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Inventory of Exposure-Related Data Systems Sponsored By Federal Agencies

U.S. Environmental Protection Agency
Office of Health Research
Washington, D.C. 20460

Centers for Disease Control
National Center for Health Statistics
Office of Analysis and Epidemiology
Hyattsville, MD 20782

Agency for Toxic Substances and Disease Registry
Division of Health Studies
Atlanta, GA 30333

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DISCLAIMER

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PREFACE

This report, an Inventory of Exposure-Related Data Systems Sponsored by Federal Agencies, is a compilation of information on federally managed data systems that contain exposure information. These systems access collections of analytical results that assess environmental media such as air, soil, or water, as well as analytical results from food, human samples, or bulk chemicals. The Inventory focuses on data systems that:

- Contain information on a large geographic area (i.e., national, regional, state, or region of a state—excluding individual research studies of limited scope);
- Have data or summary documents that are generally available for research or other purposes; and
- Are supported, at least in part, by public funds.

The Inventory emerges from the premise that the availability and quality of exposure data is a central issue in environmental studies. Objective and quantifiable exposure data are needed to perform risk assessments, to evaluate risk management programs, to evaluate the status of and trends in exposure, and to perform epidemiologic studies and surveillance activities. The first step in encouraging the development of high-quality exposure data is to determine and characterize the data systems that already exist.

This report consists of a brief overview of the purpose, scope, method, limitations, organization, and findings of the inventory, followed by detailed summaries of each data system. The Inventory is organized into two parts: Part I contains descriptions of data collection systems that collect source data; Part II contains descriptions of data handling systems that provide easy and flexible access to data available in other data systems. (This distinction is not meant to imply that data collection systems do not provide easy and flexible access to data.) If a data system collects any source data, it is listed in the data collection system section regardless of the data handling capabilities of the system. Summaries within each section are in alphabetical order by name of the data system. In Part I, the detailed

description of each data collection system includes the objectives and coverage of the system, summary of environmental data, sample design and analysis, database characteristics, and contact persons for additional information. (For some data systems detailed information was not available; in these instances a brief description is provided.) In Part II, the detailed write-up of each data handling system describes the coverage of the system, the data sources included, data presentation, and data availability.

In addition, there are four appendices. Appendix A contains the names and acronyms (if any) of the data systems. Appendix B lists the data systems by agency. Appendix C contains the questionnaire that was sent to each of the database managers. (Responses to the questionnaire and a great deal of additional information provided by these individuals formed the basis of the summaries in this Inventory.) Appendix D contains additional data systems that support and quantify environmental exposure assessment by providing information such as emission factors and food consumption data. In addition, a listing of chemicals found in the data collection systems was compiled in which the chemicals are listed by data collection system name and media. Appendix E describes how this list was compiled; the listing itself is on a diskette accompanying this document.

This Inventory served as the background document for the workshop entitled "Making Use of Environmental Exposure Databases." This workshop, which was held in January 1992, was jointly sponsored by the Environmental Protection Agency, the Agency for Toxic Substances and Disease Registry, and the National Center for Health Statistics of the Centers for Disease Control. The workshop focused on four questions: How are these databases being used? Are data available to document exposures for both the general population and high risk groups? What critical data are not available? Should existing databases be modified, or should new databases be created to address data gaps?

This project was initiated by the Task Force on Environmental Cancer and Heart and Lung Disease and completed under the joint direction of the Environmental Protection Agency, the National Center for Health Statistics of the Centers for Disease Control, and the Agency for Toxic Substances and Disease Registry.

The Inventory represents the efforts of many individuals in the federal government who completed the questionnaires, the staff of Eastern Research Group, Inc. (especially Leslie Beyer, Linda Stein, David Mellard, and Janice Pacenka), Haluk Ozkaynak, Ph.D., and the following members of a steering committee whose tenacity resulted in the completion of this Inventory: Ken Sexton, Sc.D., Environmental Protection Agency; Sherry Selevan, Ph.D., Environmental Protection Agency; Jeffrey Lybarger, M.D., Agency for Toxic Substances and Disease Registry; and Thomas Miller, Environmental Protection Agency. The efforts of all of these individuals are greatly appreciated.

Diane K. Wagener, Ph.D.
Centers for Disease Control
National Center for Health Statistics

OVERVIEW

INTRODUCTION

Federal, state, and local officials face increasing public demand for information on exposure to toxicants in the environment and their possible adverse health effects. The potential for exposure exists in the air we breathe, the water we drink, the food we consume, and the soil and dust we contact. With industrialization and new technological developments, both the quantity and types of substances in the environment are increasing.

To conduct environmental studies or to evaluate program effectiveness, officials and researchers need quality data on potential toxic exposures. The premise of this project is that data systems exist that could be used to meet these needs. Federal and state agencies, for example, maintain environmental exposure data systems, which are typically generated for specific purposes (e.g., regulatory). In some instances, the quality of the data is not optimal. However, of equal concern to this project is the presumption that the use of existing quality data is not optimal. This Inventory was generated as a means to learn more about existing data systems and the potential for new and innovative uses of the data in them.

PURPOSE

This Inventory is intended to aid policy makers, program managers, and researchers, as well as concerned citizens, in identifying potential sources of exposure information. Exposure information is needed by epidemiologists, risk assessors, risk managers, and policy makers to evaluate the status and trends in exposure assessment and disease surveillance. The Inventory should broaden the scope of available information for these individuals and help them identify potential data sources. The Inventory, however, was not designed to answer all questions that might be asked about a data system. Instead, limited characteristics of these resources are described in the Inventory. It is intended that users of the Inventory will seek additional information from the contact persons listed in the description of each data system.

SCOPE

In August 1981, the Task Force on Environmental Cancer and Heart and Lung Disease published the *Directory of Exposure-Related Data Bases*. This report included information on 13 information resources, which were largely federally managed. Criteria for inclusion were that the resource contain numerical or qualitative data that assist in exposure assessment, contain observational data, involve ongoing or periodic data collection, and be publicly accessible. Since the publication of the Directory in 1981, efforts to collect environmental data have expanded enormously. The purpose of this current Inventory is to expand and update the Directory.

This Inventory describes data systems that contain exposure-related information and are managed and funded by the federal government. (Although many state- and locally-sponsored databases contain valuable exposure-related information, the scope of this Inventory was limited to federal systems due to lack of resources.) Exposure-related information was defined broadly to include analytical results that assess food, human samples, or bulk chemicals; or assess an environmental media such as air, soil, or water. Occupational exposure measurements were excluded to limit the size and complexity of the project.

The Inventory focuses on data systems that:

- Contain data on a large geographic area (i.e., national, regional, state, or region of a state—excluding individual research studies of limited scope);
- Have data or summary information documents that are generally available for research or other purposes; and
- Are supported, at least in part, by public funds.

With some exceptions, the data systems included in this Inventory contain measured, as contrasted to estimated, data. The exceptions have been included because they have been widely used to characterize potential human exposures.

In contrast to the previous Directory, this Inventory does not include resources that focus on lists of citations to other forms of information such as articles, reports, or databases. Further,

this Inventory does not focus on databases that contain only production volume data. The reasons for these limitations were largely to make the scope of this project achievable.

METHOD

A five-member steering committee directed this project. Its members represented the Environmental Protection Agency, the National Center for Health Statistics of the Centers for Disease Control, and the Agency for Toxic Substances and Disease Registry. A wide range of data sources can be used in exposure assessment. These include production volumes, emissions inventories, ambient concentration models and measurements, microenvironmental concentration models and measurements, human activity patterns, personal exposure measurements, and biological measurements. To assist defining the scope and contents of this Inventory, a variety of previous documents were consulted, and meetings were held with officials from the Agency for Toxic Substances and Disease Registry, Environmental Protection Agency, National Center for Environmental Health and Injury Control (Centers for Disease Control), National Center for Health Statistics (Centers for Disease Control), National Institute for Environmental Health Sciences (National Institutes of Health), and the National Library of Medicine.

Many documents provided guidance on the content for this Inventory, including the previous inventory, *Directory of Exposure-Related Databases.* In addition, recent documents were reviewed for applicability of content, identification of needs, and scope. These documents included:

> *Environmental Health: A Plan for Collecting and Coordinating Statistical and Epidemiologic Data*. 1980. National Center for Health Statistics. U.S. Department of Health and Human Services. DHHS Pub. No. (PHS) 80-1248. U.S. Government Printing Office: Washington, DC.
>
> *Environmental Health: A Study of the Issues in Locating, Assessing, and Treating Individuals Exposed to Hazardous Substances*. 1981. National Center for Health Statistics. U.S. Department of Health and Human Services. DHHS Pub. No. (PHS) 81-1275. U.S. Government Printing Office: Washington, DC.
>
> *The Potential for Linking Environmental and Health Data*. 1989. National Governors' Association. Washington, DC.

After reviewing and discussing these and other documents, the steering committee felt that sampling strategies for occupational exposures were substantially different from those used for most other environmental data. Consequently, the steering committee decided that the Inventory would focus on nonoccupational exposures so as to limit the scope and complexity of the project.

The steering committee also decided to focus efforts for this Inventory on systems that contained information on a large geographic area. This decision necessarily eliminated pilot studies and targeted research projects.

Several relevant inventories were reviewed for format and content as guidance for this project. These inventories included:

Abramowitz, J.N., D.S. Baker, and D.B. Tunstall. 1990. *Guide of Key Environmental Statistics in the U.S. Government*. World Resources Institute.

HHS Data Inventories (for various fiscal years). U.S. Department of Health and Human Services. U.S. Government Printing Office: Washington, DC.

Information Resources Directory. 1989. Environmental Protection Agency. Office of Information and Resources Management.

Frisch, J.D., G.M. Shaw, and J.A. Harris. 1990. Epidemiologic Research Using Existing Databases of Environmental Measures. *Archives of Environmental Health*. 45:303-307.

Nutrition Monitoring in the United States: The Directory of Federal Nutrition Monitoring Activities. 1989. U.S. Departments of Health and Human Services, and Agriculture. DHHS Pub. No. (PHS) 89-1255-1. U.S. Government Printing Office: Washington, DC.

Several meetings were held with representatives from the agencies noted above to identify database characteristics of most interest and to develop a questionnaire. The questionnaire was then sent as a pilot project to six data systems, chosen because they represented a wide variety of data system characteristics. The questionnaire was subsequently revised and sent to the managers of over 100 databases. The questionnaire and instructions are included as Appendix C.

The questionnaire sought information on the purpose of the data system, geographic coverage, site selection, source and dispersion information, sample collection and quality control, data preparation and availability, and toxicant and media assessed. In addition, system managers

were requested to provide background information and descriptive reports. Given the scope of the systems included and the type of information requested, no satisfactory short questionnaire could gather all the information needed to develop the summaries provided in this Inventory. Therefore, the collection of this information and followup clarification required multiple contacts with the data managers. Once written, each description was reviewed by Ms. Beyer or Ms. Stein (Eastern Research Group, Inc.), Dr. Özkaynak (Harvard University), and Dr. Wagener (National Center for Health Statistics).

LIMITATIONS

No assurance can be given that all inscope data systems have been included. Time and resource limitations prevented exhaustive canvassing to assure that all appropriate systems were identified. The inclusion list was sent to government officials, some of whom provided us with the names of additional data systems. Many system managers, however, ignored the original request for information (i.e., the questionnaire) and followup mailings. In such cases, staff attempted to obtain information via telephone conversations or from descriptions available in reports or brochures.

As noted above, an important limitation of an Inventory including 95 data systems is that detailed information cannot be provided. Hence it is important for the user to seek additional information from the contact person listed as part of each data system description.

One problem that arose in this survey was that over time systems have changed names, some multiple times. In those instances, we have listed both former and current names. Table 1 summarizes this information and provides cross-references for the user.

TABLE 1

LIST OF DATA SYSTEM NAME CHANGES

Name	In Inventory
Air Quality Data Handling System	Aerometric Information Retrieval System (AIRS)
Airborne Particulate and Precipitation Data	Environmental Radiation Ambient Monitoring System (ERAMS)
Biological Effects Surveys	National Status and Trends (NS&T)
Biomonitoring of Environmental Status and Trends Program	National Contaminant Biomonitoring Program (NCBP)
Coastal Environmental Assessment Studies (CEAS)	Environmental Monitoring and Assessment Program (EMAP)
Commercial Power Reactor Dose	Radioactive Materials Released from Nuclear Power Plants
Comprehensive Data Handling System (CDHS)	Aerometric Information Retrieval System (AIRS)
Daily Values File	Water Data Storage and Retrieval System (WATSTORE)
Emission Inventory System/Point Source and Area (EIS)	Aerometric Information Retrieval System (AIRS)
Groundwater Site Inventory File	Water Data Storage and Retrieval System (WATSTORE)
Hazardous and Nonhazardous Waste Surveys	Biennial Reporting System
Hazardous Waste Data Management System (HWDMS)	Resource Conservation and Recovery Information System (RCRIS)
Hazardous Waste Site Data Base	Lockheed-U.S. EPA, EMSL-LV
International Air Data Base	Graphical Exposure Modeling System (GEMS)
Market Basket Study	Total Diet Study (TDS)

TABLE 1 (cont.)

Name	In Inventory
Mussel Watch Project	National Status and Trends (NS&T)
National Acid Deposition Program-National Trends Network (NADP-NTN)	Acid Deposition System (ADS)
National Air Pollution Control Program	Aerometric Information Retrieval System (AIRS)
National Human Monitoring Program (NHMP)	National Human Adispose Tissue (NHATS)
National Hydrologic Benchmark Network	National Water Quality Networks Programs
National Park Service Visibility Monitoring Program	Interagency Monitoring of Protected Visual Environments (IMPROVE)
National Pesticide Monitoring Program	National Contaminant Biomonitoring Program (NCBP)
National Pollutant Discharge Elimination System (NPDES)	Permit Compliance System (PCS)
National Stream Quality Accounting Network (NASQUAN)	National Water Quality Networks Program
National Surface Water Survey	Eastern Lake Survey (ELS), National Stream Survey (NSS), and Western Lake Survey (WLS)
National Survey of Pesticides in Drinking Water Wells	National Pesticide Survey (NPS)
National Water Information System II	Water Data Storage and Retrieval System (WATSTORE)
Offsite Human Surveillance Program (OHSP)	Internal Radiation Dosimetry System
Peak Flow File	Water Data Storage and Retrieval System (WATSTORE)
Pesticide Use Surveys	Agricultural Chemical Usage
Radiochemical Surveillance Network	National Water Quality Networks Program

TABLE 1 (cont.)

Name	In Inventory
Station Header File	Water Data Storage and Retrieval System (WATSTORE)
Storage and Retrieval of Aerometric Data (SAROAD)	Aerometric Information Retrieval System (AIRS)
Tritium Network	Water Quality Networks Program
Unit Values File	Water Data Storage and Retrieval System (WATSTORE)
Waste Management Database System	Resource Conservation and Recovery System (RCRIS)
Water Quality File	Water Data Storage and Retrieval System (WATSTORE)
Water Use File	Water Data Storage and Retrieval System (WATSTORE)

ORGANIZATION OF THE INVENTORY

In the synopsis that follows, two types of data systems are discussed: data collection systems and data handling systems. Data collection systems are systems that collect data (mostly environmental sample results, but some estimated data are included, too). Data handling systems are those systems that coordinate and/or compile data from multiple data collection systems and provide the user with easy, but sophisticated, statistical and graphical representations of data. In some instances, this distinction is blurred because some data collection systems also provide flexible analytical features.

