

BOARD NOTICE 55 OF 2008

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 2008/2009 research programme, the Council has the following goals:

- to indicate the current research needs for research to commence in the 2008/2009 cycle;
- to invite research proposals in response to these defined priority areas of research; and
- to invite applications for postgraduate funding[□] 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 2008/2009 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 9182, fax 011 403 1821, e-mail cjones@mhsc.org.za for the submission template. **PLEASE NOTE THAT THE NEW FORMAT NEEDS TO BE USED.**
2. Should there be any queries regarding the aims and objectives of the thrusts listed in this notice please contact the following persons:
Occupational Health: Audrey Banyini at abanyini@mhsc.org.za (011 358 9183)
SIMRAC Chairperson: Vijay Nundlull at vijay.nundlull@dme.gov.za (012 317 8456)
Proposal Submission: Cheryl Jones at cjones@mhsc.org.za (011 358 9182)
3. Proposers are requested to take note of past work in the different thrust areas. (Details are available from rmoraba@mhsc.org.za).
4. The closing time and date for the receipt of the proposals is **12:00 on Friday 1 August 2008**. Late entries will not be considered.

[□] Guidelines for the Council postgraduate research and Ethics Guidelines are obtainable from nwoods@mhsc.org.za

5. Two copies of each proposal, in a sealed envelope, in a form suitable for photocopying **plus** CD with the proposal in MS Word, should be deposited in the repository labelled "*Proposals*" at the Council's offices².
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 from cjones@mhsc.org.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 project is 1 September 2008.
18. Each proposer has to submit a TAX Clearance Certificate with the proposal

², 2nd Floor, Braamfontein Centre, 23 Jorissen Street, Cnr. Bertha Street, Braamfontein

19. A BEE Questionnaire has to be completed by each proposer. The questionnaire can be obtained from Cheryl Jones at 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 2008/9.
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.	Capablility and capacity of the project team	
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.	Research design and methods	
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.	Research outputs	
3.1	Appropriate format	5
3.2	Usefulness	5
3.3	Potential impact	5
3.4	Technology transfer	5
	Total Score – Technical	75

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.

Thrust 8:

Title: SIM 08 08 XX: Development of the best practice document on measurement and management standards on whole body vibration and hand arm vibration in the South African mining industry.

Motivation

Mining involves usage of heavy machinery that can result to vibration and shocks, and the South African mining industry is not unique in having to manage these challenges. Health 703 provided guidelines for seat selection for whole body vibration control in industrial settings. Despite the complexity and ambiguity of standards, Whole-body vibration (WBV) can be managed. SIMRAC researchers (GEN 503) measured the vibration emitted by various types of hand held tools and machinery in the mining industry and concurred with a COMRO report (433 of 1987) in recommending a survey to establish the prevalence of HAVS in the mining industry. SIMRAC researchers (Health 703) are currently investigating the presence and prevalence of HAVS in gold miners. Theoretically, using a rock drill, pavement breaker or jackhammer for four hours a day would cause 50% of the machine tool operators to develop symptoms of HAVS within five years (GEN 503). It is estimated the hands of drill operators may only be in full contact with a vibrating drill for as little as two hours a day. At such an exposure level, 50% of the machine tool operators would be expected to have symptoms of HAVS within nine years.

Statement

Whole-body vibration (WBV) is experienced through standing or sitting on a vibrating surface which causes the whole body to vibrate. The most common exposure is through driving or riding vehicles. Many vehicles and types of equipment such as trucks, loaders, dumpers, locomotives, shuttle cars and draglines are in use in the mining industry and operators of such equipment are exposed to whole-body vibration. An ISO-standard for the measurement and evaluation of WBV was published in 1993 as ISO 2631. The South African National Standards (SANS), previously known as the South African Bureau of Standards (SABS), has adopted ISO 2631 as SANS 2631-1 as the standard for measuring whole body vibration. There are currently no South African standards governing exposure limits to WBV and there is no defined limit for vibration for vehicle operators. WBV is not specifically mentioned in the COID Act (Act 130 of 1993). As a safety precaution, no instruments or equipment are allowed in a fiery mine that is not intrinsically safe (IS) and suitable to the South African mining industry, which would include instruments for measuring whole-body vibration levels.

HAVS has been described in several countries in a variety of industries, including mining and quarrying, where vibrating, hand held, power tools are used. There is wide spread use of pneumatic power tools in the mining industry. Depending on the level of vibration transmitted to the hands operators of the equipment may suffer various ailments of the hands and arms. However, to date, the syndrome has not been diagnosed nor reported in a South African mine worker. HAVS is classified as one of the compensable disease in SA according to (COID).

Vibration levels for various vehicles from several studies, however, most values do not take into account the maintenance levels, age of the machinery/vehicle and other contributing factors, rendering standards development more complex.

Scope

Phase 1

- Systematic review of available literature locally and internationally including relevant completed SIMRAC work on WBV and HAV.
- Review and critically analyse available intrinsically safe measuring instruments, measuring procedures, and OELs and exposure control measures suitable for South African Mining industry.
- Review and critically analyse the assessment and management of HAVS and WBV related diseases.

Phase 2

- Develop WBV and HAV measurement procedures, OELs and exposure control measures for the SA mining industry.
- Develop best practice documents for the assessment and management of HAVS and WBV related diseases for the SA mining industry.

Primary outputs**Phase 1:**

Literature review document on:

- measuring instruments
- measuring procedures,
- OELs for HAV and WBV
- Exposure control measures
- The assessment and management of HAVS and WBV related diseases

Phase 2:

Best practice document on:

- measuring instruments
- measuring procedures,
- Appropriate OELs for HAV and WBV
- Exposure control measures
- The assessment and management of HAVS and WBV related diseases

ESTIMATED PERIOD

12 months for Phase 1

Typical recipients of the Report

- Mine Health and Safety Council, its committees and stakeholders
- Occupational health and safety practitioners and representatives, employers, management and workers

Requirements for technology transfer

- A word document as stipulated by the MHSC research site including a CD with hyperlinks for easy reference
- Workshop/launch with the various stakeholders to communicate the findings