



Technology News

From the Bureau of Mines, United States Department of the Interior



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No. 423, September 1993

Personal Computer Software for Analyzing Mine Accident Data

Objective

Develop a user-friendly computer program that permits those interested in mine health and safety to access and analyze on a personal computer (PC) employment, production, and accident data for U.S. coal and metal-nonmetal mines. This software is being designed with a major focus on flexibility and ease of use. The Mine Accident Decision Support System (MADSS) will be available for distribution in mid-1994. Currently, the U.S. Bureau of Mines (USBM) is seeking volunteers willing to pilot test a preliminary version of the software and to provide suggestions for its improvement.

Background

Since 1975, the Mine Safety and Health Administration (MSHA) has compiled large data bases of information about U.S. mines and the reportable accidents, injuries, and illnesses that have occurred in those mines. Employment and production data are collected on a quarterly basis from each mine and accident information is collected on an incident-by-incident basis. The USBM has compiled estimated costs for each of these accidents using computer models. All of this information is potentially useful to mine health and safety researchers. However, it has been underutilized because it is stored in large mainframe data bases that are inaccessible to many users and/or are cumbersome and difficult to use.

The Mine Accident Decision Support System is being developed to make this information available to PC

users in the mining industry and to utilize modern data base software technologies to provide user-friendly access to the data. The final system will be distributed on "floppy" diskettes and will include data from 1975 through 1993 with ensuing years to be made available on an annual basis.

Approach

The system is written in PAL, a programming language for Borland's Paradox¹ 4.0 data base management system. It requires a 100% IBM-compatible 80386 or 80486 PC equipped with a hard disk, at least two megabytes of memory, and DOS 3.0 or higher.

The software's menu-driven approach makes it easy for novice users to perform simple searches. Advanced features provide more complex search options for experienced users. Extensive on-line help is available for using the program and in understanding the data. For example, pressing a help key will display a description for any data base field along with a list of its possible values.

A variety of options for formatting search results also is provided by MADSS. For example, accidents found in the search can either be listed individually or grouped according to categories. Accidents could be grouped according to year and/or type of accident. If desired, statistics such as mean victim age can be calculated automatically for each category.

¹Reference to specific products does not imply endorsement by the U.S. Bureau of Mines.

Results of a search are displayed in a table on the screen, as shown in figure 1. Tools are available for calculating statistics on the table columns and for "finding" specific values in the table. The latter option would be useful, for example, in quickly locating accidents involving female victims. After viewing, the result table can be saved for future reference, printed, sorted, or exported to other PC file formats such as Lotus 1-2-3, dBase, Quattro, Reflex, and ASCII.

Industry Pilot Test

Involving potential users in the development of MADSS is crucial to ensuring that it becomes a useful tool. In 1990, a questionnaire was distributed to 26 USBM and MSHA researchers to obtain information about their mine accident analysis requirements. Feedback from that questionnaire was used to develop a preliminary version of MADSS. This Alpha version does not have all of the capabilities of the final system but

does contain most of its major features. At this time, the USBM is seeking volunteers willing to pilot test this software and provide feedback concerning its ease of use and to recommend improvements. Personal computer users of all experience levels are needed. Participants will be mailed two diskettes containing the software and sample data files. A workbook will be provided that contains step-by-step instructions for performing several search tasks demonstrating the major features of the software. The pilot test will involve completing the workbook tasks and then filling out and returning a small evaluation booklet to the USBM.

For More Information

For more information about MADSS or to participate in the MADSS pilot test, please contact Audrey Glowacki (412-892-4456) or Fred Turin (412-892-4115) at the U.S. Bureau of Mines Pittsburgh Research Center, P.O. Box 18070, Pittsburgh, PA 15236.

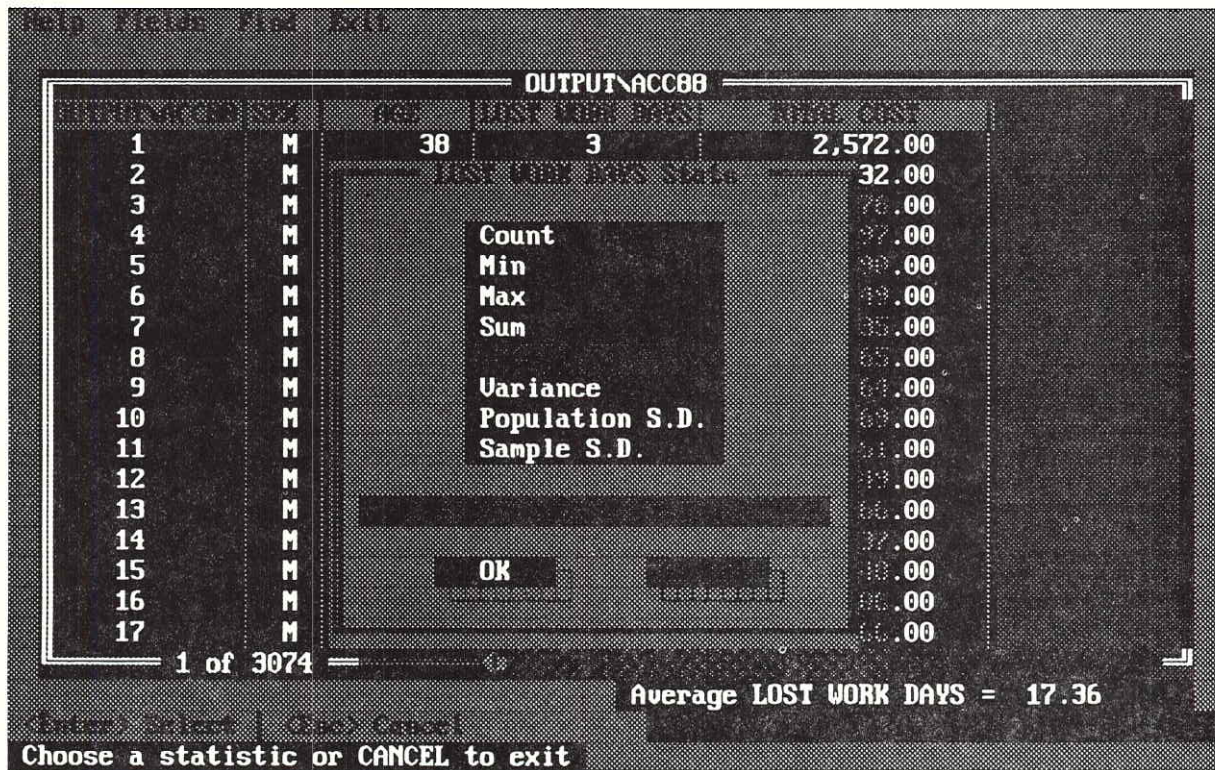


Figure 1.—Calculating statistics on a table of search results.