Descriptions for the data collection systems, which are located in Part I of the Inventory, contain information on the purpose of the data system, geographic coverage, site selection, sample collection and quality control, data availability, and toxicant and media assessed. The data handling system descriptions, located in Part II, are more cursory; they describe coverage of the system, data sources included, data presentation, and data availability. Although Part II descriptions do not provide details on the component databases, they do refer potential users of these files to writeups on specific component databases found in Part I. Any system that has primary data collection responsibilities was included in Part I as a data collection system.

Also provided in the Inventory are appendices A to D. Appendix A contains two tables: one lists the systems by name and acronym; the other lists them by acronym and name. Appendix B cross-references the systems by the federal agencies that manage them. Appendix C contains the questionnaire. Appendix D presents summaries of additional data systems that do not contain analytical measurements, but contain information that support environmental exposure assessment. Examples of this type of information include emission factors, fate and transport models, and surveys of consumer usage of products or consumption of various foods. Summaries of 17 such systems are located in Appendix D. Appendix E contains an introduction to the listing of the specific chemicals found in the data collection systems. In this listing, the chemicals are listed by data collection system name and media; the listing itself is on a diskette accompanying this document.

SYNOPSIS OF DATA SYSTEMS INCLUDED IN THE INVENTORY

The American public is most often interested in environmental pollution because of concern for possible adverse health effects. However, evaluating the relationship between potential exposures and the potential for adverse health effects is a complex process. Figure 1 graphically outlines some aspects of this evaluation. The focus of this Inventory is on the exposure assessment portion of this evaluation process.

The data systems included in this Inventory primarily collect and compile analytical measurements. Systems that were based on models or occupational measurements were not included. Further, the Inventory was restricted to those systems that evaluate large geographic areas. The most frequent reason for excluding a system was the lack of geographic information.

This Inventory includes detailed descriptions of 67 data collection systems managed by 17 lead government agencies, the United Nations Environment Programme, and the World Health Organization (WHO). Twelve data handling systems are also included. The summary statistics that follow are based on those data collection systems in Part I for which detailed information was available.

Table 2 presents the number of data collection systems that provide each type of data included in the Inventory. The majority (54) of the data systems contain environmental concentration measurements. The geographic coverage of most of the included data collection systems was national (44 out of 67). Given that only databases encompassing a large geographic area were included, this bias towards national systems is not surprising. Although the coverage was national, the sampling strategy differed from system to system. Few systems measured the same toxicants in the same media.

The primary objective of the data collection systems was most often monitoring (36 data collection systems). Regulatory support was the primary focus of 19 systems, and research was the primary objective of 29 systems. Six were legally required, but not for regulatory purposes.

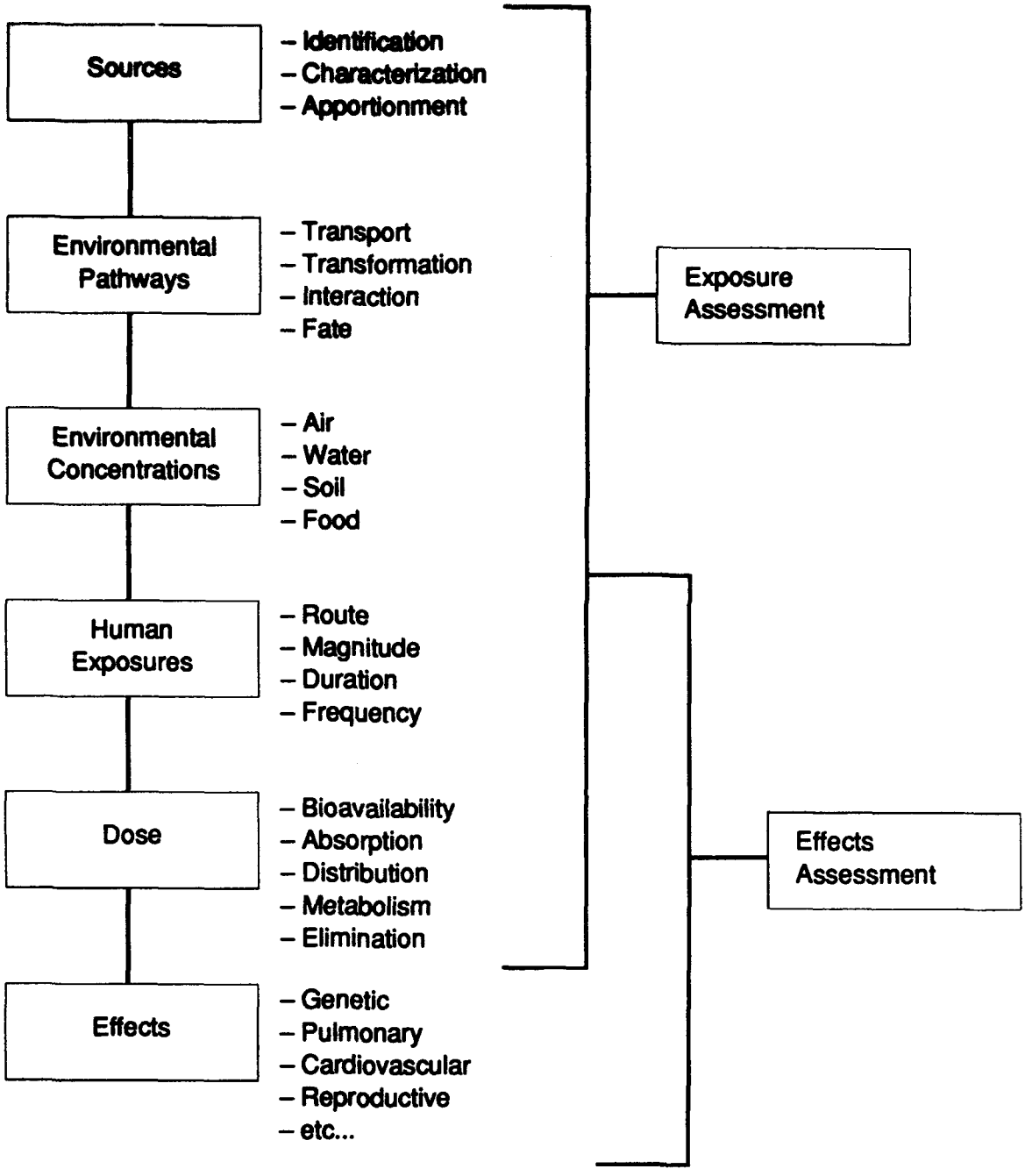

Figure 1 **Factors Affecting the Relationship Between Potential Exposures and Potential Health Effects**

Source: K. Sexton. 1991. Human Exposure Assessment and Public Health. In: *New Horizons in Biological Dosimetry*. B.L. Gledhill and F. Mauro, eds. New York: Wiley-Liss, Inc.

TABLE 2

INFORMATION TYPE

Information Type	Number of Databases[a]
Production Volumes	5
Emission Inventories	11
Environmental Measurements	54
Microenvironmental Concentrations	10
Personal Monitoring	7
Human Samples	13

[a]Total does not sum to 67 because some data bases have more than one information type.

Of specific concern for this Inventory was the level of detail provided as location identifiers. Table 3 lists various identifiers used by these systems and the number of systems that use those identifiers. As can be seen, the most frequent identifiers used were state and latitude/longitude (52 and 44 data collection systems, respectively). This will be important when linkage with other data systems is contemplated. The data collection frequencies are given in Table 4. Many of the systems collected data yearly.

The number of databases surveying each media assessed is presented in Table 5. Thirty-three of the databases surveyed water, while 31 surveyed air. The classes of toxicants measured are shown in Table 6. Inorganic compounds (e.g., metals) were most frequently measured followed by pesticides, volatile organic compounds, semi-volatile organic compounds, and PCBs. Of course, the class of toxicant measured is affected, in part, by the media assessed. In addition, the toxicants assessed depend on the applicable legislation and available laboratory techniques. Table 7 summarizes selected characteristics of the data collection systems (i.e., period of data collection, geographic coverage, media covered, and class of chemicals included). Table 8 lists the specific media assessed (e.g., ground water, bulk chemicals, dust), for each data collection system.

ADDITIONAL INFORMATION RESOURCES

In the course of this project, several information resources came to our attention that provide the user with a comprehensive listing of available data systems and other forms of information. Some of these information resources that are sponsored by federal agencies are listed below. This list is by no means exhaustive.

EARTH SCIENCE DATA DIRECTORY (ESDD)

ESDD is a guide to databases in the fields of earth science and natural resources. Each record describes a unique database including its geographic coverage, type of access, time span, and contact person. ESDD includes information on over 2,000 databases created by government agencies, academic institutions, and private sector efforts. ESDD is available on compact discs that

TABLE 3

LOCATION IDENTIFIERS

Location Identifiers	Number of Databases[a]
Latitude/Longitude	44
Universal Transmercator Coordinates	10
Street Address	21
Zip Code	17
Census Tract	3
City/Municipality/Township	30
County/Parish	28
Metropolitan Statistical Area	8
State	52
Hydraulic Unit Codes	7
River Reach Number	1
Congressional District	3
Other	17

[a]Total does not sum to 67 because many databases have multiple location identifiers and others have none.

TABLE 4

COLLECTION FREQUENCY

Collection Frequency	Number of Databases[a]
Yearly	14
Quarterly	3
Monthly	2
Weekly	1
Daily	7
Irregular	10
Mixed Frequency, varies by chemical	5
Mixed Frequency, varies by facility	5
Other	20

[a]Total does not sum to 67 because some databases have multiple collection frequencies.

TABLE 5

MEDIA SAMPLED

Media Sampled	Number of Databases[a]
Bulk Chemicals	10
Air	31
Water	33
Food	15
Soil	17
Human Samples	13
Other	13

[a]Total does not sum to 67 because some databases have more than one type of data.

TABLE 6

MEASURED PARAMETERS

Measured Parameters	Number of Databases[a]
Acids/Acid Aerosols	9
Aeroallergens	0
Aesthetic Qualities[b]	18
Asbestos	6
Bases	3
Cigarette Smoke	3
Criteria Pollutants	17
Dioxins/Furans	15
Fluoride	14
Inorganic Compounds	45
Microorganisms	9
Particulates	14
PCBs	27
Pesticides	35
Radionuclides	22
Semi-Volatile Organic Compounds	30
Trihalomethanes	9
Volatile Organic Compounds	32
Other	12

[a]Total does not sum to 67 because a databases may have more than one location identifier.

[b]Includes physical and chemical indicators of water quality and ion concentrations.

TABLE 7

SELECTED CHARACTERISTICS OF DATA COLLECTION SYSTEMS[a]
(SEE KEY TO ABBREVIATIONS AT BOTTOM OF PAGE)

			Media Covered						Classes of Chemicals																	
Database Name	Period of Data Collection	Geographic Coverage	Water	Soil	Air	Human Food	Human Samples	Bulk	Acid	Aes	Asb	Base	Cig	Cri	Dio	Fluo	Iorg	Mic	Part	PCB	Pest	Rad	SVOC	Tri	VOC
Acid Deposition System	1978-present	National	X	.						X							X								
Agricultural Chemical Usage	1990-present	Other						X									X				X				
Air Facility Subsystem (AFS) of the Aerometric Information Retrieval System	1985-present	National			X									X			X		X				X		X
Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System	1957-present	National			X									X			X		X				X		X
Anticipated Residues in Food	1980-present	National				X															X				
Aquatic Toxicity Information Retrieval	1970-present	National				X									X		X			X	X	λ	X		X
Biennial Reporting System	1981-present	National	X	X	X			X									X				X		X		X
Carbon Monoxide Total Exposure Methodology (TEAM) Study	1982-1985	City or Municipality			X		X							X											
Chemical Screening Branch Existing Chemicals Assessment Tracking System (CECATS)	1977-present	National	X	X	X	X	X	X									X			X	X		X		X
Community Health Air Monitoring Program	1972-1977	Region of State			X		X							X			X		X				X		
Eastern Lake Survey	1984-1984	Regional	X							X						X	X								

Acid = Acids and Acid Aerosols
Aes = Aesthetic Water Qualities
Asb = Asbestos
Base = Bases
Cig = Cigarette Smoke
Cri = Criteria Pollutants
Dio = Dioxins and Furans
Fluo = Fluoride
IOrg = Inorganic Compounds
Mic = Microorganisms
Part = Particulates
PCB = Polychlorinated Biphenyls
Pest = Pesticides
Rad = Radionuclides
SVOC = Semi-Volatile Organic Compounds
Tri = Trihalomethanes
VOC = Volatile Organic Compounds

TABLE 7 (cont.)

Database Name	Period of Data Collection	Geographic Coverage	Media Covered						Classes of Chemicals																
			Water	Soil	Air	Human Food	Human Samples	Built	Acid	Aes	Ash	Base	Cig	Cri	Dio	Fluo	Inog	Mic	Part	PCB	Pest	Rad	SVOC	Tri	VOC
Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)	1974-1989	Regional			X		X		X				X	X					X						
Emergency Response Notification System (ERNS)	1986-present	National	X	X	X				X					X	X		X			X	X	X	X	X	X
Emissions Certification Database	1975-present	National			X									X					X						
Environmental Monitoring and Assessment Program	1990-present	National	X	X	X	X			X					X			X		X	X	X		X		
Environmental Radiation Ambient Monitoring System	1975-present	National	X		X	X													X			X			
Federal Reporting Database System	1976-present	National	X							X					X	X	X	X		X	X	X	X	X	X
Fluoridation Census	1967-present	National	X													X									
Global Environment Monitoring System	1972-present	Other	X		X	X				X				X		X	X	X	X	X	X		X		X
Hazardous Substance Release/Health Effects Database	1980-present	National	X	X	X	X	X			X	X				X	X	X			X	X	X	X	X	X
Hispanic Health and Nutrition Examination Survey	1982-1984	Regional					X										X			X	X		X		
Integrated Data Base	1980-present	National		X				X														X			
Interagency Monitoring of Protected Visual Environments	1979-present	National			X				X					X			X		X						
Internal Radiation Dosimetry System	1970-present	Regional					X															X			
Lake Analysis Management System	1974-present	Other	X	X													X			X	X				

Acid = Acids and Acid Aerosols
Aes = Aesthetic Water Qualities
Ash = Asbestos
Base = Bases
Cig = Cigarette Smoke
Cri = Criteria Pollutants
Dio = Dioxins and Furans
Fluo = Fluoride
IOrg = Inorganic Compounds
Mic = Microorganisms
Part = Particulates
PCB = Polychlorinated Biphenyls
Pest = Pesticides
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TABLE 7 (cont.)

