

Mines Inspectorate Safety News

August 2008

Changes to mine safety laws

Several changes over recent months have refined the overarching health and safety legislation in the mining and quarrying industries. Two Acts were introduced by the Queensland Parliament for these changes to take effect.

The *Mining and Other Legislation Amendment Act 2007* came into effect from 14 December 2007. This Act amended the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999* to incorporate the following changes:

- an increase in penalties in line with the *Workplace Health and Safety Act 1995*
- the appointment of alternate members to Advisory Councils and appointment of the Director-General (Department of Mines and Energy) as chair of the Councils
- appointment of Inspectors and Authorised Officers with limited powers
- qualifications and functions of Authorised Officers
- a requirement to report all deaths at mines 'whether or not the result of an accident' at a mine site.

These amendments also clarify the role of the Mines and Petroleum and Gas Inspectorates of the Department of Mines and Energy when underground gasification of coal seams is proposed during exploration.

Minor amendments to the functions and powers of Inspectors, Inspection Officers and Authorised Officers mean that they may investigate any matter affecting the successful management of risk to persons.

In May 2008, the *Clean Energy Act 2008* was passed by the Queensland Parliament to also amend the *Mining and Quarrying Safety and Health Act 1999* and the *Coal Mining Safety and Health Act 1999*, with these changes becoming effective from June 2008.

Issues covered in the amendments are:

- notifications and declarations of certain exploration activities as underground gasification activities
- clarification of the powers of Inspectors, Inspection Officers and Authorised Officers during investigations
- clarification of required information that needs to be supplied about an accident, incident or death by the site senior executive to an Inspector, industry safety and health representative or district workers representative as soon as possible after an accident, incident or death
- specific information that an Inspector, Inspection Officer or Authorised Officer may require a person to provide about an accident, incident or death.

The changes were introduced following a fatality at a Queensland mine, where investigating officers had difficulty finding the accurate location of the incident—delaying the inspection process for 28 hours.

The amendments require site senior executives to provide relevant information (known as primary information) to Mines Inspectorate officers, industry safety and health representatives and district workers representatives. The changes also require *any person* with primary information to provide it to a Mines Inspectorate officer.

The primary information provided is not admissible in evidence in any criminal proceeding.

The amended legislation can be seen on the Queensland Parliamentary Counsel internet site www.legislation.qld.gov.au.

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Coronial inquests

In 2007, an inquest was held into the death of **Kerry Ann McDonald**, who was involved in an accident with a heavy vehicle at the Mayne River gypsum mine in October 2004.

Ms McDonald visited the site with a contract worker to load and relocate material from the mine. She left the truck cab while the trailers were being loaded and was struck by the reversing loader. She passed away in transit while seeking medical assistance.

The coroner confirmed that the recommendations implemented by the Mines Inspectorate prior to the inquest, were satisfactory. These changes included restricting visitor access to the mine; use of a mobile satellite phone for communications; and fitting a reversing alarm to the loader.

The Inspectorate's actions included improved advice about safety and health to all mining lease applicants and publication of Safety Bulletins 58 and 59, regarding audible alarms on mobile equipment and reliable communication systems in remote mines (see page 4).

In 2007, a coronial inquest was held into the death of **Roger Browne** who suffered fatal injuries after falling from a high wall into an excavation pit at the Dawson open cut coal mine in September 2005.

Mr Browne, an experienced mining engineer, had travelled alone to view old mine workings at the site. He swam to the shoreline of the pit, where he was found deceased the following morning.

The coroner made the following recommendations:

- review safety and health management systems with respect to:
 - personnel exposed to falling from the edge of excavations

- ability to locate personnel working alone and in remote areas
- emergency response to reports of missing persons
- develop systems to categorise abandoned vehicles
- implement processes to ensure the family of the deceased are provided with accurate information
- develop a protocol between the Mines Inspectorate and Queensland Police Service (QPS).

The inquest into the death of **Shane Davis** at the Foxleigh open cut coal mine in August 2005 was held last year. Mr Davis suffered fatal injuries when the rim of an inside truck wheel he was changing violently failed—forcing the outside wheel off the vehicle.

