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REPUBLIC OF SOUTH AFRICA  
**MPUMALANGA REGION**  
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## NEWSLETTER MPUMALANGA REGION JULY 2006

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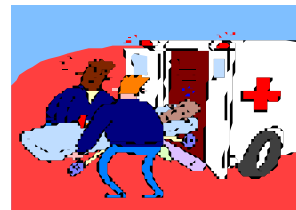
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MINERALS AND ENERGY FOR PROSPERITY  
AND DEVELOPMENT

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## 1. ACCIDENTS



During the month of July 2006, the mines in this region reported 46 accidents, of which 1 was a fatal accident and 7 non-casualty accidents.

The main accident categories were:-  
July'06

|                      |    |
|----------------------|----|
| General accidents    | 21 |
| Fall of ground       | 7  |
| Transport and Mining | 14 |
| Machinery            | 4  |

## 2. FATAL ACCIDENT

Leeuwfontein Colliery (2006/07/29)

At about 05:00 on 29 July 2006, a plant attendant was fatally injured in the tail pulley area of the tunnel conveyor in the plant. His team leader had instructed him to go into the tunnel, part of his normal working area, and investigate why there was no coal on the belt. A

while later, the team leader went to investigate as there was still no coal coming out, and found the then-injured.

After stopping and locking the belt out at a pull-key, an ER24 station close by was called and certified him dead.

## 2(a) FATAL ACCIDENTS FROM OTHER REGIONS

### 1. NORTH-WEST REGION

A winch operator was seriously injured when a deflecting snatch block which was secured by one eye-bolt was pulled out by the winch during the cleaning process. He was signalling the other winch operator at the start of their rigging process. He subsequently died at the hospital the same afternoon.

### 2. FREESTATE REGION

A development rock-drill operator was fatally injured and a co-worker seriously injured when a rock dislodged from the hanging wall of a development end and struck them

## 3. ACCIDENTS PER MINING GROUP:-

|                            | July      |          | Year Prog. |          | Rate/1000   |            |
|----------------------------|-----------|----------|------------|----------|-------------|------------|
|                            | Inj.      | Fat.     | Inj.       | Fat.     | Inj.        | Fat.       |
| <b>COAL MINES</b>          |           |          |            |          |             |            |
| Eyesizwe                   | 0         | 0        | 15         | 0        | 6.06        | 0          |
| Sasol Coal                 | 0         | 0        | 23         | 1        | 4.04        | 0.17       |
| Ingwe Coal                 | 20        | 1        | 44         | 1        | 7.42        | 0          |
| Anglo Coal                 | 8         | 0        | 24         | 0        | 4.22        | 0          |
| Xstrata Coal               | 3         | 0        | 16         | 0        | 4.40        | 0          |
| Metorex Coal               | 1         | 1        | 5          | 2        | 7.2         | 2.88       |
| Total SA                   | 0         | 0        | 7          | 0        | 12.47       | 0          |
| Anker                      | 0         | 0        | 1          | 0        | 2.64        | 0          |
| Kangra                     | 0         | 0        | 1          | 1        | 4.18        | 2.09       |
| Private coalmines          | 0         | 0        | 5          | 2        | 8.69        | 3.47       |
| <b>GOLD &amp; PLATINUM</b> |           |          |            |          |             |            |
| Harmony Gold               | 6         | 0        | 28         | 1        | 9.22        | 0.32       |
| Metorex Gold               | 0         | 0        | 14         | 0        | 19.03       | 0          |
| Simmer & Jack              | 0         | 0        | 1          | 0        | 3.78        | 0          |
| Aquarius Platinum          | 0         | 0        | 5          | 0        | 6.99        | 0          |
| African Rainbow Min.       | 0         | 0        | 4          | 0        | 8.99        | 0          |
| Private gold & platinum    | 0         | 0        | 3          | 0        | 1.57        | 0          |
| <b>OTHER MINES</b>         |           |          |            |          |             |            |
| Xstrata Alloys             | 0         | 0        | 3          | 0        | 7.55        | 0          |
| Samancor                   | 0         | 0        | 3          | 0        | 2.97        | 0          |
| Other private mines        | 0         | 0        | 11         | 0        | 5.83        | 0          |
| <b>TOTAL</b>               | <b>38</b> | <b>1</b> | <b>213</b> | <b>8</b> | <b>6.15</b> | <b>0.2</b> |

## 4. INFORMATION SHARING



### 4.1 NOISE

#### Extent of problem.

Noise has been increasingly recognized as a significant health hazard for workers and a serious financial threat to many industries. The South African mining industry introduced hearing conservation programmes (HCP) in 1998 (COMRO User Guide No. 11). HCPs subsequently became compulsory, since labour-intensive methods common to many mineral extraction and processing operations were resulting in large numbers of people being routinely exposed to noise beyond the legally recognized safe limit of 85 db.