			Media Covered						Classes of Chemicals																
Database Name	Period of Data Collection	Geographic Coverage	Water	Soil	Air	Human Food	Human Samples	Bulk	Acid	Aes	Asb	Bene	Cig	Cri	Dio	Fluo	Inrg	Mic	Part	PCB	Pest	Rad	SVOC	Tri	VOC
Lockheed-EPA, EMSL-LV	1978-1987	National	X	X						X					X	X	X			X	X	X	X	X	X
Long-Term Monitoring Project	1983-present	Regional	X							X							X								
Marine Pollution Retrieval System	1973-present	National	X	X	X				X						X		X			X	X	X	X	X	X
Microbiology and Residue Computer Information System	1976-present	National				X											X	X		X	X	X	X		X
Month and State Current Emission Trends	1975-present	National			X									X											X
National Acid Precipitation Assessment Program	1985-1985	National			X				X					X			X		X						X
National Air Toxics Information Clearinghouse	1984-present	National			X						X			X	X		X			X			X		X
National Coastal Pollutant Discharge Inventory	1982-present	Regional	X							X							X	X			X				
National Contaminant Biomonitoring Program	1967-present	National				X											X			X	X		X		X
National Environmental Specimen Bank	1980-present	Regional					X										X			X	X				
National Health and Nutrition Examination Survey	1971 to 1994	National					X						X				X				X		X		X
National Herbicide Use Database	1987-present	National						X													X				
National Human Adipose Tissue Survey	1970-present	National					X								X		X			X	X		X		X
National Human Milk Monitoring Program	1974-1978	National				X	X													X	X				

Acid = Acids and Acid Aerosols
Aes = Aesthetic Water Qualities
Asb = Asbestos
Bene = Benes
Cig = Cigarette Smoke
Cri = Criteria Pollutants
Dio = Dioxins and Furans
Fluo = Fluoride
IOrg = Inorganic Compounds
Mic = Microorganisms
Part = Particulates
PCB = Polychlorinated Biphenyls
Pest = Pesticides
Rad = Radionuclides
SVOC = Semi-Volatile Organic Compounds
Tri = Trihalomethanes
VOC = Volatile Organic Compounds

TABLE 7 (cont.)

			Media Covered						Classes of Chemicals															
Database Name	Period of Data Collection	Geographic Coverage	Water	Soil	Air	Human Food	Human Samples	Bulk	Acid	Aes	Ash	Base	Cig	Cri	Dio	Fluo	Inog	Mic	Part	PCB	Pest	Rad	SVOC	Tri	VOC
National Park Service Environmental Database Management System	1980-present	National			X									X					X						
National Pesticide Survey	1988-1990	National	X							X							X				X				
National Residential Radon Survey	1989-present	National			X														X			X			
National Shellfish Register of Classified Estuarine Waters	1971-present	National	X															X	X	X	X	X			
National Status & Trends for Marine Environmental Quality	1985-present	National		X		X											X			X	X	X	X		
National Stream Survey	1986-1986	Regional	X							X						X	X								
National VOC Data Base	1970-1984	National			X																				X
National Water Quality Networks Program	1978-present	National	X							X						X	X	X				X			
Nonoccupational Pesticide Exposure Study	1985-1988	City or Municipality	X		X	X															X				
Northeast Regional Oxidant Study	1979-1980	Regional			X									X											X
Ocean Data Evaluation System	1978-present	National	X	X		X				X	X				X	X	X	X		X	X	X	X	X	X
Particle Total Exposure Assessment Methodology (TEAM) Study	9-10/1990	City or Municipality			X								X				X		X						
Permit Compliance System	1986-present	National	X							X					X	X	X	X		X		X	X	X	X

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TABLE 7 (cont.)

Database Name	Period of Data Collection	Geographic Coverage	Media Covered						Classes of Chemicals																
			Water	Soil	Air	Human Food	Human Samples	Built	Acid	Aes	Asb	Base	Cig	Cri	Dio	Fluo	Inog	Mic	Part	PCB	Pest	Rad	SVOC	Tri	VOC
Pesticide Information Network	1970-present	National	X	X	X	X	X	X		X					X		X				X		X		X
Radioactive Materials Released from Nuclear Power Plants	1978-present	National	X	X	X																	X			
Recall Database	1977-present	Other			X									X											X
Regional Air Pollution Study	1974-1977	Region of State			X									X					X						X
Resource Conservation Recovery Information System	1980-present	National	X	X				X									X				X		X		X
State/EPA Residential Radon Survey	1986-present	State			X																	X			
Storage and Retrieval of Water Quality Data	1950s-present	National	X	X		X				X					X	X	X			X	X	X	X	X	X
Synthetic Organic Chemicals (SOC), U.S. Production and Sales	1916-present	National						X	X			X			X					X	X		X		X
Total Diet Study	1982-present	National	X			X											X			X	X	X	X		
Toxic Release Inventory	1987-present	National	X	X	X			X	X		X	X				X	X			X	X		X		X
Toxic Substances Control Act Test Submissions	1985-present	National						X	X		X	X			X		X			X	X	X	X		X
VOC Total Exposure Assessment Methodology (TEAM) Study	1980-1987	City or Municipality	X		X		X																		X
Water Data Storage and Retrieval System	1880-present	National	X	X						X	X				X	X	X	X		X	X	X	X	X	X
Western Lake Survey	1985-1985	Regional	X							X						X	X								

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TABLE 7 (cont.)

			Media Covered						Classes of Chemicals																
Database Name	Period of Data Collection	Geographic Coverage	Water	Soil	Air	Human Food	Human Samples	Bulk	Acid	Aes	Ash	Base	Cig	Cri	Dio	Fluo	Inog	Mic	Pest	PCB	Pet	Rad	SVOC	Tri	VOC
Wisconsin Fisheries Database	1970-1988	Region of State	X							X							X								

*This table includes 47 databases for which sufficient information was available.

Acid = Acids and Acid Aerosols
Aes = Aesthetic Water Qualities
Ash = Asbestos
Base = Bases
Cig = Cigarette Smoke
Cri = Criteria Pollutants
Dio = Dioxins and Furans
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TABLE 8

SPECIFIC MEDIA CHARACTERISTICS OF DATA COLLECTION SYSTEMS
(SEE KEY TO ABBREVIATIONS AT BOTTOM OF PAGE)

Database	Water						Soil						Air							Food and Human Samples								Bulk
	SW	GW	L	M	P	O	R	I	S	SS	D	O	IH	IP	OU	OR	E	FM	O	NG	DG	NM	DM	FL	FS	HS	O	BC
Acid Deposition System						X																						
Agricultural Chemical Usage																												X
Air Facility Subsystem (AFS) of the Aerometric Information Retrieval System																	X											
Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System															X	X												
Anticipated Residues in Food																					X		X	X	X		X	
Aquatic Toxicity Information Retrieval																									X			
Biennial Reporting System	X	X							X						X	X												X
Carbon Monoxide Total Exposure Assessment Methodology (TEAM) Study													X	X	X			X								X		
Chemical Screening Branch Existing Chemicals Assessment Tracking System (CECATS)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Community Health Air Monitoring Program															X	X										X		
Eastern Lake Survey	X																											
Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)													X	X	X	X		X								X		
Emergency Response Notification System (ERNS)	X	X	X				X	X	X						X	X												
Emissions Certification Database																			X									

BC=bulk chemicals
D=dust
DO=domesticated gamebirds
DM=domesticated mammals
E=emissions
FS=fish/shellfish
GW=ground water
HS=human samples
I=industrial
IH=indoor homes
IP=indoor public
L=leachate
M=municipal
NG=nondomesticated gamebirds
NM=nondomesticated mammals
O=other
OR=outdoor rural
OU=outdoor urban
P=private
PL=plants
PM=personal monitor
R=residential
S=sediment
SS=superfund site
SW=surface water

TABLE 8 (cont.)

Database	Water						Soil						Air							Food and Human Samples								Bulk
	SW	GW	L	M	P	O	R	I	S	SS	D	O	IH	IP	OU	OR	E	PM	O	NG	DG	NM	DM	PL	PS	HS	O	BC
Environmental Monitoring and Assessment Program	X								X							X									X			
Environmental Radiation Ambient Monitoring System	X			X		X									X								X					
Federal Reporting Database System	X	X																										
Fluoridation Census				X																								
Global Environment Monitoring System	X	X													X								X	X	X			
Hazardous Substances Release/Health Effects Database	X	X	X	X	X		X	X	X	X	X				X	X						X	X	X	X	X			
Hispanic Health and Nutrition Examination Survey																										X		
Integrated Data Base								X																				X
Interagency Monitoring of Protected Visual Environments																X												
Internal Radiation Dosimetry System																										X		
Lake Analysis Management System	X			X					X																			
Lockheed-EPA, EMSL-LV		X								X																		
Long-Term Monitoring Project	X																											
Marine Pollution Retrieval System	X	X	X		X		X	X	X						X	X			X									
Microbiology and Residue Computer Information System																					X		X					
Month and State Current Emission Trends															X	X	X											

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TABLE 8 (cont.)

Database	Water						Soil						Air							Food and Human Samples								Bulk
	SW	OW	L	M	P	O	R	I	S	SS	D	O	IH	IP	OU	OR	E	PM	O	NG	DG	NM	DM	FL	FS	HS	O	BC
National Acid Precipitation Assessment Program															X	X	X												
National Air Toxics Information Clearinghouse															X	X	X		X										
National Coastal Pollutant Discharge Inventory	X																												
National Contaminant Biomonitoring Program																				X					X				
National Environmental Specimen Bank																										X			
National Health and Nutrition Examination Survey																										X			
National Herbicide Use Database																													X
National Human Adipose Tissue Survey																										X			
National Human Milk Monitoring Program																										X			
National Park Service Environmental Database Management System																X													
National Pesticide Survey		X		X	X																								
National Residential Radon Survey													X																
National Shellfish Register of Classified Estuarine Waters	X																												
National Status & Trends for Marine Environmental Quality									X																X				
National Stream Survey	X																												
National VOC Data Base													X	X	X	X			X										

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Database	Water						Soil						Air							Food and Human Samples								Bulk
	SW	GW	L	M	P	O	R	I	S	SS	D	O	IH	IP	OU	OR	E	PM	O	NG	DG	NM	DM	FL	FS	SS	O	BC
National Water Quality Networks Program	X																											
Nonoccupational Pesticide Exposure Study				X	X								X		X			X									X	
Northeast Regional Oxidant Study															X	X												
Ocean Data Evaluation System	X								X																X			
Particle Total Exposure Assessment Methodology (TEAM) Study													X	X	X			X										
Permit Compliance System				X	X																							
Pesticide Information Network	X	X	X	X	X		X	X	X		X		X	X	X	X		X		X	X	X	X	X	X	X	X	X
Radioactive Materials Released from Nuclear Power Plants						X						X					X											
Rainfall Database																			X									
Regional Air Pollution Study															X	X	X											
Resource Conservation Recovery Information System	X	X							X																			X
State/EPA Residential Radon Survey													X															
Storage and Retrieval of Water Quality Data	X	X							X																X			
Synthetic Organic Chemicals (SOC), U.S. Production and Sales																												X
Total Diet Study				X																			X	X	X			
Toxic Release Inventory	X	X						X							X	X	X											X
Toxic Substances Control Act Test Submissions																												X

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TABLE 8 (cont.)

Database	Water						Soil						Air							Food and Human Samples								Bulk
	SW	GW	L	M	P	O	R	I	S	SS	D	O	IH	IP	OU	OR	E	PM	O	NG	DG	NM	DM	FL	FS	HS	O	BC
VOC Total Exposure Assessment Methodology (TEAM) Study				X	X								X	X	X	X		X									X		
Water Data Storage and Retrieval System	X	X	X	X	X	X			X	X																			
Western Lake Survey	X																												
Wisconsin Fisheries Database	X																												

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PM=personal monitor
R=residential
S=sediment
SS=superfund site
SW=surface water

are updated quarterly. A user-friendly interactive format allows the user easy access to the information.

For information, or to contribute information, contact:

C.R. Baskin
ESDD Project Manager
U.S. Geological Survey
801 National Center
Reston, VA 22092
(703) 648-7112

ENVIRONMENTAL TECHNICAL INFORMATION SYSTEM (ETIS)

ETIS is a collection of systems designed to assist planners and decision-makers. ETIS was developed by the U.S. Army Corps of Engineers Construction Engineering Research Laboratory. User support service is provided through the University of Illinois, Urbana-Champaign. ETIS includes an Economic Impact Forecast System (containing socioeconomic data for every county in the nation), Computer-aided Environmental Legislative Data System (containing abstracted federal and state environmental regulations and standards), and the Soils System (containing data on soil characteristics). ETIS contains the Environmental Information Connection (EIC). EIC allows the user to search on specific topics to identify specialized institutions, individuals with environmental expertise, appropriate government agencies, and environmental databases. Also, EIC will prepare bibliographies. Finally, ETIS also contains a Hazardous Materials Management System (HMMS). The HMMS contains information on regulated substances, data from Material Safety Data Sheets, access to HAZARDLINE (a commercially available chemical information system), and access to several electronic bulletin boards that collect comments and solutions to problems commonly encountered in engineering projects.

For more information on ETIS, contact:

ETIS
University of Illinois, Urbana-Champaign
Department of Urban and Regional Planing
1003 West Nevada St.
Urbana, IL 61801
(217) 333-1369
(217) 244-5116 (Environmental Information Connection)

NATIONAL AERONAUTIC AND SPACE ADMINISTRATION'S (NASA) MASTER DIRECTORY

This directory is an international effort. It gives high-level information about datasets available to researchers at little or no cost, and provides direct connections to some 50 other online systems and inventories. The directory currently describes approximately 900 earth science, oceanography, and atmospheric science datasets; about 150 astronomy datasets; some 100 planetary science datasets; about 100 solar physics datasets; and 250 space physics datasets. The earth science data come from state and federal agencies and universities. Datasets can be searched using key words, including specific variable fields.

Information on this system can be obtained from:

Joy Beier
National Space Science Data Center
(301) 513-1662

or

ST Systems Corporation
7601 Ora Glen Drive
Suite 300
Greenbelt, MD 20770

NATIONAL ENVIRONMENTAL DATA REFERRAL SERVICE (NEDRES)

This database identifies the existence, location, characteristics, and availability of more than 10,000 individual environmental data sources. References are provided for a wide variety of environmental data, including climatological and meteorological; oceanographic; geophysical and geological; geographic; and hydrological and limnological. On-line access is available, as well as computer printouts and agency reports.

Information on this system can be obtained from:

Gerald S. Barton
National Oceanographic and Atmospheric Administration
1825 Connecticut Ave., NW
Washington, DC 20235
(202) 606-5548

NATIONAL GEOPHYSICAL DATA CENTER (NGDC)

The NGDC was established by the National Oceanographic and Atmospheric Administration of the Department of Commerce as a central library for geophysical data. The Center collects and disseminates data on seismology, geomagnetism, geothermics, satellite remote sensing, well log data, hydrographic characteristics, and sediments.

For more information on data available and formats in which the data can be provided contact:

National Geophysical Data Center
NOAA, Code E/GC
325 Broadway
Boulder, CO 80303-3328
(303) 497-6419

NATIONAL WATER DATA EXCHANGE (NAWDEX)

NAWDEX is a confederation of federal and nonfederal water-oriented organizations managed by a program office in the Water Resources Division of the Department of Interior. Information on sites for which water data are available, the types of data available, and the organizations that store the data is available from NAWDEX. In addition, a directory of assistance centers located at the Water Resources Division District offices is available.

More detailed information can be obtained from:

NAWDEX Program Office
Water Resources Division
U.S. Geological Survey
801 National Center
Reston, VA 22092

SOME PUBLICLY AVAILABLE SOURCES OF COMPUTERIZED INFORMATION ON ENVIRONMENTAL HEALTH AND TOXICOLOGY

This listing includes databases consisting of chemical profiles, bibliographies, full-text entries, bulletin boards, and special subjects. Over 25 special subject areas are included such as acid rain, air quality, agrochemicals, dermal toxicity, phytotoxicity, risk assessment, and teratogenicity.

