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and other Federal agencies

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# U.S. Government Environmental Datafiles & Software

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## *Microcomputers & Mainframes*

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- Fugitive Dust Model
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**NTIS**

U.S. Department of Commerce  
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# Environmental Datafiles

## How to Order

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NTIS order number

Order number PB89-170344HCR, T02

Price code, see table by order form to convert to a price.

## AQUIRE: Aquatic Toxicity Information Retrieval Data Base

*Environmental Protection Agency*

Order number PB92-500453HCR, T02

The AQUIRE - Aquatic Toxicity Information Retrieval - database was established in 1981 by the U.S. Environmental Protection Agency (EPA), Office of Pesticides and Toxic Substances. AQUIRE continues to be updated and maintained at the U.S. EPA Environmental Research Laboratory - Duluth. The purpose of AQUIRE is to provide scientists and managers quick access to a comprehensive, systematic, computerized compilation of aquatic toxicity data. Scientific papers published both nationally and internationally on the toxicity of chemicals to aquatic organisms and plants are collected and reviewed for AQUIRE. Independently compiled data files that meet AQUIRE parameter and quality assurance criteria are also included. Selected toxicity test results and related testing information for any individual chemical from laboratory and field aquatic toxicity tests are extracted and added to AQUIRE. Acute, sublethal and bioconcentration effects are included for tests with freshwater and marine organisms. The total number of data records in AQUIRE now equals 104,500. This includes data from 6000 references, for 5200 chemicals and 2400 test species. A major datafile, Acute Toxicity of Organic Chemicals (ATOC), has been incorporated into AQUIRE. The ATOC file contains laboratory acute test data

on 525 organic chemicals using juvenile fathead minnows. The complete datafile can be accessed by requesting review code 5 as a search parameter.

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. Approximate bytes: 22,904,296.

## AQUIRE for VMS: Aquatic Toxicity Information on VAX VMS Backup

*Environmental Protection Agency*

Order number, PB92-500479HCR, T02

The purpose of Aquire is to provide scientists and managers quick access to a comprehensive, systematic, computerized compilation of aquatic toxicity data. Scientific papers published both nationally and internationally on the toxicity of chemicals to aquatic organisms and plants are collected and reviewed for AQUIRE. Independently compiled data files that meet AQUIRE parameter and quality assurance criteria are also included. Selected toxicity test results and related testing information for any individual chemical from laboratory and field aquatic toxicity effects are included for tests with freshwater and marine organisms. The total number of data records in AQUIRE is now over 105,300. This includes data from 6000 references, for 5200 chemicals and 2400 test species. A major data file, Acute Toxicity of Organic Chemicals (ATOC), has been incorporated into AQUIRE. The ATOC file contains laboratory acute test data on 525 organic chemicals using juvenile fathead minnows.

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. System: DEC VAX 11/785; VMS 5.4 operating system.

## Assessment of Public-Owned Wastewater Treatment Facilities in the U. S.

*Environmental Protection Agency*

Order number PB85-172690HCR, T03

The 1984 Needs Survey Report summarizes a 2-year data collection effort. This report includes costs for building grant eligible municipally-owned treatment facilities for the current (1984) population when all identified year 2000 needs are met. The report also contains national summaries of technical information collected during the survey. Examples of the technical information are: number of treatment plants now and in year 2000; number of nondischarging treatment plants; summary of treatment plant unit processes. Tape contains all the raw data used for the summary report.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpl.

## ✓ CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) Site Location Extract

*Environmental Protection Agency*

Order numbers:

Single copy PB91-591311HCR, T02

Subscription PB91-591310HCR

\$2,880 (Monthly)

\$960 (Quarterly)

This file contains data on potentially hazardous waste sites that have been reported to that have been reported to

Environmental software starts on page 13.

The order form is located in back of the catalog.

✓'s before titles represent subscriptions.

the Environmental Protection Agency by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The file contains information on the name and alias names, location, and indicators for national priority status and federal facility. We cannot claim that CERCLIS contains all the potential hazardous sites that exist. Therefore, although the property in which you are interested in is not currently listed in this database, this is NOT a guarantee that a hazardous waste problem does not exist there.

**Specifications: Tape format.** Available on subscription, U.S., Canada, and Mexico. Issued Quarterly and Monthly. Documentation included; may be ordered separately as PB90-215120. System: IBM 3090-300; MVS/XA operating system.

**Consolidated List of Chemical Subject to Reporting under the Emergency Planning and community Right to Know Act: SARA Section 302 Extremely Hazardous Substances, CERCLA Hazardous Substances and SARA Section 313 Toxic Chemicals (Title III, List of Lists)**

*Environmental Protection Agency*  
Order number PB91-506964HCR, D02  
This is the disk based version of the Office of Toxic Substances Consolidated list of chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and SARA Section 302 Extremely Hazardous Substances, as well as CERCLA Hazardous Substances. Title III is also known as the Emergency Planning and Community

Right to Know Act. The disks are designed to generate either a printout or a dBase III file from any IBM or IBM compatible system.

**Specifications: Diskette format.** The datafile is on one 360K 5 1/4 inch diskette, double density. File format: ASCII. System: IBM-PC; dBase III operating system. Documentation number PB91-110502HCR may be sold only as a package with diskette number PB91-506964HCR.

**DATA, Sample Meteorological Data and Random Numbers Data File**

*Environmental Protection Agency*  
Order number PB90-500869HCR, D01  
The file CINDAY in unformatted form has been used for sample meteorological input to a number of dispersion models, such as RAM, CRSTER, MPTER, and ISC, for tests using a year's data. Since a file in unformatted or binary form cannot readily be transferred from computer to computer, the file is furnished in two parts (PT1 and PT2) in ASCII form. The program ASCBIN converts the ASCII meteorological data to unformatted (binary form). The two parts of the file should be combined together first. Then the file can be used as input to an executable ASCBIN to create the unformatted file.

**Specifications: Diskette format.** The datafile is on one 5 1/4 inch diskette, double density. System: IBM 3090. Language: FORTRAN. Ready for uploading to an IBM 3090.

**✓ Enforcement Document Retrieval System (EDRS)**

*Environmental Protection Agency*  
Order numbers:  
**ASCII**  
Single copy, PB92-592211HCR, T03  
Subscription, PB92-592210HCR, \$1440  
**EBCDIC**  
Single copy, PB92-592221HCR, T03  
Subscription, PB92-592220HCR, \$1440  
The Enforcement Document Retrieval System (EDRS) is a full text database for documents related to enforcement policy and procedures, administrative decisions, judicial decisions, and model/sample forms. All environmental statutes EPA enforces are covered. There are approximately 2500+ EPA enforcement related documents covering the time period from approxi-

mately 1972 to the present. Each document has been retyped in order to upload it to the mainframe so it may not be exactly like the original. Any graphics and/or extensive tables or exhibits were not uploaded from the original document. EPA uses BASIS software as its text retrieval package on their mainframe computer. The database is provided in ASCII or EBCDIC format so that any commercially available mainframe text retrieval package can be used. Please note that the database is not indexed.

**Specifications: Tape format.** Available on subscription. Issued quarterly (four issues per year). U.S., Canada, and Mexico price \$1,440; price for others \$2,880. Available in 9-track, EBCDIC character set, 1600 The 6250 bpi price is \$1,440. System: IBM ES 9021; MVS operating system.

**Emissions Data for Stationary Reciprocating Natural Gas Engines and Gas Turbines in Use by the Gas Pipeline Transmission Industry**

*Gas Research Institute*  
Order number PB89-186027HCR, D03  
This emissions database and report program for stationary reciprocating natural gas engines and gas turbines contains both emissions and performance data taken from in-service natural gas engines in use by the gas pipeline transmission industry. The software is designed to be operated on an IBM or compatible personal computer and must be run in a directory containing the dBase III plus programs and the Quickcode utility program. The user's manual describes the inputs to and outputs from the database update and report program, EMIMAIN. EMIMAIN is an interactive dBase III plus command routine which displays a series of menus to the user and allows him to either update the databases or print reports containing data from the databases.

**Specifications: Diskette format.** The datafile is on four 1.2M 5 1/4 inch diskettes, high density. The diskette(s) are in dBase III format. System: IBM-PC; MS-DOS operating system, 5K. Language: dBase III+.

**Charge your order!**  
**(703) 487-4650**

8:30 a.m. to 5:30 p.m., Eastern



**Environmental Fate Data Base (ENVIROFATE): Chemical Identification Information File (CHEMFATE) September 1989**

*Environmental Protection Agency*  
Order number PB90-501263HCR, T02  
CHEMFATE is a data value file containing literature-derived data on environmental fate on several hundred chemicals. The file includes chemical identification information, physical/chemical properties, transport and degradation studies, field investigations and monitoring data. In all there are 23 data types covered in the file. For each data type, there is a pertinent set of fields qualifying the data, but a physical record only exists for those fields that contain data. Each physical record is made up of a CAS Registry No. (9 bytes), a record number (4 bytes), a data type code (2 bytes), a field type code (3 bytes) and data (240 bytes). With the exception of the identification field, each data type has a mandatory reference field which contains the reference number pointing to XREF, the full reference file.

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. Approximate bytes: 15,842,490.

**Environmental Fate Data Base (ENVIROFATE) Environmental Fate Data, (DATALOG), September 1989**

*Environmental Protection Agency*  
Order number PB90-501289HCR, T02  
DATALOG is a bibliographic pointer file of environmental fate data and each record contains a chemical CAS registry number (9 bytes), one of 18 bytes (9 bytes), and a reference number (6 bytes) to the full citation in the XREF file. The data types identify physical properties, degradation and transport studies, and food, occupational and ambient monitoring data. The file should be used with CASLST (in order to link the full reference citation). A list of possible data types and their abbreviations are: Absorption (ADSOPR), Bioconcentration (BIOCON), Biodegradation (DIODEG), Dissociation constant (DISS CON), Ecosystem (ECOS), Effluent concentrations (EFFL), Evaporation from water (EVAP), Food and crop concentrations (FOOD), Field studies (FIELD), Henry's Law constant (HENRY CON), Hydroly-

sis (HYDROL), Monitoring (MONIT), Occupational concentrations (OCCLUP), Octanol/water partition coefficient (O/W PART), Photooxidation (PHOTOOXID), UV Spectra (UV), Vapor pressure (UP) and Water solubility (WATER SOL).

**Specifications: Tape format.** Available in 9-track tape, 1600 or 6250 bpi. System: DEC VAX 11/785.

**Environmental Fate Data Base (ENVIROFATE) Microbial Degradation/Toxicity Data (BIOLOG) September 1989**

*Environmental Protection Agency*  
Order number PB90-501271HCR, T02  
BIOLOG is a bibliographic pointed file of microbial biodegradation/toxicity data. Each record contains a Chemical Abstract Services Registry Number (9 bytes), a string of data codes (total of 10 bytes) and a reference number (6 bytes). The string of data codes is divided into (1) an indication of biodegradation (B) or microbial toxicity (T) data (1 byte); (2) oxygen condition-aerobic (AE) or anaerobic (AN) (2 bytes); (3) culture type-pure enzyme (PE), pure culture (PC), mixed culture (MC), or cell-free extract (CF) (2 bytes); (4) source of microorganism-soil (SOI), sediment (SED), sewage (SEW) fresh water (WAF), marine water (WAM) or other (OTH) (3 bytes) (5) whether the pathway of degradation was (R) or was not (blank) studies (1 byte); and (6) data source-DATALOG (D) or various files from Dr. Martin Alexander at Cornell University (H, M, G, A, or P) (1 byte). The file should be used with CASLST (in order to link the chemical name and formula) and XREF (in order to link the full reference citation).

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. System: DEC VAX 11/785.

**Environmental Fate Data Base (ENVIROFATE) Value Biodegradation (BIODEG), October 1989**

*Environmental Protection Agency*  
Order number PB90-501305HCR, T02  
BIODEG is a data value file containing literature derived data on the biodegradation of over 500 chemicals. There are 5 different types of records; four record types that cover different types

of tests; screening studies, biological treatment simulations, grab samples, and field studies) and one summary record that contains summary evaluation codes. A more detailed discussion of the file is available in P.H. Howard, et al., *Environmental Toxicological Chem* 6:1-10 (1987).

**Specifications: Tape format.** Available in 9-track tape, 1600 or 6250 bpi. System: DEC VAX 11/785.

**Environmental Fate Data Base (ENVIROFATE): Journal Citations (XREF), April 1990**

*Environmental Protection Agency*  
Order number PB90-502071HCR, T02  
This file contains the full reference (authors, titles and citation) for references included in DATALOG, BIOLOG, CHEMFATE and BIODEG. The references are linked to the other files by reference number. Each record contains a reference number (RNO) (6 bytes), a list of authors separated by semi-colons (AUT) (150 bytes), a title (TLE) (244 bytes), the journal or source (JRN) (200 bytes), the citation (CIT) (200 bytes), and the year (YRP) (19nn or blank if not applicable) (4 bytes).  
**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. Approximate bytes: 11,934,576.

**Environmental Fate Data Base, (ENVIRONFATE), Chemical Name File, (CASLST), September 1989**

*Environmental Protection Agency*  
Order number PB90-501297HCR, T02  
Data includes the chemical name, molecular formula, and CAS registry number for each chemical added to the ENVIRONFATE database by these supplements. This is to used in conjunction with DATALOG, BIOLOG< and CHEMFATE. The CASLST file consists of three fields: (1) Chemical Abstract Service Registry Number (CAS) which is numerical and 9 bytes in length; (2) Chemical formula (FOR) which is textural and 23 bytes in length; and (3) chemical name (CNA) which is textural and 48 bytes in length.

**Specifications: Tape format.** Available in 9-track tape, 1600 or 6250 bpi. System: DEC VAX 11/785.

### ✓ EPA Facility Index System (FINDS) File

*Environmental Protection Agency*

Order numbers:

Single copy PB91-592051HCR, T05

Subscription PB91-592050HCR, \$2360

The Facility Index database of the Facility Index System (FINDS) provides the U.S. Environmental Protection Agency with a computerized inventory on over 400,000 facilities regulated by EPA. The database contains two sets of information about each facility. The first set contains facility identification data such as its unique EPA ID code, name, and physical address. The second set contains 'pointers' to other sources of information, that is, other EPA programs and databases which contain more detailed information about the facility such as the Office of Water's Permit Compliance System (PCS).