Research indicated that the time-weighted average (TWA) equivalent exposure levels normalized to an 8-h duration are generally between 90 and 100 dB depending on occupation. Corresponding values for operators of certain production machinery and for personnel in close proximity were found to range between 95 and 110 dB (Franz et al. 1997).

It has subsequently been estimated that between 68 and 80 percent of mineworkers are exposed at a TWA of 85 dB or greater, indicating a significant risk of hearing loss for the majority of the industry's personnel.

The increased financial impact of Noise - Induced Hearing Loss (NIHL) on South African mining operation can be partially attributed to changes in the criteria for assessing compensation claims (Workmen's Compensation Commissioner Internal Instruction No.168, 1995). The revised criteria reduced the threshold (or "fence") for compensation from 42 to 26 dB average hearing loss, including losses at 3 000Hz.

Since the implementation of WCC 11 168, the proportion of compensation claims for hearing loss in the mining industry has escalated from eight percent of all claims to approximately 14percent. Amounts paid have increased by an even greater margin, due to more substantial settlements for any given level of impairment.

The subsequent replacement of 11 168 with Instruction 171 (WCC 2001) is not expected to reduce the overall financial impact of compensation claims, but will provide for apportioning them among claimants' current and previous employers.

#### Legal responsibilities of employers and workers.

In terms of the Mine Health and Safety Act (MHSA, Act 29 of 1996), employers' obligations specific to noise are:

1. Risk Assessment, Noise Control Engineering, Noise Monitoring and Medical Surveillance.
2. Hearing and safety training for noise-exposed employees to reduce the risk of NIHL.
3. Provision of appropriate hearing protective devices (HPDs) to noise-exposed persons; and compilation of a code of practice for controlling noise and managing the risk of NIHL.

#### Workers' obligations specific to the noise hazard are:

1. The proper use and care of HPDs.
2. Reporting problems that may preclude or limit use of HPDs.
3. Reporting noise source, communication problems or perceive lack of protection.

In cases where risk control measures ultimately fail to prevent NIHL, affected persons may be eligible for compensation.

In terms of the Compensation for Occupational Injuries and Diseases Act

(COIDA), the employer is obliged to report such cases to the Compensation Commissioner or to the relevant mutual association, even if in dispute of their merit [COIDA 68(2)].

### **Quantifying noise and exposure levels for risk assessment and occupational hygiene monitoring.**

It is important to note that **every 3-dB increase in the level workplace noise beyond the 85 dB limit requires a 50 per cent reduction in exposure time** for unprotected workers if the legal limit is to be adhered to. For example, unprotected exposure to an equivalent continuous noise level of 88 dB would be permissible for 4 h per day, or for 2 h per day in the case of a 91 dB.

*Source:SIMRAC Handbook*

### **4.2 ASSESSMENT OF COMPLIANCE WITH OCCUPATIONAL EXPOSURE LIMITS (OELs).**

Analytical methods:-

The National Institute for Occupational Safety and Health (NIOSH) of the US Department of Health and Human Services produces a Manual of Analytical Methods.

This manual is recognized world-wide as the most authoritative reference for both sampling and analytical methods/ techniques. It contains over 250 sampling and analytical methods for over 400 substances. It is a compilation of methods for occupational exposures to toxic substance in air and biological samples.

The methods have been developed specifically to have adequate sensitivity to detect the lowest concentrations and sufficient flexibility of range to detect concentrations exceeding safe levels of exposure, as regulated by the Occupational Safety and Health Administration (OSHA) and recommended by NIOSH.

For ease of reference the manual is available via the Internet, on computer diskettes and a compact disk. A companion Guide to Chemical Hazards has also been produced in these formats and these manuals offer definitive assistance with regard to airborne and chemical health hazards.

([www.cdc.gov/niosh/nmam](http://www.cdc.gov/niosh/nmam))

In South Africa the tendency is to follow the NIOSH analytical methods closely and to adhere to the NIOSH techniques. A common set of analytical methods lays the foundation for standardization, comparisons of results and inter-laboratory checks. There is also no reason to “re-invent the wheel” as it were, since all the methods and techniques have been well-researched and authenticated.

*Source:SIMRAC Handbook*

### **4.3 PULL-CORDS ON BELT CONVEYORS AT TAIL ENDS.**

Too many accidents have emanated from the removal of tail pulley guards and not replacing them before restarting the conveyor.