The listing is available through:

Kathy Deck or Sandy Bonzo
Information Resources Management Group
National Center for Environmental Health and Injury Control
Chamblee 27 F-29
Centers for Disease Control
Atlanta, GA 30333
(404) 488-4588

TOXICOLOGY INFORMATION ONLINE (TOXLINE)

This interactive online system is specifically designed to offer comprehensive bibliographic coverage of toxicology information. The system includes 16 subfiles: Toxicity Bibliography (TOXBIB) from MEDLINE; Chemical-Biological Activities (CBAC) from *Chemical Abstracts*; Toxicological Aspects of Environmental Health (BIOSIS) from *Biological Abstracts*; Pesticides Abstracts (PESTAB); *International Pharmaceutical Abstracts* (IPA); NIOSHTIC; Toxicology Research Projects from the NIH Computer Retrieval of Information on Scientific Projects (CRISP) database; Toxicology Document and Data Deposit from the National Technical Information Service (NTIS); Environmental Mutagen and Teratology Information Centers (EMIC and ETIC of the Oak Ridge National Laboratory); International Labor Office *CIS Abstracts* (CIS); Aneuploidy (ANEUPL); Epidemiology Information System (EPIDEM) of the Food and Drug Administration; Toxic Substances Control Act Test Submission (TSCATS); Poisonous Plants Bibliography (PPBIB); and Federal Research in Progress (FEDRIT).

For additional information, contact:

TOXLINE
MEDLARS Management Section
National Library of Medicine
Building 38A, Room 4N421
Bethesda, MD 20209
(800) 638-8480

TOXICOLOGY DATA NETWORK (TOXNET)

TOXNET is a computerized system of files oriented to toxicology and related areas. This integrated system can be used to search, retrieve, and review records from 10 files. These files include: Hazardous Substances Data Base (HSDB) from the Agency for Toxic Substances and Disease Registry; Registry of Toxic Effects of Chemical Substances (RTECS) from the National Institute for Occupational Safety and Health; Chemical Carcinogenesis Research Information System (CCRIS) from the National Cancer Institute; Integrated Risk Information System (IRIS) from the Environmental Protection Agency; Toxic Release Inventory (TRI) (see description in Part

I of this Inventory) from Environmental Protection Agency; Directory of Biotechnology Information Resources (DBIR) from the National Library of Medicine; Genetic Toxicology (GENE-TOX) from the Environmental Protection Agency; ETICBACK and EMICBACK from the Oak Ridge National Laboratory; and Developmental and Reproductive Toxicology (DART) from the National Library of Medicine.

For additional information, contact:

TOXLINE
MEDLARS Management Section
National Library of Medicine
Building 38A, Room 4N421
Bethesda, MD 20209
(800) 638-8480

PART I: DATA COLLECTION SYSTEMS

ACID DEPOSITION SYSTEM

Acronym: ADS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Atmospheric Research and Exposure Assessment Laboratory (AREAL)

Contact Person: James A. Reagan, U.S. EPA, AREAL, MD-56, Research Triangle Park, NC 27711, (919) 541-4486

Objectives and Coverage:

Under the 1990 Clean Air Act Amendments, precipitation samples from geographically representative sites in non-urban areas that are at least 50 km inland from large water bodies must be tested for constituents that contribute to and comprise acid precipitation. The measurement of acid precipitation became a major research objective under the National Acid Precipitation Assessment Program (NAPAP) in the early 1980s (see NAPAP database). The objective of ADS is to report annually on the status and trends of acid precipitation and, if possible, to determine the effects of controls placed on sulfur dioxide emissions. The database focuses on rural areas and certain sensitive ecosystems (e.g., crops, forests). In addition to being legally required under the Clean Air Act, ADS data are often used for research purposes.

Summary of Environmental Data:

Media: Water (precipitation)

Classes of compounds: Inorganic compounds, ions and physical and chemical indicators of water quality

Types of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The sampling program was organized in 1978 by the National Acid Deposition Program-National Trends Network (NADP-NTN). NTN is comprised of five contributing networks made up of government and utility representatives from the United States and Canada, including: the U.S. Department of Energy; the Canadian Acid Precipitation Monitoring Service (Atmospheric Environment Service); the Ontario Ministry of the Environment; the Electric Power Research Institute's Operational Environment Network (United States); and the NADP-NTN sample collection/laboratory subnetwork, which contributes data to the overall project.

Rainwater is collected from 200 monitoring sites located in rural areas and near sensitive ecosystems across the contiguous United States and the southern portion of Canada. All of the contributing networks analyze samples for the compounds of interest: NH_3^+, NO_3^-, $SO_4^=$, K^+, H^+, Ca^{++}, Mg^+, Na^+, and Cl^-. Some of the networks also analyze for certain metals, but this is not required under the program.

Individual networks are responsible for their own sample collection and analysis based on a common set of sampling protocols. A task force within NADP-NTN, the Universal Deposition Decision Committee, issued guidelines on how sampling locations should be determined (e.g., geographic representativeness; primarily rural areas; and particularly sensitive ecosystems) and how samples should be taken.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the monitor site; street address (if known); name of city, municipality, or township; county/parish; state; zip code

Time Coverage: 1978-present

Sample Characteristics:

Frequency of sample collection: Generally weekly; on a daily basis in southern Canada; extra samples are required after a weather event (e.g., storm)

Regularity of sample collection: Tuesday mornings

Source and dispersion information: Acidic deposition typically originates from non-point source pollution emissions and reflects impacts of various pollutants; thus, specific sources are not identified in this database

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: NADP-NTN Universal Deposition Decision Committee sampling guidelines

Approximate time between sample collection and analysis: 3-6 weeks

Approximate time between sample analysis and data entry to database: Annual updates; 18 months lag after end of prior year

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analyses, data entry audits, laboratory audits via unknown (to the lab) spiked samples

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Rainwater: Inorganic compounds; ions and physical and chemical indicators of water quality; rainwater is analyzed for NH_3^+, $SO_4^=$, H^+, Cl^-, Mg^+, C^{++}, K^+, Na^+

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Annual updates; individual data entries and summary statistics are available on specific agents; for a single monitoring site, quarterly and annual averages are available

Availability: Any requester can obtain data; on-line to U.S. EPA, AREAL and state computers with this database by direct VAX access

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine-readable -- Diskette, tape (not preferred); on-line to EPA and states

Reports: Routinely available annually through the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 or from U.S. EPA AREAL

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, or from James Reagan, U.S. EPA, AREAL, MD-56, Research Triangle Park, NC 27711, (919) 541-4486

AGRICULTURAL CHEMICAL USAGE

Acronym: None

Sponsoring Agency: U.S. Department of Agriculture (USDA), National Agricultural Statistics Service (NASS)

Contact Person: Sam Rives, USDA, NASS, 14th and Independence Streets, Washington, DC 20250, (202) 447-2324

Objectives and Coverage:

The objective of the Agricultural Chemical Usage database is to quantify the amounts of agricultural chemicals, including pesticides and fertilizers used annually in major crop-producing states. These data collection survey was developed and funded as part of a multi-agency program, the Pesticide Data Program, established to meet the 1989 President's Water Quality Initiative to protect groundwater and surface water from contamination by fertilizers and pesticides. This program is designed to upgrade the reliability of pesticide use data and the quality of information on pesticide residues in food. USDA's National Agricultural Statistics Service (NASS) is responsible for collecting data on on-farm pesticide use. These data will be used to support water quality programs and assist in identifying pesticides of interest to EPA for inclusion in its monitoring program. These data will also be used by USDA's Economic Research Service to estimate the economic implications of agricultural pesticide use.

Two surveys have thus far been conducted by the NASS to provide comprehensive statistics on agricultural chemical use. Both were conducted in 1990 and will be performed annually or biannually depending on the type of crop. The first survey was conducted for field crops -- corn, cotton, potatoes, rice, soybeans, and wheat. The second survey was conducted for vegetables, melon, and strawberries. These surveys include use information for all agricultural chemicals, including fertilizers, pesticides (which include insecticides, fungicides, miticides, nematicides, soil fumigants, herbicides, growth regulators, defoliants, and desiccants), and plant nutrients.

Summary of Environmental Data:

Media: Bulk chemicals

Classes of compounds: Pesticides, fertilizers

Type of data available: Summary statistics on specific agents

Estimation versus observational data: Estimated data of total amount of chemicals used annually by farmers in selected states

Sample Design and Analysis:

Personal interviews were conducted with farmers regarding annual pesticide and fertilizer use. Responses were based on farmers' records if available (records are required for restricted use pesticides; some states may require that records for other chemicals be kept; extension service offices encourage farmers to document usage). Sites are selected based on crop and state. Farms producing major crops (field crops and 40 vegetable crops) were selected in certain states from a comprehensive sampling base developed by USDA that reflects a statistically reliable random sample of the population of farmers in each state selected. Thus, the estimates were statistically representative of chemical use on targeted crops in the surveyed states. Data on the individual farm level are confidential; therefore, state-based averages are reported. Sampling variability and associated confidence limit estimates, and non-sampling errors are discussed in each survey report. Surveys for fruit and nut crops are planned.

For the 1990 field crop survey, 15,025 sample fields were included based on a random sample of fields in which the probability of selecting a particular field was directly proportional to the total acres planted to that crop in a given state. The number of states in which fields were selected varied by crop. For corn, farm fields in 47 states were surveyed; for cotton, 6 states were represented; for potatoes, 11 states; for rice, 2 states; for soybeans, 29 states; for winter wheat, 12 states; for spring wheat, 4 states, and for durum wheat, 1 state.

For the 1990 vegetable, melon, and strawberry crop survey, 4 states were represented. The sample population consisted of an NASS list of vegetable farms from each state in the survey. The sample was a stratified systematic sample; vegetable farms were partitioned into mutually exclusive strata, and each state had a unique set of strata priorities. Obtaining a state-level estimate was the criterion used to project final sample sizes. The vegetable survey collected data on chemical application, and the NASS converted the product information to an active ingredient level.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Selected states (for field crops, varies by crop; for vegetable crops, 4 states); surveys captured approximately 80 percent of crop production in 47 states; California excluded from 1990 vegetable survey

Identifiers: State

Time Coverage: 1990-present

Sample Characteristics:

Frequency of sample collection: Annual for field crops; biannual for vegetables and fruits

Regularity: Regular

Source and dispersion information: Not available (farm-level data confidential)

Methods of Sample Analysis:

Samples pooled: Yes (individual farm data included in statewide summaries)

Standard procedures: Not applicable -- data, not samples, collected

Approximate time between sample collection and data entry to database: 6 months

Quality Assurance/Quality Control Procedures: Pretesting of interview questions; training for and supervision of interviewers; data edit checks

ENVIRONMENTAL DATA

Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS
Pesticides, fertilizers

Conventions Used to Identify Agents: Name of active ingredient

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics on specific agents by state and crop

Availability: Any requester can obtain data (only state-level data available; farm-level data are confidential)

Form: Hard copy -- Agency reports
Machine readable -- Diskette (Word Perfect)

Reports: *Agricultural Chemical Usage 1990: Field Crops Survey; Agricultural Chemical Usage 1990: Vegetable Crops Survey*

Reference Documents: None

Data/Reports Available From: USDA Economic Research Service/National Agricultural Statistics Service, P.O. Box 1608, Rockville, MD 20849, or call (800) 999-6779

AIR FACILITY SUBSYSTEM OF THE AEROMETRIC INFORMATION RETRIEVAL SYSTEM (AIRS)

Acronym: AFS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)

Contact Person: Chuck Isbell, U.S. EPA, OAQPS, National Air Data Branch, MD-14, Research Triangle Park, NC 27711, (919) 541-5448

Objectives and Coverage:

The AFS contains aerometric emissions and regulatory compliance data on air pollution point sources (individual facilities) monitored by EPA and state and local agencies. Information is available on operating status, and descriptive and parametric data are provided for stacks and other emissions points and processes within a facility. Continuous emissions monitoring data, asbestos activities, and information on landfills for some sites may be found in AFS. Some of the data are confidential. AFS replaced the National Emissions Data System (NEDS), which provided information on point and area sources, and the Compliance Data System (CDS), which included information such as compliance status and action status (see separate entries on NEDS and CDS). AFS point source data are used by states to prepare State Implementation Plans (SIPs), by EPA's National Air Data Branch to calculate estimates of national annual air emissions, and by other regulatory agencies and academic and environmental organizations. Also see the separate entry for AIRS in Part II of this inventory for further information.

Summary of Environmental Data:

Media: Air (point sources)

Classes of compounds: Primarily criteria pollutants and particulates; also information on inorganic compounds, VOCs, and semi-VOCs

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: Both observational and estimated data

Sample Design and Analysis:

The AIRS Facility Subsystem includes data on more than 100,000 point source facilities nationwide. Point sources emitting more than 100 tons per year of criteria pollutants other than lead and CO must report actual or estimated annual emissions data; reporting requirements for lead begin at 5 tons per year, and for CO at 1,000 tons per year. AFS contains more compliance than emissions data. Emissions estimates from 1985 to the present are available at process-specific levels and are accumulated for plant totals.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/Longitude and universal transmercator coordinates of the point source; street address; zip codes; name of city, municipality, or township; county/parish; state; Federal Information Processing Standard (FIPS) codes; Standard Industrial Classification (SIC) codes, and Source Category Codes (SCCs); CDS, NEDS, EPA, or Dun and Bradstreet IDs are used to access facility information in AFS

Time Coverage: 1985-present

Sample Characteristics:

Frequency of sample collection: Mixed frequency -- varies by facility and state; states must report point source (e.g., plants, boilers) data annually, though some report more frequently

Regularity of sample collection: Regular

Source information: All data collected at the source

Dispersion information: Generally not available

Methods of Sample Analysis:

Samples pooled: Data are available as individual samples (e.g., stack or boiler level) and as aggregated emissions for an entire facility

Standard procedures used: Sampling procedures are specified in *40 CFR Part 60*, Appendix A for criteria pollutants and some others; *40 CFR Part 61*, Appendix B for hazardous pollutants; and *40 CFR Part 60*, Appendix B for performance specifications (e.g., calibration criteria); alternative methods are acceptable if they have been approved by EPA (must be as stringent as EPA methods)

Approximate time between sample collection and analysis: Real-time for data obtained by continuous emissions monitors; otherwise within 30 days for individual samples

Approximate time between sample analysis and data entry to database: States submit point source data at least annually as required by law; states and other users may submit required and other data to AFS on-line more often (e.g., daily or quarterly) as they obtain new data

Quality Assurance/Quality Control Procedures: EPA recommends that states use blind lab audit samples; edit checks

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Stack Emissions: Particulates, gaseous criteria pollutants, inorganic compounds, VOCs, semi-VOCs

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture; database-specific codes, based on chemical classification and physical state of the parameter

DATABASE AVAILABILITY

AFS data are available through the Aerometric Information Retrieval System (AIRS). See AIRS in Part II of this inventory for a description of the level of data aggregation, availability, form, reports, reference documents, and sources for data and reports.