With this information, FINDS may directly or indirectly answer questions such as: What is the facility's current address? Which programs are regulating or have more information about this facility? How many facilities are regulated under the Resource Conservation and Recovery Act (RCRA) program? Because of this useful information, FINDS is a key tool for integrating data in support of building enforcement cases, targeting joint program inspections, responding to public requests for information and helping to solve other environmental issues.

This file will be updated quarterly.

**Specifications: Tape format.** System: IBM 3090; TSO operating system. Also available on subscription, U.S., Canada, and Mexico price \$2,360; price for others \$4,720. Issued quarterly.

### Food Consumption Files Used in the Tolerance Assessment System (TAS)

*Environmental Protection Agency*

Order number PB87-142352HCR, T13

1600 bpi, T07 6250 bpi

The Office of Pesticide Programs (OPP) of the U.S. Environmental Protection Agency has the responsibility for regulation of the application of pesticides to raw agricultural commodities (RACs). The decision as to whether or not to permit the use of a particular chemical is based, in part, upon

exposure analyses that combine information about predicted residues in food with food consumption data to produce an estimate of exposure. The Tolerance Assessment System (TAS) is an automated system designed by Research Triangle Institute (RTI) to support OPP's decision-making process. The accompanying tape files represent the food consumption data files employed in the TAS exposure analyses.

The Nationwide Food Consumption Survey of 1977-78, conducted by the U.S. Department of Agriculture (USDA), was selected as the primary source of food consumption information. These data, which constituted a probability sample of U.S. households in the 48 contiguous states and which involved 3-day food consumption records for some 30,770 individuals, were used to compute daily food-form consumption estimates (adjusted for body weight) for a total of 87,668 person-days. Various aggregations and/or averages of these data were performed to create the seven analysis data files used in the TAS exposure analyses.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi.

### Forest Responses to Anthropogenic Stress (FORAST)

*Environmental Protection Agency*

Order number PB88-223631HCR, T04

1600 bpi, T02 6250 bpi

In 1982, a multidisciplinary group of forest scientists met to develop experimental protocols for collection and analysis to tree cores over a multistate area within the eastern U.S. The project that evolved from the meeting was entitled Forest Responses to Anthropogenic Stress (FORAST) and was designed (1) to determine whether evidence of recent alteration of long-term growth patterns of several species of eastern forest trees was apparent in tree-ring chronologies from within the region and (2) to identify environmental variables which were temporally and spatially correlated with and, hence, plausible contributors to any observed changes.

The FORAST data tape contains 7 files (3 of which are in the SAS format): (1) the JCL required to read the tape; (2)

documentation of the tape structure; (3) JCL used to read an earlier version of the database; (4) JCL used to convert original version into this version; (5) FORASTC: SAS database containing 13 data sets concerning site selection, sampling characteristics, meteorological data, air pollution, and climatic data; (6) FORASTR: SAS database with 19 data sets by region (sampling area) for ring-width and basal area (increments for 7000 trees); and (7) FORASTS: FORASTR data sorted into 14 data sets by species.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. System: IBM 3090; SAS System operating system, per SAS requirements (IBM and VAX OK) SAS Version 5 or higher.

### Formaldehyde and Cancers of the Pharynx, Sinus and Nasal Cavity

*Environmental Protection Agency*

Order number PB87-148292HCR, T04

1600 bpi, T03 6250 bpi

This tape contains eight files of data collected for an EPA-sponsored case-control study of nasal and pharyngeal cancer and formaldehyde associations. The study was conducted by the Fred Hutchinson Cancer Research Center between December, 1982 and February, 1986 through a subcontract from Science Applications International Corporation. The study attempted to include all incident cases of cancer of the nasal cavity and sinus occurring between 1/1/79 - 12/31/83, and cancer of the pharynx occurring between 1/1/80 - 12/31/83. The study population included residents of 13 counties in western Washington who were between the ages of 20-74 at the time of diagnosis. The study data were collected through interviews, and include information on the demographic, chemical exposure, smoking, alcohol, and medical histories of the persons interviewed.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi.

**Gastrointestinal Chemical Absorption Data Base, 1985-1987**

*Environmental Protection Agency*  
Order number PB88-245188HCR, T02

The update for 1985-1987 covers 863 articles on the absorption, distribution, metabolism, and excretion of chemicals for oral routes of administration in laboratory animals or in man. Both quantitative and qualitative studies are included. Extracted data fields include number of figures, CAS registry number, chemical name, chemical type, chemical characteristics, study purpose, organism class, species name, strain, test duration, and route/method. Articles were selected from a literature search of Chemical Abstracts from May 1985 - December 1987. A correction file to previous data is also included in the tape.

This update brings the total datafile to 4941 articles and approximately 3000 chemicals for the period 1967-1987.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. System: PRIME 9955; PRIMOS 20.2.5 operating system. File format: Unlabeled (Tape). Approximate bytes: 1,275,040.

**Gastrointestinal Chemical Absorption Database 1967 - March 1985**

*Environmental Protection Agency*  
Order number PB86-146230HCR, T02

The datafile contains 3273 articles on the absorption, distribution, metabolism, and excretion of approximately 2600 chemicals for oral routes of administration in laboratory animals or in man. Both quantitative and qualitative studies were included. Extracted data fields include number of figures, CAS registry number, chemical name, chemical type, chemical characteristics, study purpose, organism class, species name, strain, test duration, and route/method. Articles were selected from a literature search of Chemical Abstracts from 1967 - March 1985.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Approximate bytes: 15,679,920.

**Gastrointestinal Chemical Absorption Database Supplement, March 1987**

*Environmental Protection Agency*  
Order number PB87-202370HCR, T02

The update brings the total coverage of the datafile to 4078 articles on the absorption, distribution, metabolism, and excretion of approximately 3000 chemicals for oral routes of administration in laboratory animals or in man. Both quantitative and qualitative studies are included. Extracted data fields include number of figures, CAS registry number, chemical name, chemical type, chemical characteristics, study purpose, organism class, species name, strain, test duration, and route/method. Articles were selected from a literature search of Chemical Abstracts from 1967-April 1985.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Approximate bytes: 3,742,160.

**Historic SO<sub>2</sub> and NO<sub>x</sub> Emissions Estimates**

*Environmental Protection Agency*  
Order number PB89-103956HCR, D02

The SO<sub>2</sub> and NO<sub>x</sub> Emissions Estimates contain the results of a comparison of historic SO<sub>2</sub> and NO<sub>x</sub> emission data sets. During the past few years, several research projects have been conducted to reconstruct historic air pollution emission trends in the U.S. The data is presented in Appendix A of the EPA report 'Comparison of Historic SO<sub>2</sub> and NO<sub>x</sub> Emissions Data Sets'.

**Specifications: Diskette format.** The datafile is on one 360K 5 1/4 inch diskette, double density. File format: Lotus 1-2-3. Documentation included; may be ordered separately as PB89-103964. Issued annually.

**Historic Volatile Organic Compounds (VOCS) Emissions Estimates and Activity Data**

*Environmental Protection Agency*  
Order number PB88-250311HCR, D03

Lotus spreadsheets containing the data presented in Appendix B of the EPA report 'Historic Emissions of Volatile Organic Compounds in the United States from 1900 to 1985'.

**Specifications: Diskette format.** The datafile is on three 5 1/4 inch diskettes,

double density. System: IBM-PC/XT; DOS 3.10 operating system. Language: LOTUS 1-2-3.

**✓ Integrated Risk Information System (IRIS)**

*Environmental Protection Agency*  
Order numbers:

Single copy PB91-591331HCR, D03  
Subscription PB91-591330HCR, \$560

IRIS provides information on how chemicals affect human health and is a primary source of EPA risk assessment information on chemicals of environmental concern. It serves as a guide for the hazard identification and dose-response assessment steps of EPA risk assessments. IRIS makes chemical-specific risk information readily available to those who must perform risk assessments and also increases consistency in risk management decisions.

The principal section of IRIS is the chemical files. The chemical files contain:

- oral reference doses (RfD) and inhalation reference concentrations (RfC) for noncarcinogens
- oral and inhalation carcinogen assessments
- summarized Drinking Water Health Advisories
- summaries of selected EPA regulations
- supplementary data (for example, acute toxicity information and physical-chemical properties) and
- full bibliographic citations

The primary types of health assessment information in IRIS are oral RfDs, inhalation RfCs and carcinogen assessments. Reference doses and concentrations are estimated human chemical exposures over a lifetime which are just below the expected threshold for adverse health effects. The carcinogen assessments include: a weight-of-evidence classification, oral and inhalation quantitative risk information, including slope factors, along with unit risks calculated from those slope factors. A slope factor is the estimated lifetime cancer risk per unit of the chemical absorbed, assuming lifetime exposure. The health assessment information contained in IRIS, except as noted, has been reviewed and agreed upon by two

interdisciplinary review groups of EPA scientists who have extensive experience in risk assessment. Thus, the information in IRIS represents and expert Agency consensus. This Agency-wide agreement on risk information is one of the most valuable aspects of IRIS. Chemicals are added to IRIS on a regular basis. Chemical file sections in the system will be updated as new information is made available to the two review groups.

**Specifications: Diskette format.** The datafile is on 9 1.2M 5 1/4 inch diskettes, high density. File format: ASCII. Available as a standing order, NTIS deposit account required. Price based on number of issues. Approximate annual cost for U.S., Canada, and Mexico \$520.00; price for others \$10,40). System: IBM-PC/AT.

**Leaking Underground Storage Tank (LUST) Site Characteristics Database**  
*Environmental Protection Agency*  
Order number PB90-502337HCR, D02

The diskette contains the actual data collected to write the report using common parameters that are routinely employed by environmental consultants when evaluating leaking underground storage tank (LUST) sites. These parameters include the hydraulic gradient, hydraulic conductivity, depth to groundwater or potentiometric surface, aquifer thickness, type of aquifer, porosity and local geology. The data was collected primarily from sites located in Texas and New Mexico and was obtained from available state records.

**Specifications: Diskette format.** The datafile is on one 1.2M 5 1/4 inch diskette, high density. File format: dBase III Plus. Documentation included; may be ordered separately as PB90-214834HCR. System: IBM-PC compatible; MS DOS 2.1 operating system, 640K.

**National Ambient Volatile Organic Compounds 1970-1987**

*Environmental Protection Agency*  
Order number PB88-189022HCR, D07

The National Ambient Volatile Organic Compounds (VOCs) Data Base update is the result of an ongoing effort to gather, evaluate, and compile the measured concentrations of a large

number of VOCs. Data on the observed concentrations of three hundred twenty (320) volatile organic compounds (VOCs) were compiled, critically evaluated, and assembled into a relational database. Ambient (outdoor) measurements, indoor data, and data collected with personal monitors are included. The data are primarily from the period 1970-1987 and for locations within the United States. In order to compare data from many different sources, each concentration record in the database represents the daily average for a single chemical, wherever feasible. The total database contains more than 175,000 concentration records.

**Specifications: Diskette format.** The datafile is on 16 1.2M 5 1/4 inch diskettes, high density. The diskette(s) are in dBase III plus format. Documentation included; may be ordered separately as PB88-195631HCR. System: IBM PC-compatible; DOS 3.1 or higher operating system. 19.4 Megabytes of storage space required.

**National Sewage Sludge Survey (NSSS) SAS Transport Version**  
*Environmental Protection Agency*  
Order number PB90-501834HCR, T03

The National Sewage Sludge Survey (NSSS) consists of two tapes: the Analytical Assessment of Sewage Sludge at Final Disposal and the 1988 Sewage Sludge Use and Disposal Questionnaire Survey. The 1988 National Sewage Sludge Use and Disposal Survey, conducted under the direction of the US EPA, generated the data contained on these tapes.

The Analytical Assessment tape contains data from samples collected from secondary treatment Publicly Owned Treatment Works (POTWs) just prior to disposal. The samples of sludge were analyzed chemically to quantitate the concentration of organic pollutants, metals, dioxins, and pesticides. Sampled POTWs resulted from a national, stratified random probability sample drawn from a sampling frame of 11,346 POTWs in the contiguous United States.

The Sewage Sludge Use and Disposal tape contains data collected on sewage sludge generation and disposal practices resulting from a national,

stratified random probability sample of 479 secondary treatment POTWs.

These facilities were drawn from a sampling frame of 11,407 POTWs. Questions addressed service area, POTW operating practices, sewage sludge generation, wastewater pretreatment, wastewater and sewage sludge testing, POTW financial information, and specific sewage sludge use and disposal practices. Four hundred sixty-two participating facilities provided responses to questions pertaining to operations during the calendar year 1988. These responses are contained in 22 SAS members in this database.

General guidance for the user is provided in the report titled, National Sewage Sludge Survey: Data Element Dictionary for the Questionnaire and Analytical Data Base.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB90-198961. System: IBM 3090; OS operating system. This tape is in SAS transport format. In order to use the data, the file must be converted to a SAS dataset. The method for converting to a SAS dataset and an example is enclosed.

**National Surface Water Survey Eastern Lake Survey, Phase 1 (ELS-1) 1984 ASCII Tape**

*Environmental Protection Agency*  
Order number PB87-193322HCR, T03

The Eastern Lake Survey-Phase I (ELS-I), conducted in the Fall of 1984, was the first part of a long-term effort by the U.S. Environmental Protection Agency known as the National Surface Water Survey. It was designed to synoptically quantify the surface water quality of the United States in areas expected to exhibit low buffering capacity. This effort was in support of the National Acid Deposition Assessment Program. The Survey involved a three-month field effort in which 1612 probability sample lakes and 186 special interest lakes in the northeast, southeast, and upper mid-west regions of the United States were sampled. The database supporting this effort was designed and data management was implemented by the Environmental Sciences Division of the Oak Ridge National Laboratory. This document

provides the information necessary for researchers to transfer the ELS-I database accurately to their own computer systems. A data dictionary, this document also includes complete descriptions of the variables in the database and of the data set formats.

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB87-110375HCR.

**National Surface Water Survey Eastern Lake Survey, Phase 1 (ELS-1) 1984 EBCDIC Tape**

*Environmental Protection Agency*  
Order number PB87-193314HCR, T03

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB87-110375HCR.

**National Surface Water Survey Eastern Lake Survey, Phase 1 (ELS-1) 1984 SAS Export data**

*Environmental Protection Agency*  
Order number PB87-193306HCR, T03

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB87-110375HCR.

**National Surface Water Survey Eastern Lake Survey, Phase 1 (ELS-1), 1984 SAS Tape**

*Environmental Protection Agency*  
Order number PB87-193298HCR, T03

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB87-110375HCR.