As a result of the inquest, the coroner made the following eight recommendations:

- review safety and health management systems (SHMS) with respect to contractors
- ensure mine management and supervisors are competent risk managers and understand the SHMS
- amend legislation to ensure that the Inspectorate is advised by manufacturers and suppliers of defects in equipment
- develop competencies about provision of advice on SHMS
- revise Australian Standards
- establish a management position of contractor controller at coal mine sites
- establish systems to ensure that next of kin of persons involved in serious or fatal accidents are advised expeditiously and are kept informed of developments

- review the protocol between the Mines Inspectorate and the QPS
- ensure broad dissemination of information about the hazards of uncontrolled release of energy from tyres.

Details of the above inquests can be viewed at the Queensland Courts website www.courts.qld.gov.au.

Fatal accidents

Since the last issue of Mines Inspectorate Safety News, there have been two fatal accidents at Queensland mines.

In March 2007, **Jason Blee** was fatally injured at the Moranbah North underground coal mine in place changing bord and pillar workings. The accident was investigated by the Mines Inspectorate, with the coronial inquest commencing at Mackay in June this year. The inquest is continuing.

On 17 January 2008, **Michael Auld** was fatally injured underground at the Cannington silver/lead mine when he was involved in an accident between a light vehicle and a basket attached to a loader. Investigations are continuing into the accident.

In 2006–07, four workers were fatally injured at mines, while in 2007–08, one fatality was recorded.

Prosecutions

Contractor and worker fined following mine accident

A central Queensland contracting company was fined \$44 000 in the Mackay Industrial Magistrates Court in February this year, in relation to an incident at Broadmeadow coal mine in February 2006. A mechanic with the company was also fined \$4400 in relation to the same incident.

Investigations by the Mines Inspectorate revealed faulty and poorly maintained brakes, after a coal mine worker received burns to 65 per cent of his body as the result of the truck he was driving running down a surface access ramp, and igniting upon overturning.

Contractor **CQE Hire Pty Ltd** and a mechanic both pleaded guilty to breaches of the *Coal Mining Safety and Health Act 1999*. The company was ordered to pay \$18 000 in investigation costs as well as court costs. The mechanic was also ordered to pay court costs in addition to his fine.

BMA Coal Operations had previously pleaded guilty in December 2007 to failing to meet its obligations under the *Coal Mining Safety and Health Act 1999* and was fined \$35 000 plus investigation costs of \$9000, in relation to the same accident.

The penalties were the highest court-ordered penalties made to date under the State's coal mining legislation.

Prosecutions following death of a quarry worker

The site senior executive and a quarry worker from far north Queensland pleaded guilty to breaches of the *Mining and Quarrying Safety and Health Act 1999* in the Mareeba Industrial Magistrates Court in May 2008.

The prosecutions followed the fatal injury of **John Potter** at the Wongabel quarry on 27 July 2006. Mr Potter was injured when he was struck by a loader.

The quarry worker pleaded guilty to failure to discharge his obligations under the Act and was fined \$1000 with no conviction recorded.

The site senior executive pleaded guilty to failing to discharge his obligations under the Act by not ensuring risk was at an acceptable level and by failing to develop a safety and health management system for the quarry. He was fined \$3000 and ordered to pay \$4000 costs.

BMA pays \$300 000 plus costs to settle prosecution

BMA Coal Operations paid \$300 000 towards coal mine safety research in Queensland following an out of court settlement in the Industrial Magistrates Court in Brisbane in January 2008. The company agreed to pay an additional \$236 000 to the Department of Mines and Energy for investigation and court costs.

The company had been charged with neglecting its duty of care obligations under Queensland's *Coal Mining Safety and Health Act 1999* in relation to an incident at Goonyella Riverside mine west of Mackay on 28 July 2004.

Two workers were injured by falling mud while trying to clear a build-up of mud from under the body of a large excavator. One man suffered a fracture to the lower lumbar area of his spine and a fracture to his right ankle while the other suffered a spleen injury.

Under the settlement terms, the department will use the \$300 000 for safety and health research and projects that will benefit the Queensland coal mining industry.

The full terms of the settlement were:

Brian Lyne v BM Alliance Coal Operations Pty Ltd ("BMA") and Barend Zietsman

Terms of Settlement: 30 January 2008

1. The parties to these prosecutions have agreed that the prosecutions will be discontinued on the terms set out below in clauses 2–7 and the parties submit to orders dismissing the complaints.

