith/Qwa Qwa, Anton Marnewick


Environmental Practitioner: Lafarge, Wendy Pienaar

Environmental Practitioner: Afrimat, Louis de Wet.

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Conveyor systems – still a workplace hazard?

Since the widespread adoption of large-scale bulk mining operations after the Second World War, conveyors have become essential equipment to efficiently move material. During this same period, mine safety has become progressively more important, initially in developed countries, but recently even in under-developed countries. As a result in most countries where accurate records are maintained, fatality rates associated with mining have gradually declined.

This paper by John Hill, of Wave Engineering Solutions, Australia, is based on the review of available safety statistics and reviews conveyor-related accident data, to determine if conveyor safety has improved over recent time. It is an attempt to understand why safety has improved, and get an understanding of where the major risks are, and what can be done to mitigate these. The paper, entitled 'An Assessment of the Effectiveness of Safety Interventions in the Field of Bulk Materials Handling', was first published at the International Materials Handling Conference's (IMHC) prestigious Beltcon 16 conference.

In South Africa, the total number of mine fatalities from 309 in 1999 to 128 in 2010 [1] has reduced. In order to continually improve safety, especially to reduce major accidents and prevent fatalities, it is currently accepted that it is necessary to be constantly aware of, and manage major workplace hazards, as well as to encourage a culture of responsibility and safe behaviour to eliminate injuries and fatalities that result from unsafe work practices [2].

In the mining environment, conveyors and material handling systems present a significant hazard as a result of the associated large amounts of installed power, stored energy and inertia. Despite their widespread use, and the significant associated hazard, conveyors account for a relatively small proportion of mining fatalities. During the time period from 1989 to 2006 in Australia [3], only six conveyor-related fatalities have been recorded, compared to a total of 310

mining fatalities (or 1,8%). In South Africa over a similar period, there were 131 conveyor-related fatalities which account for an estimated 3,0% of mining fatalities (based on an estimated average of 200 fatalities a year). The figures from the USA are somewhat different with 49 conveyor-related fatalities out of 533 (or 9,2%) occurring in the period 1995-2007 [4].

Review of data available

A search was done for safety data in a number of countries where mining is a significant industry. Data from the USA, Australia and South Africa were assessed. The quality, ease of access and reliability of this data differed greatly as follows:

USA: In the USA, the Department of Labour, on its website [5] has a complete database of all fatal accident reports from 1995. The database is searchable through the equipment involved, and therefore conveyor-related fatalities can be easily extracted. A total of 50 fatal incident



Are our conveyor systems still a workplace hazard? Looking at this photograph taken two years ago at a South African operation, they very definitely are (courtesy Marius van Deventer).

reports are available from 1995 to 2007. In addition, a complete database of all mining safety statistics from 1983 is available on the National Institute for Occupational Health and Safety website [7], but conveyor-related incidents cannot be easily extracted and the database lacks narrative information to provide context.

Australia: Australian mine safety statistics are collected on a state-by-state basis, which results in the data being somewhat fragmented. For all states, however, there is a publicly available safety alert for every serious accident since the early 1990s. The information supplied in the bulletin is sufficiently complete to determine the details of the event, the activities that were being performed, location of the activities and the seriousness of the outcome. A brief summary of the safety alerts for New South Wales, Queensland and Western Australia is presented in Table 1. It should be noted that the information in Table 1 is for three states only and not Australia as a whole.

South Africa: The only data that could be found on the Department of Mineral Resources website [10] is limited to a summary of mine fatalities by month from February 2009 up to January 2011 (although a number of months are missing). The summary includes only very basic details of the fatalities. It was possible, however, to extract that of the 162 fatalities detailed, only two (1,2%) were as a result of conveyors, while another two

Table 1: Summary of Australian safety alert.

Three States	First alert issued	Number of alerts	Number conveyor-related	Conveyor fatalities
NSW [6]	1998	210	1	0
Queensland [7]	1999	76	0	0
W Australia	1989	170	2	1



Safety incident in the making (courtesy Marius van Deventer).

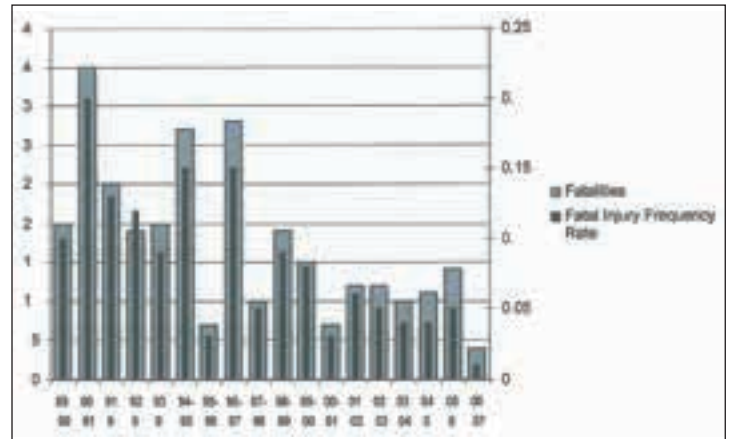


Figure 1: Australian mining fatalities 1990-2007 [2].

were due to inundation by bulk material. In addition, a database of all mining reportable incidents between 1990 and 2009 was obtained from the DMR [11]. This database had no narrative information, but did include the number of fatalities and injuries, the mine at which the incident occurred, as well as a code which indicates the type of equipment involved and the nature of the incident. Conveyor incidents were characterised as one of seven categories: head pulley, snub pulley, tail pulley, idler, tension cartridge and feeder breaker.

Methodology

In order to gain an understanding of the nature of conveyor-related fatalities, fatality reports involving conveyors from the USA, as well as safety incident reports from Australia were analysed. Additional fatality data was extracted from The International Mining Fatality Review, available from the New South Wales Department of Primary Industries website [3]. This review is an extensive database of mining-related fatalities; including a comprehensive listing of fatalities from Canada, USA, UK, Australia and New Zealand.