**National Surface Water Survey: East Lake Survey Phase 1**

*Environmental Protection Agency*  
Order number PB87-193330HCR, D05

**Specifications: Diskette format.** The datafile is on two 5 1/4 inch diskettes,

double density. The diskette(s) are in ASCII format. Documentation included; may be ordered separately as PB87-110375. System: IBM-PC; PC-DOS operating system.

**✓ Resource Conservation and Recovery Information System (RCRIS) Extract Tape**

*Environmental Protection Agency*  
Order numbers:

Single copy PB92-592291HCR, \$2,800  
This file contains data compiled for the Resource Conservation and Recovery Act, using the Resource Conservation and Recovery Information System (RCRIS) database. Notification of Regulated Waste Activity, EPA Form 8700-12 was used to collect the data. The file was updated with information compiled from the Application for a Hazardous Waste Permit-Part A, EPA form 8700-23. The data includes each facility name, EPA Identification number, addresses, owner and operator information, facility contact name and phone number. The data also indicate whether a facility is a generator, treatment/storer/disposer, and/or transporter of hazardous waste. Also included is a listing of wastes handled, taken from 40CFR Pt. 261, SIC

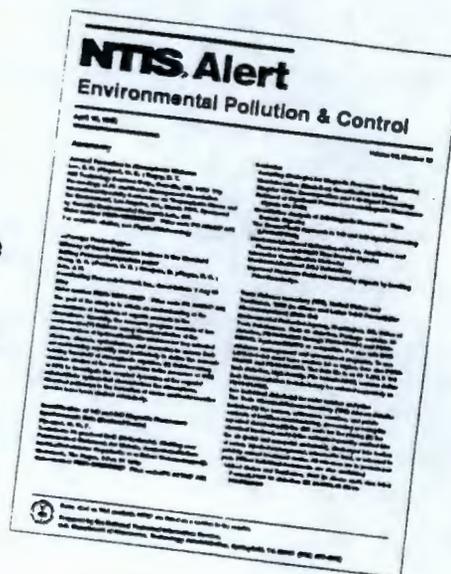
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codes, Permit Process Codes, Permit Issuance data, and non-sensitive compliance and enforcement data.

**Specifications: Tape format.** Available on subscription, U.S., Canada, and Mexico price \$5,560; price for others \$11,120. Issued quarterly. Documentation included; may be ordered separately as PB91-156737, PB91-156745. System: IBM 3090-600S; MVS/XA operating system. File format: Unlabeled. Approximate bytes: 148,570,340.

#### **Retrofit Costs for SO<sub>2</sub> and NO<sub>x</sub> Control Options at Coal-Fired Plants**

*Environmental Protection Agency*

Order number PB91-506295HCR, D02

The cost results for all the technologies presented in the report entitled, 'Retrofit Costs for SO<sub>2</sub> and NO<sub>x</sub> Control Options at Coal-Fired Plants', are available in three DBASE III+ files. Disks 1 and 2 are high density diskettes which contain the following: plant name, technology, boiler number, capacity in megawatts, capacity factor, removal efficiency for both SO<sub>2</sub> and NO<sub>x</sub> removed per year, tons of NO<sub>x</sub> removed per year, capital cost in dollars, annual cost in dollars, dollars per kilowatt, mills per kilowatt hour, dollars per ton of SO<sub>2</sub> removed and dollars per ton of NO<sub>x</sub> removed. Disk 1 is in current 1988 dollars, and Disk 2 is in constant 1988 dollars. Disk 3 contains a third DBASE file (200.DBF) with general plant boiler and company information based on Department of Energy Form 767 data. It also contains an ASCII file (README.ASC) with a list of abbreviations used in all three database files. The cost result database can be used to estimate total costs and emissions for individual or combined control technologies for the 200 plants presented in this report

**Specifications: Diskette format.** The datafile is on three 1.2M 5 1/4 inch diskettes, high density. File format: ASCII. System: IBM /PC AT; MS DOS operating system. Other formats available as PB91-133314HCR ( Paper Copy 5 - Volume Set).

#### **Site Enforcement Tracking System (SETS)**

(See page 11)

#### **Steam-Electric Plant Operation & Design Report (EIA-767) Extract Data Tape, 1985-1987**

*Environmental Protection Agency*

Order number PB90-501339HCR, T03

The first file contains the 1985 data from 704 electric generating plants whose fossil or nuclear steam generating nameplate rating is 100 megawatts or larger. These plants represent 209 utilities.

Data include plant information and individual equipment design parameters and annual operational data for boilers, generators, cooling systems, flue gas particulate collectors, flue gas desulfurization units, flue, and stacks.

The remaining three files contain the 1986-1988 data, respectively. An additional 200 plants between 10 MW and 100 MW capacity are included in these files starting in 1986. These plants complete only pages 1, 6, and if applicable, 13 and 14. These 200 plants represent approximately 100 utilities.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB90-165879. System: IBM 3090; MVS operating system.

#### **Terrestrial Toxicity Database (Terre-Tox), 1970-1985**

*Environmental Protection Agency*

Order number PB86-178043HCR, T03

TERRE-TOX is a new database developed for the U.S. Environmental Protection Agency to aid in evaluating pre-manufacturing notices and research. TERRE-TOX contains published (1970 to present) information on toxicity of anthropogenic substances to terrestrial animals. Currently, species are limited to wildlife, bees, earthworms, and laboratory rodents where the substance involved is likely to affect wildlife. The studies deal with acute toxicity, behavior, reproduction, physiological and biochemical responses. Additional information on the chemical used for

each study (CAS number, purity, synonyms), test organisms (species, common name, age), and test conditions (route of administration, dose regimen, range of doses) is also provided. TERRE-TOX is designed to become part of SPHERE (Scientific Parameters for Health and Environment, Retrieval and Estimation) within the Chemical Information System (CIS). In addition, capabilities for research into structural activity relationships (SAR) will be possible after link-up with SANSS (Structure and Nomenclature Search System).

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi.

#### **Toxic Release Inventory (TRI)**

(See page 12)

#### **Toxic Substances Control Act (TSCA) Chemical Substances Inventory: Reissued Inventory Production Information File, May 1986**

*Environmental Protection Agency*

Order number PB86-220803HCR, T03

The Toxic Substances Control Act (TSCA) Chemical Substances Inventory: Reissued Inventory Production Information File contains production information for more than 50,000 chemicals.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. System: IBM; OS-MVS operating system. Approximate bytes: 57,868,720.

#### **Toxic Substances Control Act (TSCA) Chemical Substances Inventory: Reissued Inventory Plantsite Information, May 1986**

*Environmental Protection Agency*

Order number PB86-220795HCR, T02

The Toxic Substances Control Act (TSCA) Chemical Substances Inventory: Reissued Inventory Plantsite Information File lists names and addresses for more than 7000 processors and manufacturers of chemicals.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Approximate bytes: 6,101,680.

**Toxic Substances Control Act (TSCA) Chemical Substances Inventory: Revised Inventory Synonym and Preferred Name File**

*Environmental Protection Agency*  
Order number PB92-501386HCR, T05

This computer tape contains the Inventory Synonym Name File and the Inventory Preferred Name File of the Toxic Substances Control Act (TSCA) Toxic Substance Inventory. These files reflect the 60,552 substances on the non-confidential Inventory file as of the current report. The EPA 'N' flag, which indicates a polymeric substance containing no free-radical initiator in its Inventory name, but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used, appears on these tapes for the appropriate polymers that were included in the 1990 Supplement. The tapes do not include this flag for polymers that were listed in the 1985 Edition. A review of the statistics for the amounts of CBI and non-CBI records on the source file and the file that produced these tapes, as well as the types of data elements selected, confirms that no TSCA CBI data are on the tapes

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB91-167767. System: IBM 3090 400E; MVS/ESA Sp3.1.OE operating system. File format: EBCDIC.

✓ **Toxic Substances Control Act Test Submissions Database Comprehensive Update (TSCATS)**

*Environmental Protection Agency*  
Order number PB90-591291HCR, T03

The Toxic Substances Control Act Test Submissions Database (TSCATS) was developed to make unpublished test data available to the public. The test data is submitted to the U.S. Environmental Protection Agency by industry under the Toxic Substances Control Act. Test is broadly defined to include case reports, episodic incidents, such as spills, and formal test study presentations. The database allows searching of test submissions according to specific chemical identity or type of study when used with an appropriate search retrieval software program. Studies are indexed under three broad subject areas: health effects, environ-

mental effects and environmental fate. Additional controlled vocabulary terms are assigned which describe the experimental protocol and test observations. Records identify reference information needed to locate the source document, as well as the submitting organization and reason for submission of the test data.

**Specifications: Tape format.** Available in 9-track, ASCII character set, 1600 or 6250 bpi. Approximate bytes: 20,329,437.

**U.S. Cancer Death Counts, 1950-79**

*Environmental Protection Agency*  
Order number PB84-236942HCR, T05  
1600 bpi, T03 6250 bpi

Death counts by five year age groups ending with age 85 and older by county, state and the U.S., by race-sex (white/non-white for male, female) for 35 groupings of cancers, for each year from 1950 through 1979.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi.

**U.S. Cancer Mortality Rates & Trends, 1950-1979**

*Environmental Protection Agency*  
Order number PB84-196914HCR, T10  
1600 bpi, T05 6250 bpi

This report contains cancer mortality rates and changes in rates for counties of the United States for 1950-1959, 1960-1969, and 1970-1979. This report includes the number of deaths and cancer mortality rates age-adjusted to the 1970 U.S. population for each of 35 site-specific cancers for four race-sex groups. Further, counties are ranked nationally by percentile for 1970-1979 age-adjusted death rates and for percent change from 1950-1959 to 1970-1979.

**Specifications: Tape format.** Available in 9-track, ASCII

✓ **U.S. Environmental Protection Agency Civil Enforcement Docket**

*Environmental Protection Agency*  
Order numbers:

Single copy PB91-591971HCR, D02  
Subscription PB91-591970HCR, \$360

The Civil Enforcement Docket is the U.S. Environmental Protection Agency's

system for tracking civil judicial cases filed on the Agency's behalf by the Department of Justice. This Docket contains information on civil cases filed from 1972 to the present. It includes all case information, facility information, and defendant information. Case Information contains data on a case such as its name, date filed, date concluded, laws/sections violated, and penalty information. Facility information contains data related to the facility including a complete address and EPA identification number. Finally, defendant information includes all the defendants associated with the case.

**Specifications: Diskette format.** The datafile is on two 1.2M 5 1/4 inch diskettes, high density. File format: ASCII. Available on subscription, U.S., Canada, and Mexico price \$320; price for others \$640. Issued quarterly. System: IBM; DOS 2.0 or greater operating system, 640K. Available in paper copy as PB91-921700HCR.

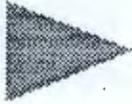
**Wastewater Treatment-Cost Estimate for Construction of Publicly Owned Facilities, 1982**

*Environmental Protection Agency*  
Order number PB83-173963HCR, T08

This survey modifies and updates comprehensive cost estimates of the five previous surveys for constructing all grant-eligible municipal treatment works needed by existing and future populations. Advance work completed during the 1982 Needs Survey will provide the foundation for linking treatment facilities with their receiving water bodies and water quality impacts as part of the 1984 Needs Survey. This is the only complete inventory of municipal treatment works (restricted to publicly-owned wastewater conveyance and related treatment facilities). Privately owned facilities, military installations and national parks are excluded.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB83-148486HCR and PB83-173955HCR.





## Site Enforcement Tracking System (SETS) from the Environmental Protection Agency

When expending Superfund monies at a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) site, EPA must conduct a search to identify parties with potential financial responsibility for remediation of uncontrolled hazardous waste sites. EPA regional Superfund Waste Management Staff issue a notice letter to the potentially responsible party (PRP).

Data from this notice letter is used to form the Site Enforcement Tracking System (SETS). This data includes PRP name and address, a company contact person, the date the notice was issued, and the related CERCLA site name and identification number. SETS was created by EPA to track PRP identification at both NPL (National Priority List) and non-NPL sites. SETS does not address the range of other administra-

tive duties related to tracking the PRP. These lists represent EPA's preliminary findings on the identities of PRPs. Inclusion on these lists does not constitute a final determination concerning the liability of any party for the hazard or contamination at any CERCLA site.

SETS is available as a subscription or individually by region or nationally.

### ✓ SETS National Quarterly Subscription—Diskette

Order number PB92-592130HCR, U.S., Canada, and Mexico price \$1,000; price for others \$2,000. Issued quarterly.

*Specifications:* The datafile is on 10 1.44M 3 1/2 inch diskettes, high density. File format: ASCII.

### ✓ SETS National Quarterly Subscription—Tape

Order number PB90-591790HCR, U.S., Canada, and Mexico price \$960; price for others \$1,920. Issued quarterly. Individual copies are T02.

*Specifications:* System: IBM 3090; ESA 3.1.3 operating system. File format: EBCDIC.

### SETS—National on Diskette

Order number PB90-591781HCR, D05  
The datafile is contained on ten diskettes.

### SETS—Region 1

Order number PB92-500131HCR, D01  
Two diskettes.

### SETS—Region 2

Order number PB92-500149HCR, D01  
One diskette.

### SETS—Region 3

Order number PB92-500156HCR, D01  
One diskette.

### SETS—Region 4

Order number PB92-500164HCR, D01  
One diskette.

### SETS—Region 5

Order number PB92-500172HCR, D01  
Two diskettes.

### *Specifications: All diskette formats*

The datafiles are on 1.44M 3 1/2 inch diskettes, high density. File format: ASCII. System: IBM PC/AT; MS DOS 3.3 operating system, 640K.

### SETS—Region 6

Order number PB92-500180HCR, D01  
One diskette.

### SETS—Region 7

Order number PB92-500198HCR, D01  
One diskette.

### SETS—Region 8

Order number PB92-500206HCR, D01  
One diskette.

### SETS—Region 9

Order number PB92-500214HCR, D01  
One diskette.

### SETS—Region 10

Order number PB92-500222HCR, D01  
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## Toxic Release Inventory (TRI) from the Environmental Protection Agency

The data in the Toxic Release Inventory was collected by the U.S. Environmental Protection Agency under Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as Title III) of the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of Section 313 is to inform the public of the presence of chemicals in their communities and releases of these chemicals into the community. States and communities, working with industrial facilities, required to comply with this law, will be better able to protect the public health and environment.

