I would like to see a few other improvements in future versions—scrolling capability, mouse-driven menu, and probably a Windows version, and it would be helpful if structures could be included in the records of the Registry Personal File.

Recently, a comparison appeared[5] of four personal bibliographic database systems: Library Master, Notebook II, Papyrus, and Pro-Cite. STNPFS, with the enhancements that are in Version 3.0, seems to have the best overall capabilities of all these personal file systems.

To sum up, this package is an excellent personal bibliographic system which has various options for easily adding more capabilities, options that one should try to use as much as possible. It can and should be used, not only for the management of personal files but also as a stimulus for teaching the use of the Messenger search language.

REFERENCES AND NOTES

(1) The STN Personal File System is produced and marketed by STN International, Columbus, OH. The list price for this software is $630.00.
(2) Lundeen, G. Bibliographic Software Update. *Database* **1991**, *14* (6), 57–67.
(3) Lundeen, G. Software for Managing Personal Files. *Database* **1989**, *12* (3), 36–48.
(4) Stigleman, S. Bibliography Formating Software. *Database* **1992**, *15* (1), 15–27.
(5) Wolff, T. H. Personal Bibliographic Databases: An Industrial Scientists Perspective. *Database* **1992**, *15* (2), 34–40.

Environmental Protection Agency's Sampling and Analysis Methods Database

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The objective of the software database[1] is to aid in the selection of the appropriate EPA method of sampling and sample analysis. There could be many other uses for this program. For example, the EPA analysis methods of interest to an organization could be searched, and the equipment requirements of the various methods could be used in equipment purchasing decisions when a laboratory considers expansion into a new field of analysis. The instruction manual states that the audience for the software would be EPA contractors, hydrologists, and other scientists. An EPA contract laboratory manager was contacted, and his impression was that the database would be very helpful for his laboratories. This software has the possibility of an academic audience as well. It could be used in making decisions on research analysis strategies or to inform students about EPA methods of analysis.

The software requires an IBM-PC, 512K 5.25 floppy and 1.8M hard drives; MS-DOS 2.0 or greater. The software as received has six 5.25 disks and an instruction manual.

INSTALLATION

Initially, there was some confusion because the installation disk was not labeled as described in the manual. Once that difficulty was overcome, installation was easy. The instruction manual was clear and easy to follow. The Main Menu contains a tutorial that is helpful in becoming familiar with the searching process.

CONDUCTING A SEARCH

Searching. The information is divided into seven searchable text files. Each are searched separately, but there is a method of retaining the keywords between searches to save typing. Search time is quartered when using a 8286 cpu instead of a 8086. The program will perform both "and" or "or" types of keyword searches. The summary of an EPA method found through the search process can be printed directly from the search results. Each sampling and analysis summary is called a "record". When printed, all the records are 1 page long. Method 8010, used for 39 different halogenated VOCs for example, is 13 pages long in EPA documents. In editing the records, a considerable condensing of the information has occurred. It should be understood by persons purchasing this software package that the methods are in an abbreviated form and must be used with that in mind.

The Text Files. The seven text files are

disk	name	no. of records
I	chlorinated aliphatic volatile organics	158
I	other halogenated volatile organics	118
I	nonhalogenated volatile organics	74
I	semivolatile organic compounds	64
II	pesticides, PCBs, dioxins, and furans	75
III	elements	117
III	water quality parameters	59

The number or records in the text files is misleading because the same EPA method of analysis can be used for a number of different compounds, and several EPA methods can be used for the same compound. For example, there are seven methods listed for the analysis of carbon tetrachloride. There are eight methods listed for the analysis of chloroform, and seven are the same as for carbon tetrachloride, so there are these types of overlaps within a text file and also between text files.

The subsections of a record within a text file for individual compounds varies to some degree, but basically they consist of the following sections: the name of the compound, the title of the EPA method, the breadth of the application of the method (for example, method 502.1 can be used for the analysis of 40 different halogenated volatile organic compounds), the compound or contaminants that interfere with the analysis method, the instrumentation needed to perform the analysis, the concentration range of applicability of the method, the sample matrix multiplication factors, the precision and accuracy of the method, the method of sampling for the compound, the stability and method of preservation of the sample and the storage lifetime of the sample, the quality contr ol of the method, and references.