Associated with the hazards, there are a number of activities (related to conveyor belt operation and maintenance) that could result in a safety incident. The most common of these are:

- cleaning of spillage;
- cleaning of chutes;
- cleaning of material from (moving) mechanical equipment;
- riding on the belt;
- crossing the moving belt;
- unexpected movement of the belt during maintenance; and

- unexpected movement of take-up during maintenance.

These activities can be further classified as those that occur during operation, start-up conditions or during maintenance.

By matching (where possible) conveyor-related fatalities extracted from the review, with narrative information from fatality or incident reports, the fatalities were categorised as to:

- The year that the incident occurred.
- The country where the fatality occurred.
- The state of the plant at the time of the activity; for instance, was the plant in operation, or was it undergoing (routine) maintenance. A third category of fatalities was identified as those that occurred during installation or during non-routine major maintenance.
- Where on the conveyor the incident occurred.
- The nature of the hazard that caused the fatality. On first examination, the hazards associated with a conveyor can be identified as:
 - i. The nip points, here the belt passes over a rotating element (pulley or idler).
 - ii. The stored energy associated with the take-up counterweight.
 - iii. The stored energy associated with belt stretch.
 - iv. The kinetic and potential energy associated with the material, either as large lumps, or as a material stream.
 - v. The movement of the belt past fixed structures (in particular the risk to anyone riding on the belt posed by structural steel and chute work).

- vi. As with any elevated building, the risk of falling from heights.
- vii. The risk of equipment and material dropping from heights (including return idlers).
- viii. Risk of electrical shock.
- ix. Fire.
- x. The collapse of supporting structures due to overloading, which in turn could be due to misuse or improper design.

Some of the above hazards are particular to conveyor belt installations and material handling systems, while others are common to most industrial plants – all industrial plants have electrical reticulation systems, and there is a risk of falling from heights in any industrial building. In order to limit the scope of this paper, the focus is on hazards that are particular to conveyors. Although the other hazards are as important, they would be more properly addressed as part of a plant-wide safety programme.

- The activity that resulted in the fatality. This was recorded by means of a brief description, so that they could be categorised in terms of related activities such as:
 - i. Cleaning.
 - ii. Working near unguarded rotating equipment.
 - iii. Equipment not locked out.
 - iv. Working in guarded area.
- Finally, where sufficient information relating to the fatality existed, the major causes were listed, noting that there may be more than one contributing cause.

Analysis and discussion Are conveyors getting safer?

The first objective is to determine if

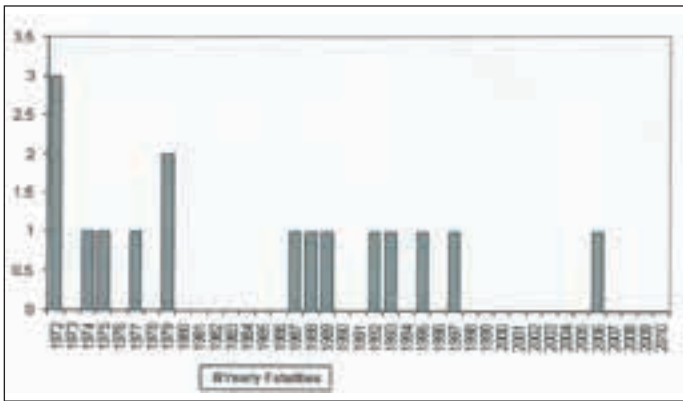


Figure 2: Number of conveyor-related fatalities in Australia per year.

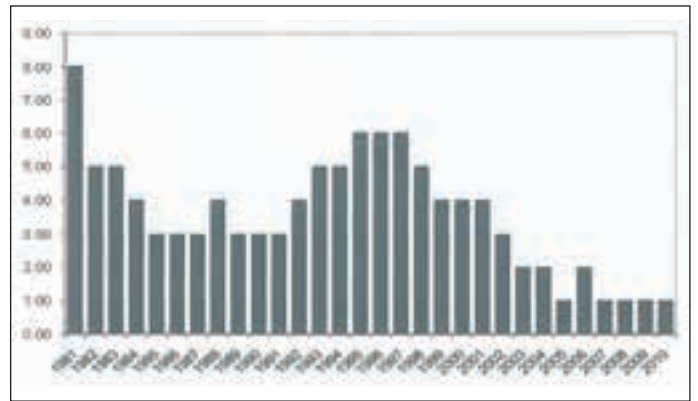


Figure 3: Total conveyor fatalities over a ten-year period.

conveyors are getting any safer. There is significant data that indicate that mining operations, especially in developed countries, are getting safer. Figure 1 shows the annual number of fatalities in Australian mines from 1989 to 2007 as published by the Minerals Council of Australia [2] indicating an overall downward trend (although both measures seem to have flattened out since 1998). The improvement in safety statistics can, in the author's opinion, be attributed to improvements in mine safety legislation, an improved understanding of the causes of unsafe behaviour and a greater corporate focus on safety.

In Australia, the Australian Standard – Conveyor Safety Requirements – was revised to AS 1755-1986 in 1986 and again to AS1755-2000 in 2000. This standard sets minimum requirements for guarding, access, control, isolation, lighting, fire protection and operation of conveyors. In practice, there is plenty of anecdotal evidence that the interpretation of the standard by users is becoming even stricter, with (for instance) guarded convex curves on long overland conveyors,

now not uncommon in Australia. As these conveyors, designed in accordance with the revised standard are coming into service and older conveyors go out of service (assuming that the standards have been improved), conveyor safety should improve.

Figure 2 shows the number of conveyor-related fatalities that occurred in Australia per year from 1972. The following observations are worth noting. Firstly, there are relatively few fatalities that result from conveyor incidents (the maximum being three that occurred in 1972), and in many years there are no incidents. This makes statistical analysis based on annual data difficult. Secondly, there are two significant periods where no incidents occurred at all, between 1980 and 1986, and then from 1998 until 2005. There is sufficient evidence that the data for the period 1998-2005 is accurate, as all safety alerts for the major mining states have been reviewed from this time period with no record of a conveyor-related incident. There is, however, some uncertainty about the first period as the only source of data is the 'International Mining Fatality

Review' [3]. However, as the review lists 42 other mining fatalities in Australia during this period, it is unlikely that conveyor-related fatalities have been missed.