The final Toxic Chemical Release Form R and regulations for 1987 were

published in 1988. There are over 300 chemicals and categories in these lists. The reporting requirement applies to owners and operators of facilities that have 10 or more full-time employees, that are in Standard Industrial Classification (SIC) codes 20 through 39 (i.e., manufacturing facilities) and that manufacture (including importing), process or otherwise use a listed toxic chemical in excess of specified threshold quantities.

The following information is required on Form R: the name, location and type of business; off-site locations to which the facility transfers toxic chemicals in waste; whether the chemical is manufactured (including

importation), processed, or otherwise used and the general categories of use of the chemical; an estimate of the maximum amounts of the toxic chemical present at the facility; quantity of the chemical entering air, land, and water annually; waste treatment/disposal methods and efficiency of methods for each waste stream; optional information on waste minimization; and a certification by a senior facility official that the report is complete and accurate. The law mandates that the data be made publicly available through a computer database.

### TRI 1987, 1988, 1989 on CD-ROM

Order number PB92-500024HCR, \$45

*Specifications:* The datafile is contained on one 4.72 inch disc. Data format: ISO 9660. Issued annually.

### TRI 1987, 1988, and 1989 on Magnetic Tape

Order number (1987) PB89-186068HCR, 1600 bpi, \$1850; 6250 bpi, T12 and (1988) PB90-502030HCR, 1600 bpi, \$1620; 6250 bpi \$1160 (T10), (1989) PB91-507509, 1620 & 6250 bpi, \$1620 (T14).

*Specifications:* Available in 9-track ASCII character set, 1600 bpi. and 6250 bpi. System: IBM ES 9000; OS/MVS operating system.

### TRI 1987 & 1988 Reporting Facilities Names and Addresses on Magnetic Tape

Order number (1987) PB89-186118HCR, T02 (1988) PB91-506816HCR, T02

*Specifications:* Available in 9-track, specify 1600 bpi or 6250 bpi. Documentation may be ordered separately as PB89-186076HCR. System: IBM 3090; MVS/XA operating system.

### Sets of States and Territories on Diskette

**TRI, United States and Territories, 1987 & 1988 & 1989 (in dBase III Plus)**  
Order number (1987) PB89-199004HCR, \$1525 (in Lotus 1-2-3) 57 diskettes; (1988) PB90-504051HCR, \$1830; (1989) PB91-508572HCR, \$1800

*Specifications:* The 1987 datafile is on 5 1/4 inch high density (1.2M) diskettes. The 1988 datafile is on 60 5/4 inch diskettes: of which 27 are 360K and 33 are 1.2M. The 1989 datafile is on 66 5/4 inch high density diskettes. Documentation may be ordered separately as PB90-238908HCR. System: IBM PC/AT; DOS 3.1 or higher operating system.

**TRI, United States and Territories, 1987 & 1988 & 1989 (in Lotus 1-2-3)**  
Order number (1987) PB89-199541HCR, \$1525; (1988) PB90-504069HCR, \$1980; (1989) PB91-508572HCR, \$1800

*Specifications:* The 1987 datafile is on 5 1/4 inch high density (1.2M) diskettes. The 1988 datafile is on 74 5/4 inch diskettes: of which 26 are 360K and 48 are 1.2M. The 1989

datafile is on 66 5/4 inch high density diskettes. Documentation may be ordered separately as PB90-238908HCR. System: IBM PC/AT; DOS 3.1 or higher operating system.

### TRI, United States and Territories, 1989 (in Macintosh Excel)

Order number (1989) PB91-509109HCR, \$1800

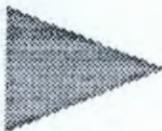
*Specifications:* The 1989 datafile is on 76, 3 1/2 inch, 800K, double density diskettes. Format: ASCII comma delimited. System: Apple Macintosh.

### Individual States & Territories on Diskette

The 1987 and 1988 TRI is available for individual states in both dBase III Plus and Lotus 1-2-3. The 1989 TRI is available in dBaseIII, Lotus 1-2-3, and Macintosh Excel.

**To order, call (703) 487-4650.**

*Specifications:* State datafiles are contained on 5 1/4 inch diskettes. Documentation may be ordered separately as PB90-238908HCR. System: IBM PC/AT; DOS 3.1 or higher operating system.



# Environmental Software

## **1985 Flexible Regional Emissions Data System Source Code, Version 2**

*Environmental Protection Agency*  
Order number PB89-237994HCR, T11

Program extracts emission data, pertinent modeling parameters (e.g. stack height, exhaust gas temperature, etc) and source identification information from point and area source data (contained in pre-processed SAS files) and applies appropriate temporal, spatial, and pollutant species allocation factors to derive a gridded, speciated, and temporally resolved emissions file suitable as input to regional scale atmospheric simulation models (such as the regional Acid Deposition Model and Regional Oxidant Model), it consists of seven modules which are used to reformat the data, apply allocation factors to the annual emissions data, and ensure the quality of its output. In addition to the program, peripheral software is used to process point and area sources. The seven modules are the Hydrocarbon Preprocessor, the Quality Control Module, the Model Data Extraction Module, the Temporal Allocation Module, the Speciation Module, the Spatial Allocation Module, and the Model Input Preprocessor. Many of the modules can be implemented in a logical sequence or independently of the others in most cases. To maximize flexibility, it allows the user to define and assign emissions of up to 15 pollutants prior to speciation, the temporal scenario, spatial grid origin and grid cell size, and the number and relationship of pollutant subspecies.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. System: IBM 3090; OS/TSO operating system. Language: FORTRAN, SAS.

## **Advanced Utility Simulation Model Version 3.0**

*Environmental Protection Agency*  
Order number PB89-175608HCR, T08

Program simulates the operation of all electric utility generating units in the U.S. The model is documented in a series of 11 reports numbered EPA-600/8-88071, volumes A through K. It forecasts emissions, costs of electric generation and electric rate schedules by year and by state. Alternative emissions control scenarios, electricity growth rates, interest rates, and other economic parameters can be inputted by the model user to study their effects on electric utility construction and compliance strategies.

**Specifications: Tape format.** Available in 9-track tape, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB89-161772, PB89-166631. System: IBM 3090; MVS-XA (VS FORTRAN Compiler) operating system, 4000K. Language: FORTRAN & TSO CLIST. Ketrion Inc software required: MPS III, Wizard, Data form.

## **APRAC3**

*Environmental Protection Agency*  
Order number PB90-500851HCR, D01

Program contains two recent modifications to previous versions: 1) The emission factor computation methodology has been revised to reflect recent updates, and that portion of the code that performs emissions computations has been separated from the other portions of the model to facilitate incorporation of future emission factor methodology updates, and 2) Treating traffic links in the primary network with low vehicle miles traveled as area sources. Gridded and link-by-link emissions can be output for hydrocarbons, carbon monoxide, or oxides of nitrogen. Dispersion calculations use a receptor-oriented Gaussian plume model. Local winds at each receptor can be used: they are interpolated from multiple wind inputs. Mixing heights

may be calculated from sounding data or input directly. Two local source models are available: 1) Treating pollutant behavior in a street canyon, and 2) Treating vehicle and pollutant effects at a signalized intersection. A preprocessor PREMOD2 is associated with this model. It produces emissions compatible with MOBILE2.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. ready for uploading to an IBM 3090.

## **BIOPLUME II: Computer Model of Two-Dimensional Contaminant Transport under the Influence of Oxygen Limited Biodegradation in Groundwater**

*Environmental Protection Agency*  
Order number PB89-151112HCR, \$350

This model simulates the transport of dissolved hydrocarbons under the influence of oxygen-limited biodegradation. It also simulates reaeration and anaerobic biodegradation as a first order decay in hydrocarbon concentrations. The model is based on the United States Coast Guard's solute transport two-dimensional code (Konikow and Bredhoeft, 1978). It computes the changes in concentration over time due to convection, dispersion, mixing, and biodegradation. The same numerical techniques that are used in the USCG code are maintained in BIOPLUME II. It solves the solute transport equation twice: once for hydrocarbon and once for oxygen. As a result, two plumes are computed at every time step. The model assumes an instantaneous reaction between oxygen and hydrocarbon to simulate biodegradation processes. It is extremely versatile in that it can be used to simulate natural biodegradation processes, retarded plumes, and in-situ bioremediation schemes. Model allows injection wells to be specified as oxygen sources into a contaminated

aquifer. This means that alternate methods for aquifer reclamation can be investigated to design the most economically feasible scheme. It provides three additional sources of oxygen into an aquifer: initial dissolved oxygen in the uncontaminated aquifer, natural recharge of oxygen across the boundaries, and vertical exchange of oxygen from the unsaturated zone (reaeration). All three sources of oxygen can be used to simulate a contaminant plume that is being naturally biodegraded.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. File format: ASCII text. System: IBM-PC/AT or compatible; DOS 2. + operating system, 550K. MS FORTRAN 4.01 required. Hard disk, graphics adaptor, math coprocessor and a Surfer software package are optional requirements..

#### **BLP: Buoyant Line and Point Source Dispersion Model**

*Environmental Protection Agency*  
Order number PB90-500281HCR, D01  
Program was developed specifically for aluminum reduction plants. Aluminum reduction plants are a complex arrangement of emission sources, composed of parallel, low-level, buoyant line sources called potrooms interspersed, typically, by short point sources. In addition to, theoretical considerations, BLP is based on extensive wind tunnel simulations of two reduction plants and an SF field study tracer program at one of the plants.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. IBM 3090 for uploading.

**CALINE: California Line Source Model**  
*Environmental Protection Agency*  
Order number PB90-500299HCR, D02  
Model can be used to predict carbon monoxide concentrations near highways and arterial streets given traffic emissions, site geometry and meteorology. It has adjustments for averaging time and surface roughness, and can handle up to 20 links and 20 receptors. It also contain an algorithm for deposition and settling velocity so that particulate concentrations can be predicted.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible. Language: FORTRAN. IBM 3090 for uploading.

#### **CDM2: Climatological Dispersion Model, Version 2.0**

*Environmental Protection Agency*  
Order number PB90-500406HCR, D01  
Program determines long-term (seasonal or annual) quasi-stable pollutant concentrations in rural or urban settings using average emission rates from point and area sources and a joint frequency distribution of wind direction, wind speed, and stability. The Gaussian plume hypothesis forms the basis for the calculations. Contributions are calculated assuming the narrow plume hypothesis, and involve and upwind integration over the area sources. Computations can be made for up to 200 point sources and 2500 area sources at an unlimited number of receptor locations. The number of point and area sources can be easily modified within the code. CDM2 is an enhanced version of CDM and includes the following options: 16 or 36 wind-direction sectors; stack-tip downwash; and gradual (transitional) plume rise. The user has a choice of seven dispersion parameter schemes. Optional output includes point and area concentration rises and histograms of pollutant concentration by stability class.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. File format: ASCII. System: IBM-PC compatible. Language: FORTRAN. Also available as an IBM 3090 for uploading.

**Chemical Mass Balance Receptor Model Version 6.0**  
*Environmental Protection Agency*  
Order number PB89-181093HCR, D01  
Program uses the chemical composition of an ambient particulate sample to estimate the relative contributions of different source categories to the measured particulate concentration. The chemical composition of each source category's emissions (source profile) must also be known in order to run the model.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. Documentation included; may be ordered separately as PB89-181101. System: IBM-PC compatible; MS-DOS 2.0+ operating system, 320K. Language: FORTRAN 77.

#### **Coastal Zone Oil Spill Model, (COZOIL)**

*Department of Interior*  
Order number PB89-159453HCR, D01  
Developed as a generic, computer-based model for the simulation of oil spills entering the surf zone, impacting a shoreline, and transforming through time as a result of physical and chemical processes. It builds on previous oil-spill trajectory and fates models which typically end with contact at the coastline. Program also includes explicit representation of as many known, active processes as possible, partitioning oil quantities among air, water surface, water column, and the substrate/groundwater systems in or near the surf zone. Eight shoreline types with varying oil holding capacities and seven oil types encompassing a range of viscosities can be simulated.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible; PC/MS DOS operating system, 640K. Language: FORTRAN 77. 8087 math coprocessor and a hard disk.

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**Complex Terrain Dispersion Model Plus (CTDMPLUS)**

*Environmental Protection Agency*  
Order number PB90-504119HCR, D05

The Complex Terrain Dispersion Model Plus (CTDMPLUS) is a refined air quality model for use in all stability conditions for complex terrain applications. It contains the technology of the original Complex Terrain Dispersion Model (CTDM) for stable and neutral conditions, but also models daytime, unstable conditions. The model makes use of considerable detail in the terrain and meteorological data (as compared to current EPA regulatory models) and requires the parameterization of individual terrain features, thus considering the three-dimensional nature of the interaction of the plume and terrain.

**Specifications: Diskette format.** The software is on 9 360K 5 1/4 inch diskettes, double density. File format: ASCII. Documentation included; may be ordered separately as PB90-243809. System: IBM PC compatible; MS DOS operating system. Language: FORTRAN 77 and Pascal. Attempts to run the modeling system without a math co-processor will cause a runtime error number of 4001. The graphics programs use a procedure that automatically detects the graphic system being used and scales the screen output accordingly.

**COMPLEX1**

*Environmental Protection Agency*  
Order number PB90-500364HCR, D01

Is a multiple point source code with terrain adjustment. The model specifications for testing were suggested by team 'B' on complex terrain at the Regional Workshop on Air Quality Modeling in Chicago, 2/80. It is a sequential model utilizing hourly meteorological input. It assumes a normal distribution in the vertical and a uniform distribution across a 22.5 degree sector. The initial screening technique for complex terrain applications, described in the Guideline on Air Quality Models (revised), has been incorporated as an option in COMPLEX1.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. File format: ASCII.

System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**Continuous Release - Emergency Response Notification System**

*Environmental Protection Agency*  
Order number, PB91-509935HCR, D02

The Continuous Release - Emergency Response Notification System (CR-ERNS) is a user-friendly software system designed to assist facilities and vessels in complying with the continuous release reporting requirements of CERCLA Section 103 (f) (2). CR-ERNS is designed to allow users to report multiple releases of hazardous substances from multiple sources, and to generate both printed and electronic reports for submittal to the U.S. Environmental Protection Agency.

**Specifications: Diskette format.** The software is on two 360K 5 1/4 inch diskettes, double density. Documentation included; may be ordered separately as PB91-921287. System: IBM or IBM-compatible; MS DOS 3.0 or higher operating system, 512K. Language: Fortran/Clipper.