Twenty-six records were checked by comparison to the EPA method documents,[2] and about 100 of the records were checked for internal consistency. In comparing the records for the analysis of chlorinated hydrocarbons and other organic

compounds to EPA documents, no errors were found. There were a few situations where errors of omission were apparent in the "Element" text file. Element methods are more individualized, and there would be a greater possibility of errors. For example, in atomic absorption or inductively coupled plasma analysis of a element, the analytical wavelength for the element was usually listed in the instrument section of the record. But for analysis of Arsenic, AA, furnace technique, method 7060, the wavelength is added seemingly as an afterthought in the "quality control" section. In the record for Arsenic, AA, gaseous hydride technique, method 7741, the instrument section does not mention that a zinc slurry hydride generator is needed nor does it give the analytical wavelength for operation of the AAS anywhere in the record. The analytical wavelength was missing in another record, and in several records an incomplete equipment list was noticed in the instrumentation section. It perhaps is unfair to dissect each record for errors in that the editing of the methods is a enormous job and that the person using the database will eventually have to go back to the original EPA reference when they wish to perform their tasks.

Occasionally the textual material in a section of a record will refer to the original EPA documentation. For example, in method 7471, Mercury, AA, cold-vapor technique, in the sampling section the record says: "Sample as per Chapter 9". The editor includes a reference to the appropriate method in each record.

CONCLUSIONS

The software seems easy to use. Updates and additional material should be easily accommodated.

The individual records are dependent on the editor for completeness and accuracy. The list of methods is not complete, and so it is possible that an analysis method of interest or an analysis for a particular compound would not be found in this software package. The completeness of the database is dependent on the editors' knowledge in the field for inclusion of those EPA methods of greatest interest. This software package is recommended and is one that should be of interest to any laboratory using EPA analysis methods.

REFERENCES AND NOTES

(1) Environmental Protection Agency's Sampling and Analysis Methods Database was edited by Lawrence H. Kieth, and the database was compiled by William Mueller and David Smith. It is available from Lewis Publisher, Inc., 2000 Corporate Blvd., NW, Boca Raton, FL 33431. The list price of the database is $240.00.

(2) United States Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Laboratory Manual*; Vols. 1A, 1B, 1C, SW-846, 1986.

BOOK REVIEWS

Database Systems in Science and Engineering. By J. R. Rumble, Jr., and F. J. Smith. Adam Hilger: Bristol, England. 1990. 302 pp. $70.00. ISBN 0-7503-0048-5.

Although computerized databases are now commonplace in many different types of applications, most of these systems are created for use by managers or accountants rather than scientists and engineers. As a result, those who wish to handle scientific and engineering data on computers are often forced either to find the commercial package that comes closest to meeting their needs or else to attempt to create their own systems. Even though many technical people have had considerable experience with computers, they often know relatively little about database design and so require help. This book is a valuable resource for scientists in either situation.

Rumble and Smith do a fine job of presenting the information necessary to plan, design, and use computerized technical databases. Both of these writers have had extensive practical experience in this area, which they draw upon to provide realistic examples and suggestions which should be very useful to anyone who plans to work with scientific databases. The authors do not rehash material that is already available in standard textbooks on databases but rather focus on the specific problems of technical information.

Converting available knowledge into data files readily accessible to computerized searches is not a trivial problem; the discussion provides excellent guidance on how to do this. The language is clear, the treatment easy to follow, and the presentation is copiously illustrated with realistic diagrams and flow charts. Perhaps most important, the authors frequently emphasize that the user and his or her needs are the key to successful database design. Chapters on developing an effective user interface and on efficient dissemination of data provide specific suggestions for accomplishing this purpose.

Many of the topics covered, such as types of databases, data structures, and data models, are normally found in any database text, except that here technical databases are used as examples to demonstrate the principles. Chapter 10, which deals with planning the system, is worthy of special notice, since this topic is extremely important but is not always given sufficient attention. The authors recommend a four-stage development cycle: analysis of the system, system design, implementation of a prototype, and evaluation, followed by reiteration of the cycle to incorporate any revisions that are indicated.

This book is intended principally to help scientists select the best available database management system rather than to train those who are responsible for planning and designing new systems, but it should be very helpful for both of these purposes. In particular, a careful reading of this text will focus attention on a number of significant questions which need to be answered but are sometimes overlooked when scientists are choosing a commercial database.

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