In order to try and get a sense of whether there is a downward trend, Figure 3 shows the total conveyor-related fatalities over a ten-year period (that ends in the year noted). By analysing the data in this way, a downward trend in the number of fatalities does emerge, and supports the view that conveyors (in Australia at least) are safer.

In the case of the USA, there is only data available from 1995 until 2007. In Figure 4, the number of conveyor-related fatalities are presented on an annual basis, and on the same axis, totalised for a five-year period (ending in the year noted). In the case of the USA, there is little evidence that the number of fatalities has reduced. In the same period, the number of miners in the USA has increased by 6,4% from 355 496 to 378 123 [5]. It should also be noted that the proportion of fatalities due to conveyors in the USA, as previously mentioned, appears to be significantly higher than in Australia.

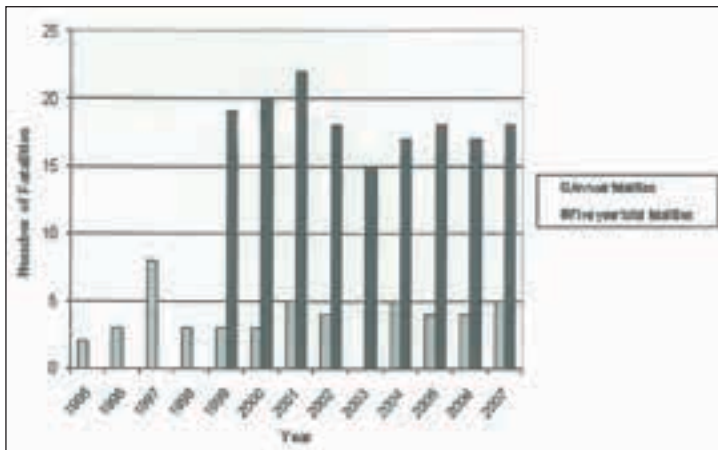


Figure 4: Conveyor-related fatalities in the USA.

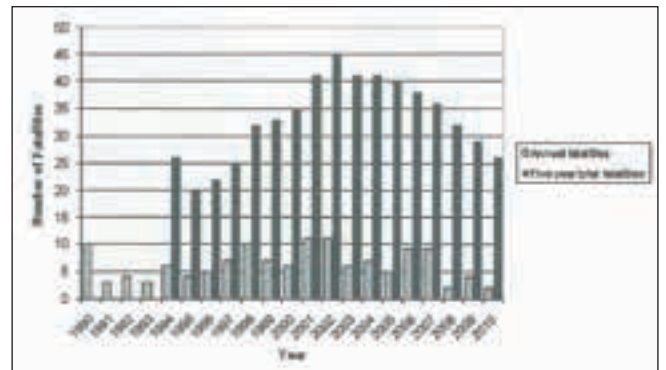


Figure 5: South African conveyor-related fatalities 1990-2008 [11]. In the case of South Africa, there is no indication of the number of fatalities reducing. If anything, there is a worrying upward trend if the fatalities are totalised over a five-year period.

Possible reasons for the improved safety

What are the possible reasons for the improved safety of conveyors (in the case of Australia) and why is there not an equivalent improvement in the safety of conveyors in the USA and South Africa? And why is the proportion of conveyor-related fatalities in the USA so much higher than that of Australia?

One possibility is a difference in the quality and standard of conveyor guarding. The Australian specification AS 1755-2000 Conveyors – Safety Requirements prescribes in detail the minimum requirements for the positioning and design of conveyor guards as well as minimum requirements for lighting, control of the conveyor, fire protection and signage. In the USA, CEMA 6 addresses safety and guarding, but is not prescriptive, leaving the positioning and design of guards up to a responsible and qualified engineer. For large surface mine installations, where conveyors are designed by professional engineers, the resulting guards will in all likelihood be more than adequate. In small sand and gravel quarry operations, which are less profitable, and where conveyors are built and modified without professional design, conveyors may well be inadequately guarded.

The data reviewed indicated that in fact, most conveyor-related fatalities in the USA are in sand and gravel or rock

quarry plants (60%). The photos below are from the Department of Labour Fatality Reports [5]. The inadequacy of the guarding and lack of safety considerations is evident. Sand and quarry operations are characterised by low margins, small throughputs and small modulate re-locatable plants. The relocation and reconfiguration is bound to have a negative impact on the integrity of the guarding systems.

Although all the referenced installations would not meet the criteria envisaged in CEMA 6, that a suitable qualified engineer ensure that the conveyor be properly guarded they would all explicitly fail to meet specific prescribed requirements of the AS 1755-2000, and it is extremely unlikely that a comparable Australian operation would risk operating similarly unguarded equipment.

Causes of conveyor fatalities

The results of the analysis are summarised in *Table 2* below. In total there were 76 fatal incidents where there was sufficient information to assign the main causes. A maximum of three causes were assigned for each incident. For analysis purposes, where possible, the description of the causes was kept generic. The classification of causes is, of course, open to interpretation. For instance 'guarding removed' could have been grouped with 'unsafe behaviour', but has been included separately as a cause in its own right. In

Table 2: Summary of main causes of conveyor accidents. It can be seen that the most significant cause is 'unsafe behaviour', followed by 'inadequate guarding' (27 times).

Cause	Number of occurrences
Unsafe work procedures	1
No safe work procedure	9
Unsafe behaviour	41
No risk assessment	8
Structural failure	2
Inadequate rigging	1
Poor access	1
No safe crossing	3
Inadequate guarding	27
Guards removed	4
Maintenance while operating	2
No start alarm	6
Not locked out	11
No holdback	1
Design	2
Inadequate planning	3



In small sand and gravel quarry operations, which are less profitable, and where conveyors are built and modified without professional design, conveyors may well be inadequately guarded (courtesy Marius van Deventer).