2. The terms of this settlement are not confidential.
3. BMA will pay to the Crown in Right of the State of Queensland represented by the Department of Mines and Energy ("the Department") the sum of \$300 000 within 30 days of the discontinuance of these prosecutions, such sum to be applied by the Chief Executive of the Department on behalf of the State of Queensland, in his absolute discretion for the purpose of carrying out safety and health research and safety and health projects with respect to the Queensland Coal Mining Industry.
4. BMA will pay the sum of \$236 000 to the Crown in Right of the State of Queensland represented by the Department within 30 days of the discontinuance of these prosecutions towards the expenses of investigating and prosecuting the prosecutions.
5. The site senior executive of the Goonyella Riverside Mine, Mr Barend Zietsman will meet with the Executive Director of the Department's Safety and Health unit, Mr Stewart Bell, and the Chief Inspector of Coal Mines, Mr Gavin Taylor, at the offices of the Department in Brisbane on a date to be agreed to explain improvements made or to be made in operating procedures at the mine to manage the recurrence of the factors underlying the incident the subject of the prosecutions, as identified in the Department's safety investigation report.
6. The defendants will withdraw all requests and reviews under the *Freedom of Information Act 1992* in relation to all matters the subject of the prosecutions.
7. The terms set out in clauses 3–5 will be read into the record of the Court hearing these prosecutions by Counsel for the complainant.

Safety and Health recruitment program

In the following months, Safety and Health will recruit 25 staff to expand the range of services offered by the Inspectorates and meet increased demand.

The program will begin with the appointment of seven Mines Inspectors to service regional Queensland, taking the total number of Inspectorate staff to 46. The additional staff members will comprise three coal, two metalliferous and two Inspectors for small mines.

Inspectors (Small Mines) will spearhead a campaign focusing on improving safety and health outcomes in the small mining sector (those with less than 10 employees). These mines have been over-represented in mining fatality statistics and the campaign will assist the mines to implement basic safety and health systems, improving safety and health performance and reducing fatalities and serious injuries.

Two additional Investigators will be appointed to assist Inspectors with the complicated task of investigating serious accidents and fatalities.

The Health Surveillance unit will be restructured, with the appointment of a Manager (see page 7 for further information), a second Statistician and an Occupational Hygienist. Being able to properly assess the collected data will identify negative safety and health trends before they have a serious impact on the industry.

Four additional Petroleum and Gas Inspectors will be appointed to assist with the regulation of the growing multi-tier gas industry, further building on the sound safety record in this sector.

The expansion of staff levels at the Department's main explosives reserves will also meet rapidly increasing demand in this area.

Finally, five scientific and engineering personnel will join Simtars to build on its enviable reputation as a mining safety centre of excellence.

All staffing increases will be funded by the recently announced industry safety levy and represents another important step towards the goal of zero harm in the mining, petroleum and gas, and explosives sectors. To find out more about the safety levy, visit the Department of Mines and Energy website <www.dme.qld.gov.au>.

Proximity detection systems

Did you know that in Australia, one child is run over in the driveway each week?*

With reversing sensors now a standard safety feature in most passenger cars, it's time for the mining industry to collaborate with equipment designers and manufacturers, to apply this technology to increasing safety in the proximity of mobile mining equipment.

The hazards of working near mobile mining equipment are often underestimated, with incidences involving crushed light vehicles, passengers or bystanders still occurring too frequently.

Since 2007 in Queensland, two fatalities have occurred in mines in close proximity to mobile mining equipment. An underground coal miner was fatally crushed by a shuttlecar in 2007 and in 2008 a miner was crushed between two vehicles at an underground metalliferous mine.

To raise awareness within the industry, a briefing was held in April 2008 to outline the general issues surrounding proximity detection systems. This provided delegates with data and information of four proximity detection systems currently available in the Australian marketplace.

It was encouraging that some companies are already trialling a system or consulting with manufacturers to scope and design proximity detection and warning systems. However, a more rapid change in personnel safety will only be achieved as more sites actively adopt the technology to provide a broader testing ground.

The information presented at the briefing sessions is available at the Department of Mines and Energy website <www.dme.qld.gov.au> in the mines safety pages.

