

SIMRAC RESEARCH LEVIES - WHY, HOW AND WHEN?

WHY SIMRAC LEVIES?

In terms of provisions made in section 26(9)(a) of the Minerals Act, 1991 (Act 50 of 1991), SIMRAC was established to advise the Mine Health and Safety Council (MHSC) on:

- determining health and safety risks at mines;
- identifying research needs based on health and safety risks;
- approving research projects;
- concluding contractual agreements to undertake research projects;
- imposing levies on mines to fund research projects;
- monitoring the ongoing progress of research projects; and
- communicating research results to mines.

HOW ARE LEVIES CALCULATED?

A safety risk is established in terms of Regulation 25.1.1 (a), (b), (c), (d), and (f), according to which a statistical number of 'days lost' is allocated to each reportable mining accident. The statistical 'days lost' is based on the severity of the injuries sustained by accident victims.

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IN THIS ISSUE

- ◆ SIMRAC Levies
- ◆ Calendar of events
- ◆ Occupational health: Feedback on overseas visit
- ◆ Invitation to attend Project Launches
- ◆ DID YOU KNOW?
- ◆ Research Results: New information
- ◆ SIMRAC Activities

The established 'days lost' could vary between 14 and 6000 days depending on the severity of an accident. SIMRAC levies are calculated separately for each mining sector, namely for gold and platinum, coal and other mines. No cross-subsidisation occurs.

The following formula applies:

Annual Levy = $\frac{\text{SIMRAC Approved Budget}}{\text{'Days lost' over a 3-year period}}$

The 1999 Levy calculation includes the accident statistics, and hence 'days lost', for the period 1 July 1995 to 30 June 1998. The following levies apply (VAT excluded):

- GAP: R3,01 per 'days lost'
- COL: R7,86 per 'days lost'
- OTH: R2,99 per 'days lost'

A Generic Levy is based on the number of employees at each mine.

The levy is established by dividing the SIMRAC research budget for generic and occupational health research, by the number of employees in all mining sectors, for each particular year.

The rate per employee per year is established for each mine. The amount for 1999 is R17, 49 per worker.

RELIEF FOR SMALLER MINES

If the total calculated levy amount for a mine is less than R500 per year, no levy is payable. In practice this means that a mine employing less than 25 workers and at which no reportable accident had occurred over a period of 3 years, will not pay any levy for a specific year.

WHEN

Levies are payable in four equal amounts at the end of March, June, September and December of each year. Mines are provided with a detailed account of all reported accidents that occurred during the period for which a specific levy is calculated.

After verifying the report by representatives of the mine and the regional office of the Department Minerals and Energy and making corrections, a final levy is calculated. Mines receive invoices on a quarterly basis. For more information contact Andrishia van Vuuren at 27 11 358 9189, email avvuuren@simpross.co.za or Derek Baker at the Department Minerals and Energy at 27 12 317 9137, email mwabak@mepta.gov.za

(Continued on page 2 ➡)

CALENDAR OF EVENTS

MEETINGS*

SIMRAC: 26 Aug. 1999; 25 Nov. 1999

SIMHEALTH: 10 Aug. 1999; 14 Sep. 1999; 12 Oct. 1999, 9 Nov. 1999

SIMGAP: 23 Sep. 1999; 11 Nov. 1999

SIMCOM: 16 Aug. 1999; 18 Oct. 1999; 19 Nov. 1999

MANCOM: 5 Aug. 1999; 3 Sep. 1999; 1 Oct. 1999; 5 Nov. 1999

*Subject to change

GOVERNMENT GAZETTE RESEARCH PROPOSALS

Invitations to submit proposals on SIMRAC research projects will be published in the Government Gazette or the Government Tender Bulletin during early September 1999. Contact Andrisha van Vuuren during September 1999 for your electronic copy of the published proposals avvuuren@simpross.co.za or phone 27 11 358 9180/ 9181.

(Continued from page 1)

SIMRAC LEVIES - IDENTIFYING RESEARCH PROJECTS

SIMRAC Research Proposals are identified after risk and hazard identification analyses are conducted. Input from the state, mining houses, employers' societies, labour organisations and industrial associations are welcomed and encouraged. Proposals are invited annually in the Government Gazette or State Tender Bulletin. Proposals are also invited in the media and submitted on a continuous basis.

MONITORING RESEARCH PROJECTS

Monthly or bi-monthly meetings are held to consider project progress. When necessary presentations are required from researchers if clarification is sought. Research agencies are contractually obliged to submit quarterly progress reports and financial statements.

COMMUNICATING RESEARCH RESULTS

All levy-paying mines receive final project reports after finalisation of a project at no cost. Reports can also be downloaded from <http://www.simrac.co.za> or ordered from Logtek at <http://logtek.co.za>. Research results are communicated in newsbriefs, project launches, newsletters, annual reports, symposia, pamphlets, papers, press releases and roadshows. Contact Paul van der Heever at pvdheever@simpross.co.za for more information.

OCCUPATIONAL HEALTH: FEEDBACK ON OVERSEAS VISIT

Mary Ross, the SIMPROSS Occupational Health Programme Manager, recently undertook a visit to Montreal, London, Southampton and Edinburgh. At the 6th Conference of the International Society of Travel Medicine, the essential need for adequate healthcare for expatriate mineworkers, especially those exposed to malaria, was highlighted. Updated information on vaccines, malaria prophylaxes and treatment was obtained.

In London, the Faculty of Occupational Medicine (FOM), the Institute of Mining and Metallurgy (IMM) and the Health and Safety Executive (HSE) was visited. The Medical Research Council Occupational and Environmental Epidemiology Unit in Southampton is eager to pursue collaboration with SIMHEALTH on ergonomics, vibration risks, musculoskeletal diseases and epidemiological studies.

In Edinburgh, Mary gave a presentation to the Institute of Occupational Medicine on SIMRAC and its Occupational Health Program. An association with SIMRAC/SIMHEALTH was welcomed in terms of developing research capacity through training, research design, and technology and equipment development. Contact Mary Ross per email at mross@simpross.co.za if you require more information.

PROJECT LAUNCHES - INVITATION TO ATTEND

All interested people are invited to attend the launching of final research results of the following SIMRAC Projects:

➤ **20 August 1999**

Hearing Conservation Program (GEN 011) at 13h00 in the CSIR Miningtek Conference Centre, Carlow Road, Auckland Park, Johannesburg. Contact Carmen Bergman at 27 11 358 0112

➤ **3 September 1999**

Software to quantify seismic hazards (GAP517) at 12h30 in the Village Club, Western Deep Levels Mine. Contact: Noleene Woods or Duncan Adams at 27 11 358 9180 / 9181

➤ **30 September 1999**

Training aids to prevent frictional ignition hazards in coal mines (COL 431) at a venue in the Witbank area. Contact Alec Gumbie (27 11 358 9186, email agumbie@simpross.co.za) or Carmen Bergman on 2711 358 0000 for information on the time and venue.

➤ **15 October 1999**

Trapped Miner Location Equipment (GEN 502) at 12:00 in the CSIR Miningtek Conference Centre, Carlow Road, Auckland Park, Johannesburg. Contact Carmen Bergman at 27 11 358 0112

➤ **21 October 1999**

Mine shaft detaching hooks (GAP 340)

Contact Alec Gumbie on 27 11 358 9186, email agumbie@simpross.co.za for more information on the time and venue.

DID YOU KNOW?

Patents were registered for stone dust bags used in bagged barrier explosion suppression systems, and for trapped miner-location systems. Both developments were made possible through SIMRAC funding.

Training Videos are available from CSIR Miningtek on Dust Control; Detaching Hooks in Mine Shafts; Training Materials to Prevent Frictional Ignition Hazards and on Hearing Protection. Contact Jan du Plessis on 27 12 544 0150 or Jean Chawapiwa-Pama on 27 11 358 0000 for further information.

CD ROM full text reports are available on the 0-3 series final SIMRAC project reports. Contact LOG-TEK to order copies. Phone 27 11 314 2270 and speak to Kevin Luyt.

The SIMRAC Internet Website has had 838 visits (including reloads) since its inception. Go to <http://www.simrac.co.za> Most visits are from Africa. The following percentages apply to all continents:

- Africa 58.44%
- Unknown 29.55%
- North-America 8.66%
- Europe 2.88%
- Australia 0.44%

In a breakdown of country/domain the most visits, apart from African in origin, come from:

- Unknown (23.05%)
- .net Network (6.43%)
- .com US Commercial (6.20%)
- .uk United Kingdom (2.66%)
- .ca Canada (1.55%)
- .edu US Educational (0.44%)
- .gov US Government (0.44%)
- .au Australia (.44%)
- .ch Switzerland (0.22%)

Do you need more information?

Contact the SIMRAC Research Manager by email on pvanderheever@simpross.co.za or call telephone number 27 11 358 9180/9181.

RESEARCH RESULTS: INFORMATION

▪ Numerical modelling guidebook

A two volume guidebook for the numerical modelling of mine workings has been published as part of SIMRAC Project GAP 415 for use by rock mechanics engineers in a practical mine design environment. The guide combines the principles of rock mechanics engineering with those of numerical modelling and is specifically addressed to the South African gold and platinum industries. It is also suitable for use as an educational aid at mines and tertiary organisations.

Numerical models are powerful tools for the improvement of the design of mine layouts and excavations. In order to use these tools effectively the mine rock engineer must have sufficient knowledge of how numerical modelling can be applied, limitations of models and how relevant the models are to any particular task. This two-volume reference book was therefore prepared as part of a multifaceted package aimed at assisting users in this respect. The package also includes the provision of online support through a multimedia CD-ROM and an Internet Web site, and a prototype intelligent front end for solving particular mine problems. Contact Nick Lightfoot at CSIR Miningtek at 27 11 358 0000

▪ Hazard Indicator

A recent monitoring program has indicated that the significant time dependent behaviour that is observed in the tabular excavations of deep South African gold mines may provide useful diagnostic information on the stress conditions in the fracture zone ahead of the face. This may be used to identify hazardous conditions such as areas prone to face bursting.

This work was carried out as part of the SIMRAC project (GAP 332 & GAP 601b) concerned with the application of fundamental knowledge of rock mass deformations to modelling stope scale problems, to assess how this knowledge may be used to control and engineer the mechanics of the fracture zone. Contact Francois Malan at 27 11 358 0000 for more information.

▪ Geotechnical Areas

A rock mass classification methodology has been developed and evaluated during several underground investigations where it was found to adequately define a large variety of geotechnical settings. (GAP 416)

The methodology recognises that, generally, mine design strategies are adopted on both regional and local scales and therefore the geotechnical subdivision of a mine has to be carried out at two levels.

(Continued on page 4) ➤

RESEARCH RESULTS - continued

In the methodology these are referred to as Regional Geotechnical Areas, or Mining Environments and Ground Control Districts (GCDs).

Regional geotechnical areas are ideally delineated before the onset of mining to enable appropriate mining methods to be selected. GCDs are defined once mining commences and enable the implementation of appropriate rock engineering strategies. Contact Gohkan Güler at 27 11 358 0079 for more information

▪ Frictional Ignitions Training Course

A training package designed to make workers more aware of the dangers of frictional ignitions has been completed, including training materials, training guidelines, visual material and a video. The course has been structured according to an Outcomes Based Education method and is directed at both illiterate and literate target audiences.

The development of this package was initiated under SIMRAC Project COL 431 after initial research into the causes of explosions (COL 031) have shown that frictional ignitions have the greatest potential to endanger the underground coal mine worker.

Training workers to develop a greater awareness of the circumstances that could lead to such incidents, as well as in the methods used to combat them, has considerable potential for reducing the occurrence of such incidents.

For further information contact Jan du Plessis at CSIR Miningtek, phone 27 12 544 0150.

SIMRAC ACTIVITIES

After concerns have been expressed on the ineffectiveness of the 'old' SIMRAC System, SIMRAC has approved and adopted new committee structures and organisational arrangements. Administrative functions have also been extended.

The committee structure is currently based on mining sectors: Coal and Other Mining Projects are managed by the SIMCOM Sub-Committee; Gold and Platinum fall under the SIMGAP Sub-Committee and the SIMHEALTH Sub-committee manage occupational research work. This change has resulted in reducing the number of committees and of total membership.

The effectiveness of the new system is also enhanced by the establishment of expert panels on rock engineering and on engineering risks.

The restructuring of SIMRAC and the establishment of SIMRAC Project Support Services (SIMPROSS) as an independent service provider, have been accomplished after amendment to a section of the Mine Health and Safety Act, to expropriate funding from levies. The Mine Health and Safety Council employ SIMPROSS personnel.

The appointment of program managers for rock engineering, engineering and occupational health has already greatly improved reporting lines and decision-making mechanisms.

It is expected that the empowerment of staff to oversee essential functions in communications, information technology, financial disciplines and secretarial tasks will promote the SIMRAC image and provide an enhanced service to the South African mining industry.

Since its statutory inception in 1993, SIMRAC has approved R 274 million on mine health and safety research. This includes a total of 221 research projects, of which on

average, 45% are focused on rock engineering hazards, 28% on engineering risks, 21% on occupational health and 6% are of a generic nature.

SIMRAC research projects extend from six months to three years. There are currently 68 research projects in progress. Of the current total number of projects, 53% are allocated to gold and platinum research (GAP), 21.5% to coal research (COL), and 11.5% to Health research. Generic Hazards (GEN) and Other Mining research (OTH) each constitute 6.5% of the total number of projects.

Approximately twenty research agencies are annually contracted to SIMRAC. This includes research organisations, mining engineering faculties, occupational health and safety research laboratories and institutions at universities. SIMRAC has a funding provision of R100, 000 for post-graduate work focused on mine health and safety research in South Africa. Although South African-based research agencies are favoured in order to develop national capacity, SIMRAC contracts are also awarded to international experts, especially where research and development advances exceed current South African developments.

Potential research topics are solicited from all interest groups in the mining industry. Identified topics must be discussed and ratified by sub-committees with a view to compiling a set of project definitions.

Project proposal invitation details are published in the Government Gazette, the SIMRAC Web-site and the SIMPROSS Extranet during the first week of September of each year. Advertisements in newspapers, professional publications and journals are also placed if specific or preferred audiences are targeted to conduct SIMRAC research. Electronic versions are sent to potential, current and previously contracted researchers, universities and SIMRAC convenors. Contact Paul van der Heever (27 11 358 9185) for more information.

The SIMRAC Newsletter is produced by SIMPROSS during March, July and November. For further information contact Elsie Zinsser, Private Bag X 63, Braamfontein 2017. Contributions are welcome.

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