**Controlling Air Toxics (CAT) Version 1.0**

*Environmental Protection Agency*  
Order number PB89-158737HCR, \$55

Program's purpose is to assist permit engineers in the permit applications for control of air toxics. It performs design and cost calculations for the control device based on the emission stream characteristics.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. Documentation included; may be ordered separately as PB89-158745. System: IBM-PC/XT/AT or compatible; DOS 2.0+ operating system, 640K. Language: C.

**Crosswalk/Air Toxic Emission Factor Data Base Management System**

*Environmental Protection Agency*  
Order number, PB91-507889HCR, D02

Crosswalk/Air Toxic Emission Factor Data Base Management System (XATEF) presents a qualitative association of pollutants and sources or air pollutant/source 'crosswalk' and presents air toxic emission factors.

More than 15,000 crosswalk associations are presented. More than 6,000 emission factors for 350 air toxics are presented. The following items are included: SIC code, SCC, pollutant name, CAS number, SIC description, SCC description, industrial process description, operating process description, notes about control and derivation of factors, and references.

**Specifications: Diskette format.** The software is on one 1.2M 5 1/4 inch diskette, high density. Documentation included; may be ordered separately as PB91-205021. System: IBM PC Compatible; PC DOS 3.0 or higher operating system, 20K. Language: Compiled DBase files.

**CRSTER**

*Environmental Protection Agency*  
Order number PB90-500323HCR, D01

This algorithm estimates ground-level concentrations resulting from up to 19 collocated elevated stack emissions for an entire year and prints out the highest and second highest 1,3, and 24 hour concentrations as well as the annual mean concentrations as a set of 180 receptors (5 distances by 36 azimuths). The algorithm is based on a modified form of the steady-state Gaussian plume equation which uses either Pasquill-Gifford or Briggs urban dispersion coefficients and includes adjustments for plume rise and limited mixing. Terrain adjustments are made as long as the surrounding terrain is physically lower than the lowest stack height input. Pollutant concentrations for each averaging time are computed for discrete, non-overlapping time periods (no running averages are computed) using measured hourly values of wind speed and direction, and estimated hourly values of atmospheric stability and mixing height.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. IBM 3090 for uploading.

**DEGADIS (Dense GAs DISPersion) Model, Version 2.1**

*Environmental Protection Agency*  
Order number PB90-502253HCR, D02

An improved Jet-Plume model has been interfaced with DEGADIS to provide for prediction of the trajectory and dilution of elevated dense gas jets to ground contact. DEGADIS predicts the ensuing ground-level plume dispersion. The Jet-Plume model provides for: automatic adjustment of integration step-size (using the Runge-Kutta-Gill method as in DEGADIS); elliptical plume shape (cross-section), with the Pasquill-Gifford plume dispersion coefficient representation of atmospheric turbulent entrainment; user specification of averaging time; ground reflection when the plume (lower) boundary reaches ground level; and application to scenarios where the plume remains aloft.

The model should be uploaded via modem from a PC terminal to host a VAX computer, and several files must then be renamed prior to compilation and execution.

**Specifications: Diskette format.** The software is on one 1.2M 5 1/4 inch diskette, high density. File format: Executable code only. The diskette(s) are in ASCII format. Documentation included; may be ordered separately as PB90-213893. System: DEC VAX. Language: FORTRAN. The program is written in FORTRAN for compilation and execution on a DEC VAX Computer. Implementation on any other system may be attempted at the risk of the user. To facilitate dissemination of the model, it is being provided on diskette.

**Exhaust Gas Recycle Setup and Reduction Programs**

*Environmental Protection Agency*  
Order number PB90-500000HCR, D01

These programs will perform the setup and data calculations necessary for EPA Method 201, also known as the Exhaust Gas Recycle Method. Its a method to measure instack PM10 from stationary sources.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: BASIC.

**Fate Model Program, Version 1.0**

*Environmental Protection Agency*  
Order number PB91-507137HCR, D01

The FATE Model has been developed for predicting the fate of organics in a completely mixed activated sludge treatment plant operated under acclimated conditions. It has been validated using experimental data from a pilot-scale facility and full-scale treatment plants. The biogradation kinetic constants for some compounds were estimated using group contribution approach.

Applications of the model include (1) assessment of emissions of volatile organic compounds from wastewater treatment plants, (2) estimation of the concentration of toxic compounds associated with sludges, and (3) a general framework for estimating the removal of toxic compounds during conventional primary/activated sludge treatment.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible. Language: FORTRAN 77.

**Fate and Treatability Estimator (FATE) Model**

*Environmental Protection Agency*  
Order number, PB91-507236HCR, D03

This model was developed to help users understand the fate and treatability of pollutants in wastewaters discharged to conventional activated sludge Publically Owned Treatment Works (POTWs). It aids the user in evaluating whether pollutants in an influent to a POTW are sorbed onto sludge, are volatilized off into the atmosphere, or are biodegraded. The software also will estimate the amount of the pollutant in each process end point of the model, as well as percent total removal from the wastewater influent stream.

The fate model has the capability to evaluate the treatability of both inorganic and organic pollutants discharged to a POTW. Since inorganic and organic compounds are removed by different physical and chemical processes in a POTW, FATE consists of separate models for organic fate analysis and inorganic fate analysis.

The calibration and validation of the FATE model is based on actual plant

data from a recent nation-wide survey of domestic POTWs. Plant performance data used in the calibration and validation was obtained from actual measurements of the influents and effluents of the surveyed POTWs. A detailed description of the uses and components of the FATE Model is included with the CERCLA Site Discharges to POTWs Treatability Manual.

**Specifications: Diskette format.** Software is on one 5 1/4 inch diskette, 1.6 M double density. Documentation included; may be ordered separately as PB91-921269. System: IBM PC AT, XT; MS DOS 2.2+ operating system, 384K. Language: 'C. Clipper compiled.

**Fugitive Dust Model (FDM)**

*Environmental Protection Agency*  
Order number PB90-502410HCR, D01

The Fugitive Dust Model (FDM) is a computerized air quality model specifically designed for computing concentration and deposition impacts from fugitive dust sources. The sources may be point, line or area sources. The model has not been designed to compute the impacts of buoyant point sources, thus it contains no plume-rise algorithm. The model is generally based on the well-known Gaussian Plume formulation for computing concentrations, but the model has been specifically adapted to incorporate an improved gradient-transfer deposition algorithm. Emissions for each source are apportioned by the user into a series of particle size classes. A gravitational settling velocity and a deposition velocity are calculated by FDM for each class. Concentration and deposition are computed at all user selectable receptor locations.

**Specifications: Diskette format.** The software is on one 1.2M 5 1/4 inch diskette, high density. File format: Multiple formats. Documentation included; may be ordered separately as PB90-215203. System: IBM/PC compatible; DOS operating system, 500K. Language: FORTRAN. The model may be adapted for operation on a main-frame or other computer system. The model requirements for PC operation are a minimum of 500K of memory

and a math coprocessor-chip (e.g. 80287, etc.). An additional requirement is that the device driver, ANSI.SYS or a compatible be installed on the machine.

### **Geostatistical Environmental Assessment Software (GEO-EAS)**

*Environmental Protection Agency*  
Order number, PB89-151245HCR \$60  
The Environmental Protection Agency's new software release package consists of thirteen programs whose functions are the production of two-dimensional grids and contour maps of interpolated (kringed) estimates from sample data. Other functions include data preparation, data maps, uni-variate statistics, scatter plots/linear regression, and variogram computation and model fitting. Extensive use of screen graphics such as maps, histograms, scatter plots can be plotted on an HP compatible pen plotter. Individual programs can be run independently; the statistics and graphics routines may prove useful even when a full geostatistical study is not appropriate. For ease of use, the programs are controlled interactively through screen menus and use simple ASCII data files.

**Specifications: Diskette format.** The software is on three 5 1/4 inch diskettes, double density. System: IBM-PC/XT/AT/PS-2 or compatible; DOS 2.0 + operating system, 640K. Math coprocessor recommended but not required. Graphics monitor required (CGA, EGA, VGA or Hercules).

### **Groundwater Education System**

*Environmental Protection Agency*  
Order number, PB92-500370HCR, D01  
The Groundwater Education System is a program designed on the concept of hypermedia. Users operating the program using hyper text can determine how much information they receive from the program by selecting what topics they want to see. The user selects hypertext links by clicking on a highlighted word or phrase. The program then sends the user to another section regarding their selection. In this way, more material

can be interwoven. This allows a broader scope for education and applications.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, 1.2Mb, double density. System: IBM compatible; MS DOS 2.1 operating system, 500K. Language: Knowledge Pro/ASCII. EGAGraphics and a hard drive or high density disk drive required.

### **Hazardous Air Pollutant Program (HAP-PRO) Version 1**

*Environmental Protection Agency*  
Order number, PB92-501212HCR  
Price code: D03

The Hazardous Air Pollutant Program (HAP-PRO) program assists permit engineers in reviewing applications for control of air toxics by calculating the capital and annual costs for six volatile organic compound (VOC) and three particulate control devices, including selected engineering parameters, which may be used to help pinpoint errors in the engineering design. Calculations used by the program mirror those presented in the revised EPA handbook, Control Technologies for Hazardous Air Toxics. A secondary purpose of HAP-PRO is to generate lists of all facilities containing a specified pollutant in their emission streams or a specified type of emission stream (organic or inorganic vapors and particulates). HAP-PRO's features include context-sensitive help to assist in data input, a windowed environment to provide a referential trail of the user's actions, lookup tables containing the characteristics of many common pollutants, and the ability to select air toxics either from an alphabetical list or by SIC category.

**Specifications: Diskette format.** The software is on three 5 1/4 inch diskettes, 360K double density. File format: DBS. Documentation included; may be ordered separately as PB92-35904. System: IBM-PC or Compatible; MS-DOS 3.1 or later operating system, 640K. Requires a hard disk with at least 1Mb free and 512K free minimum RAM.

### **Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF) Air Emission Models**

*Environmental Protection Agency*  
Order number PB88-198601HCR, D02  
Analytical Models are presented for estimating air emissions from Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF). Air emission models have been developed for aerated and nonaerated surface impoundments, land treatment facilities, landfills, and wastepiles. Emission model predictions are compared to available field data. The models have been assembled into a spreadsheet (Lotus 1-2-3) that is included in this report as floppy diskette for use on microcomputer.

**Specifications: Diskette format.** The software is on one 360K 5 1/4 inch diskette, double density. Diskettes are in the Lotus 1-2-3 spreadsheet format for implementation on IBM-PC.

### **HIGHWAY-ROADWAY**

*Environmental Protection Agency*  
Order number PB90-500810HCR, D01  
ROADWAY is a finite-difference model which solves a conservation of species equation to predict pollutant concentrations within two hundred meters of a highway. It uses surface layer similarity theory to predict wind and eddy diffusion profiles from temperature at two heights and wind velocity upwind of the highway. A unique feature of the model is its use of vehicle wake theory. It is assumed that vehicle wakes affect the wind and turbulence fields in a linear manner with wake intensity a function of vehicle speed, downwind distance, and distance from the wake center. The user has the option of considering NO, NO<sub>2</sub>, and O<sub>3</sub> chemical reactions near the road. Output from the model consists of x-z fields of wind components, eddy diffusion coefficients, and concentrations of pollutant species. HIGHWAY is a model which computes the hourly concentrations of non-reactive pollutants downwind of roadways. It is applicable for uniform wind conditions and level terrain. Although best suited for at-grade highways, it can also be applied to depressed highways.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

#### **Indoor Air Quality Simulator for Personal Computers**

*Environmental Protection Agency*  
Order number PB89-133615HCR, D01  
Model has been created to estimate indoor air quality in a multiroom building. It treats each room as a well mixed chemical reactor that can contain pollutant sources and sinks. HVAC (heating, ventilating and air conditioning) systems, air cleaners, inter-room air flows and air exchange with the outdoor are included in the model.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, high density. System: IBM-PC compatible; Memory: 360K. Language: BASIC.

#### **Initial Mixing Characteristics of Municipal Ocean Discharges: Volume II Computer Programs**

*Environmental Protection Agency*  
Order number PB86-137486HCR, D02  
Initial Mixing Characteristics of Municipal Ocean Discharges are described in the Universal Data File, it also contains complete program listings of five mathematical models that provide flux-average dilution and rise-height of a wastewater plume discharged into waters of greater density. The companion report (volume I) contains analytical solutions and detailed descriptions of the models. Guidance is provided for the range of values within which the analytical solutions provide acceptable estimates. Use of the models is recommended for conditions outside these ranges and for detailed analysis. The IBM compatible diskette has the programs slightly altered to compile using Microsoft FORTRAN (Version 3.1 or higher) or IBM Personal Computer Professional FORTRAN.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC/XT compatible; PC DOS 3.0 operating system, 360K. Language: FORTRAN.

#### **Integrated Air Pollution Control System (IAPCS), Executable Model** *Environmental Protection Agency* Order number PB91-506469HCR, D02

The Integrated Air Pollution Control System (IAPCS) Cost Model is an IBM PC cost model that can be used to estimate the cost of installing SO<sub>2</sub>, NO<sub>x</sub>, and particulate matter control Systems at coal-fired utility electric generating facilities. The model integrates various combinations of the following technologies: physical coal cleaning, coal switching, overfire air/low NO<sub>x</sub> burners, natural gas reburning, LIMB, ADVACATE, electrostatic precipitator, fabric filter, gas conditioning, wet lime or limestone FGD, lime spray drying/duct spray drying, dry sorbent injection, pressurized fluidized bed combustion, integrated gasification combined cycle, and pulverized coal burning boiler. The model generates capital, annualized, and unitized pollutant removal costs in either constant or current \$ for any year.

**Specifications: Diskette format.** The software is on one 1.2M 5 1/4 inch diskette, high density. File format: ASCII. Documentation included; may be ordered separately as PB91-133512 and PB91-133520. System: IBM PC /AT; MS DOS operating system, 640K. Language: Fortran and C. Other formats available as PB91-506477 (Executable Model and Source Model).

#### **Interactive Computer Model Calculating V-1 Curves Version 1.0**

*Environmental Protection Agency*  
Order number PB87-126025HCR, \$90  
The two microcomputer programs are written to estimate the performance of electrostatic precipitators (ESPs): the first, to estimate the electrical conditions for round discharge electrodes in the ESP; and the second, a modification of the EPA/SRI ESP model, to estimate the particle collection efficiency of the ESP operating with the electrical conditions predicted by the first program. The models are quite useful and allow rapid assessment of expected ESP performance under a wide variety of conditions.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. System: IBM-PC/XT/AT or compatible or a Tandy 2000; MS-

DOS 2.1 + operating system, 256K. Language: BASIC. Advanced BASIC and a color graphics adaptor are required.