Operating a conveyor without every necessary guard in place is considered one of the **14 Fatal Sins**, which are sins to be avoided at all cost, having been identified as the 14 most likely situations resulting in serious accidents on mines.

There are numerous means of ensuring that guards are in place, but tail pulley guards are a continual problem as they normally need to be either opened or removed to facilitate cleaning of duff and spillage build-ups. In many cases they are not repositioned prior to start-up.

One method of ensuring that conveyors cannot be started up without the tail-pulley guard in place, is to ensure that the pull-key system circuit is broken whenever the tail guard is not in place. A proximity switch attached to each tail pulley guard, and connected to the pull-key circuit will prevent any conveyor from being operated

without the necessary tail guard in place. Since the power supply on the pull-key systems is required to be intrinsically-safe, and thereby unable to ignite any flammable gas, it should not be necessary to use flameproof proximity switches.



This was the situation found at a colliery. **Don't let it happen to you!**

#### 4.4 PERSONS RUN OVER BY TMM's.

On a regular basis we hear of persons either run over or crushed against the rib side by TMM's on mines.

Kunye Mining Solutions has come up with a system whereby pedestrians are warned whenever a TMM is operating nearby. The signal intensifies as the TMM comes closer, ensuring that the pedestrian is fully aware of the impending danger.

At present the system is being tested at Nkomati Mine, close to Machadodorp and New Denmark Colliery.

The documentation regarding this system (both for underground and opencast applications), is attached for your information.

### 5.0 EXAMINATIONS FOR CERTIFICATES OF COMPETENCY: MINE SURVEYORS AND MINE MANAGERS: OCTOBER 2006

Please note that the above mentioned examinations will take place on the dates as indicated below:-

#### Mine surveyors

12 and 13 October 2006.

#### Mine Managers

17, 18, 19 and 20 October 2006.

**Note:** The **venue** for both these examinations will be the **Colliery Training Centre, Watermeyer Street, Witbank**, and **not** the SACE recreation club as in the past.

### 6.0 METHANE GAS ALERT



#### METHANE HAZARD

With the seasonal changes now being experienced, fluctuations of the Barometric Pressure are the order of the day.

These fluctuations inevitably cause increased methane release rates from the coal seam, mine managers and environmental control officers / occupational hygienists must as a matter of urgency conduct comprehensive risk assessments to ensure that this potential hazard is adequately managed.

## 7.0 STAFFING



### **FAREWELL:**

Farewell to Mr Daniel Mohapi (Senior Inspector : Mine Safety) and Mr Andries Grobler (Inspector : Mining Equipment) who have left the Department for the private sector. All the best to them.

### **WELCOME:**

Mr Neels Hoffman has joined the Department as Inspector: Mining Equipment.

Yours in health and safety

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**X.MBONAMBI**  
**ACT. PRINCIPAL INSPECTOR**  
**MPUMALANGA REGION**



# K-CAS

## System Overview:

The K-CAS is a product developed to give the large equipment operator 360° view and control of his operating area. The system make use of an onboard touch screen computer to display actual position and real time movement of equipment in a defined radius around the machine. Positions are determined with GPS receiver units and transmitted back to the equipment fitted with onboard touch screen computers.

## Components:

GPS units on the Dragline/shovel/loader/ truck etc.



GPS on boom and A-frame

Determine orientation and movement.



Touch screen computer:

Display real time actual position of equipment and people around equipment.

GPS units on other equipment:

Determine exact position and real time movement.



Transmit information to machine and display on touch screen computer.

Functionality of touch screen:

- Beeping, Blinking dot represents equipment entering operating radius.
- Touch blinking dot with finger.
- Beeping sound will stop and detail of equipment entering operating radius will be displayed on right window of screen.
- The dot will move when equipment or machine move to show real time position of equipment relative to machine with touch screen computer.



# Vehicle Detection System

## System Overview:

The VDS product uses existing Radio Frequency Identification (RFID) Receiver technology to receive transmissions, from existing RFID Transmitter technology, to:

- Identify a tagged vehicle and activate an alarm to warn the bearer
- Identify a tagged dead area and de-activate the alarm
- Identify a test area and activate the alarm.

## Components:

### Transmitters:



Uniquely identifiable transmitters mounted on a vehicle transmit two RF clouds around a vehicle.



### Receiver:



Unique visible and audible warning device installed in cable near ear of lamp bearer.

### Transmitter tester:



Test all transmitters automatically at a strategic position.

### VDS Receiver test station:

