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## GENERAL NOTICE

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### NOTICE 32 OF 2007

## Safety in Mines Research Advisory Committee (SIMRAC) on behalf of the Mine Health and Safety Council (the Council)

### **Invitation to submit project proposals**

SIMRAC, a permanent committee of the Mine Health and Safety Council, was established in terms of the Mine Health and Safety Act (29/1996) to conduct research and surveys regarding, and for the promotion of, health and safety in the South African mining industry. Suitably qualified agencies and/or persons are invited to submit proposals in response to the project specifications in this Notice. In soliciting research projects for the 2006/2007 and 2007/2008 research programme, the Council has the following goals:

- to indicate the current research needs for research to commence in the 2006/2007 or 2007/2008 cycle;
- to invite research proposals in response to these defined priority areas of research; and
- to invite applications for postgraduate funding<sup>1</sup> for research which will promote health and safety within the South African mining industry.

A consultative process has resulted in the Council formulating a co-ordinated, long-term health and safety research programme and identifying priority areas for research to commence in the 2006/2007 cycle. Researchers and agencies are invited to submit research proposals for the research projects indicated. Proposed research must be well designed with a detailed methods section, be ethical *and* must have the potential to add to existing knowledge, practice or technology, involve the end users and implement/transfer outputs. Research teams must have the specified skills.

### Submission of Proposals

1. Proposals must be submitted in accordance with the prescribed format. Contact Cheryl Jones at telephone 011 358 9180, fax 011 403 1821, e-mail [cjones@mhsc.org.za](mailto:cjones@mhsc.org.za) or visit the SIMRAC website [www.simrac.co.za](http://www.simrac.co.za) to download the submission template. PLEASE NOTE THAT THE NEW FORMAT NEEDS TO BE USED.
2. Queries regarding the aims and objectives of the thrusts listed in this notice can contact the following persons:  
Engineering and Machinery: Dragan Amidzic at [damidzic@mhsc.org.za](mailto:damidzic@mhsc.org.za) (011 358 9109)  
Rock Engineering: Duncan Adams at [dadams@mhsc.org.za](mailto:dadams@mhsc.org.za) (011 358 9193)  
Occupational Health: Audrey Banyini at [abanyini@mhsc.org.za](mailto:abanyini@mhsc.org.za) (011 358 9183)  
SIMRAC Chairperson: Tabo Gazi at [thabo.gazi@dme.gov.za](mailto:thabo.gazi@dme.gov.za) (012 317 8461)  
Proposal Submission: Cheryl Jones at [cjones@mhsc.org.za](mailto:cjones@mhsc.org.za) (011 358 9190)
3. Proposers are requested to take note of past work in the different thrust areas. (Details are available on website [www.simrac.co.za](http://www.simrac.co.za)).

4. The closing time and date for the receipt of the proposals is **12:00 on Friday 16<sup>th</sup> February 2007**. Late entries will not be considered.
5. Two copies of each proposal, in a sealed envelope, in a form suitable for photocopying plus a disk or CD with the proposal in MS Word, should be deposited in the repository labeled "*Proposals*" at the Council's offices<sup>2</sup>.
6. The Council may at its sole discretion, decide to recommend the acceptance, rejection or amendment of any proposal and to commission the team to develop the proposal on the basis of which the contract is awarded. The Council shall not furnish any reasons for its decisions regarding proposals.
7. Every proposal accepted by the Council would be subject to a set of Terms and Conditions, which on acceptance of the final detailed proposal will form part of the contract applicable to the project. All prospective proposers should peruse a set of the standard terms and conditions prior to submitting a proposal. A copy of the draft standard terms and conditions is available on the SIMRAC website [www.simrac.co.za](http://www.simrac.co.za).
8. **Charge-out rates have to be in accordance with the rates specified by the Science Council, ACSA and SACNAPS**
9. **Preference will be given to proposals that composes of a project team with HDI's.**
10. In compiling proposals, prospective proposers should provide details of methods, identifiable outputs and estimated costs as indicated.
11. The Council will endeavour to solicit the services of South African organisations to undertake projects, but will consider proposals from overseas-based organisations if expertise, cost considerations and local capacity building components compare favourably.
12. The Council requires full disclosure regarding all subcontracts included in the proposal.
13. The proposer and any of its affiliates shall be disqualified from providing other goods, works, or services under the project if, in the Council's judgment, such activities constitute a conflict of interest with the services provided under the assignment/project.
14. Where an output includes a device, mechanism, procedure, or system capable of being applied in the mining environment, a prospective proposer shall include in the proposal an output which suggests how the outputs in question might best be applied in practice. In drafting proposals, all prospective proposers should bear in mind the potential for technology transfer and phasing the project as indicated.
15. The period for which the proposals should be held valid is 150 days.
16. During this period the proposal must undertake to maintain, without change, the proposed key staff, and must hold to both the rates and total price proposed; in case of extension of the proposal validity period, it is the right of the proposer not to maintain their proposal
17. The anticipated commencement date of the projects is 1 April 2007.

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<sup>2</sup>, 2nd Floor, Braamfontein Centre, 23 Jorissen Street, Cnr. Bertha Street, Braamfontein

18. Each proposer have to submit a TAX Clearance Certificate with the proposal
19. A BEE Questionnaire has to be completed by each proposer. The questionnaire can be obtained from Cheryl Jones at [cjones@mhsc.org.za](mailto:cjones@mhsc.org.za)
20. Each successful proposer may, during the contract period or shortly after its completion, be required to provide:
- A competent spokesperson with appropriate materials to make not more than two separate presentations, on an annual basis for the duration of the project, and
  - A technical paper on the project for publication and/or a poster presentation, without additional remuneration or reimbursement of costs.
- These activities must be detailed and costed within the project.
14. Where relevant, proposers may obtain copies of earlier project reports and other information from the website address or from contacts listed (See paragraph 1 and 2).
15. Proposers are advised that all Council projects should be submitted to language editing and may be subjected to technical and financial audits. Funding for editing and audits should be included in the proposal budget.
16. Proposers should substantiate and cost separately, all proposed travel outside the borders of South Africa in connection with the project, and provide details of all expenses such as travelling and subsistence.
17. All proposed project costs must be expressed in South African Rands and the total price must be VAT inclusive. Fluctuations in the exchange rate and purchase of forward cover should be considered when costing the proposal.
18. The Council will take all reasonable steps to ensure that confidentiality of proposals is maintained during the adjudication process. If a proposal is not accepted within the programme, the Council may invite additional proposals on the topic.
19. No unsolicited proposals will be included in the programme for 2006/7.
20. The following three-stage evaluation procedure will be followed:
- a. A technical evaluation of the proposal that will consist of the following items and weight allocations:

1.	<b>Capability and capacity of the project team</b>	
1.1	Relevant formal qualifications	5
1.2	Knowledge of relevant OHS issues in mining industry	5
1.3	Experience in conducting research in this area	5
1.4	Balance of team composition and competencies	5
1.5	Resources and facilities available	5
1.6	Track record: quality, on-time and within budget	5
2.	<b>Research design and methods</b>	

2.1	Appropriate study design and proptocol	5
2.2	Representivity, sample, strategy and size	5
2.3	Technical methods (tests etc)	5
2.4	Intended analysis of results	5
2.5	Ethics, risks and limitations	5
3.	<b>Research outputs</b>	
3.1	Appropriate format	5
3.2	Usefulness	5
3.3	Potential impact	5
3.4	Technology transfer	5
	<b>Total Score – Technical</b>	<b>75</b>

b. A price evaluation that will be calculated as follows:

$$P_s = (P_{min}/P_t) * A_p$$

Where

$P_s$  = % scored for price by proposal being evaluated

$P_{min}$  = price of lowest bidder

$P_t$  = price of proposal being evaluated

$A_p$  = % allocated for price aspect of proposal (15%)

c. A preferential procurement purposes using the following criteria and weightings:

- The proposals will each be given a score out of 100 that will be converted to a score out of 10 for the SIMRAC evaluation process
- Commercial Entities will be evaluated against the following criteria and weightings:
  - Ownership - 20%
  - Management - 10%
  - Employment Equity & Skills development – 30%
  - Preferential Procurement – 30%
  - SMME Status – 10%
- National Institutions and Public Entities will be evaluated against the following criteria and weightings:
  - Ownership - 0%
  - Management - 30%
  - Employment Equity & Skills development – 40%
  - Preferential Procurement – 30%

The **objectives** of the Council in commissioning health and safety research, for both general and commodity-based projects, are to:

- Obtain and evaluate information to establish evidence-based risk assessment, standard setting and health and safety performance measurement;
- Develop techniques or guidelines to prevent, reduce, control or eliminate risks;

- Develop and pilot innovative ideas and procedures, where appropriate, to eliminate, reduce or control risk;
- Obtain information on the extent of work-related ill health;
- Identify, develop and improve sampling and measurement techniques to detect environmental hazards and assess personal exposure;
- Understand the aetiology and identify and evaluate best-practice screening, diagnostic and treatment interventions to reduce the impact of occupational disease;
- Evaluate the effectiveness of control interventions;
- Understand risk perception, attitudes and behaviour related to health and safety and promote best practices in hazard recognition and procedural conformance;
- Empower its statutory committees to formulate policy, expedite research aimed at improving the health and safety in the South African mining industry; and
- Collaborate with national and international initiatives and research to promote health and safety in the mining industry.

The **criteria** by which proposals will be evaluated include:

- **Added value and impact** – the Council supports research which can contribute significantly to the improvement in the health and safety of South African miners;
- **Value for money** – the Council supports cost-effective research;
- **Innovation** – the Council welcomes new approaches or new areas of focus for research leading to technologies or best practices to improve health and safety;
- **Excellence** – the Council demands excellence, particularly in the methods employed to conduct research, be it quantitative or qualitative, and hence will consider the track record of the proposer/s for expertise and delivery (quality, time and to budget);
- **Use and development of research skills** – the Council requires research teams to possess the skills relevant to the success of the project and also favours projects which assist in developing research capacity, particularly in previously disadvantaged groups;
- **Collaboration** - the Council places a high priority on collaboration between researchers and the “teams of excellence” approach. Thus, the means of soliciting research proposals is intended to stimulate collaboration between centres of excellence and individual experts in order to optimise the use of the Council funding and the research outcomes.
- **Development of key indicators** – the Council recognises the challenge in assessing performance and improvement in health, as opposed to safety, in the mining industry. There is a lack of suitable occupational health (OH) indicators and baseline data. Thus innovative and robust research to develop relevant OH indicators and baseline values will be favourably considered.

The Council's research and implementation programme consists of occupational health and safety, addresses occupational medicine and hygiene, rock engineering, engineering and machinery, behavioural issues and technology transfer processes.

**Each proposal must:**

- Address only the research topic advertised and this must be specified;
- Be in the format indicated and the template specified using Word format; and
- Be phased as indicated in the project scope.

**PROPOSED PROJECT: SIM 05 04 03****Thrust**

Thrust 4, Explosions and Fires

**Problem Statement / Research Question**

South African mining houses are relying on their own best practices in fire detection/prevention/fighting. There is a need for risk assessment tool based on the best practices locally and internationally.

**GAP Analysis (Statistics/ Previous Research/Best Practice / Benchmarking)**

SIM 050403

**Expected Impact on OHS / Value Added**

Risk assessment tool to assist all stakeholders in mining industry

**Project title**

Fire Suppression System – Phase 2

**Motivation**

The South African mining industry has experienced many multiple-fatality fire incidents over the years. The latest incident in 2004 at Northam platinum mine which left 9 people dead (only 9 because it happened on Sunday night before the morning shift started), again, highlights the fire hazards associated with the underground mining environment.

The increased mechanization of mining in South Africa, in particular the platinum mining industry, requires a new approach towards fire safety in underground mines to specifically incorporate the risk presented by rubber conveyor belting and self-propelled machines.

Phase 1 of the project assisted with the objective to gather all available knowledge on the subject and to formulate a scope for the research work. Phase 2 will deliver a document that will also assist SSM and mines that does not have established systems in place

**Primary outputs**

Risk assessment tool for a good fire detection/prevention/fighting system.

**Scope**

1. Investigate local and international research reference documents in the following:
  - o Fire detection
  - o Fire prevention
  - o Fire fighting
2. A literature survey to be undertaken to identify all relevant international documentation in terms of best practice
3. Draft a questionnaire guideline to assist with the HAZOP procedure.

**Estimated duration and cost**

6 -9 months, R 475 000

**Typical recipients of the Report/Main Outputs**

All mines, MHSC stakeholders
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**Requirement for technology transfer**

Information/knowledge transfer
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**Special skills and facilities required by project team**

Experience in fire research, mining experience.
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## PROPOSED PROJECT: SIM 050501 – Track C

### Thrust

Thrust 5, Machinery and Transportation

### Problem Statement / Research Question

Training and educational material for NIHL prevention are developed, however there is a need for that material to be upgraded and modernized in order to be more effective. The same applies to HPD tables.

