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# MICROCOMPUTER SOFTWARE REVIEWS

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Microcomputer Users Committee; Nathan M. Reiss, Chairman

Education Council, APCA

## Source Testing Software

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If you have been looking for a way to speed the calculation or reporting of source test data, this month's column will be of interest to you. Included in this review are one commercial program, several noncommercial programs, and a summary of programs that are available for programable calculators. The author would appreciate knowing of similar programs that you may have developed or used.

**Source Testing Code Program.** R. Evans. Modern Automation Corporation. (3209 Rymal Road, Mississauga, Ontario, Canada L4Y 3B8). 1986. \$250.

**Machine:** IBM PC and Compatibles, printer optional.

**Language:** BASIC.

**Type:** Particulate source test evaluation.

**Ratings\*:** Very good.

This program is to be used to analyze data obtained from the measurement of emissions of air pollutants from stationary sources. It is based on the Source Test Code (version #2) published by the Ontario Ministry of the Environment, Report # ARB-66-80, Nov. 1980.

The software can be used to produce brief reports from field data obtained using Method 5. Program output includes concentration of particulates, emission rate, average stack gas temperature and velocity, average stack gas flow rate, moisture content, percent isokinetic for each of the traverse points and overall percent isokinetic rate. The program does not calculate sample locations or perform any calculations involved with instrument calibration. It is also possible to print out a field sample report. The outputs from the program can be included in the final report written by the user.

One unique feature of this program is that the user can move forwards or backwards through the program during data input. It is also possible to review the data input before running the calculations and change it. The software will allow the user to read data from the disk and/or save data to disk (this feature was not on the reviewer's disk but will be on future copies). After the calculation, it is possible to change some of the data and then run through the calculations again. One can enter the data in either English (Engineering) or Metric units and print out the result in both sets of units. In addition, the program is written in BASIC so it is easy to modify the program with prompts and comment statements that are customized to your own application. The program has a number of error trapping features.

Documentation consists of a manual with instructions and some sample test runs. It is recommended that the user have a copy of the original test codes. Support in the form of answers to technical questions was provided by the software's author. There is a version of this program for the Apple II Series computer which was not reviewed.

**Source Test Package.** J. D. McCain. Southern Research Institute. (Box 55305, Birmingham, AL 35255-5305).

1985. \$25. (make checks payable to J. D. McCain).

**Machine:** Apple II (48K), two disk drives, printer.

**Language:** Applesoft BASIC.

This program was originally reviewed in *JAPCA*, 35, No. 11, 1202 (1985). The disk includes programs for selecting nozzles and operating conditions when given the measured stack conditions and the characteristics of the selected cascade impactors or a source test train. Other programs provide for data reduction for Methods 4 and 5 tests.

**Stack-Pack.** R. B. Booth. (Booth Software Systems, P.O. Box 96, Palo Cedro, CA 96073). 1986. Send self addressed stamped mailer and one disk.

**Machine:** IBM and Compatibles, printer.

**Language:** BASIC.

This disk contains a set of programs originally written in Applesoft BASIC and reviewed in *JAPCA*, 35, No. 11 (1985). The MS-DOS version represents a significant rewrite of the original programs. The user can completely evaluate an EPA Method 5 test or only analyze parts of the test for compliance checks. A report is printed out as one steps through the program. The final results include an overall percent isokinetic rate for the source test and the particulate emission rate. Documentation is included on the disk as a text file.

**Apple Stack.** H. M. Cota. (CE/EVVE, Cal Poly, San Luis Obispo, CA 93407). 1980. Send self addressed stamped mailer and two disks.

**Machine:** Apple II Series.

**Language:** Applesoft BASIC.

This is a short program to analyze field test data obtained from performing a Method 5 test. It is patterned after the format outlined in the Source Test Manual edited by R. G. Holmes published by the L.A. County A.P.C.D. (now SCAQMD) in 1965. Output includes calculating the actual and the theoretical (isokinetic) sampling rate for each sampling point.

**APTI SI:449.** M. M. Peterson and J. A. Jahnke. (C. Pratt, APTI, MD 20, Environmental Research Center, Research Triangle Park, NC 27711). 1983.

**Machine:** Texas Instruments TI-59 Calculator.

Two programs have been developed to assist performing or reviewing a source test. The first can be used for field calculations and the other for the final report. EPA Reference Methods 2 through 5 are included in the programs. Documentation is provided in the form of a self instructional guidebook. Request guidebook for APTI Course SI:449 by enrolling for APTI Course.

**EPA HP PROGRAM.** J. W. Ragland *et al.* Southern Research Institute (order NTIS). 1976.

**Machine:** HP 65 or 97.

Programs are listed and described in the documentation. Methods 1 through 8 of the EPA Test Codes, calibration of a flame photometric detector by permeation tube, resistivity and field strength measurements, determination of stack

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\* Based on a weighted average of scores for Accuracy, Documentation, Clarity of code, Ease of use, Completeness, Reliability, Error handling, Report formatting, and Usefulness. (Only commercial software is rated).

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velocity, nozzle diameter, and isokinetic delta H for a high volume stack sampler and several programs for cascade impactors are included. The document is titled; HP-65 PROGRAMMABLE POCKET CALCULATOR APPLIED TO AIR POLLUTION MEASUREMENT STUDIES; Stationary Sources, EPA-600/8-76-002. October 1976. It is available through the National Technical Information Service, Springfield, Virginia 22161.

**NEESO HP PROGRAM.** S. Suzuki *et al.* Navy Energy and Environmental Support Activity. (Code 111C, Port

Hueneme, CA 93043-5014). Send 15 program cards for copy of program and instruction sheets.

**Machine:** HP 41CV or 41CX, card reader, printer.

Programs included are based on Methods 1 through 5 of the EPA Test Codes. NOMO 2 calculates the ideal nozzle size and the orifice pressure differential across the meter required at each traverse point during testing for isokinetic sampling. ISOKIN 3 calculates conditions including the stack gas moisture content, molecular weight, and the isokinetic sampling rate using information from NOMO 2. The advantage of this program is that the calculations can be performed while performing the source test.

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