Figure 6: Unguarded pulley [4]. This is a completely unguarded tail/take-up pulley and loading area on a shot conveyor in a US quarry operation. In addition to the lack of guards, there is considerable material build-up below the conveyor. Any attempt to remove the material while the belt is running would require working in very close proximity to the nip point.



Figure 7: Unguarded pulley and conveyor [4]. Picture indicates a similar conveyor, completely unguarded, and again with considerable material build-up. In addition, in this instance, poor maintenance is clearly visible, including the poor alignment of the head pulley and resultant poor tracking of the belt.



Figure 8: Another unguarded installation in a US operation that includes two unguarded pulleys. In this particular installation, it is clear that as well as no guards being installed, there are also no nip guards. There is in fact, no evidence of nip guards in any of the other referenced installations.

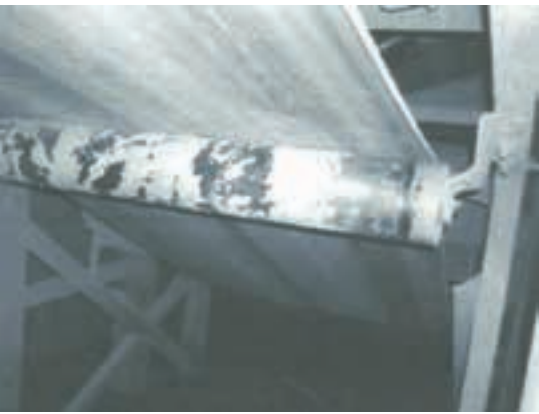


Figure 9 shows a completely unguarded idler in an elevated portion of the conveyor, where a fatality occurred. The idler is easily accessible from below the conveyor, and there is no barrier to prevent crossing underneath the conveyor.



Figure 10: No safe crossing below the belt [4]. This is an installation in a sand and gravel operation, where a fatality occurred due to a large rock falling off the conveyor onto a person below the belt. Despite the steepness of the conveyor, it is clear that no effort has been made to prevent access to the danger area underneath, or to provide a safe underpass, where required.

Table 3: Main causes of conveyor incidents (Australia vs USA).

	Aus <1979	Aus 1979-	USA
No fatalities	17	8	51
Insufficient guarding	8 (47%)	1 (12,5%)	16 (31%)
No safe work procedures	5 (29%)	2 (25%)	10 (20%)
Unsafe behaviour	3 (7%)	5 (62,5%)	22 (43%)
Not locked out	0 (0%)	2 (25%)	4 (8%)

Table 4: Nature of fatal incidents.

Mechanism		Location	
Pulley	35	Tail	18
Idler	11	Take-up	8
Chute	6	Transfer	4
Bin	3	Bin	3
Counterweight	0	Head	5
Drive unit	2	Drive unit	2
Carry	0	Carry	7
Fall	4	Drive	3
Falling object	3	Elevated	3
Falling Rock	1	Under conveyor	2
Structure	8	Tripper	1
Structural failure	2	Run	6
Rigging	4	Bend	1
Other	2		

all the 'guarding removed' cases, 'unsafe behaviour' would also have been listed as a cause. The first three causes in Table 2 all relate to unsafe work practices, but differ as follows:

Unsafe work procedures relate to events that occurred as a result of following a standard work procedure that is itself inherently unsafe. There is only one such occurrence, where a sample of material was drawn by standing on the material heap in a bin.

No safe work procedure relates to incidents that have resulted where no safe work procedure was in effect. If there had been a safe work procedure, the incident may have been prevented.

Unsafe behaviour relates to incidents where the behaviour at the time was inherently unsafe. Unsafe behaviour may occur as a result of: system gaps or organisational failures (lack of training, for example), where the individual is in any way at fault; of 'slips' or lapses, which are unintentional failures by an individual; or finally, as a result of violations (which are deliberate contraventions of systems or procedures).

An analysis of the frequency of the causes of fatalities in Australia over time, shows a significant decrease in the

proportion of fatalities that are the result of 'inadequate guarding', and a related increase in the proportion of fatalities that resulted from 'unsafe behaviour'. This strongly suggests that the more stringent guarding requirements have reduced the number of fatalities, and that the key to further reducing conveyor fatalities is now to minimise the 'unsafe behaviour' including deliberate violations such as working within guarded areas and not following safe work procedures.

This same trend was not obviously evident in the South African fatality figures in relation to conveyors (Figure 5). South African conveyors since the early 1980s have been guarded in accordance with recommendations included in a memorandum issued by the Government Mining Engineer in 1982, and subsequently reiterated by the Regional Director, Eastern Transvaal Region, c1995, and conveyors in mines have typically been well guarded for some time.

Future of fatalities

In order to establish which components of conveyors are the most dangerous, all the fatalities where narrative information was available, were reviewed to determine the mechanism or the mechanical component involved, as well as the location along the conveyor where the incident occurred. The results of the analysis are summarised in Table 4.

As can be seen, by far the majority of the incidents are caused by entrapment in the nip point between the belt and the pulley. This is often a result of inadequate guarding (or in some instances removal of guarding). The second most common mechanism is being caught between the idler and the belt. The location at which most accidents occurred is at the tail.

Once again, it can be clearly seen that the tail pulley is associated with more incidents in all three categories than any

other part of the conveyor. This is not altogether surprising as the tail area is often confined, requires cleaning of material from the loading point and belt plough, and is guarded only by removable (and therefore not always in place) guards.

Conclusion and recommendation

Although conveyors are intrinsically hazardous by virtue of the significant stored energies, they are essential to the economically efficient operation of any mining operation. The risks can however, be managed to a large extent by better design and guarding, and conveyors are by comparison to other mining operations, relatively safe, in that they are associated with only a small percentage of total fatalities.

Although effective guarding has contributed significantly to safe operation of conveyors, guarding alone can only go so far in eliminating fatalities and injuries. To improve conveyor safety still further, the improvements made by better guarding must be maintained (and improved), and a renewed focus needs to be placed on eliminating unsafe practices and behaviour in the workplace. There is, of course, currently a strong focus on eliminating unsafe behaviour by most of the internationally-listed miners. This focus applies to all aspects of mine operation, not only to conveyors.

This paper also highlights the importance of the quality and availability of data related to safety incidents. The availability of good data allows for the measurement of improvement, and identification of trends. In the Australian and USA cases, there is easily available data with respect to fatalities. Data with respect to serious incidents is more difficult to find, but in both cases is still available. For fatalities

Table 5: From the South African data, an analysis was done on all accidents (fatalities, injuries and incidents), against the location as categorised by the DMR.

	Head pulley	Snub pulley	Tail pulley	All pulleys	Idler	Take-up	Chute	Feeder-breaker	Total
Fatalities	7	9	56	72	13	5	27	14	131
Injuries	14	17	110	141	25	10	51	25	252
Incidents	28	34	218	280	50	20	102	49	501

there is good narrative data detailing the results of the preliminary investigation, including a description of the people involved, what they were doing, and the condition of the plant at the time. Trends can be identified, providing useful insight as to where best to spend resources to improve safety.

In the South African case, however, although good detail was available of where the incident occurred, it would be very useful for information relating to the nature of the activity and the cause of the incident to be recorded as well.

Photographs unless otherwise credited, courtesy John Hill, Wave Engineering Solutions

About the author

John Hill is a registered professional engineer, and holds a BSc Eng (Mech) and an MSc Eng (Industrial), both from The University of the Witwatersrand. As well as having over ten years' experience in the design of materials handling systems, he has spent three years lecturing at the School of Mechanical, Industrial and Aeronautical Engineering at Wits University. He has relocated to Perth, Australia, to take up the position of Principal Mechanical Engineer at Wave Engineering Solutions. Before this he was Engineering Manager at Sandvik Materials Handling, Bedfordview.

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Trend for mobile plant for Africa

The latest trend in the mining and minerals industry is a move towards the design and construction of modular plants, says regional MD Weir Minerals Middle East and Africa, Gavin Dyer. In support of a strengthened comminution offering, The Weir Group has acquired Trio Engineered Products of the US. This further improves Weir Group's position to capitalise on the modular plant trend and to increase its market presence in the sand and aggregate sector.



The Pilot modular custom-built plant has now increased Umhlali Quarry's output of road stone aggregate.

Trio's range of products is currently distributed in South Africa by Pilot Crushtec International, a relationship that will remain intact after the acquisition. Trio designs and manufactures a range of crushers, screens, feeders, washers and material handling solutions for the aggregate and minerals sector. Weir Minerals Africa delivers innovative engineering solutions to customers in the minerals, oil and gas and power sectors.

The agreement to acquire Trio will leverage significant opportunities for both Weir Minerals and Pilot Crushtec International in accessing new market opportunities and utilising their specific engineering excellence and expertise.

"Modular systems comprise quick and easily available modules that can be on site and operational within a day or two. This methodology is being adopted by the entire market, certainly in the crushing and screening sector," says Sandro Scherf, MD of Pilot Crushtec International.

Another advantage of modular plants is that, in terms of any potential process changes, these can be slotted in easily. "Sometimes the requirements change, as with the aggregate sector when another product fraction is called for. Tracked mobile plants are the easiest in terms of mobility, but due to high capital and operational costs, these are not always the best option. Semi-mobile modular

plants have a lower capital cost, as they usually do not rely on diesel power. They are far cheaper to operate and can still be relocated quite easily." Scherf says that modular plants offer benefits of easy relocation without the high costs of operation of tracked fully mobile machines.

He adds that the Original Equipment Manufacturer (OEM) market in Africa is still quite depressed, which has meant a renewed focus on customer service and aftermarket support. Dyer comments: "We have always been close to our customers, from a technical service and aftermarket point of view, and that is unlikely to change with our agreement to acquire Trio."

Pilot Crushtec International will still source products from Trio Engineered Products of the US. "Trio has a longstanding relationship with Pilot Crushtec who has successfully taken the Trio products to market in Southern Africa," says Mike Burke, former owner of Trio Engineered Products. "I have no doubt that this acquisition will position Weir Minerals to offer comprehensive solutions to comminution clients, whether aggregate or ultimately mining."

Dyer concurs that the OEM market remains depressed in Africa, which is why the Trio acquisition is such a strategic move as it broadens Weir Minerals' market focus. "This is an ideal opportunity for companies to optimise their plant and to increase efficiencies and throughput. It will also allow them to become 'leaner and meaner' in preparation for the upturn.

"Yes, it is a tough market at the moment. However, I think we are more fortunate than most in that Weir Minerals Africa has a large installed base in Africa and that our aftermarket segment is doing really well. We find that as mining companies scale back on projects and operations, the service trend actually goes up," Dyer says.

"Even in the downturn of any business cycle, as tough as it is, I think there are valuable lessons that an organisation takes out of that, together with valuable structural changes it has to go through in order to survive the lean times. It is about how you approach those structural changes and how you adapt so that, at the same time, you do not lose sight of your long-term strategy, which in our case has been constant growth," Dyer says.

www.weirminerals.com

J Series tip and adapter system

Alongside the more recent introduction of the K-Series vertical pin and CapSure™ hammerless retention systems, Caterpillar continues to offer the conventional side-pin option in the form of the tried and tested J Series.

"The J Series is a classic horizontal retention system that remains in demand across a variety of applications, thanks to their proven reliability and performance," points out Barloworld Equipment group product specialist, Deon Delpont, adding that seven J Series GET tip options are available for Cat large wheel loaders. Barloworld Equipment is the Cat dealer for Southern Africa.

The ability to retrofit weld-on adapters also enables maintenance personnel

to switch over to the hammerless CapSure system on specified machine classes, where there are four tip options to choose from, namely Heavy Duty Abrasion, Heavy Penetration, Heavy Duty and Penetration Plus.