#### **Integrated Air Pollution Control System (IAPCS), Executable Model and Source Model**

*Environmental Protection Agency*  
Order number PB91-506477HCR, D03

**Specifications: Diskette format.** The software is on three 1.2M 5 1/4 inch diskettes, high density. File format: ASCII. Documentation included; may be ordered separately as PB91-133512, PB91-133520, and PB91-133538. System: IBM PC/AT; MS DOS operating system, 640K. Language: Fortran and C. Other formats available as PB91-506469 (Executable Model).

#### **Integrated Air Pollution Control System Cost Model**

*Environmental Protection Agency*  
Order number PB87-127775HCR, \$75

The Integrated Air Pollution Control System (IAPCS) is a computerized simulation model developed for EPA's Air and Energy Engineering Research Laboratory (AEERL) to estimate the costs and predict the performance of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM) emission control systems for coal-fired utility boilers. The model includes conventional and emerging technologies that effect pre-, in situ, and post-combustion emission control. The model can accept any combination of the technology modules built into the system. Alterations in the material balance are used to account for integrated performance and cost effects. The emission control technologies contained in IAPCS can be selected in either isolated or integrated configurations. The power of IAPCS lies in its ability to reflect integrated effects of various control configurations. This allows the analyst to identify synergistic interactions and thus optimize performance and cost in terms of integrated cost effectiveness.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC/AT or compatible; PC-DOS operating system, 512K. Language: FORTRAN.

**ISCLT: Industrial Source Complex LongTerm**

*Environmental Protection Agency*  
Order number PB90-500380HCR, D03

Is a steady-state Gaussian plume model which can be used to assess pollutant concentrations from a wide variety of sources associated with an industrial source complex. This model can account for settling and dry deposition of particulates, downwash, area, line and volume sources, plume rise as a function of downwind distance, separation of point sources, and limited terrain adjustment. ISCLT is designed to calculate the average seasonal and/or annual ground level concentration or total deposition from multiple continuous point, volume and/or area sources. Provision is made for special discrete, X, Y receptor points that may correspond to a sampler sites, points of maxima, or special points of interest. Sources can be positioned anywhere relative to the grid system.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**ISCSST: Industrial Source Complex Short Term**

*Environmental Protection Agency*  
Order number PB90-500257HCR, D03

The model is a steady-state Gaussian plume model which can be used to assess pollutant concentrations from a wide variety of sources associated with an industrial source complex. It can account for settling and dry deposition of particulates, downwash, area, line and volume sources, plume rise as a function of downward distance, separation of point sources, and limited terrain adjustment. Average concentration or total deposition may be calculated in 1,2,3,4,6,8,12 and/or 24 hour periods. An 'N' day average concentration (or total deposition) over the total number of hours may also be computed.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. File format: ASCII. System: IBM-PC compatible; MS-DOS operating system. Language: FORTRAN. Ready for uploading to an IBM 3090.

**Landfill Air Emissions Estimation Model Version 1.1**

*Environmental Protection Agency*  
Order number PB91-507541HCR, D02

The Landfill Air Emissions Estimation Model is an aid for local and state agencies in estimating landfill air emission rates for non-methane organic compounds and individual air toxics. The program will also be helpful to landfill owners and operators affected by the upcoming New Source Performance Standard (NSPS) and Emission Guidelines for Municipal Solid Waste Landfill Air Emissions. The model is based on the Scholl Canyon Gas Generation Model, used in development of the soon-to-be-proposed regulation for landfill air emissions. The Scholl Canyon Model is a first order decay equation that uses site-specific characteristics for estimating the gas generation rate. In the absence of site-specific data, the program provides conservative default values from the soon-to-be-proposed NSPS for new landfills and emission guidelines for existing landfills. These default values may be revised based on future information collected by the Environmental Protection Agency.

**Specifications: Diskette format.** The software is on one 360K 5 1/4 inch diskette, double density. File format: ASCII. Documentation included; may be ordered separately as PB91-167718. System: IBM PC; DOS 2.0 operating system, 512K. Language: C.

**LONGZ and SHORTZ**

*Environmental Protection Agency*  
Order number PB90-500265HCR, D03

LONGZ is designed to calculate the long-term pollutant concentration produced at a large number of receptors by emissions from multiple stack, building, and area sources. LONGZ uses statistical wind summaries to calculate long-term (seasonal or annual) average concentrations. The model is applicable in areas of both flat and complex terrain, including areas where terrain elevations exceed stack-top elevations. The program requires random-access mass storage capability.

SHORTZ is designed to calculate the short-term pollutant concentration produced at a large number of receptors by emissions from multiple

stack, building, and area sources. It uses sequential short term (usually hourly) meteorological inputs to calculate concentrations for averaging times ranging from 1 hour to 1 year. The model is applicable in areas of both flat and complex terrain, including areas where terrain elevations exceed stack-top elevations. The program requires random-access mass storage capability. An associated compatible meteorological data processor is METZ.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM model 3090 computer. This cannot be used on a PC since the program requires random-access mass storage capability.

**MESOPUFF**

*Environmental Protection Agency*  
Order number PB90-500794HCR, D01

This model is a Lagrangian variable-trajectory puff superposition model suitable for modeling the transport, diffusion, and removal of air pollutants from multiple point and area sources at transport distances beyond the range of conventional straight-line Gaussian plume models (i.e. beyond 1-50).

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**Meteorological Processor for Regulatory Models**

*Environmental Protection Agency*  
Order number PB90-500430HCR, \$70

It provides a general purpose computer processor for organizing available meteorological data into a format suitable for use by air quality dispersion models. Specifically, the processor is designed to accommodate those dispersion models that have gained EPA approval for use in regulatory decision making.

MPRM can be envisioned as a three stage system. The first retrieves the meteorological data from computer tape or disk files and processes the data through various quality assessment checks. The second collects all data available for a 24 hour period

(upper air observations, hourly surface weather observations, and data collected as part of an on-site meteorological measurement program) and stores this data in a combined (merged) format. The third reads the merged meteorological data and performs the necessary processing to produce a meteorological datafile suitable for use by the specified dispersion model.

**Specifications: Diskette format.** The software is on five 5 1/4 inch executable diskettes, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

#### Microcomputer Program for Particulate Control

*Environmental Protection Agency*

Order number PB86-146511HCR, \$120

These programs provide models useful in particulate control. Some small machine language routines are used to format the screen for data entry. These routines limit the programs to IBM-PC and close clones. The following computer programs are provided in the four-disk package: (1) ESP section failure model, (2) GCA/EPA baghouse model, (3) Plume opacity prediction model, and (4) In-stack opacity calculator. All the models are documented in EPA report Microcomputer Programs for Particulate Control, EPA-600/8-85-025a (PB86-146529).

**Specifications: Diskette format.** The software is on four 5 1/4 inch diskettes, double density. System: IBM-PC compatible; MS-DOS 2.X, PC-DOS 2.X operating system, 256K. Language: FORTRAN.

#### MOBILE4.1 Emission Factor Model; Source code

*Environmental Protection Agency*

Tape—Order number PB91-509992HCR, T05

Diskettes—

Order number PB91-510008HCR, (IBM) D05

Order number PB91-510016HCR, (Apple Macintosh) D05

MOBILE4.1 is a program that calculates emission factors for hydrocarbons (HC), carbon monoxide, (CO), and oxides of nitrogen (NO<sub>x</sub>) from

highway motor vehicles. It calculates emission factors for eight individual vehicle types, in two regions of the country (low and high altitude). The emission factors depend on various conditions such as ambient temperature, fuel volatility, speed, and mileage accrual rates. It will estimate emission factors for any calendar year between 1960 and 2020 inclusive. The 20 most recent model years are considered in operation in each calendar year. It incorporates several new options, calculating methodologies, emission control regulations, and internal program designs.

**Specifications: Tape format.** Available in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included;

may be ordered separately as PB91-228759HCR. System: Amdahl 5890-18DE; MTS operating system, 920K. Language: FORTRAN77.

**Specifications: Diskette format.** The IBM software is on one 5 1/4 inch diskette, high density. File format: ASCII. Documentation included; may be ordered separately as PB91-228759HCR. System: IBM-PC/AT or P/S2 compatible; MS-DOS 4.0 operating system, 530K. Language: FORTRAN.77

**Specifications: Diskette format.** The Apple Macintosh software is on one 3 1/2 inch diskette, double density 800K. File format: ASCII. Documentation included; may be ordered separately as PB91-228759HCR. System: Apple Dos 6.0.2, operating

## The information source Senators & Congressmen use

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system, 1000K. Language: FORTRAN.77. Many files on this diskette are in compressed format. The files must be decompressed in order to operate the program.

#### **MOUSE, Modular Oriented Uncertainty System**

*Environmental Protection Agency*  
Order number PB90-501370HCR, D02

Program was developed using environmental engineering calculations involving uncertainties either in the model itself or in the data, are far behind the capabilities of conventional analysis for any but the simplest of models. There are a number of general-purpose computer simulation languages, using Monte Carlo methods, that are capable of such analysis, but these languages are difficult to learn and implement quickly. MOUSE deals with the problem of uncertainties in models that consist of one or more algebraic equations. It was especially designed for use by those with little or no knowledge of computer languages, programming, or simulation. It is designed to be run on almost any personal computer, easy and fast to learn, and has all the features needed for substantive uncertainty analysis (built-in probability distributions, plotting and graphic capabilities, sensitivity analysis, interest functions for cost analyses, etc). Moreover, a series of unique companion utility programs write much of the necessary computer code for the user, help in analyzing sample data to determine the probability distributions that best fit the data, check each program for errors in syntax, and assist in finding logical errors in the model that is subject to uncertainty. Some typical examples of use include: studying the migration of pollution plumes in streams, establishing regulations for hazardous wastes in landfills and estimating pollution control costs.

**Specifications: Diskette format.** The software is contained on one 5 1/4 inch diskette, double density. System: IBM-PC compatible; Memory: 512K. Language: FORTRAN/Assembly.

#### **MPTDS Version 1.0**

*Environmental Protection Agency*  
Order number PB90-500836HCR, D01

MPTDS is a modification of MPTER to explicitly account for gravitational settling and/or deposition loss of a pollutant. Surface deposition fluxes can be printed under an optional output feature. MPTDS is a multiple point source code with an optional terrain adjustment feature. The code is primarily based upon MPTER which has Gaussian modeling assumptions. Execution is limited to a maximum of 250 point sources and 180 receptors. Hourly meteorological data are required. Period of simulation can vary from one hour to one year.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

#### **MPTER**

*Environmental Protection Agency*  
Order number PB90-500356HCR, D02

Is a multiple point-source Gaussian model with optional terrain adjustment. Program estimates concentration on an hour-by-hour basis for relatively inert pollutants (i.e. SO<sub>2</sub> and TSP). It uses Pasquill-Gifford or Briggs urban dispersion parameters and Briggs plume rise methods to calculate the spreading and the rise of plumes. The model is most applicable for source-receptor distances less than 10 kilometers and for locations with level or gently rolling terrain. Terrain adjustments are restricted to receptors whose elevation is no higher than the lowest stack top. In addition to terrain adjustments, options are also available for wind profile exponents, buoyancy induced dispersed, gradual plume rise, stack downwash, and plume half life.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. File format: ASCII. System: IBM-PC compatible; DOS operating system. Language: FORTRAN. Ready for uploading to an IBM 3090.

#### **Natural Enemy Risk Assessment (NERISK)**

*Environmental Protection Agency*  
Order number, PB92-500446HCR, D06  
Natural Enemy Risk Assessment (NERISK) is a computer-aided decision-support system designed to assist the user in examining the potential risks of pesticides to arthropod natural enemies (i.e., predators and parasitoids) in agricultural systems. It is a tool that helps to organize, store, and recall large amounts of information and make it readily available to even novice users. It is also a mechanism to integrate diverse information sources, particularly databases, simulation models, and expert opinions, and to provide quantitative estimates of pesticide risk based on these sources. NERISK is based on a 'shell' expert system called RECOG, and was designed and developed by a team workers at Oregon State University (Messing et al, 1989)

**Specifications: Diskette format.** The software is on six 5 1/4 inch diskettes, 1.2Mb, high density. File format: ASCII. Documentation included; may be ordered separately as PB92-114990. System: IBM PC/XT, AT or compatibles; PC DOS 3.30 operating system, 640K. Language: Pascal. A Math co-processor chip and EGA color monitor are useful in operating the simulation model, but are not necessary to run the program.

#### **OZIPM-4 (Ozone Isoleth Plotting with Optional Mechanisms, Version 4) Source Code**

*Environmental Protection Agency*  
Order number PB88-221940HCR, T08

A software package has been developed to enable a user to estimate EKMA control strategies using a new Carbon Bond Mechanism known as CBM-IV. The program is called Ozone Isoleth Plotting With Optional Mechanisms/Version 4 (OZIPM-4). The program has the capability of accepting a chemical mechanism other than the default CBM-IV that is stored internally in the program. Included with the source code are five examples of OZIPM-4 simulations. The use of the OZIPM-4 program is described in the

EPA Report 'User's Guide for Executing OZIPM-4 with CBM-IV or Optional Mechanisms.'

**Specifications: Tape format.** The program is written in FORTRAN for implementation on a PRIME 750+ computer using the REV 19 + operating system. 400K bytes of core storage are required to operate the model.

#### **OZIPR: Ozone Isopleth Plotting Package (Research Version)**

*Environmental Protection Agency*  
Order number PB91-507376HCR, D03

OZIPR is a trajectory-based air quality simulation model that can be used with complex chemical kinetics mechanisms to relate ozone concentrations to initial levels of organic and oxides of nitrogens (NO<sub>x</sub>) precursors. OZIPR is based on previous versions of EPA's Ozone Isopleth Plotting Program (OZIPR), but it contains improved and expanded capabilities that make the model useful for research purposes. It serves the dual purpose of providing (1) a simple moving box model capable of using detailed chemistry, emissions and various meteorological parameters to predict oxidant formation and (2) procedures through which the Empirical kinetics Modeling Approach (EKMA) can be implemented for calculating emission reductions needed to achieve the National Ambient Air Quality Standard for ozone. The program is designed to run on an IBM PC/AT or fully compatible personal computer. The software package includes the executable program as well as the source code and input/output files for nine examples. Instructions for using OZIPR are contained in the EPA Report 'User's Guide for Executing OZIPR'.