* Kidsafe Qld (Inc), Factsheet—Driveway Runovers, <www.kidsafeqld.org.au>



Tilman Rasche

Tilman's tyre tips

Tilman Rasche is Senior Mines Inspector, with the Department of Mines and Energy.

Tyres, rims and wheel assemblies on heavy vehicles and machinery need to be used and maintained correctly to ensure that the risks to operators are minimised. Inadequate maintenance carries considerable risk of personal injury and death. In Australia in recent years, several fatalities have highlighted the risk that poor maintenance of these components entails.

The following tips and extracts highlight the key points and improvement strategies covered in Safety Bulletin #77 regarding tyre and rim hazards.

Under mining safety and health legislation everyone is responsible for ensuring the safety of equipment. Mining operators, contractors, maintenance providers, original equipment manufacturers (OEM), designers and suppliers of tyres and rims must ensure that effective safety and health management systems (SHMS) are in place to ensure safe management of tyres and rims.

Additionally, these processes need to be managed by competent and appropriately qualified and trained personnel. The conditions are supported by Australian Standard AS4457:1 2007 *Earthmoving Machinery—Off the road wheels, rims and tyres—Maintenance and repair Part one: Wheel assemblies and rim assemblies and Part two: Tyres*, which was revised as part of the Coroners inquest into the death of Shane Davis at the Foxleigh open-cut mine in 2005 (see page 2).

Bursting or exploding tyres and disintegration of pressurised rim assemblies can cause serious injury and fatality. Unsafe conditions such as tyre bubbles, 'hot' tyres, damage to tyre integrity, incorrectly fitted or damaged lock rings or other rim components can lead to sudden violent disintegration of the tyre or rim assembly during operation or maintenance.

Some of these hazards can be minimised by providing adequate site inductions and regular refresher training on tyre and rim-related hazards to all employees.

Training should be provided by registered training organisations only, experienced in tyre and rim maintenance and using accredited training packages. Offsite service and maintenance providers should also be trained to the same standard.

The disintegration of pressurised tyre and rim assemblies is often the main cause of fatalities to tyre service personnel. Usual causes of these problems include:

- metal fatigue and general deterioration of the assembly from punishing loads during operation
- compromised rim integrity from fatigue or damage of components
- failure to deflate the tyre before removing the assembly.

To prevent these situations occurring, some measures include the implementation of:

- a reliable non-destructive testing regime to identify fatigue and other deterioration in rims and rim components

- a deflation protocol, as detailed in AS4457:1 2007 incorporated into the site's SHMS.

Sites must establish a reliable history of rims and rim components currently in operation, taking into account the OEM stipulated safe life. The integrity of rims and rim components that have exceeded their stipulated safe life must undergo regular testing. This testing status should be tracked and reported accurately as part of the site maintenance management system.

Mismatched rims and disintegration of rim components has also led to several fatalities. Unique identification of rim components should be used to minimise incorrect assembly.

Hazards from sprung-lockring earthmover assembly systems should be recognised, as they have been known to mask the signs of poor rim and rim component integrity. Where practical, use safer designs provided by some earthmover rim manufacturers. Similarly, check the integrity of light vehicle rim systems including sprung-lockring systems and 'split rims' fitted to personnel carriers, site ambulances and other non-earthmoving equipment.

A site's maintenance management system requires that tyre wear and condition are assessed regularly by competent tyre service personnel for signs of damage and material fatigue, adhering to the safe use criteria specified by tyre manufacturers.

For further information on the earthmover tyre and rim Safety Bulletin, visit the DME website at www.dme.qld.gov.au and go to the mines safety and health pages.

New safety publications

Safety Alerts provide information of accidents in which injury and/or equipment damage occurred, or where potential existed for it to occur. Safety Bulletins however, discuss particular risks or hazards associated with machinery, mining methods or tasks and repetitive incidents that require causal analysis.

Since the last issue of Mines Inspectorate Safety News, the following alerts and bulletins have been released by the Mines Inspectorate.



Safety Bulletin #79 Activities on narrow benches at mines and quarries

relates to a fatality and several high potential incidents involving persons driving or falling from the edge of excavations at mines and quarries.

The fatal accident occurred several years ago at a small open cut copper mine in north Queensland when an air trac drill rig fell 20 metres over the edge of a narrow bench. The accident proved fatal for the drill operator and the subsequent investigation concluded at least seven simultaneous defence failures as contributing factors, such as mine design, hierarchy of risk controls, housekeeping, stability of equipment, operator experience and supervision.