On the CapSure system all maintenance crews need is a 180° anti- or clockwise turn with a ¾ inch ratchet to either loosen or secure the CapSure locking system when replacing GET tips and shank protectors. A positive stop is cast into the tip and protector to prevent over-rotation.

Installation and removal of the J-Series is also straightforward with the use of the standard pin and retainer system and the Cat tip pin remover tool.

www.barloworld-equipment.com

New Middleburg facility on track

Babcock is on schedule for the August 2015 completion of a brand new, bespoke facility for the construction equipment business unit in Middelburg, Mpumalanga. The R100-million development has been initiated to offer world-class product support, across Babcock's entire construction equipment product range, to customers throughout the region.

Construction on the 30 000 m² site began in August last year. The state-of-the-art facility will comprise 12 large workshop bays with overhead crange of up to 40 t, dedicated washing bays for yellow metal vehicles, an industrial spray booth, a steel fabrication section for dump truck repairs and 900 m of office space. The new buildings incorporate sustainable, energy-efficient design features aligned with global best practice.

"A substantial portion of our customer base is in the coal mining sector in this region," says project manager Michael de Weijer. "We've had a presence in Middelburg for the past ten years and

we felt it was the right time to build a modern facility capable of meeting current customer needs and accommodating future growth.

"The new facility has been designed specifically to suit our business. It has built-in operational intelligence in the form of efficient flow between the parts warehouse, the workshop and the work bays, to ensure safe and streamlined

operations. It has also been designed for regional growth and, as the staff complement increases over time, this will create employment opportunities for local people."

Babcock is the exclusive regional distributor of Volvo Construction Equipment and the Volvo A40F dump truck accounts for the biggest portion of the Volvo construction and mining machines marketed locally by Babcock.

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Artist's impression of the state-of-the-art Middelburg facility.

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Namibian producer goes for modular

Namibian aggregate producer Henning Crushers has opted for a 300 tph Osborn modular crushing and screening plant to boost the capacity of its Tsumeb operation.

This R40-million export order reflects Osborn's expanding footprint in the Namibian market, and the Osborn modular plant's growing reputation as an unrivalled solution for plant expansion, comments export sales manager Douglas Mouton. "Osborn has a range of equipment in operation around Namibia. Our robust machines are ideally suited for the arduous operation conditions, and clients are increasingly recognising that our quality equipment is also well priced. When Henning Crushers decided to expand its Tsumeb plant, it was the

convenience, quality and affordability of Osborn's modular plants that caught the company's attention," he states.

New client Henning Crushers supplies aggregate throughout northern Namibia. The Osborn modular crushing and screening plant that the company has ordered features a 3648 jaw crusher, BTI hydraulic rock breaker boom system, two 4250 KPI-JCI Horizontal Shaft Impactors, two 8' x 20' Osborn Superking Screens, all interlinking conveyors and two 36150 KPI-JCI SuperStackers.

"Our client has essentially acquired a full quarry processing plant, but with the advantages of an Osborn modular plant," Mouton says.

"All of the plant's components are ideally suited to Henning Crushers' applications – from the Horizontal Shaft Impactors, which have the advantage of fracturing stone through impact to create a more cubical product versus the cleavage fracture from a compression crusher, through to the SuperStackers, which are telescoping conveyors. They enable producers to stockpile 'in-spec' aggregate in larger piles with smaller footprints, using fully-automated PLC technology. Capable of creating custom-shaped, partially or fully desegregated stockpiles to

fit maximum material in minimum space, the SuperStacker certainly lives up to its name.

"The advantage of an Osborn modular plant is that substantial cost savings can be achieved in terms of the civils and installation costs needed for a traditional plant, as well as savings on transport," Mouton says. "Our modular plants are easy to build and are mounted on skids, so they are easier to set up. They are also easy to transport and re-erect on a new site. These plants are designed to fit into containers when they are dismantled, which makes transportation easier and cheaper."

Henning Crushers' new plant will be transported by road from Osborn's Elandsfontein manufacturing facility to Tsumeb, Namibia, in 22 trucks. The scope of Osborn's contract includes designing and supplying the plant; its delivery to site; and the supervision of the installation and commissioning of the plant.

Once Henning Crushers' new Osborn modular plant is up and running at the Tsumeb site, the operation's old plant will be made redundant. "This is another order that reflects the growing demand for our locally-designed and built modular crushing and screening plants," Mouton says. "They offer an ideal solution for plant expansion. All that a customer needs to do is put down a concrete slab, unpack their new modular plant and their expansion is done. They immediately have the desired duty and capacity."

www.osborn.co.za



The Osborn modular plant.

Top hammer drill drives performance



The Cat MD5150C top hammer drill at Tower Rock.

Even in granite-like conditions, the new Cat MD5150C Top Hammer Drill is outperforming down-the-hole rigs with its higher productivity and much lower fuel consumption – while achieving comparable hole straightness. Cat drill customer Iron Mountain Quarry, located south of St. Louis, Missouri, USA, reports that overall productivity is almost double a competitor's DTH drill. This productivity is achieved with the powerful Cat HPR6832 hydraulic rock drill, the new carousel rod changer and the efficient Cat C11 Engine.

At Iron Mountain, the MD5150C drills 140 mm diameter holes to 21,33 m deep using a 68 mm diameter drill rod,

commonly called drill steel. The bit can last 335 to 366 m, which is the same consumption rate as the previous down-the-hole drill. The drill steel experiences less wear and long life. Owning and operating costs for the Cat machine is lower with the simple rock drill design, which can be serviced in the field.

Consistent production results in both hard and soft rock demonstrate the capability of the new Cat MD5150C Top Hammer Drill. All Cat drills are supported by the Cat Dealer network, which offers unparalleled capabilities to keep Cat machines running productively and efficiently.

www.cat.com

Innovative Finlay option

Bell Equipment, the distributor of Finlay mobile crushing and screening equipment in Southern Africa, has introduced an innovative new product born from a joint venture partnership with Finlay and Spaleck of Germany.