### GAP Analysis (Statistics/ Previous Research/Best Practice / Benchmarking)

SIM 050501a, GEN 420, GEN 011

### Expected Impact on OHS / Value Added

- Improved awareness and training program
- Updated HPD selection process

### Project title

NIHL Prevention Programme – Track C Training and Awareness

### Motivation

Noise induced hearing loss continues to deprive victims of a quality life and it costs industry some R 100 million annually, in compensation. The MHSC has invested over R4 million over the past 7 years to find a solution. A substantial amount has been spent in the assessment and quantification of noise and its sources. GEN 420 quantified the noise sources in the mining industry as well as ranking the machines in order of level of noise they emitted. Rock drills were among the highest producers of noise. GEN 207 and GEN 311 initiated the development of a quiet self-thrusting drilling system. GAP 642 took the development further.

GAP 801 succeeded in bringing the noise level down to below 90 dB, achieved the "self-thrusting" action without compromising penetration rates, while SIM 060501 intended to conduct further testing, the size and weight of the prototype were concerns that still require some attention.

Health 806 resulted in the "Guide to best practice for the implementation and management of Mine hearing conservation programmes", while SIM 030902 developed Internet-based mining industry database for audiograms.

Recently completed SIM 050501 attempted to review and summarize past work for low-noise drilling, review current technological advances in the suppression of noise and select the most promising and practical new method.

### Primary outputs

1. Multimedia training, educational, awareness and motivational material for Noise prevention / elimination to reach all levels in mining industry, mining workers in particular.
2. Updated HPD selection tables.

### Scope

#### Year 1:

1. Develop Prevention of NIHL Training and Awareness DVD which includes as its core the GEN 011 training and awareness material with recommendations for improvement from various users obtained since GEN 011 was issued in 1997. Updates should be done to the GEN 011 training

and awareness material where necessary based on new developments e.g. remove reference to annual medical for red ticket etc.

2. The DVD to include additional relevant training and awareness material in use in SA mines and globally. This should include videos, posters, training manuals, interactive training material and employee booklets.
3. Update the GEN 011 HPD selection tables with information on current HPD's in use in the SA mines with manufacturer's attenuation data for relevant standards. Recommend standard attenuation calculations for selecting HPD's for use in the SA mining industry.
4. The year 1 final report should make recommendations where appropriate to update and improve existing training and awareness material if necessary and improve the use of the HPD selection tables.

#### **Year 2 and Onwards**

Subsequent Scope of Work for Year 2 and onwards to be based on Final report recommendations from Year 1.

#### **Estimated duration and cost**

12 Months at R700k

#### **Typical recipients of the Report/Main Outputs**

MHSC stakeholders, mining industry

#### **Requirement for technology transfer**

Info and knowledge transfer

#### **Special skills and facilities required by project team**

Technical, analytical skills and experience in noise research on the mines. Excellent organizing and project management skills.

**PROPOSED PROJECT: SIM 06 09 05****Thrust**

Thrust 9 Special Projects

**Project title**

SIM 06 09 05 Programme for small scale mining (phase 1)

**Motivation**

The Small Scale Mining (SSM) operations in SA are at present ill defined with unknown number of miners employed, which has potentially huge health and safety implications. Safety statistics of that sector is not satisfactory. There is a need for structured approach towards SSM issue, which would result in a set of guidelines and recommendations in order to regulate this sector.

**Primary outputs**

- 1) A report detailing a list of current small scale mining operations in existence, their current technical, financial and health & safety status.
- 2) A set of recommendations regarding legislation, training needs, environmental issues and cooperation with major mining operators.

**Scope**

Review all small scale mining operations. Consider the following:

- Profile of SSM sector - identify the size of the industry (current situation) and investigate related international situation
- Organize workshop with all parties interested in order to review past initiatives (MQA, Mintek, DoL, Council for Geoscience, Universities, CSMI)
- Identify existing problems and issues covering current legislation, health and safety aspects and technological challenges (engineering and rock-related)
- Investigate training and continuous knowledge transfer on health and safety requirements and environmental issues
- Assess possible linkage with formal sector / large operators.

**Estimated duration and cost**

12 Months at R500k

**Typical recipients of the Report**

MHSC stakeholders

**Requirement for technology transfer**

Report and Guidelines

**Special skills and facilities required by project team**

Technical analytical skills and experience on the mines. Excellent organizing and project management skills.