Safety Bulletin #83 Diesel engine—turbocharger fires

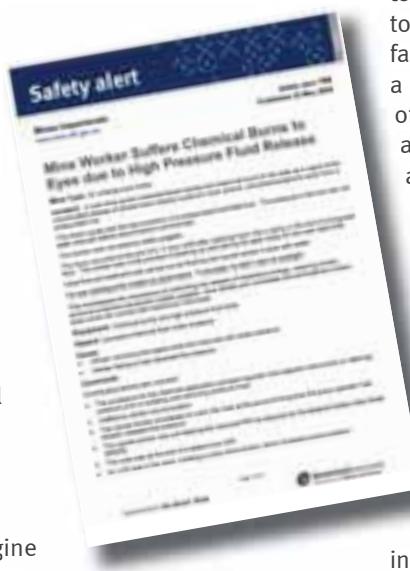
was issued in response to the increasing incidence of turbochargers acting as ignition sources for fires at surface coal mines. In the past 18 months, excavators recorded nearly a third of all turbocharger fires, followed by track dozers (15%) and rear dump trucks (12.5%). Sixty per cent of the fires resulted from hydraulic or engine oil spraying on the turbocharger. Eleven per cent of the fires were caused by engine fuel contacting the turbocharger, with another thirteen per cent from turbocharger failure.



Safety Bulletin #84 Construction work on mines and quarries

clarifies legislative requirements applying to mines during the construction of new plant or equipment. On coal mine sites, the *Coal Mining Safety and Health Act 1999* (CMSHA) applies to all work conducted at a site, including construction activities.

At a metalliferous mine or quarry, construction work is regulated by the *Mining and Quarrying Safety and Health Act 1999* (MQSHA) as it does to other work normally undertaken on site. There are no provisions for exemption from this in either legislation.



Safety Alert #196 Mine worker suffers chemical burns to eyes due to high pressure fluid release

relates to a coal mine worker who received facial injuries and chemical burns as a result of the uncontrolled release of diluted foam catalyst (sulphuric acid, phenol, and phenolsulphonic acid), following the disconnection of a pressurised fluid-filled line. Pressure in the line had not been reduced before disconnection commenced and the worker was not wearing safety goggles.

Initial first-aid treatment involved flushing the injured worker's eyes with water and subsequent treatment by paramedics. The worker retained his sight, but the incident emphasises the importance of controlling the release of hazardous energy, wearing correct personal protective equipment (safety goggles / face shield) and immediate first-aid treatment for facial injuries.

For more information on Safety Alerts and Safety Bulletins, see the Department of Mines and Energy website www.dme.qld.gov.au.



Gerard Tiernan

New manager for Health Surveillance Unit

Gerard Tiernan has been given the challenge of managing the newly formed Health Surveillance Unit (HSU). An occupational hygienist with over 20 years experience in the mining industry, Gerard's vast experience includes working for Mount Isa Mines and later with Simtars.

The HSU is an integral part of the Safety and Health team. It champions the issue of occupational health for all mines and quarry workers in Queensland and has been tasked with identifying activities or occupations at mine and quarry sites where firm evidence of occupational health hazards exist and are not adequately controlled.

It is the role of the HSU to advise the Inspectorate of these hazardous areas, in turn ensuring that the site senior executives minimise the health risks to workers at a mine or quarry.

It has commenced liaising with related professional bodies throughout Australia and internationally to ensure that best practice standards are maintained by collating and analysing date and statistics on mineworker health.

The HSU works closely with industry nominated medical advisers to ensure privacy protocols are maintained and to implement training where required. Its other functions include:

- collecting medical data of the occupational health of mine and quarry workers
- analysing information relevant to the health needs of mine and quarry workers
- reporting results of data analysis
- advising the Mines Inspectorate of activities where significant health risks have been identified
- developing training resources to facilitate training in occupational health
- providing statistical data to support current research
- participating in epidemiological and occupational health benchmarking studies with other research groups nationally and throughout the world
- ensuring that high ethical and privacy standards are maintained through all data handling.