The processing of what was once believed to be awkward materials, such as difficult and wet waste or demolition materials, is a thing of the past due now that Finlay, who are pioneers in mobile tracked equipment, have created a partnership with Spaleck of Germany, who themselves are market leaders in static recycling technology.

At the heart of this mobile plant, is a two-deck German-designed and constructed high-performance screenbox. The unique stepped top deck design, combined with state-of-the-art flip-flow technology on the bottom deck, places the Finlay 883+ Spaleck into a class of its own. Its processing and application flexibility, make this machine an all-in-one mobile solution for processing difficult waste, recycling slag, construction and demolition waste, shredded metal, wood, compost, mulch, ores, coal and soil.

Large-grained material can also be screened on a screening machine fitted with the Spaleck Flip-Flow screen deck. The screening deck, with its 3D screen segments, is positioned above the Flip-Flow screen deck to form a cascade and protects and reduces the stress on the Flip-Flow screen mats. The service life of these mats is therefore increased while optimal screening results are guaranteed.

Thanks to their modular construction, the 3D screen segments with maximum open screen area, can be quickly changed when necessary. The screen mats of the 3D Flip-Flow screen, are fastened without screws and have no edges that could cause difficulties.

The first Spaleck Screenbox in the southern African region has been retro-fitted onto an older Finlay 883 Screen. It is currently being deployed on a mine in Namibia where it is used as a scalper for producing gabion rock. According to the machine's owners, the retro-fitting of the Screenbox was quite simple and it really dropped into the



Key features of the Finlay 883+ Spaleck include virtually blockage-free screening in the upper and lower deck thanks to tried and tested 3D and Flip-Flow technology.

Finlay 883 with no problems.

Paul Chappel, the Finlay regional sales manager supporting Bell Equipment, says the following about the Spaleck Screenbox: "We see the addition of the Spaleck Screenbox to our established Finlay machines as a value-adding exercise and believe that once the market is exposed to this state-of-the-art technology, there will be no limit to its application in the southern African market."

www.bellequipment.com

OMV opts for Twister VSI

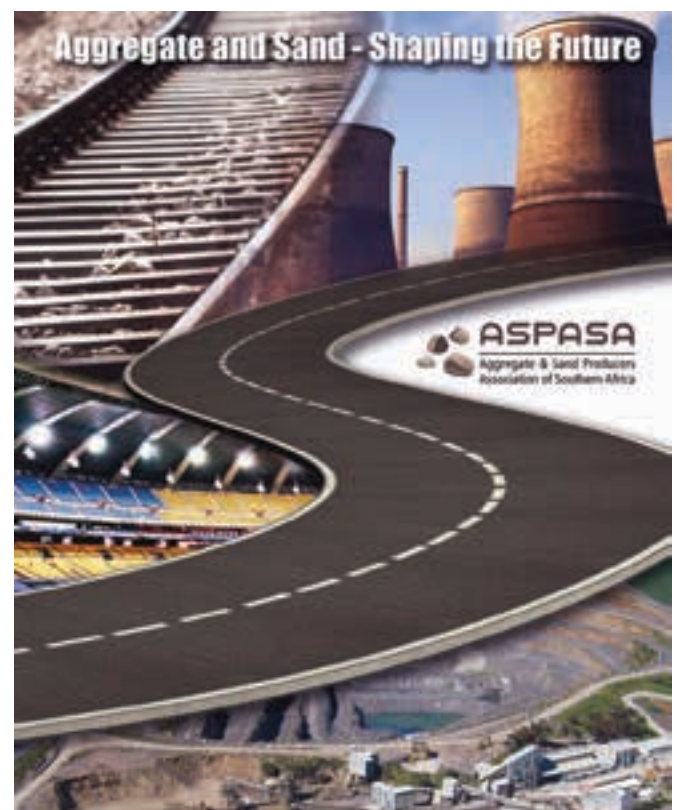
Highly-respected raw materials supplier and quarry operator, Oranje Mynbou en Vervoer (OMV) Company, has taken delivery of a Pilot Crushtec International Twister VS350 vertical shaft impact (VSI) crusher.

Pilot Crushtec International national sales manager, Nicolan Govender, believes that this sale serves to underpin the value of his company's reputation for product quality and service. This is especially relevant as the Twister product range has been designed and manufactured in-house. "The local market for VSI crushers is currently very competitive and the fact that an extremely capable and highly experienced operator like OMV selected the Twister to increase its output speaks volumes for the company's confidence in our product and service offerings," he says.

Govender adds that OMV is an existing Pilot Crushtec International customer and that the Twister will be working in a circuit of equipment, including a mobile cone crusher previously supplied by the Jet Park based-crushing and screening specialist. Additional factors that facilitated the sale of the product included competitive pricing, the ability to effect a prompt delivery and the fact that Pilot Crushtec International has a visible regional footprint in the area.

The Twister VS350 supplied to OMV is a semi-mobile heavy-duty VSI for use in tertiary and quaternary crushing applications. It is designed to produce 'in spec' high quality cubically-shaped aggregate as well as consistently graded crusher sand, mortar sand, plaster sand and high quality concrete sand.

www.pilotcrushtec.com



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Setting the standard in PDS technology

Booyco Electronics, which has been at the forefront of Pedestrian Detection Systems (PDS) in the South African mining industry since 2006, is currently installing its PDS technology at a surface mining operation.

"We have completed the mining operation side and are currently busy with the mineral processing side, wherein lie more challenges and definitely a lot more applications. We have standardised the PDS deployment, ie, specific zone shaping per vehicle type, which took time analysing the operational requirements," says company MD Anton Lourens.

Booyco Electronics would typically recommend a 10 m wide warning zone, for example, whereas the client would request that this zone be made smaller. "One of the definite advantages of our technology is that it is inherently flexible, enabling us to adapt it according to specific requirements and vehicle type," Lourens explains.