**Specifications: Diskette format.** The software is on two 1.2M 5 1/4 inch diskettes, high density. Documentation included; may be ordered separately as PB91-175877. System: IBM or IBM Compatible; PC DOS or MS-DOS Version 2.0 or higher operating system, 256K. Language: FORTRAN.

#### **PA-Score (Preliminary Assessment Score), Version 1.0**

*Environmental Protection Agency*  
Order number, PB92-500032HCR, D02

The PA-Score computer program has been developed to assist Superfund site assessment investigations in the Hazard Ranking System (HRS) at the Preliminary Assessment stage of site scoring. The Preliminary Assessment is used to assess the relative threat associated with actual or potential releases of hazardous substances to ground water, surface water, soil, and air.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, 1.2M high density. File format: ASCII. Documentation included; may be ordered separately as PB92-963302. System: IBM PC or Compatible; MS DOS 3.0 operating system, 384K. Language: Compiled C.

#### **Permit Tracking System (PTS), Version 1.0**

*Environmental Protection Agency*  
Order number, PB92-500347HCR, D03

The Permit Tracking System (PTS) was developed to track information on the wetland resource affected by permitting, as opposed to information on the permit status and activity (e.g., acceptance or renewal). We designed the PTS to complement existing systems that track permit activity to avoid duplicating the efforts of other agencies. It is designed to track information from three types of permit systems, permits issued under Section 404 of the Clean Water Act, Section 401 of the Clean Water Act, and state authority. There is also an option to track data from other permit systems. The Permit Tracking System (PTS) is divided into two main components: data entry and query. The PTS simplifies the process of data entry. In most cases, the user is merely required to check off items, as opposed to doing a lot of typing. Standardized categories, with definitions, are given for items, such as Cowardin wetland types (Cowardin et al. 1979), project types, and wetland functions. Selecting items and entering minimal verbiage eliminates most of the errors typically associated with data entry. The PTS also contains a program that sorts and

prints all the items listed in each category, making it easy to recognize information that has been entered incorrectly. After data have been entered, corrections, additions, and deletions can easily be incorporated into the PTS.

The menu-driven query component of the PTS allows the user to generate questions utilizing the contents of the database. The program identifies all possible combinations and compiles the answers, which can be viewed on the screen, copied to disk for conversion to tables and figures, or printed as hardcopy. The PTS not only eliminates the potential errors inherent to querying in other software packages, but also substantially reduces the time needed for analyses

**Specifications: Diskette format.** The software is on three 5 1/4 inch diskettes, 360K double density. File format: ASCII. Documentation included; may be ordered separately as PB92-105659. System: IBM PC XT, AT, or compatible; PC DOS or MS DOS Version 2.0 or greater operating system, 640K. Language: Clipper(XBase). The key features that are helpful, but not essential are: a color monitor, a fast hard disk (less than 28 milliseconds average access time), and a fast processor (for example, a 386).

#### **Photochemical Box Model (PBM)**

*Environmental Protection Agency*  
Order number PB90-500786HCR, D01

The PBM (Photochemical Box Model) is a simple stationary single-cell model with a variable height lid designed to provide volume-integrated hour averages of O<sub>3</sub> and other photochemical smog pollutants of interest for an urban area for a single day of simulation. The PBM is most appropriate for application in air stagnation conditions with light and variable winds.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

### Planning a Port Interface for an Ocean Incineration System

*Department of Transportation*  
Order number PB86-228152HCR, D02

The model assists potential incinerator ship owners, government officials, port developers, and the general public in planning the port interface for ocean incineration systems. The port is an integral component of the logistic system. A logistical system provides means for transporting wastes from waste generators' facilities to final open ocean incineration, including temporary storage required. The system performs all functions required to get wastes aboard a vessel in a form which will allow their safe, successful, and legal incineration. The model focuses more on a methodology for dealing with the controversial situation surrounding ocean incineration.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible; Memory: 576K. Language: FORTRAN. Software requires the use of Symphony.

### Plume Visual Impact Screening and Analysis

*Environmental Protection Agency*  
Order number PB89-151278HCR, D01

The Prevention of Significant Deterioration and Visibility regulations of the U.S. Environmental Protection Agency require the evaluation of a type of visibility impairment which can be traced to a single source of small group of sources known as 'plume blight'. The VISCREEN model is used for both Level-1 and Level-2 screening analyses, and is designed to evaluate plume visual effects along multiple viewing backgrounds and for two different scattering angles. It also provides for the evaluation of the potential perceptibility of plumes using recent psychophysical concepts. The Workbook provides the technical basis for the model and contains several example applications to illustrate the use of these methods.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible; Memory: 256K. Math coprocessor and hard disk will greatly enhance speed.

### PLUVUE

*Environmental Protection Agency*  
Order number PB90-500778HCR, D01

PLUVUE is a visibility model designed to predict transport, atmospheric diffusion, chemical conversion, optical effects, and surface deposition of point-source emissions. PLUVUE performs plume optics calculations in two modes. In the Plume-based mode, the visual effects are calculated for a variety of lines of sight and observer locations relative to the plume parcel; in the observer-based mode, the observer position is fixed and visual effects are calculated for the specific geometry defined by the positions of the observer, plume, and sun. Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 3090 computer. The software is distributed on a 5 1/4-inch IBM/PC compatible diskette.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

### PM-10 Open Fugitive Dust Source Computer Model

*Environmental Protection Agency*  
Order number PB90-502022HCR, D02

The computer programs in this package are based on the material presented in the document 'Control of Open Fugitive Dust Sources, EPA-450/3-88-008'. The programs on these diskettes serve two purposes. Their primary purpose is to facilitate the process of data entry, allowing the user not only to enter and verify the data which he/she possesses, but also to access additional data which might not be readily available. The second purpose is to calculate emission rates for the particular source category selected using the data previously entered and verified.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. System: IBM-PC/AT or compatible; MS-DOS 2.0+ operating system. Language: Basic.

### Point, Area and Line Source Algorithm: PAL

*Environmental Protection Agency*  
Order number PB90-500844HCR, D01

PAL is a method of estimating short-term dispersion using Gaussian plume steady-state assumptions. The algorithm can be used for estimating concentrations of non-reactive pollutants at 99 receptors for averaging time of from 1 to 24 hours and for a limited number of point, area, and line sources (99 of each type). Calculations are performed for each hour. The hourly meteorological data required are wind direction, wind speed, stability, and mixing height. Single values of each of these four parameters are assumed representative for the area modeled. The model can treat deposition of both gaseous and suspended particulate pollutants in the plume since gravitational settling and dry deposition of the particles are explicitly accounted for.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

### Pollution Episodic Model (PEM)

*Environmental Protection Agency*  
Order number PB90-500760HCR, D02

This is an urban scale air pollution model capable of predicting short-term (1 to 24 hour) average concentrations and deposition fluxes of two gaseous or particulate pollutants at up to a maximum of 2500 ground-level receptors located on a 50km by 50km square receptor grid. Predictions are based on steady-state Gaussian plume assumptions, Briggs' plume rise formulations, and Pasquill-Gifford (P-G) dispersion parameters. The surface concentration and deposition flux estimates of two independent non-reactive (gaseous or particulate) pollutants or one pollutant with first-order chemical decay can be obtained as special cases of the model. Up to 300 point sources and up to 50 area sources may be included in the model inputs.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**Port Vessel Emissions Model***Department of Transportation*

Order number PB87-127601HCR, \$90

Port Vessel Emissions Model (PVEM) is a computer program that calculates air pollutant emissions associated with vessel activity in ports for various operational scenarios. PVEM can easily be adapted for application to any port through the use of port-specific input data on vessel movements and berth pathways.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. File format: Executable Modules Only. Issued N/A. System: IBM-PC/XT/AT or compatible; MS-DOS operating system, 300K.

**Program to Calculate Size Specific Particulate Emission Factors for Mobile Sources***Environmental Protection Agency*

Order number PB87-230660HCR, D02

The methodology and sources of data for the program are described in detail in the report, Size Specific Total Particulate Emission Factors for Mobile Sources, prepared in August 1984 for EPA by EEA. That report describes the calculation of particulate emission factors for each of the six vehicle classes used in the program. It also provides emission factors for each major type of particulate (lead, organic, sulfate, and diesel composite). The program inputs and format are designed to parallel those found in MOBILE 3. User inputs include scenario year, vehicle speed, driving conditions, and particulate size range. By setting control flags the user can elect to replace the default data with locality specific data.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. File format: ASCII text. System: IBM-XT or compatible. Language: FORTRAN.

**PTPLU***Environmental Protection Agency*

Order number PB90-500331HCR, D01

Is a point source dispersion Gaussian screening model for estimating maximum surface concentrations for 1 hour. It is based upon Brigg' plume rise methods and can use either Pasquill-Gifford or Briggs urban dispersion coefficients. It's an adaptation and improvement of PTMAX which allows for wind profile exponents and other optional calculations such as buoyancy induced dispersion, stack downwash, and gradual plume rise. PTPLU produces an analysis of concentration as a function of wind speed and stability class for both wind speeds constant with height. Use the extrapolated wind speeds and the options allows the model the model user a more accurate selection of distances to maximum concentration. PTPLU1 is the interactive version of this model.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**RAM***Environmental Protection Agency*

Order number PB90-500315HCR, D01

Gaussian-plume multiple-source air quality algorithm. RAM, a sort-term Gaussian steady-state algorithm estimates concentrations of stable pollutants from urban point and area sources. Hourly meteorological data are used. Hourly concentrations and averages over a number of hours can be estimated. Briggs plume rise is used. Pasquill-Gifford dispersion equations with dispersion parameters thought to be valid for urban areas are used. Concentrations from area sources are determined using the method of Hanna, that is, sources directly upwind are considered representative of area source emissions affecting the receptor. Special features include determination of receptor locations downwind of significant sources and determination of locations of uniformly spaced receptors to ensure good area coverage with a minimum number of receptors. RAMMET processes hourly surface meteorological observation data to determine a Pasquill stability

class for each hour and interpolates between twice-a-day mixing height data to obtain a mixing height value for each hour.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**RAMS Model for Terrestrial Pathways***Environmental Protection Agency*

Order number PB89-138739HCR, D01

A computer program for calculation of numeric criteria for land application and distribution and marketing of sludges under the sewage sludge regulations at 40 CFR Part 503. The risk assessment models covered assume that municipal sludge with specified characteristics is spread across a defined area of ground at a known rate once each year for a given number of years. The contaminants in the sludge are incorporated into the soil, and through physical and biological processes are moved from the primary site through the action of wind and surface runoff, or and transferred up the food chain. Risks associated with direct land application of sludge applied after distribution and marketing are both calculated. Twelve pathways are considered in this program. Each program is considered independently of every other pathway, but values of coefficients in equations that represent transfers or effects are forced to be consistent across pathways. The program uses the models in the 'inverse' mode. i.e., it calculates the maximum annual loading of contaminants that can be land applied and still meet criteria specified as output.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC/AT or compatible; DOS 3.0 + operating system, 512K. Math coprocessor highly recommended but not required.

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**REFEREE: Bibliographic Database Manager, Version 4.2**

*Environmental Protection Agency*  
Order number, PB91-509794HCR \$90

REFEREE is a general-purpose bibliographic database management program for IBM-compatible microcomputers. The program is ideal for maintenance of large, master databases from which lists of citations on desired topics frequently must be drawn.

REFEREE databases exist as proprietary-format disk files. The program allows entry of information manually (from the keyboard) and automatically (bulk transfers from dBASE.DBF files). Each record in a REFEREE database contains 9 fields. Seven of the fields are variable-length free-text fields that have essentially no format requirements; each can extend to nearly 6000 characters when necessary (disk space is allocated on a field-by-field, record-by-record basis). All fields can be renamed to suit the user's needs. Up to 1 million records theoretically can be stored in a single REFEREE database: the actual maximum number depends on the amount of disk space available. Stored records can be viewed, modified, searched, sorted, printed, moved between REFEREE databases, and exported to dBASE .DBF files. By default, records are displayed and printed in a format that includes the names and contents of all nine fields; the user may define custom formats that involve a different selection or order of fields, different line spacing or indentation, or boilerplate text.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, 360K double density. The diskette(s) are in ASCII format. Documentation included; may be ordered separately as PB91-228791. System: IBM-PC/XT/AT or compatible; MS-DOS 2.0 +, C5.1 8086 operating system, 400K. Language: Clipper Microsoft. Memory requirement: 490K RAM, 400K free disk space for software; data requires additional.

**Regional Oxidant Model (ROM), (Source Code Only)**

*Environmental Protection Agency*  
Order number, PB92-500842HCR \$1500  
The Regional Oxidant Model (ROM) is a three-dimensional photochemical Eulerian grid model designed to

simulate ambient concentrations of ozone and related species. ROM is a 3-layer model with a horizontal resolution of approximately 19 km; each grid cell has dimensions of 1/6 degree latitude by 1/4 degree longitude. The typical horizontal extent of the modeling domain is 1000 km. The model is designed to simulate hourly regional concentrations of ozone during largely stagnant summertime conditions that are associated with elevated smog episodes. The model is designed so that its preprocessors run on a VAX and the core model runs on an IBM mainframe. A typical 3-day simulation of the core model for the northeastern U.S. uses 9.5 hours of CPU on an IBM 3090. A total of 19 computer tapes comprise this release of the ROM (Version 2.1). Six of the tapes were generated on an IBM, and 13 tapes were generated on a VAX. The tapes contain source code, sample runstreams, and test data for a 3-day simulation. Potential users of the ROM should be aware that the modeling system is complex and requires extensive computer resources. The services of engineers, meteorologists, or computer scientists experienced in photochemical grid modeling are required.

**Specifications: Tape format.** Available in 9-track tape, 6250 bpi only. Documentation included; may be ordered separately as PB91-171918 and PB92-120872. System: VMS 5.1 and MVS/ESA Version 3.1.3 operating system. Language: FORTRAN. File format: ASCII. Software developed on IBM and VAX computers. Users may have difficulty adapting to other computers. AVAILABLE 6250 BPI ONLY!