Gerard says the HSU is looking forward to working closely with operators, unions and other industry stakeholders to ensure employees do not suffer any disabling occupational injury or disease. He joins Occupational Physician, David Smith and Data Supervisor, Denise Cairns in the Unit.

Highwall stability

During 2006–07, there were 29 incidents of 'falls and slips of ground' (rock falls) reported in Queensland. It was the eighth largest contributor to the 745 reported high potential incidents (HPI) in Queensland open-cut metalliferous and coal mines.

Recent accidents involving failure of pitwalls in coal and metalliferous mines have highlighted the potential and actual consequences of rock fall events—such as severe injury, and physical damage—that makes rigorous safety management imperative in unstable areas.

In late 2007, at least five significant wall failures occurred in Queensland open cut coal mines, resulting in heavy equipment being partially or wholly engulfed.

A coal mine worker was seriously injured despite the vehicles 'falling object protection systems' (FOPS), when a section of highwall fell onto the truck he was in.

Earlier in the year a metalliferous mineworker was also seriously injured by falling material. Given severe rains across much of Queensland early in 2008, pit wall and dam stability management quickly became a top priority for safety management activities.

To communicate how to manage rockfall hazards, the Mines Inspectorate has commenced gathering baseline information from coal and metalliferous mines. A detailed questionnaire has been designed for personnel to complete and list the safety controls implemented at each site in order of effectiveness.

Twenty nine completed surveys have been received from both coal and metalliferous mines, with information currently being analysed for presentation at planned regional industry workshops later this year.

Contacts

Inspectorate contacts

The main contacts for the Mines Inspectorate are:

Brisbane Head Office: 3237 1041
Southern region: 3238 3792
Central region: 4938 4473
Northern region: 4760 7404

A full list of names and contacts for the Mines Inspectorate can be found at www.dme.qld.gov.au and by following the links to the mines safety pages.

What's new on the web

The 'What's new' page, on the DME website is a reliable way to keep up with the Queensland Mines Inspectorate and with safety and health issues in the mining industry as a whole.

Whether it's the latest Safety Alert or Safety Bulletin, the ever popular Summaries of Serious Accidents and High Potential Incidents or other issues—to get a prompt response to your query, go to 'What's new'.

Are you interested in a career with the Queensland Mines Inspectorate?

Vacancies for positions are advertised here, so contact the Inspectorate if you have experience working in the mining industry, or have professional or technical mining qualifications. If there are no current vacancies, we can take your details and advise you of future opportunities. Email your CV and personal details to info@dme.qld.gov.au

All current vacancies with the Mines Inspectorate and other areas in the Department of Mines and Energy can be viewed at the DME website www.dme.qld.gov.au in the employment pages.

Useful sites

Department of Mines and Energy
www.dme.qld.gov.au

Queensland Courts
www.courts.qld.gov.au

Queensland Legislation
www.legislation.qld.gov.au

New appointments

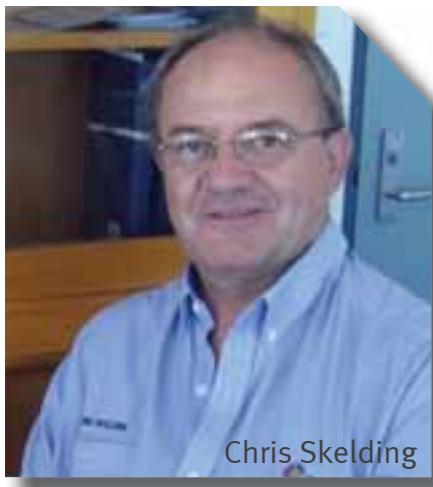
The Mines Inspectorate would like to welcome two new officers to the team.



Gavin Taylor

Gavin Taylor has been appointed Chief Inspector of Coal Mines, following the retirement of Brian Lyne earlier this year. Originally from Scotland, Gavin has over 40 years experience in the coal mining industry and has worked all over the world—most recently with Centennial Coal in NSW.

He has hit the ground running and is already making an impact with his inclusive approach to the safety and health problems facing the mining industry.



Chris Skelding

Chris Skelding has been appointed to the position of Manager, Safety and Health for Central Region. Chris gained his initial experience in the Welsh coal mining industry and has also worked extensively internationally. Chris has worked within various capacities since joining the Department of Mines and Energy and his experience will be an asset to the Central Region.