Booyco Electronics is setting the local standard in PDS technology for surface mining operations. "Currently there are quite a few systems out there that look at machine-to-machine interaction, but which are not necessarily applicable or effective on the pedestrian side. While we believe that we have the best solution available on the market, the industry-wide implementation of PDS technology remains an issue."

Lourens says that the Department of Mineral Resources (DMR) has unveiled the draft version of the mandatory Code of Practice for Trackless Mobile Machinery (TMM). "It deals with TMMs in terms of what measures are expected by the regulator and where this is going. It is already

past draft stage, and we believe it will change the immediate market requirements. The DMR has also specified additional testing to ensure that all the products out there comply with the same standards."

The mining industry has adopted a cautious approach to the implementation of PDS technology. "There is quite a lot of work still to be done, as we are not yet at the point where these systems can just be switched on. A major challenge is that there are so many stakeholders to deal with, from the mining house and contractor to the vehicle OEM and PDS supplier. Ultimately the client has a specific viewpoint in terms of his operational requirements, so we have to ensure that all these stakeholders are accommodated," Lourens says.

While Booyco Electronics is engaged in ongoing discussions with OEMs, "the biggest part of our installations right now is retrofits, as many of our mining customers wish to ensure that they are compliant. That is a challenge by itself, as we often have to relocate existing



equipment installed so that the PDS is working properly. The technology is such that ID installation is specific to create a particular application."

While this market sector is highly competitive at the moment, what gives Booyco Electronics its leading edge is its capability to offer a total solution. "What we have tried to do is create a total scope of supply so that the client does not have to worry about other related safety equipment. For example, we can supply our biometric licensing readers either in conjunction with PDS or as a standalone item."

Another significant long-term requirement will be the servicing and maintenance of Booyco Electronics' installed PDS base once the technology has been legislated. "There are huge opportunities for us, particularly in how we have positioned our products in terms of functionality and pricing. What gives us a competitive edge is that our products are designed and manufactured for local conditions and specifications," Lourens concludes. www.booyco-electronics.co.za

BLT SA exhibits at quarry conference

BLT SA, together with SAMSON, will be hosting a BLT/SAMSON stand at the Institute of Quarrying Southern Africa's conference taking place in Somerset West in April. BLT SA, a predominantly female-owned BEE based company, is the exclusive distributor in Sub-Saharan Africa for

bulk materials handling equipment manufacturer, SAMSON Materials Handling Limited. BLT SA distributes Samson's extensive range of fixed and mobile conveying equipment to diverse sectors throughout Africa.

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In Health and Safety

Conveyors have been a big feature in this issue in terms of the dangers in operating this equipment. Here, retired mining inspector Ted Dow cites another conveyor belt accident and his findings.

An electrician was fatally injured when he was drawn into the nip point of a snub pulley and a mud scraper plate at a clay mine and paving brick operation.



From evidence adduced, a boilermaker had been called out during the previous night to place the entire counterweight and at the end of his shift, he had replaced all the guards around the conveyor belt installation.

During the replacement of the counterweight, a depressing disc idler came out of its mountings. In attempting to replace this idler, the boilermaker, being unfamiliar with the part, thought that the mountings were upside down. Not being able to be replaced due to the tension on the belt, this idler was taken to the workshop and left there.

The subsequent inquiry brought to light that when the belt was started, it was noticed that the belt was not running true. Attempts to track the belt by means of the remotely-operated tracing mechanisms were unsuccessful, so the now-deceased removed the barrier fences or guards to access the belt directly.

The now-deceased then attempted to 'align' the moving belt by means of a pinch bar levered against the frame. In the process, a sleeve of his overall was drawn into the small gap between the underside of the belt and the scraper plate, and the artisan was pulled in between the snub pulley and the belt. The belt had to be cut to recover the body.

After the inspection in loco, the depressing disc idler was replaced and it was found that the belt ran true without further adjustment.

Dow says: "Once again a fatal accident occurred when an untrained and unauthorised person attempted to perform operations on a moving conveyor belt."

This accident is considered due to:

- a lack of supervision;
- a lack of complete safe operating procedures in which all persons concerned should be trained;
- failures in conducting adequate hazard identification, risk assessments, remedial actions and follow-ups (including revisions of COPs, SOPs and training modules);
- failure to identify the depressing disc idler as a part critical to successful tracking; and
- failure to secure the depressing idler so that it would not fall out of position (upside down installation).

"Full compliance with a complete conveyor belt COP drawn up in accordance with the guidelines issued by the Chief Inspector of Mines would have prevented this accident."

MQ

Letter to the editor

Henry Terblanche writes the following:

During 2014 I prepared and trained six trainees for evaluation by Xtract for the Examine and Make Safe and the Rock Breaker qualification. Two of these trainees were of outstanding quality. This year, I have three trainees in line for preparation and training.

I must comment on the thoroughness of the assessment done by Kobus Bekker. Once qualified by him, you can send them out into the field with confidence and peace of mind. Sending a recently qualified person out into the field to work with explosives by himself, sometimes very close to communities and structures, is a serious matter and asks for competency and skill, as property and lives are at stake.

Looking at the amount of trainees here in KZN, it seems like we are eventually on a road to catch up with blasting qualifications and skills. I also find that the quality of trainees has improved. Blasting is not just

an easy way out to get a job anymore, like in the old days. Companies now do proper selections for candidates. Thanks to Xtract, blasting has now become a proper career.

I must also thank James Kennedy, the rock breaker at Coedmore, for his assistance in the practical training of some of these candidates. His attention to detail and meticulous way of charging up has had a great influence on the trainees. Incidentally, James and I have been sharing the same office for 25 years!

I must thank you for putting my training material on the map. Due to the exposure in *Modern Quarrying*, I am continuously getting trainees for training. It keeps me busy as I am not ready for retirement just yet. As a matter of fact, I think that my wife Marianne is also not ready for my retirement yet. I must first prove to her that I can sit still for one day. And I must say that it is financially rewarding and leaves me with enough freedom to do the gravel road travelling and visiting out-of-the-way places that Marianne and I love so much. I really appreciate your effort.

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