AIR QUALITY SUBSYSTEM OF THE AEROMETRIC INFORMATION RETRIEVAL SYSTEM (AIRS)

Acronym: AQS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)

Contact Person: Jacob Summers, U.S. EPA, OAQPS, National Air Data Branch, MD-14, Research Triangle Park, NC 27711, (919) 541-5695

Objectives and Coverage:

The Air Quality Subsystem of AIRS (see an overall description of the AIRS database in Part II) contains measurements of ambient concentrations of air pollutants and associated meteorological data, primarily from the State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS) networks (see separate entries for SLAMS and NAMS). Other sources for AQS data include: Special Purposes monitoring sites established by state and local agencies (e.g., to determine concentrations of a pollutant in specific areas), the National Park Service monitoring sites, the Tennessee Valley Authority, and private industry (through state reporting). AQS replaces and upgrades the previous Storage and Retrieval of Aerometric Data (SAROAD) database; for example, through AQS, states now have direct access to the system for both submittal and retrieval of data. The Air Quality Subsystem contains four types of data: monitoring site data (e.g., site location and operation); raw data (individual values of pollutant concentrations or meteorological conditions); summary data; and precision and accuracy data (for air quality monitors).

Although AQS contains virtually all the data that was previously in SAROAD (either on-line or on tape), site IDs were changed when SAROAD data was converted to AQS.

Summary of Environmental Data:

Media: Air (ambient)

Classes of compounds: Primarily gaseous criteria pollutants and particulates; also some information on inorganic compounds, VOCs, and semi-VOCs

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The Air Quality Subsystem includes approximately 20,000 sites in 50 states. Monitoring depends on federal regulations regarding population, pollutant sources, geographical area, etc. Pollutants monitored vary according to site and year. *40 CFR Part 58* specifies minimum monitoring requirements for criteria pollutants. For CO, NO_2, SO_2, and ozone, sampling is performed using continuous monitors, and data are reported as hourly averages. For lead and particulates, 24-hour samples are collected and reported as a 24-hour average concentration.

(Also see entries for NAMS and SLAMS.)

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/Longitude and universal transmercator coordinates of the monitor site; street address; name of city, municipality, or township; county/parish; metropolitan statistical areas (MSA); state; EPA Air Quality Control Regions (urbanized areas); Federal Information Processing Standards (FIPS) codes

Time Coverage: 1975-present (most complete data available for 1970-present)

Sample Characteristics:

Frequency of sample collection: Mixed frequency -- different intervals for different pollutants (e.g., hourly, daily, monthly, quarterly, and/or yearly); states must report ambient air quality data quarterly; for particulates and lead, the frequency of monitoring is typically every 6th day, whereas other gaseous species are monitored continuously

Regularity of sample collection: Regular

Source information: Not available

Dispersion information: Not available

Methods of Sample Analysis:

Samples pooled: Not pooled for gases and particulates; for lead, if concentration is low, a composite sample may be analyzed, and one analysis performed for all samples taken in a week, month, or quarter

Standard procedures used: Sampling procedures are specified in *40 CFR Part 53*; for instrumentation, refer to, *List of Designated Reference and Equivalent Methods* (EPA Atmospheric and Exposure Assessment Laboratory)

Approximate time between sample collection and analysis: Continuous analysis for gases; approximately weekly or monthly for particulates and lead; datalogger instrumentation is used to store and transmit information daily, primarily for gases and to a limited degree for particulates

Approximate time between sample analysis and data entry to database: States submit ambient monitoring data quarterly or monthly; AQS is updated weekly

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; data validation checks; quality assurance requirements are specified in *40 CFR Part 58*, Appendix A and several volumes of procedures

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban and rural: Particulates (TSP, PM_{10}, Pb), gaseous criteria pollutants, some data on inorganic compounds, VOCs, semi-VOCs

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture; database-specific codes, based on chemical classification and physical state of the parameter

DATABASE AVAILABILITY

AQS data are available through the Aerometric Information Retrieval System (AIRS). See AIRS in Part II of this inventory for a description of the level of data aggregation, availability, form, reports, reference documents, and sources for data and reports.

ALASKAN MARINE MAMMAL TISSUE ARCHIVAL PROJECT

Acronym: None

Sponsoring Agencies: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) and National Institute of Standards and Technology (NIST); U.S. Department of the Interior, Minerals Management Service

Contact Person: Stephen A. Wise, NIST, Building 222, Room B-158, Gaithersburg, MD 20899, (301) 975-3112

Objectives and Coverage:

The Alaskan Marine Mammal Tissue Archival Project was initiated in 1987 to establish a representative collection of tissues from Alaskan marine mammals for future contaminant analyses and documentation of long-term trends in environmental quality. This project is one of the many activities of the National Biomonitoring Specimen Bank (see separate entry in Part II of this Inventory). Since most marine mammals are at or near the top of the food chain, chemical analysis of their tissues may be useful in determining whether bioaccumulation of contaminants associated with human industrial activities is occurring in the marine food chains of the Arctic. In addition, some of the native population of Alaska depend upon such animals for a substantial portion of their diet. Therefore, the contaminant levels found in marine mammals may have health implications for the human population occupying these regions. To date, 65 specimens of blubber, kidney, and liver have been collected from northern fur seals, ringed seals, belukha whales, bearded seals, and stellar sea lions from 6 sites in Alaska. (Muscle tissue was also collected from northern fur seals in 1987 only. Additional species and/or new sites are planned for the project each year.

Detailed information was not available at the time of publication.

ALKALINITY, LAKE AREA, AND DEPOSITION FOR NEW ENGLAND STATES

Acronym: None
Sponsoring Agency: Oak Ridge National Laboratory
Contact Person: Richard J. Olson, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, (615) 574-7819

Objectives and Coverage:

This database consists of estimates of surface water characteristics by lake size class, alkalinity class, and wet deposition levels for H^+, SO_4, and NO_3 for each of the 3.75-min latitude/longitude cells in northeastern United States. Alkalinity classes of surface waters in New York and New England were estimated from a detailed northeast regional surface water alkalinity map. The map was digitized, and alkalinity classes were assigned to 3.75-min latitude/longitude cells. Estimates of the extent of surface waters were derived by estimating the percentage of lakes in four size classes for each of the latitude/longitude cells. Annual wet deposition values for hydrogen, sulfate, and nitrate ions were estimated from monitoring data in the Acid Deposition System (ADS). See separate entries for ADS and for the Acid Deposition Data Network (ADDNET).

Detailed information was not available at the time of publication.

AMBIENT OZONE CONCENTRATIONS

Acronym: None
Sponsoring Agency: U.S. Department of Energy (DOE), Brookhaven National Laboratory
Contact Person: Elizabeth A. Coveney, U.S. DOE, Biomedical and Environmental Assessment Division, Brookhaven National Laboratory, Upton, NY 11973, (516) 282-2259

Objectives and Coverage:

These data consist of ozone concentration levels by county and by a 0.5 by 0.5 degree latitude/longitude grid across the continental United States. Both data sets contain estimates of 7-hour average ozone concentrations for the time periods April to May, April to June, May to September, June to September, and June to October for each year from 1978 to 1982 (except June to October, 1982). The gridded data values were estimated by extrapolating from monitoring stations selected to minimize urban influences. The extrapolation used a kriging algorithm. The county values were estimated from the gridded data. This same data appears in a more comprehensive form in the Aerometric Information and Retrieval System (AIRS). See separate entries for AIRS and for the Acid Deposition Data Network (ADDNET).

Detailed information was not available at the time of publication.

ANTICIPATED RESIDUES IN FOOD

Acronym: OPPE Pesticide Food Residue

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Policy, Planning and Evaluation (OPPE)

Contact Person: Joseph C. Reinert, U.S. EPA, OPPE, Pesticide Policy Branch (PM-220), 401 M Street SW, Washington, DC 20460, (202) 260-7557

Objectives and Coverage:

The OPPE Food Residue database contains pesticide residue data on raw and processed food. Data are provided on a voluntary basis by other government agencies and food processing companies. Monitoring data for 286 pesticides on an estimated 49,857 samples taken predominantly during 1985 to 1988 are included in the database (data through 1991 will be included by the end of fiscal year 1991). These data are used to estimate pesticide residues in the general food supply for scientific and regulatory purposes by government agencies (EPA, U.S. Food and Drug Administration (FDA), and states). The food and pesticide industries, food industry trade groups, and public interest groups also use this information for scientific and other purposes.

Summary of Environmental Data:

Media: Human food sources

Classes of compounds: Pesticides

Type of data available: Individual data entries and summary statistics are available

Estimation versus observational data: All observational data

Sample Design and Analysis:

Monitoring information is obtained on pesticide residues present in raw agricultural commodities, animal products, and processed foodstuffs by the Pesticide Policy Branch from three sources: state monitoring data compiled by the FDA, the National Food Processors Association, and Agriculture Canada. The format in which information is received is often inconsistent (e.g., commodities reported by different names, pesticides listed by different chemical names); therefore, the data are edited to remove obvious errors and inconsistencies before they are entered into tables, using the ORACLE Relational Database Management System.

A draft report which includes methods to improve this program is presently being reviewed by the U.S. Department of Agriculture (USDA) and the FDA. The recommended methods to improve the database include: standard residue sampling protocols used by state and federal agencies; a minimum set of information to be provided with each sample; and a standard data coding system and database format for the transmission of data.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Name of state and/or county (for some data only)

Time Coverage: 1980-present (greater than 85% of the data are from 1985 to 1988; the database will be updated to 1991 by the end of fiscal year 1991)

Sample Characteristics:

Frequency of sample collection: Not applicable; sampling and analysis data are obtained from other agencies; presently sampling protocols for these data vary

Regularity of sample collection: Not applicable (see above)

Source information: None

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: Not in the database, however, original food samples are sometimes pooled depending upon how large an individual composite sample is

Standard procedures used: Approved *Multi-Residue Analysis Methods for Pesticides*, published by the FDA

Approximate time between sample collection and analysis: Approximate time between sample collection and analysis of the samples in submitted data vary

Approximate time between sample analysis and data entry to database: Information not available; approximate time between data received from the FDA, the National Food Processors Association, and Agriculture Canada and data entry to database is 1.5 years

Quality Assurance/Quality Control Procedures: Data entry audits (obvious errors and inconsistencies only)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES

Meat; poultry; plants; fruit; vegetables; fish/shellfish; processed food commodities: Pesticides

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture; database-specific codes or identifiers, or other codes (analytical lab number, food company number)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available; data can be aggregated in any form requested (e.g., commodity, pesticide, specific products, year)

Availability: Any requester can obtain a hard copy of the computer printouts (identified as volumes 2-4) and a hard copy of the summary report (volume 1); subsets of data are available on diskette

Form: Hard copy -- Computer printouts; Agency report; microfiche
Machine readable -- Diskette (ASCII, Word Perfect, ORACLE)

Reports: Volume 1 describes the project, how it was created, where the data are obtained, how it is edited, QA/QC procedures, and the electronic database; Volume 1 is distributed through the National Technical Information Service (NTIS), USDA, and FDA; volumes 2-4 contain the computerized data

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for hard copies of report and data on microfiche); Search Service, Dynamac Corporation, The Dynamac Building, 11140 Rockville Pike, Rockville, MD 20852, (301) 417-6126 (for hard copies or diskette of data); Joseph C. Reinert, U.S. EPA, OPPE, Pesticide Policy Branch, (PM-220), 401 M Street SW, Washington, DC 20460, (202) 260-7557

AQUATIC TOXICITY INFORMATION RETRIEVAL

Acronym: AQUIRE

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Environmental Research Lab - Duluth

Contact Person: Anne Pilli, U.S. EPA, Environmental Research Lab, 6201 Congdon Boulevard, Duluth, MN 55804, (218) 720-5516

Objectives and Coverage:

AQUIRE was established to provide scientists and managers with quick access to a comprehensive, systematic, computerized compilation of aquatic toxicity data. The database consists of aquatic toxicity data extracted from scientific papers from over 6,000 domestic and international publications from 1970 to the present, and from independently compiled data files. The scope of the scientific papers included has been defined by the criteria of single chemical exposure and has been limited to those organisms that are exclusively aquatic. Interactions on the aquatic interface (amphibians, bipeds, mammals, reptiles, rooted semi-aquatic plants), and the microscopic community (bacteria and viruses) are omitted. Exposures must either be aqueous, diet, or injection; *in vitro* toxicity test results are not included. The database does not include exposures from petroleum-based mixtures, complex effluents, chemical mixtures, and water chemistry effects (e.g., pH). Exposures are tested in fresh water, salt water, tap water, brackish water, or estuarine water. Both field and lab tests are included. Results are mostly relevant to surface and marine water exposures. Acute, sublethal, and bioconcentration effects are included for tests with freshwater and marine organisms. The data collected include over 100,000 individual test results and information on 5,200 chemicals and 2,400 aquatic organisms.

AQUIRE is designed to be used as a reference tool, with individual and summary aquatic toxicity data catalogued by toxicant, test organism, test conditions, and test endpoint. Tissue residue and bioconcentration information for edible portions of aquatic species are stored in the database. AQUIRE has potential for use in aquatic to human extrapolation of chemical exposures and risks. Because AQUIRE is a compilation of the available data, it is recommended that researchers requiring contextual information for the data consult original publications; reprints of all references included in the database are on file. Additional information regarding purity, grade formulation, active ingredients, and radiolabeled isotopes is stored in AQUIRE text files, which are not available to the user at this time.

Summary of Environmental Data:

Media: Aquatic food sources (e.g., fish, shellfish, algae)

Classes of compounds: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Aquatic toxicity data published in United States and international scientific papers and data from independently compiled data files are collected and reviewed for appropriateness for the AQUIRE database. Toxicity papers are acquired by literature searches, review article bibliographic listings, U.S. EPA Water Quality Criteria document bibliographies, and from existing toxicity reprint collections. The literature covers 1970 to the present, with current publications acquired and reviewed on a continuing basis. The bibliographic file and the main database files are checked for duplicate publications to assure that each data point is included only once in AQUIRE. If a publication contains data for a single chemical, in addition to one of the above categories of toxicants, the paper is retained and only the single chemical data are used in AQUIRE.