**Regional Oxidant Model (ROM), Source Code and Test Data**

*Environmental Protection Agency*  
Order number, PB92-500859HCR \$4000

**Specifications: Tape format.** Available in 9-track tape, 6250 bpi only. Documentation included; may be ordered separately as PB91-171918 and PB92-120872. System: VMS 5.1 and MVS/ESA Version 3.1.3 operating system. Language: FORTRAN. File format: ASCII and EBCDIC. Software developed on IBM and VAX computers. Users may have difficulty adapting to other computers. AVAILABLE IN 6250 BPI ONLY!

**Regulatory and Investigative Treatment Zone Model**

*Environmental Protection Agency*  
Order number PB88-195532HCR, D02

An interactive software system was developed to enable decision makers to simulate the movement and fate of hazardous chemicals during land treatment of oily wastes. The mathematical model known as the Regulatory and Investigative Treatment Zone Model or RITZ was developed and published earlier by Short (1985). The model incorporates the influence of oil in the sludge, water movement, volatilization, and degradation upon the transport and fate of a hazardous chemical. The manual describes the conceptual framework and assumptions used by Short (1985) in developing the model. It then explains the micro-computer hardware and software requirements, the input parameters for the model, and the graphical and tabular outputs which can be selected. Illustrations of the use of the software are also included. The computational equations developed by Short (1985) are presented for completeness but are not derived.

**Specifications: Diskette format.** The software is on one 360K 5 1/4 inch diskette, double density. The diskette(s) are in ASCII format. Issued N/A. System: IBM-PC,XT,AT; PC-DOS or MS-DOS 2.1 + operating system, 256K. Language: TurboPascal. Requires an 8087 or 80287 math coprocessor.

**Relief Valve Discharge Screening Model (RVD2.0)**

*Environmental Protection Agency*  
Order number PB89-151062HCR, D01

A model which provides estimates of short-term ambient concentrations for the screening of pollution sources which emit denser-than-air gases through vertical releases. The calculations are based on empirical equations derived from wind tunnel tests.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible; Memory: 512K. Language: BASIC.

**Rough Terrain Diffusion Model (RTDM 3.2)**

*Environmental Protection Agency*  
Order number PB90-500372HCR, D01

Is a sequential Gaussian plume model designed to estimate ground-level concentrations in rough (or flat) terrain in the vicinity of one or more co-located point sources. It is designed for applications involving chemically stable atmospheric pollutants and is best suited for elevation of buoyant plume behavior within about 15 km from the source(s). RTDM has special algorithms to deal with plume behavior in complex terrain.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**SCREEN Model, Version 1.1**

*Environmental Protection Agency*  
Order number PB89-159388HCR, D01

Program estimates the maximum ground-level concentration for sources in simple flat or elevated terrain, accepts user-specified distances, performs inversion break-up and shoreline fumigation estimates, includes building downwash effects in the wake region and performs calculations for the cavity region, and includes an optional complex terrain screening procedure based on the VALLEY Model 240 hour screening technique.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC compatible; DOS operating system, 256K. Language: FORTRAN.

**Selected Microcomputer Programs for Water Quality Assessments (Experimental)**

*Environmental Protection Agency*  
Order number PB86-234713HCR, \$90

Accompanying the computer program manual is an album of microcomputer disks designed to expedite water quality management information to the states from the regional offices of the U.S. Environmental Protection Agency (EPA) and the Fish and Wildlife Service. The programs were selected on the basis of familiarity and common use by aquatic scientists and the

potential adaptability of the methods of microcomputer applications. The programs are 'user friendly'.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. System: Apple II Plus; DOS 3.3 operating system, 128K. Language: Applesoft BASIC.

**SLAPMAN Model for Groundwater Pathway**

*Environmental Protection Agency*  
Order number PB89-138747HCR, \$55

The model provides a set of computer programs designed to estimate concentrations for 19 chemicals migrating from an application area. The chemicals are: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, TKN, Zinc, Benzene, Benzo(a)pyrene, Bis(2-ethylhexyl) phthalate, oethylene, Toxaphene. SLAPMAN calculates a 'reasonable worst case' level of human exposure to chemicals leaching from an application area and being carried downwind by the atmosphere. Exposure levels can then be compared to health criteria to determine if they are likely to cause unacceptable impacts. It can also be used to calculate acceptable input concentrations given limiting concentrations at the aquifer.

**Specifications: Diskette format.** The software is on two 5 1/4 inch diskettes, double density. System: DOS 3.0 + operating system, 512K.

**Sludge Incineration Model (SIM)**

*Environmental Protection Agency*  
Order number PB89-138762HCR, \$120

Program for calculation of numeric criteria for incineration of sewage sludge under sewage sludge regulations at 40 CFR Part 503.

**Specifications: Diskette format.** The software is on 9 5 1/4 inch diskettes, double density. System: IBM-PC/XT/AT or compatible; DOS 2.2+ operating system, 640K. Language: Turbo Pascal. Math coprocessor and a graphics display adapter are required.

**Soiliner, Version 1**

*Environmental Protection Agency*  
Order number PB87-126033HCR, \$75

Among the provisions of the Hazardous and Solid Waste Amendments of 1984 are minimum technological requirements for hazardous waste landfills, surface impoundments and waste piles. These provisions are found in Sections 3004(o) and 3015 of the Resource Conservation and Recovery Act (RCRA) and further defined in the Part 264 regulation and associated guidance. Any new surface impoundment must install two or more liners and a leachate collection system between such liners. The lower liner must be designed, operated, and constructed to prevent breakthrough of constituents over the period of operation, including any post-closure care period. A computer program, SOILINER, has been developed to assist in the evaluation of these liners.

**Specifications: Diskette format.** The software is on one 5 1/4 inch diskette, double density. System: IBM-PC/XT/AT or compatible; DOS 2.1 + operating system, 256K. Hard disk required; Lotus 123 recommended for graphics output; Math coprocessor chip and graphics board recommended.

**Surface Impoundment Modeling System (SIMS) Version 2.0**

*Environmental Protection Agency*  
Order number PB91-506998HCR, D02

The Surface Impoundment Modeling System (SIMS) estimates volatile organic compound (VOC) emissions and toxic air pollutant emission from surface impoundments and collection system emponents individually or in series. It can be used to estimate emissions from wastewater sources at hazardous waste treatment works, storage and disposal facilities (TSDFs), publicly owned treatment works (POTW's), and industrial wastewater treatment facilities. The minimum information required to use SIMS is the type of device to be modeled, the total flow to the device, the total surface area of the device, and the type of industry discharging wastewater to the device. Default values for water discharged from typical industries are supplied by the program. The user can adjust these default values to match their particular system.

Surface impoundments are used to treat, store, and dispose of wastewater generated by facilities in many different industries. Because surface impoundments are normally open to the atmosphere, the potential for air emissions of volatile organic compounds (VOC's) and toxic air pollutants exists. As such, state and local air pollution control agencies need a methodology to estimate the air emissions from surface impoundments. The SIMS is a personal computer based program designed to estimate the air emissions from surface impoundments. The emission estimates are based on mass transfer models developed by the Emissions Standards Division (ESD) of EPA during the evaluation of hazardous waste treatment, storage, and disposal facilities (TSDF's). SIMS allows the user to specify all the required inputs to these emission models when this information is available, or when only limited information is available, provides default values for most of the model inputs.

**Specifications: Diskette format.** The software is on one 1.2M 5 1/4 inch diskette, high density. Documentation included; may be ordered separately as PB91-156711 and PB91-156729. System: IBM Compatible PC; DOS 2.0 operating system, 512K. Language: C-compiled.

### TUPOS

*Environmental Protection Agency*  
Order number PB90-500877HCR, D02

Program estimates dispersion directly from fluctuation statistics at plume level and calculates plume rise and partial penetration of the plume into stable layers using vertical profiles of wind and temperature. The model user is thus required to furnish meteorological information for several heights above-ground in a separate input file. TUPOS can be used for short-term (hours to days) impact assessment of inert pollutants from single or multiple sources and can be expected to have greatest accuracy for locations within 10 km of the source. Although TUPOS will make computations for receptors having any groundlevel elevation, it is not intended as a complex terrain model, but rather as a model for calculations over flat or gently rolling terrain. TUPOS will optionally treat buoyancy-induced dispersion but does

not include building downwash, deposition, or fumigation.

TUPOS-P is a postprocessor program for analyzing concentration files produced by the air quality dispersion model TUPOS. It reads either hourly concentration or hourly partial concentration files.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

### Urban Airshed Model

*Environmental Protection Agency*  
Order number PB91-505578HCR, \$2080

The Urban Airshed Model and user's guide consists of five volumes: (one volume per magnetic tape)

1. Model description and a user's manual describing how to run the core model using pre-prepared air quality, meteorological, topographical, and emissions input files.
2. A summary description and user's manual for all UAM preprocessor programs and their input requirements. These preprocessors can be used to generate the input files needed to run the core model described in volume I.
3. The Diagnostic Wind Model (DWM) user's manual contains a detailed description of the DWM (summarized in volume II), its underlying rationale and input requirements. The DWM is used to generate three dimensional wind fields.
4. The Emissions Preprocessor System (EPS) user's manual contains a detailed description of the EPS (summarized briefly in volume II), including required emission inputs and their format. A description of the biogenics emissions processor, its operation and how it is eventually merged within the manmade area sources emissions file to produce the gridded, hourly speciated emissions data required by the core model, is contained in volume IV as an appendix.
5. ROM/UAM Interface Program System user's manual describes procedures for using Regional Oxidant Model (ROM) simulations to generate required air quality, meteorological, and biogenic emissions files to operate the UAM core model described in volume I

**Specifications: Tape format.** Available

in 9-track, EBCDIC character set, 1600 or 6250 bpi. Documentation included; may be ordered separately as PB91-131227, PB91-131235, PB91-131243, PB91-131250, and PB91-131268. System: MVS/ESA operating system. Language: FORTRAN.

### UTIL-1

*Environmental Protection Agency*  
Order number PB90-500828HCR, D01  
CALMPRO, Version 1.0, is a postprocessor for MPTER, CRSTER, or ISC that reads data from an hourly concentration file (output from MPTER, CRSTER, or ISC). The of CALMS is eliminated by zeroing hourly concentrations at all receptors is the corresponding hour of met data is CALM. The program outputs an MPTER format printout of annual averages and high five 1, 3, 8 and 24-hour average concentrations and an ISC format tape. RUNAVG, Version 1.0, is a postprocessor program for determining the highest and second-highest non-overlapping running average, RUNAVG accepts hourly concentration file output from either ISCT, TUPOS, RAM, MPTER, or CRSTER. It can handle an averaging time form 2 hours to 24 hours for up to 30 receptors. The algorithm used in RUNAVG for determining running averages is substantially faster than the algorithm used in CHANVG. Instructions for executing RUNAVG are in the source listing.

UTCON, Version 1.0, is a utility program to convert from latitude and longitude to UTM coordinates and vice versa.

CHAVG, Version 1.0, is a post-processor program for computing running averages (averages that begin each hour and overlap) and end-to-end averages (averages that do not overlap) from hourly concentration disk or tape files. Calculations are made for selected receptors, and these values are ranked for each of four averaging periods plus a fifth period selected by the user. The program as written is compatible with hourly output generated by RAM and MPTER.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**VALLEY**

*Environmental Protection Agency*  
Order number PB90-500349HCR, D01

The VALLEY algorithm is a steady-state, univariate Gaussian plume dispersion algorithm designed for estimating either 24-hour or annual concentrations resulting from emissions from up to 50 (total) point and area sources. Calculations of ground-level pollutant concentrations are made for each frequency designated in an array defined by six stabilities, 16 wind directions, and six wind speeds for 112 program-designed receptor sites on a radial grid of variable scale. Empirical dispersion coefficients are used and include adjustments for plume rise and limited mixing. Plume height is adjusted according to terrain elevations and stability classes.

**Specifications: Diskette format.** The software is on one diskette, double density. System: IBM-PC compatible. Language: FORTRAN. Ready for uploading to an IBM 3090.

**Volatile Organic Compound Model, Version 1.8**

*Environmental Protection Agency*  
Order number PB88-157888HCR, \$100

Future emissions of volatile organic compounds (VOCs) and costs of their control can be estimated by applying growth factors, emission constraints, control cost functions, and capacity retirement rates to the base line estimates of VOC emissions and industrial VOC source capacity in 1980. A personal computer model has been developed by the U.S. EPA to automate the forecasting procedure. The report provides guidelines for installing and operating the volatile organic compound model (VOCM) on an IBM-PC compatible computer. The report describes how a VOCM user can create his own data files or use those supplied with VOCM for preparing forecasts.

**Specifications: Diskette format.** The software is on three 5 1/4 inch diskettes, double density. System: IBM-PC/XT/AT or compatible; S-DOS3.1 + operating system, 320K. Language: PASQUAL.

**Volatile Organic Compound & Particulate Matter Speciation Data Base (VOC/PM)**

*Environmental Protection Agency*  
Order number PB92-500354HCR, D05

Contains speciation factors for both volatile organic compounds (VOC's) and particulate matter (PM) from a number of source categories. The speciation factors are the weight percent of the individual compounds or elements that make up either total VOC or total PM. By applying these speciation factors the user can estimate compound specific emissions when only total VOC or PM emissions are known. The VOC database contains approximately 275 profiles from 28 source categories. The PM database contains approximately 300 profiles from 20 source categories. Source categories are identified by Source Category Classification (SCC) and compounds are identified by Chemical Abstract Services (CAS) number. These data bases have been published in a two volume report. 'Air Emissions Species Manual Volume I Volatile Organic Compound Species Profiles, Second Edition, 'EPA-450/2-90-001a, January 1990 and 'Air Emission Species Manual Volume II Particulate Matter Species Profiles Second Edition, 'EPA-450/2-90-001b, January 1990.

**Specifications: Diskette format.** The software is on four 5 1/4 inch diskettes, double density. System: IBM-PC/AT or compatible; DOS 3.0+ operating system, 640K. Language: ASCII.

**Watermaid; Program for Calculating the Performance and Cost of Drinking Water Treatment Systems**

*Environmental Protection Agency*

Order number PB86-181120HCR, \$90

The model is interactive, requiring the user to supply input data in response to screen prompts. There are 25 unit process models in the program, which estimate the expected performance and associated costs for drinking water treatment systems based on raw water quality and design decision parameters supplied by the user. By varying the input data, it is possible to perform sensitivity analysis on a proposed design or compare the performance and cost of alternative designs.

*Specifications: Diskette format.* The software is on two 5 1/4 inch diskettes, double density. System: IBM-PC compatible; MS-DOS 2.1 + operating system, 256K. Language: BASIC.

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