SPOTLIGHT

on technical computing for mine management

by R.W.O. KERSTEN*

It was decided that Anglovaal should conduct a course on technical computing to help middle and upper mine management (40 years and older) to use computers.

Background

This decision was taken against the background of perception that various people have of computers and computer-related processes. People of the older generation (i.e. 50 years of age or older) tend to stay away from computers, which, they think, are only for boffins. People in the 40-year age group know a little about the computer revolution, and many of them use computer facilities. On the other hand, the younger generation (i.e. those leaving school at present) are highly computer-literate.

The objective of the course, then, was to show members of middle and upper management that one does not need to be a programmer in order to use a computer, and that there are software packages that require a minimum amount of knowledge to make them generally useful. Because of its ease of use and incredible versatility, it was decided to use Spreadsheet on the course, with SAS as an additional example. It should be noted that the course was not designed to teach a specific software package, but to illustrate the use of packages like Spreadsheet. The hands-on nature of the course was intended to facilitate and enforce this concept.

The Course

The Course was fully subscribed and went off as planned. Those who attended can be divided into three groups:

(1) those confident with Lotus 1-2-3,
(2) those not so confident but used to running a PC, and
(3) entirely new computer users.

Without the help of the people in group (1), the course would have been less successful. Anglovaal is very grateful for the assistance of these people, who also gained one or two useful new planning models for their own use.

Special thanks are extended to Keith Levenstein, Sonja Wood, Clive Hunt, and Chris Fourie, and to David Hop, Tony Claxton, and other members of Sage Computing. These companies gave their time and equipment for next to nothing. Thanks are also due to the organizing committee of the course, especially Glen West from Rand Mines.

Results

The course achieved what it set out to do, and it is expected that at least 80 per cent of the attendees who had not been using spreadsheets will now know how to use them. They will find that the use of spreadsheets in the evaluation of data increases the effectiveness of the operation, and that there are similar packages that can be used by people with a minimum of computer knowledge. They will also discover that, like everyone else who has been introduced to the use of computers, they can obtain even more powerful software packages, which will put them way ahead of anybody not able to use them. In addition, they will no longer be regarded by their computer-literate peers and younger staff members as not competent to do the work they are supposed to do. As a matter of fact, the use of computer software packages using language of fourth-generation level is essential to anybody in mine management below the age of 55.

* Anglovaal Limited, P.O. Box 62379, Marshalltown, 2107 Transvaal.

Book review

● *Rock mechanics for underground mining,* by B.H.G. Brady and E.T. Brown. London, George Allen & Unwin, 1985. 527 pp.

Reviewer: S. Budavari

This book is one of the most comprehensive texts of the many books dealing with rock mechanics for underground mining that appeared on the market recently. It covers both the fundamental principles of rock mechanics and their applications to a wide field of mining-related problems. Although the applications include the most common types of mining, the emphasis is on hard-rock mining.

The first few chapters deal with the fundamental principles of solid mechanics, the properties of rocks and rock masses, and the various methods of stress analysis. In the applications, the design, support, and reinforcement of excavations in massive elastic, stratified, and jointed rock masses are discussed. Particular attention is paid to rock mechanics aspects of mining-method selection and mine design. Mining-induced surface subsidence, blasting mechanics, and the monitoring of rock-mass performance are dealt with in the concluding chapters.

The material presented is up-to-date, clearly written, and well illustrated. In general, it has application in South African mining, especially in base-metal mining. However, its coverage of the rock mechanics of deep-level gold mining is limited.

The book is highly recommended to both undergraduate and postgraduate students in mining or related disciplines. Rock mechanics specialists and practising mining engineers concerned with the planning of mine layouts would also benefit from studying this book.

Mine safety awards

The mining challenge of our time is the maintenance of the very highest safety standards, says a Chamber of Mines Executive.

The largest gold-mining operation in the Rand Mines' stable—the five-star Harmony Mine in the Orange Free State with a 34 000-strong workforce—has won its class in the Chamber of Mines Safety Target Competition.

In the period July 1986 to June 1987, the Mine's reportable injury rate was 42 per cent lower than for the previous twelve months, and the fatality rate was down 18 per cent. This compares with industry rates for the first nine months of this year, when the reportable injury rate was reduced by 13 per cent and the fatality rate remained unchanged.

'The results', said Mr Anthony Gill, Manager of the Mine Safety Division of the Chamber, when he presented Harmony Management and Staff with their award certificate at a ceremony at the Mine recently 'represent a quite outstanding achievement by the Harmony team, which is achieving exemplary records in safety.

'This mine has been awarded the millionaire shield (a million fatality-free shifts) on no fewer than 15 occasions—two of them in 1987—which in total makes Harmony the second-highest millionaire mine in the entire industry. It has also achieved three wins in the falls-of-ground safety ladder.

'What makes this super-mine an example to the rest of the industry are the safety standards practised, the level of safety supervision and discipline applied, and the clear commitment of its entire workforce.'

Mr Gill emphasized: 'The challenge of our times in the mining industry is the maintenance of safety standards. The bugbear in the mines is the fatality rate, which can be reduced only through total commitment and dedication by mine workforces in upholding safety standards—such as we see at Harmony. The future of mine safety and the imperative to achieve better standards all the time lies with dedicated employees and managements.'

Mr Mike Watson, Director of Harmony, said that a very substantial part of Harmony's success was attributable to the knowledge of safety standards, the strict application of these standards, and the enforcement of correct procedures.

Among the recipients of awards were two underground Mine Overseers, each of whose sections had achieved more than two million fatality-free shifts, and a Stoper, who had achieved 33 000 accident-free shifts over a two-year period. A total of 33 000 Harmony employees are receiving awards for their individual safety performances, which have contributed to the winning of the Safety Target Competition.

Haulage in surface mines

An international symposium on 'Off-highway Haulage in Surface Mines' is to be held in Edmonton, Canada, from 15th to 17th May, 1989.

The Symposium is designed to bring together those interested in this topic. It will be an opportunity to discuss the present status as well as new and potential developments of this most popular mine technology. The Symposium will be of particular interest to mine planning, supervisory, and management personnel, to manufacturers of related equipment, and to consultants and scientists interested in the topic.

The organizing committee welcomes abstracts of papers on any topic related to off-highway haulage in surface mines, in particular papers dealing with

1. *Operational experience and economics*
   - mine design for efficient haulage
   - operating methods
   - economics of off-highway haulage
   - mine site-equipment modifications
2. *Off-highway equipment and its mine applications*
   - rear dumps
   - unitized body trucks
   - tractor–trailers
   - tyres
   - truck drive trains
   - auxiliary equipment
3. *New developments in off-highway haulage*
   - dispatch
   - automated operation
   - trolley assist
   - monitoring
   - remote control
4. *Haul roads*
   - design
   - layout
   - construction
   - maintenance
5. *Related equipment and operations*
   - loading methods and equipment
   - dumps and dumping
   - in-pit crushing
   - service and maintenance equipment and facilities
6. *Safety*
   - safety aspects of off-highway haulage.

A 200- to 400-word description of the proposed paper should be directed to

Tad S. Golosinski
Department of Mining, Metallurgical
and Petroleum Engineering
University of Alberta
Edmonton, Alberta
Canada T6G 2G6
Tel. (403) 432-4671
Telex 037-2979
Fax (403) 432-7219.

Abstracts should be submitted prior to 1st September, 1988.

Completed manuscripts of approved papers will be required by 31st January, 1989, and should be directed to the above address. The papers will be published as a bound volume and distributed to the Symposium participants.

Enquiries about the Symposium should be sent to the above address.