If data are published in a dissertation, symposium proceeding, internal report, or a book, in addition to a peer-reviewed journal, only the journal publication is included in AQUIRE. Foreign publications are reviewed if either an English abstract or a translated table of data are included. Data reported in review papers are abstracted from the original publication.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National and international

Identifiers: No geographic identifiers (database consists primarily of laboratory test results); the data elements in AQUIRE are grouped by test chemical, test organism, test conditions, and test endpoint

Time Coverage: 1970-present

Sample Characteristics:

Frequency of sample collection: Variable, depends on source of data (data obtained from the literature)

Regularity of sample collection: Variable, depends on source of data (data obtained from the literature)

Source information: None available

Dispersion information: Not applicable -- no data collected at the source

Methods of Sample Analysis: Data are collected from the literature

Samples pooled: No

Standard procedures used: The data encoded are evaluated according to existing standard test methods such as the American Society for Testing and Materials, U.S. EPA, and the American Public Health Association; each test reviewed for AQUIRE is assigned a review code that indicates the adequacy of method documentation available in the scientific paper

Approximate time between sample collection and analysis: Variable, depends on source of data (data obtained from the literature)

Approximate time between sample analysis and data entry to database: Data are obtained from the literature, reviewed for quality, and entered into the database on a quarterly basis

Quality Assurance/Quality Control Procedures: Quality assurance procedures begin with literature acquisition and cataloging and continue through the chemical and species files, the literature review process, data entry, and data retrieval. The AQUIRE literature is processed by reviewers who receive 4 months of training. To be included in AQUIRE, a study must involve exclusively aquatic test organisms; involve toxicants having Chemical Abstracts Service Registry Numbers (CASRNs); involve aqueous, dietary, or parental exposures; test chemicals; describe test conditions and test endpoints; and provide documentation of test methods that conform with standard quality assurance guidelines. Based on these and other criteria, studies are rated by AQUIRE reviewers as: (1) meeting all criteria, (2) generally satisfactory, (3) weak or unsatisfactory, (4) format limitation associated with an abstract or foreign paper, or (5) study in the Gilford File. (The Gilford File, added in February 1989, contains laboratory data for Acute Toxicity of Organic Chemicals (ATOC), determined using a single test species, 30-day fathead minnows.) Data obtained from independently compiled data files must meet the AQUIRE data parameter and quality assurance guidelines. If tests are missing key fields, or the experimental methodology was erratic, the data are rejected. Transfer of data is by computer with accompanying quality assurance procedures.

Following the extraction of acceptable data, a 10 percent quality assurance check of CASRN, verification of species Latin name, and confirmation of effect concentrations are made. Differences (if any) are documented, discussed, and resolved by the data coordinator. Any subsequent corrections are also reviewed by two staff members. In addition to manual checks, there are various computerized checks within the database structure. A biannual EPA QA/QC audit is also conducted.

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES

Fish/Shellfish: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides

Tissue residue and bioconcentration information for edible portions of aquatic species are stored in the database

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstract Service Registry Number (CASRN); chemical name using Ninth Collective Index (9CI) System standard nomenclature; Simplified Molecular Input Line Entry System (SMILES) notation is used to describe chemical structure; if a CASRN is not available through standard sources, the toxicity data cannot be included in AQUIRE

DATABASE AVAILABILITY

Level of Data Aggregation: Individual entries and summary statistics are available for specific agents

Availability: Federal, state, or local governmental agencies may obtain data using DECnet, Prime-net, a modem, or computer; other users can obtain access through a government agency

Form: Machine readable -- Tape (ASCII), on-line

Reports: None

Reference Documents: *Aquatic Toxicity Information Retrieval Data Base: A Technical Support Document.* Anne Pilli, Daria O. Carle, and Barbara Riedel Sheedy. April 1989. U.S. EPA, Environmental Research Laboratory, Duluth, MN 55804

Data/Reports Available From: Ann Pilli, U.S. EPA, Environmental Research Laboratory, 6201 Congdon Boulevard, Duluth, MN 55804, (218) 720-5516; or Scientific Outreach Center, (218) 720-5548, for information about accessing the database

BIENNIAL REPORTING SYSTEM

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response (OSWER)
Contact Person: John Fogerty, U.S. EPA, OSWER, 401 M Street SW, Washington, DC 20460, (202) 260-4697

Objectives and Coverage:

As required by the Resource Conservation and Recovery Act (RCRA), the Code of Federal Regulations, Title 40 requires generators of hazardous wastes and facilities that treat, store, or dispose of hazardous wastes to file biennial reports. EPA's OSWER maintains and publishes this information every other year in *National Biennial RCRA Hazardous Waste Reports.* These national reports include national and state-level data and analyses on: the types and amounts of hazardous wastes generated; waste treatment methods (e.g., injection well, landfill, incineration); and waste management and waste minimization practices. The national biennial reports also include rankings of types of hazardous wastes generated and amounts generated by states and facilities. Imports and exports of hazardous wastes for each state are also included, as is a comparison of the latest and previous national data. Summary profiles of the generation and management of hazardous wastes for each state are provided.

The comprehensiveness of the national biennial reports is limited by inconsistent reporting by states, although EPA has placed major emphasis on assuring the quality of submissions from the largest hazardous waste generators and management facilities and is revising RCRA regulations to require more consistent and comprehensive information. The national biennial reports do not include data on wastes exempted from RCRA permitting requirements (e.g., wastewater treatment tank units regulated under the Clean Water Act), nor do they include data on RCRA-generated wastes that are exported out of the United States.

Summary of Environmental Data:

Media: Water, soil, air, bulk chemicals

Classes of compounds: Hazardous waste codes as defined in *40 CFR*, Part 261, subpart D, including inorganic compounds; pesticides; VOCs; semi-VOCs; ignitable, corrosive, and reactive wastes

Type of data available: National and state-level summary data are available

Estimation versus observational data: Both estimated and observational data

Sample Design and Analysis:

Generators and managers of RCRA hazardous wastes submit site reports to EPA regional offices or to state offices authorized by EPA to administer RCRA programs by March 1st of each even-numbered year. The *National Biennial RCRA Hazardous Waste Report* is a compilation and analysis of this information. Due to inconsistent reporting by states, some data submitted to EPA have provided detailed site-specific information, while other data have been reported only at the aggregate level (e.g., total quantity of waste generated at a site, but not the types of waste generated). Since these summary-level data were the only data that could be obtained for all sites, only summary data were used to conduct national analyses in the 1987 National Biennial Report. In addition, some states did not report all hazardous wastewaters subject to RCRA; these exclusions may have resulted in artificially low state and national quantity totals. Also, in some cases, EPA could not unambiguously determine which generators were subject to reporting under RCRA, thus resulting in a possible underestimation of hazardous waste generators. Finally, California did not provide compatible waste characterization data for most of its generators; again, this may have resulted in an under-representation of generators in the EPA national report.

Quality assurance measures helped to resolve some of the data inconsistency problems described above. Data were checked for completeness and internal consistency. In addition, an evaluation of the largest hazardous waste generators and management facilities in each state was conducted. This involved sites that generated or managed more than 100,000 tons of RCRA hazardous wastes in 1985, 1986, or 1987, and also the 5 largest sites in each state regardless of the quantities they generated. Subsequent to these quality assurance measures, EPA prepared draft profile reports for each state which were reviewed by the state's environmental coordinator for accuracy. Data were then corrected for the National Biennial Report.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Street address; zip code; city, municipality, or township; county/parish; state

Time Coverage: 1981-present

Sample Characteristics:

Frequency of sample collection: Biennial

Regularity of sample collection: Regular

Source information: Type and quantity of total hazardous wastes generated at regulated facilities are reported (sometimes data are available on individual waste streams generated)

Dispersion information: Wastes from each facility are tracked from source to final disposition (i.e., treatment or disposal)

Methods of Sample Analysis:

Samples pooled: Data are aggregated to the state-level for national analyses; some individual site-specific data are available

Standard procedures used: Not applicable

Approximate time between sample (data) collection and analysis: 1 year

Approximate time between sample (data) analysis and data entry to database: 1 year

Quality Assurance/Quality Control Procedures: Data entry audits; evaluation of largest hazardous waste generators and management facilities in each state

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water and ground water: Some information on discharged wastes to surface water, groundwater, and leachate

SOIL

Sediment: Some information on hazardous waste industrial sediments and sludge discharges

AIR

Outdoor air: Organic and inorganic gases

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Discarded commercial chemicals (lab packs)

Conventions Used to Identify Agents: Chemical name or mixture; EPA hazardous waste codes; state hazardous waste codes; Standard Industrial Classification (SIC) codes; hazardous waste form codes

DATABASE AVAILABILITY

Level of Data Aggregation: Data are aggregated to the state-level for national analyses; some individual site-specific data are available

Availability: Any requester can obtain data .

Form: Hard copy -- EPA National Biennial Reports; computer printouts; files or log books (varies by state)

Machine readable -- On-line (national data beginning with 1989 will be available on-line in 1992 in Focus software to authorized EPA mainframe users; states have own data in various forms (e.g., tape, diskette)

Reports: *1987 National Biennial RCRA Hazardous Waste Report* (published every 2 years)

Reference Documents: *Hazardous Waste Report: Instructions and Forms*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161 (703) 487-4650; state RCRA program offices; EPA Regional offices; Dina Villari, (202) 260-4670

CARBON MONOXIDE TOTAL EXPOSURE ASSESSMENT METHODOLOGY STUDY

Acronym: CO TEAM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development

Contact Person: Gerald G. Akland, U.S. EPA, Office of Research and Development, MD-75, Research Triangle Park, NC 27711, (919) 541-4885

Objectives and Coverage:

CO TEAM was primarily designed to characterize population exposures to carbon monoxide (CO) and to characterize the sources contributing to those exposures. The data resulting from CO TEAM were to serve as input to EPA's CO criteria document and subsequent Agency regulations. The Total Exposure Assessment Methodology (TEAM) was used for measuring the frequency distribution of carbon monoxide (CO) exposure in a representative sample of an urban population. (See also the Volatile Organic Compound Total Exposure Assessment Methodology Study (VOC TEAM), the Particle Total Exposure Methodology Study (PTEAM), and the Nonoccupational Pesticide Exposure Study (NOPES) in this Inventory.) A CO personal exposure monitor (PEM) was developed and the sampling methodology was tested. The methodology was applied in two urban areas, Washington, DC, and Denver, Colorado, during the winter of 1982-1983 (the time of year when maximum fixed-site CO levels usually occur). Personal exposure monitoring data were collected together with activity data from a stratified probability sample of residents living in each of the two urban areas. Well-established survey sampling procedures were used for selecting individuals. The resulting exposure data permit estimates of CO exposure for the eligible populations of the two areas, as well as statistical comparisons between population subgroups (e.g., commuters vs. noncommuters and residents with and without gas stoves).

Summary of Environmental Data

Media: Air, human samples (exhaled breath)

Classes of compounds: Carbon monoxide

Types of data available: Individual data entries and summary statistics on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The methodology was developed and tested to estimate the distribution of personal, hourly exposures to CO and the distributions of personal exposures associated with various activities and environments. A nine-person pilot study was conducted in Los Angeles in 1980. The personal CO monitoring methodology was then field-tested in two target areas, Denver, CO, and Washington, DC, during the winter of 1982-1983. The target population in each city consisted of noninstitutionalized, nonsmoking adults who were 18 to 70 years of age.

A stratified, three-stage, probability-based sampling procedure was employed in each city. During the first stage, the geographic area was divided according to Bureau of Census standardized areas and a sample of these areas was selected. A compiled list of address and telephone numbers were used as the sampling frame for selecting households during the second stage. A knowledgeable household member was given a short screening interview to obtain information about each household member. The household screening data were used to identity eligible individuals (i.e., non-smokers, aged 18 to 70) so that they could be targeted for oversampling in the third stage. The individuals in the third stage sample were asked to carry a personal CO monitor and fill out an activity diary for a 24-hour period. Each individual was monitored for 1 day in Washington and 2 days in Denver. The PEM recorded the time and average CO concentration each time the "activity button" on top of the instrument was pushed, and the average CO concentration every hour. In both cases, the CO value was the integrated average CO concentration since the last recorded value. The participants also wrote down the time, location, and activity code in the diary every time they pushed the activity button on the instrument. Each participant carried a new PEM and diary for a second, consecutive, 24-hour period in Denver.

The study included measurements of CO in exhaled breath for every participant. The purposes of the breath measurements were to estimate the distribution of carboxyhemoglobin (COHb) values in the two populations using accepted relationships between alveolar CO and COHb; and to compare the observed breath measurements with personal exposures. Breath CO concentrations of 625 nonsmoking persons in Washington, DC and 454 nonsmokers in Denver, CO were collected in the winter of 1982-83.

Household screening questionnaire data were collected from 4,408 households in Washington, DC and 2,133 households in the Denver metropolitan area. In Washington and Denver, 1,161 and 485 subjects, respectively, agreed to participate. The CO TEAM study, performed between November 1982 and February 1983, produced 712 and 808 valid complete person-days of data in Washington and Denver, respectively. The fraction of selected nonsmoking adult individuals who agreed to participate was 58 percent in Washington and 43 percent in Denver. Although these response rates are not high, they are consistent with the response rates of similar TEAM studies in which personal monitoring was conducted.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: City or municipality (Washington, DC and Denver, Colorado Standard Metropolitan Statistical Areas (SMSAs))

Identifiers: SMSA; latitude/longitude of the city, county, and zip code; census tract; zip code; street address; city, municipality, or township; county; state

Time Coverage: 1982-1983

Sample Characteristics:

Frequency of sample collection: one 24-hour, integrated sample was collected from each Washington, DC participant; two 24-hour, integrated samples were collected from participants in Denver, Colorado

Regularity of sample collection: Sampling in each geographic area followed a regular schedule depending on the sampling protocol and the monitoring team's ability to adhere to the schedule; each individual was monitored for 1 day in Washington and 2 days in Denver

Source information: Much of the data were collected indoors near CO sources; multivariate analyses were useful in identifying the nature and extent of the indoor and in-transit sources of CO

Dispersion information: Not available (air exchange rate measurements, which can often explain the spread of the pollutants using indoor models, were not made)

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Special instrumentation (CO PEM) and sampling and analysis protocols were developed for this project (see Sample Design and Analysis)

Approximate time between sample collection and analysis: Immediate (sampling was conducted using direct reading instruments)

Approximate time between sample analysis and data entry to database: 3 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, external laboratory analysis, data entry audits, review of questionnaires and entries, direct verification of questionable data by calling the respondent

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Indoor homes and public buildings; outdoor urban; personal monitor: CO

FOOD SOURCES Not applicable

HUMAN SAMPLES

Exhaled breath: CO

BULK CHEMICALS Not Applicable

Conventions Used to Identify Agents: Chemical name carbon monoxide (CO)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics (e.g. by person, time period, microenvironment type, etc.)

Availability: Any requestor can obtain data

Form: Hard copy -- Computer printouts, agency reports, journal publications
Machine readable -- Tapes (ASCII), diskettes (ASCII)

Reports:

Hartwell, T.D., C.A. Clayton, R.M. Michie, R.W. Whitmore, J.S. Zelong, S.M. Jones, and D.A. Whitehurst. 1984. *Study of Carbon Monoxide Exposure of Residents of Washington DC, and Denver, CO*. Environmental Monitoring Systems Laboratory, Environmental Protection Agency, Research Triangle Park, NC. EPA-600/S4-84-031. NTIS Pub. No. PB 84-183516.

Johnson, T. 1984. *A Study of Personal Exposure to Carbon Monoxide in Denver, CO*. Environmental Monitoring Systems Laboratory, Environmental Protection Agency, Research Triangle Park, NC. EPA-600/S4-84-014. NTIS Pub. No. PB 84-146-125.

Reference Documents:

Akland, G.G., T.D. Hartwell, T.R. Johnson, and R.W. Whitmore. 1985. Measuring human exposure to carbon monoxide in Washington, DC and Denver, CO during the winter of 1982-1983. *Envir. Sci. Technol.* 19(10):911-918.

Ott, W., J. Thomas, D. Mage, and L. Wallace. 1988. Validation of the simulation of human activity and pollutant exposure (Shape) model using paired days from the Denver, CO Carbon Monoxide Field Study. *Atmospheric Environment*. 22(10):2101-2113.

Wallace, L., J. Thomas, D. Mage, and W. Ott. 1988. Comparison of breath CO, CO exposure and Coburn model predictions, U.S. EPA Washington-Denver (CO) Study. *Atmospheric Environment*. 22(10):2183-2193.

Data/Reports Available From: National Technical Information Service (NTIS), 5385 Port Royal Road, Springfield, VA 22161, (703) 487-4650); for data requests contact: Gerald G. Akland, U.S. EPA, Office of Research and Development, MD-75, Research Triangle Park, NC 27711, (919) 541-4885

CHEMICAL SCREENING BRANCH (CSB) EXISTING CHEMICALS ASSESSMENT TRACKING SYSTEM

Acronym: CECATS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention and Toxic Substances

Contact Person: John S. Leitzke, U.S. EPA, Office of Prevention and Toxic Substances (TS-778), Existing Chemicals Assessment Division, 401 M St. SW, Washington, DC 20460, (202) 260-3507

Objectives and Coverage:

Under the Toxic Substances Control Act (TSCA), Section 8(e), notices of substantial risk are submitted to the Chemical Screening Branch (CSB) of the U.S. EPA Office of Toxic Substances by manufacturers, processors, distributors, and importers of chemicals when they become aware of new data that supports a conclusion that a chemical may present a substantial risk of injury to human health or the environment. In addition, For Your Information (FYI) submissions are also submitted, which are similar in content to the TSCA Section 8(e) notices, but are voluntary and go beyond statutory requirements under TSCA.

CECATS tracks documents submitted to and developed by the CSB and contains both administrative and chemical hazard/exposure tracking information. The purpose of CECATS is to help determine which substances need further regulatory review. Chemical Hazard Information Profiles (CHIPs) or Substitute Hazard Profiles are written for substances of greatest concern based on environmental and health effects. Administrative tracking information includes submission and report dates, submitter names, status of review, and initial disposition or distribution to outside groups. Examples of chemical hazard/exposure information include Chemical Abstracts Service Registry Number (CASRN), chemical name, and information type (type of toxicity or exposure data contained in the document). CECATS is a document-tracking system, not a chemical-tracking system, but it does track which chemicals are in which documents. Similarly, CECATS does not contain endpoint information (such as actual toxicity values or toxicity information), but does track which kinds of information can be found in which documents.

Summary of Environmental Data:

Media: Water, soil, air, human food sources, human samples, bulk chemicals

Classes of compounds: Most hazardous or toxic chemicals, including: VOCs, semi-VOCs, PCBs, inorganic compounds, pesticides

Type of data available: Qualitative analyses of documents discussing particular chemicals; no individual samples referenced

Estimation versus observational data: Both estimated and observational data are contained in the documents referenced

Sample Design and Analysis:

Each time a TSCA Section 8(e) notice or FYI submission is received by the Chemical Screening Branch, a screening process is initiated to determine whether a Chemical Hazard Information Profile (CHIP) will be developed for that substance. CHIPs are brief narrative reports (20-40 pages) that summarize the readily available information on health effects, environmental effects and exposure relating to a specific chemical. Substitute Hazard Profiles are also developed, which are similar in content to CHIPs but generally are less comprehensive and shorter (10 pages), address only one type of toxic effect, and do not address exposure. During screening, CSB considers factors such as TSCA jurisdiction, severity of toxic effect, extent of exposure and assessment, and regulatory status. Nearly 98% of all chemicals screened are not selected for further review and are not published as CHIPs or Substitute Hazard Profiles.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: None

Time Coverage: 1977-present

Sample Characteristics:

Frequency of sample collection: Varies; whenever TSCA Section 8(e) notices are submitted to the Chemical Screening Branch of the U.S. EPA Office of Toxic Substances

Regularity of sample collection: Not applicable

Source information: Not applicable

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: Not applicable

Standard procedures used: Not applicable

Approximate time between sample collection and analysis: Not applicable

Approximate time between sample analysis and data entry to database: Not applicable

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media: Most of the following classes of compounds can be found in each of the media indicated below: VOCs, semi-VOCs, PCBs, inorganic compounds, pesticides

WATER
See above

SOIL
See above

AIR
See above

FOOD SOURCES
See above

HUMAN SAMPLES
See above

BULK CHEMICALS
See above

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual document titles and references are entered into the database

Availability: Any requester can obtain data; portions of CECATS are accessible on-line

Form: Hard copy -- Computer printouts
Machine readable -- On-line (direct access)

Reports: Chemical Hazard Information Profiles (CHIPs); Substitute Hazard Profiles

Reference Documents: None

Data/Reports Available From: On-line access -- Carolyn Thornton, (202) 475-8620; Chemical Hazard Information Profiles (CHIPs) and Substitute Hazard Profiles available from the EPA Environmental Assistance Division (202) 554-1404; reports available from John Leitzke, U.S. EPA, Office of Prevention and Toxic Substances, (202) 260-3507

COMMUNITY HEALTH AIR MONITORING PROGRAM

Acronym: CHAMP

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Atmospheric Research and Exposure Assessment Laboratory (AREAL)

Contact Person: Thomas Lawless, U.S. EPA, AREAL, Research Triangle Park, NC 27711, (919) 541-2291

Objectives and Coverage:

CHAMP consists of epidemiological studies conducted in large metropolitan areas of the United States to determine human health effects and morbidity and mortality associated with air quality in these areas. Pollutant sampling data include long- and short-term air monitoring for particulates, criteria pollutants, benzopyrene, and selected inorganic compounds. In addition, human tissue samples from autopsied cadavers; and pulmonary function testing of individuals from these areas were collected. Also included are results from a separate study which compared air samples collected in a small town with those collected in a large city in California; and results of pulmonary function tests of individuals who spent time in both of these areas.

This program was implemented during 1972-1977 by the former Epidemiology and Biometry branches of the EPA.

Summary of Environmental Data:

Media: Air, human samples

Classes of compounds: Particulates, criteria pollutants, inorganic compounds, semi-VOCs (benzopyrene)

Type of data available: Individual data entries are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Los Angeles, CA; Birmingham, AL; Salt Lake City, UT; Charlotte, NC; and Riverhead, NY counties were selected by scientists at EPAs Epidemiology and Biometry Branches to be included in a long term study of health effects of pollution. These study areas were selected because they represent large metropolitan areas with an increase of respiratory disease caused or aggravated by air quality. Local health officials in these counties were consulted to help select air monitoring locations according to zip code. Continuous analyzers, located in areas in the center of selected zip codes, measured criteria pollutants, benzopyrene, and selected inorganic compounds 24-hours/day, 365 days/year. At the same time, size-selective particulate samples were collected on filters using high volume samplers. Visibility monitors were also located in counties known to have especially poor air quality. In addition, short term air quality sampling was conducted at facilities in these areas where episodes affecting human health were reported in the *Morbidity and Mortality Weekly Report* (Centers for Disease Control, Department of Health and Human Services). If pollutant concentrations were found to be elevated, operation at the facility was halted by EPA until air sample results were found to be within acceptable levels.

As part of this study, EPA contracted with the University of California (at Riverside) for pulmonary function testing and medical examinations to be conducted on individuals residing in these geographic areas. Volunteers were obtained through a screening questionnaire; testing and examinations were conducted in portable vans located in each of the areas.

EPA also contracted with the University of California for human tissue (hair and fat) sampling of autopsied cadavers from medical facilities in these areas. Pathologists contacted researchers at the University whenever an autopsy was performed on individuals who had resided in these areas. Samples were frozen, collected, and analyzed for various trace elements.

Samples of maternal and fetal blood and hair were also collected immediately following delivery by physicians of hospitals within the geographic areas in cooperation with EPAs Epidemiology and Biometry branches. These samples were sent to an EPA contracted laboratory for analysis of trace elements.

A separate study compared air quality sample and pulmonary function test results collected in a small town with those collected in a large city in California. Ambient air samples for criteria pollutants, particulates, benzopyrene, and selected inorganic compounds were collected at Pacific College, Anjun, CA, located in the mountains of Napa Valley. At the same time, pulmonary function tests were conducted on students who volunteered for this study and were planning to attend medical school at the affiliate Loma Linda University in LaSierra, CA. Once at Loma Linda University, the pulmonary function of these students was re-tested and similar air quality measurements were collected.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Region of state (Los Angeles, CA; Salt Lake City, UT; Charlotte, NC; Riverhead, NY; Anjun, CA; LaSierra, CA)

Identifiers: Latitude/longitude of the monitor site and city; universal transmercator coordinates of the monitor site and city; street address; city, municipality, or township; county; state

Time Coverage: 1972-1977

Sample Characteristics:

Frequency of sample collection: Daily

Regularity of sample collection: Regular

Source information: None

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Ambient air quality standards found in *40 CFR III*, Parts 51, 52, 53, 58

Approximate time between sample collection and analysis: Immediate for direct reading air measurements; approximately 5 days for particulate samples; approximately 1-2 months for human tissue samples

Approximate time between sample analysis and data entry to database: 1 month

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analysis, data entry audits; procedures from the *EPA Quality Assurance Handbook for Air Pollution Measurement Systems*

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban and rural: Particulates, criteria pollutants, inorganic compounds, semi-VOCs (benzopyrene)

FOOD SOURCES Not applicable

HUMAN SAMPLES

Hair; fat; blood: Inorganic compounds (barium, boron, cadmium, chromium, copper, iron, lead, magnesium, mercury, selenium, silver, tin, vanadium, arsenic, beryllium, cobalt, zinc)

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture, Storage and Retrieval of Aerometric Data (SAROAD) codes (see entry for Air Quality Subsystem)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts; Agency reports

Reports: Reports describing short term air quality monitoring conducted at facilities where episodes affecting human health occurred were prepared by EPA investigators

Reference Documents: *40 CFR III; EPA Quality Assurance Handbook for Air Pollution Measurement Systems*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

COMPLIANCE DATA SYSTEM

Acronym: CDS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS), National Air Data Branch (NADB)
Contact Person: Jerry Husketh, U.S. EPA, OAQPS, NADB, MD-14, Research Triangle Park, NC 27711, (919) 541-5449

Objectives and Coverage:

CDS provided source data for the AIRS Facility Subsystem (AFS) and has been replaced by the AFS (see separate entry for AFS). CDS was the standard mechanism for compliance and enforcement tracking for all federal air emissions enforcement agencies and for over half of all state and local enforcement agencies, especially for requirements such as State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emissions Standards for Hazardous Pollutants (NESHAPs). CDS information included data on all major and many minor stationary sources of air pollution and included: an inventory of facilities subject to local, state, and federal emissions regulations; descriptive facility information; type of pollutant being emitted; emission point information (e.g., process description); compliance tracking of violators and of facilities in compliance; and data on compliance and enforcement actions and progress, such as inspections, enforcement schedules, notices of violation, civil actions, criminal actions, and orders. CDS assisted local, state, and regional regulatory agencies in developing enforcement strategies and providing reports that fulfilled performance and reporting requirements. CDS users were responsible for data submissions, quality control, and retrieval, and were encouraged to closely follow CDS quality assurance procedures.

CDS included data for over 70,000 stationary sources, with complete information for Class A sources (as defined by the 1980 Alabama Power Decision) and less complete information for Class B sources. Information was complete for violators and less complete for facilities in compliance. Over 12,000 enforcement actions were included. Different emission points within a single facility could be assessed, as well as total potential uncontrolled emissions for each process. Pollutant loading information was available for a limited number of facilities through CDS (more complete data sources were NEDS and AIRS). In addition to known point sources, which are required to be tracked, CDS included information on unverified Class A VOC sources (approximately 4,000 sources). Local, state, and regional enforcement offices also entered other, nonmandatory types of data and information about other facilities into CDS. Data on special enforcement problem areas were also included in CDS, such as information on selected primary copper, lead, and zinc smelters (e.g., emission and process point identification).

Detailed information was not available at the time of publication.

DISTRIBUTION REGISTRY OF ORGANIC POLLUTANTS IN WATER

Acronym: WaterDROP
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Environmental Research Laboratory
Contact Person: Wayne Garrison, U.S. EPA, Environmental Research Laboratory, Analytical Chemistry Branch, College Station Road, Athens, GA 30605, (404) 546-3145

Objectives and Coverage:

The WaterDROP system contains information from the 1970s concerning the measurement of organic pollutants in water that has been abstracted from water pollution literature, primarily from the United States. Specific chemical information is available at particular locations. Negative results as well as positive results are reported. Information includes: chemical name, Chemical Abstract Service Registry Number (CASRN), type of water measured, sampling method, data and location of sample; method of analysis; pollutant concentration; confidence ratings; and citations. For substances identified as drinking water pollutants, physical parameters such as boiling point and water solubility data are available. Information is available only in the form of computer printouts.

Detailed information was not available at the time of publication.

EASTERN LAKE SURVEY

Acronym: ELS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development; National Acid Precipitation Assessment Program (NAPAP) (multiagency, including U.S. EPA)

Contact Person: Mr. Alan Herlihy, U.S. EPA Environmental Research Laboratory, 200 SW 35th Street, Corvallis, OR 97333, (503) 757-4442

Objectives and Coverage:

The Eastern Lake Survey was conducted in two phases as part of the National Surface Water Survey (NSWS; other components included the Western Lake Survey and the National Stream Survey, also described in this Inventory). Through a two-phase monitoring program, the ELS assessed the effects of acidic deposition on surface waters in the Northeastern United States, upper Midwest, the southern Blue Ridge, and Florida. The objectives of the Phase I survey conducted in the fall of 1984 were to determine in potentially sensitive regions of the eastern United States: 1) the percentage and location of lakes that were acidic (based on fall samples); 2) the percentage and location of lakes that had low acid neutralizing capacity (ANC); and 3) the chemical characteristics of the lakes studied. Another objective of Phase I was to provide a database for selecting lakes for further study.

The objective of ELS-Phase II, conducted in 1986, was to assess temporal variability in regional lake water chemistry with respect to acidic deposition effects. To achieve this, the ELS-Phase II: 1) assessed the sampling error associated with ELS-Phase I sample; 2) estimated the number of lakes that were not acidic in the fall, but were acidic in other seasons; and 3) established seasonal water chemistry characteristics among lakes and related the fall index sample to seasonal and annual water chemistry patterns.

Summary of Environmental Data:

Media: Surface water (lakes)

Classes of compounds: Inorganic compounds, ions (including fluoride), physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

For ELS-Phase I, water samples were collected in the fall of 1984 from 1,612 lakes selected from within three regions of the eastern United States (Northeast, Upper Midwest, and Southeast) expected to exhibit low buffering capacity (measured by ANC). A number of chemical variables and physical attributes thought to influence or be influenced by surface water acidification were measured for each lake. Lakes were selected by a systematic random process. The sample design allowed the ELS-Phase I database to be used to investigate the chemical status of lakes within a specific region. Additionally, the database can be used to investigate correlative relationships among chemical variables on a regional basis.

For ELS-Phase II, water samples were collected from 145 statistically representative lakes only from the Northeast in three seasons (spring, summer, and fall of 1986). Lakes analyzed in ELS-Phase II were chosen from those samples in ELS-Phase I, using a variable probability sample, and results were compared to the ELS-Phase I results. Like ELS-Phase I, data from ELS-Phase II can be used to provide unbiased estimates of the status and extent of acidic and low ANC lakes for a defined lake population. However, the ELS-Phase II sample did not include lakes with the following characteristics: lakes with high ANC (>400 ug/L); severely nutrient-enriched lakes; shallow lakes (<1.5 m deep); large lakes (>20 km^2); and lakes modified by anthropogenic disturbances (e.g, major wastewater treatment plant discharge).

In the Phase-II survey, data quality control measures identified several problems that would limit the use of some sample results. For chloride, values measured at one of the labs should not be used; these suspect values are flagged in the database or labeled as missing. Population estimates for chloride should not be made for the summer and spring (fall values were measured elsewhere and are valid). For conductivity samples, all field measurements appear to be unreliable, were not validated, and should be interpreted with caution; no problems appeared with laboratory conductivity measurements. For total aluminum, data showed very poor agreement between labs, and precision was highly variable. (This problem was evident in all NSWS surveys.) Also, a number of total aluminum values were less than one subcategory of aluminum. No measurement problems were found with subcategories of aluminum. Finally, air-equilibrated dissolved inorganic carbon and air-equilibrated pH showed some laboratory bias and poor precision at higher pH. Users are strongly advised to use the closed-system dissolved inorganic carbon and pH measurements for data analysis.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (ELS-Phase I -- Northeast, Upper Midwest, southern Blue Ridge, Florida; ELS-Phase II -- Northeast, including the Adirondacks, Poconos/Catskills, northern New England, southern New England, and Maine)

Identifiers: Latitude/Longitude of the monitor site; name of state; (ELS-Phase I also included the name of the county/parish)

Time Coverage: ELS-Phase I -- 1984
ELS-Phase II -- 1986

Sample Characteristics:

Frequency of sample collection: ELS-Phase I -- One time only; ELS-Phase II -- Once in spring, summer, and fall

Regularity of sample collection: Regular

Source and dispersion information: Specific sources not determined -- acidic deposition is typically from nonpoint sources of pollution, and reflects impacts from various dispersed pollutants

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: *Methods for Chemical Analyses of Water and Wastes* (modified for acidic deposition research); *Handbook of Methods for Acid Deposition Studies, Laboratory Analysis for Surface Water Chemistry; Handbook of Methods for Acid Deposition Studies, Field Operations for Surface Water Chemistry*

Approximate time between sample collection and analysis: 1-28 days, varies by analyte

Approximate time between sample analysis and data entry to database: 3-6 months

Quality Assurance/Quality Control Procedures: For both ELS-Phase I and II -- Laboratory blanks, field blanks, duplicates, spikes, external laboratory analyses, data entry audits; in addition, for ELS-Phase I -- field audits, lab audits, analysis of known standards; for ELS-Phase II -- analysis of natural audit material, lab split samples

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Inorganic compounds; ions (including fluoride); microorganisms; physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents. Summary statistics are also available on specific agents, as cumulative distribution functions of regional lake acid-base status

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII, SAS)

Reports: *National Surface Water Survey, Eastern Lake Survey, Phase I: Quality Assurance Plan; Field Operations Report; Data Analysis Plan*

Reference Documents: *National Surface Water Survey: Eastern Lake Survey—Database Dictionaries for Phase I and Phase II*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for data or report copies); Susan Christie, (503) 757-4645 (for information on reports available)

EFFECTS OF SULFUR DIOXIDE AND RESPIRABLE PARTICLES ON HUMAN HEALTH

Acronym: Six Cities Study

Sponsoring Agency: National Institute of Environmental Health Sciences (NIEHS); U.S. Environmental Protection Agency (EPA)

Contact Person: George Malindzak, NIEHS, P.O. Box 12233, Research Triangle Park, NC 22709, (919) 541-3289; Carl Hayes, U.S. EPA, MD-58, Research Triangle Park, NC 27709 (919) 966-7548

Objectives and Coverage:

The Six Cities Study was an extensive multi-year epidemiologic investigation of exposures and community health in six U.S. cities: Watertown, MA; Kingston/Harriman, TN; St. Louis, MO; Steubenville, OH; Portage, WI; and Topeka, KS. The investigation consisted of ambient and indoor air monitoring of selected pollutants in these cities and health questionnaires and pulmonary function tests administered to selected participants from the cities. Ambient air measurements included sulfur dioxide (SO_2), nitrogen dioxide (NO_2), oxygen (O_2), total suspended particulate (TSP), and particulate matter less than 10μm in aerodynamic diameter (PM_{10}) collected from a central site in each community for the purpose of assessing chronic and acute exposures of epidemiologic study participants. Concentrations of NO_2 and particulate matter less than 2.5μm in aerodynamic diameter ($PM_{2.5}$) were measured in homes of approximately 1,800 children participating in the epidemiology study. Health questionnaires and pulmonary function tests were administered to a large cohort of children and adults from the selected communities between 1974 and 1989. The objectives of this epidemiologic study were to study the: 1) chronic effects of air pollution in longitudinal health data from the original cohort of children; 2) acute effects of air pollution on pulmonary function as measured in annual exams of children; 3) chronic effects of air pollution on lung function in adults; 4) effects of air pollution in a repeated cross-sectional study of children; 5) effects of indoor air pollution on respiratory symptoms and lung function of children; and 6) acute effects of air pollution on daily symptom reporting.

Summary of Environmental Data

Media: Air, human samples (exhaled breath)

Classes of Compounds: Criteria pollutants (SO_2, ozone (O_3), NO_2, carbon monoxide (CO)); particulates (TSP, PM_{10}, $PM_{2.5}$, inhalable particulates less than 15μm in aerodynamic diameter (IP_{15}), respirable size particulate matter (RSP), sulfates, elements); acids/acid aerosols; cigarette smoke

Types of data available: Summary statistics on specific agents in published articles

Estimation versus observational data: All observational data

Sample Design and Analysis:

The six cities (Watertown, MA, Kingston/Harriman, TN; St. Louis, MO; Steubenville, OH; Portage, WI; Topeka, KS) were chosen to represent the range of sulfur oxide and particulate air pollution in the United States from 1974-1977 and to ensure a geographic distribution of the samples collected. Adults between 25 and 74 years of age were randomly selected from various census lists such as household voting lists or commercial listings. Because the sampling frames in the 6 cities were constructed at different times and in different ways, the initial samples varied from 2,174 to 3,583 adults. The children initially selected included all first- and second-grade school children in each community. In the Portage, WI area, the numbers were small, so children from grades 1 through 4 were selected. This resulted in a different age distribution for this one city, but all comparisons between cities were age-adjusted. In Topeka, KS, more than half of the schools were selected at random because of their size. All school children were evaluated annually. During the first and second evaluations, new first-grade school children were added to the study if the number of children in that community was less than 1,500. In each community, the school children were first seen at the same time as the adults. The rate of refusal (i.e., refusal of the parents to allow their children to participate) did not exceed 5 percent in any school.

The assessment of health effects in adults was made by personal interviews using a standard questionnaire and simple tests of pulmonary function by trained nonmedical interviewers. The questionnaire included questions on respiratory symptoms, tobacco smoking habits, and occupational and residential history. It was a modified version of the British Medical Research Council Questionnaire, which has been used for 15 years in population studies in the United States and Canada.

Air quality monitoring was performed in each community in an attempt to quantify individual exposures to SO_2, mass respirable particles, sulfates, NO_2, and ozone. This included continuous fixed-location sampling, indoor/outdoor monitoring, and personal monitoring. Continuous monitoring equipment in each community was located at a central site representative of the total residential exposure. From these primary sites, the hourly average concentrations of SO_2, NO_2, and O_3 were recorded. In addition, meteorologic parameters (e.g., wind speed and direction, temperature, and dew point), were recorded; and 24-hour integrated samples for TSP, RSP, NO_2, and SO_2 were collected every 3 days at the central station. In 1979, new ambient air monitoring was initiated including dichotomous sampling ($PM_{2.5}$ and PM_{15}) and elemental particle composition analysis.

The original cohort of children (1974-1989) consisted of 14,357 children who provided health questionnaires and pulmonary function test data on an annual basis for 12 years. A new cohort of 6,273 children, similar in characteristics to the main cohort, provided 3 annual questionnaires and 2 pulmonary function examinations between 1983-1986. A stratified sample of homes and approximately 1,800 children were selected from the second cohort of 6,273 for indoor air sampling, based on smoking and use of a gas stove in the home. Daily respiratory symptom diaries were obtained from these children for approximately 1 year. Indoor air monitoring included measuring NO_2 and $PM_{2.5}$ concentrations in homes. In 1984, aerosol acidity measurements were begun.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (Watertown, MA; Kingston/Harriman, TN; St. Louis, MO; Steubenville, OH; Portage, WI; Topeka, KS)

Identifiers: Standard Metropolitan Statistical Area (SMSA); city; state; street address; country; latitude/longitude and universal transmercator coordinates of the monitor sites

Time Coverage: 1974-1989

Sample Characteristics:

Frequency of sample collection: Daily (hourly average concentrations of SO_2, NO_2, O_3, and meteorologic parameters); 24-hour integrated samples for TSP, RSP, NO_2, and SO_2 every 3 days; indoor air monitoring was conducted on a less frequent basis (1 week integrated sampling for NO_2)

Regularity of sample collection: Ambient air monitoring was conducted continually. Indoor air monitoring and personal monitoring were conducted multiple times each year in each city. Once a year in each city, questionnaires were administered and pulmonary function tests were conducted.

Source information: None available

Dispersion information: None available

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: In-house methods (*Harvard Quality Assurance Manual for Air Quality Assessment*, Volumes 1-5, 1982) and EPA reference methods for criteria pollutants (*EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 2 - Ambient Air - Specific Methods*)

Approximate time between sample collection and analysis: 6 months

Approximate time between sample analysis and data entry to database: 1 year

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, external laboratory analysis, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Indoor homes and public buildings; outdoor urban and rural; personal monitor: Particulates (TSP, PM_{10}, $PM_{2.5}$, IP_{15}, RSP, sulfates, elements); criteria pollutants (SO_2, O_3, NO_2, and CO in indoor, outdoor and some personal air); acids/acid aerosols (indoor and outdoor air); cigarette smoke (indoor and personal)

FOOD SOURCES Not applicable

HUMAN SAMPLES

Exhaled breath: Pulmonary function tests (forced expiratory volume in 1 minute (FEV_1), forced vital capacity (FVC), maximum mid-expiratory flow (MMEF)

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Storage and Retrieval of Aerometric Data (SAROAD) codes

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics are available in published articles

Availability: Data are restricted to investigators until the study is completed; published journal articles are available

Form: Hard copy -- Journal publications

Reports: Journal articles are published (see also Reference Documents)

Brunekreef, D.W., D.W. Dockery, F.E. Speizer, J.H. Ware, J.D. Spengler, and B.G. Ferris, Jr. 1989. Home dampness and respiratory morbidity in children. *American Review of Respiratory Disease.* 140:1363-1367.

Schwartz, J., D.W. Dockery, J.H. Ware, J.D. Spengler, D. Wypij, P. Koutrakis, F.E. Speizer, and B.G. Ferris, Jr. 1980. *Acute effects of acid aerosols on respiratory symptom reporting in children.* Presented at Annual Meeting of Air and Waste Management Association, Anaheim, CA, June 25-30.

Kinney, P.L., J.H. Ware, J.D. Spengler, D.W. Dockery, F.E. Speizer, and B.G. Ferris, Jr. 1989. Short-term pulmonary function change in association with ozone levels. *American Review of Respiratory Disease.* 139:56-61.

Briggs, S.L.K. and J.D. Spengler. 1988. *Trends in fine and coarse aerosol concentration from 1979 to 1986 in six U.S. Cities, PM-10: Implementation of Standards.* APCA/EPA International Specialty Conference, pp. 191-206.

Koutrakis, P., J.M. Wolfson, and J.D. Spengler. 1988. An improved method for measuring aerosol strong acidity: results from a nine-month study in St. Louis, Missouri and Kingston, Tennessee. *Atmospheric Environment.* 22:1463-1468.

Reference Documents:

Ferris, Jr., B.G., F.E. Speizer, J.D. Spengler, D. Dockery, Y.M.M. Bishop, M. Wolfson, and C. Humble. 1979. Effects of sulfur oxides and respirable particles on human health. *American Review of Respiratory Disease.* 120:767-779.

Ferris, Jr., B.G., J.H. Ware, and J.D. Spengler. 1987. Exposure measurement for air pollution epidemiology. In: *Epidemiology and Health Risk Assessment.* L. Gordis, ed. New York: Oxford University Press, pp. 120-128.

Dockery, D.W., J.D. Spengler, L.M. Neas, F.E. Speizer, B.G. Ferris, Jr., J.H. Ware, and B. Brunekreef. *An epidemiologic study of respiratory health status and indicators of indoor air pollution from combustion sources.* Proceedings of APCA Specialty Conference, Combustion Processes and the Quality of the Indoor Environment, September 27, 1988.

Speizer, F.E. 1989. Studies of acid aerosols in six cities and in a new multi-city investigation: design issues. *Environmental Health Perspectives.* 79:61-68.

Spengler, J.D., G.J. Keeler, P. Koutrakis, P.B. Ryan, M. Raizenne, and C.A. Franklin. 1989. Exposures to acidic aerosols. *Environmental Health Perspectives.* 79:43-51.

Data/Reports Available From: Copies of published articles or reprints may be requested from Douglas W. Dockery, Harvard School of Public Health, Department of Environmental Health, 665 Huntington Ave., Boston, MA 02115, (617) 432-1244

EMERGENCY RESPONSE NOTIFICATION SYSTEM

Acronym: ERNS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Emergency and Remedial Response (OERR); U.S. Department of Transportation (DOT), Research and Special Programs Administration

Contact Person: ERNS Information Line at U.S. EPA, Office of Solid Waste and Emergency Response (OSWER), OERR, Emergency Response Division (ERD), (OS-210), 401 M Street SW, Washington, DC 20460, (202) 260-2342

Objectives and Coverage:

ERNS is a national database used to store information on releases of oil and hazardous substances. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), the Clean Water Act (CWA), and the Hazardous Material Transportation Act require reporting of releases of oil and hazardous substances. The primary purpose of ERNS is to standardize and collect these notifications made to the federal government. Since its inception in 1986, ERNS has received over 170,000 release notifications.

The ERNS program is a cooperative data sharing effort among EPA Headquarters, DOT Research and Special Programs Administration's John A. Volpe National Transportation Systems Center (VNTSC), and the National Response Center (NRC) (a nation ide response center for chemical emergencies, staffed by the U.S. Coast Guard and sponsored by 14 federal agencies). EPA manages and funds ERNS, and the VNTSC provides operation and maintenance support through an interagency agreement with EPA.

Currently, ERNS data are used to assist decision-makers in emergency response and release prevention issues. Specific examples of ERNS data applications include guidance and regulatory development, responses to congressional inquiries, response preparedness, compliance and enforcement support, statistical and trend analysis, environmental planning, spill prevention programs, legal analyses, property transfers/site audits, and academic research.

Summary of Environmental Data:

Media: Water, soil or sediment, air

Classes of compounds: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, acids/acid aerosols, criteria pollutants, and any other chemicals reported to ERNS as a release

Types of data available: Individual data entries and summary statistics

Estimation versus observational data: All observational data

Sample Design and Analysis:

NRC, EPA Regions, and the U.S. Coast Guard generally receive the initial notification of an oil or hazardous substance release. A series of questions about the release are asked. The information is immediately transmitted to the appropriate EPA Regional Office or Coast Guard District Office, depending on the release location. The EPA or Coast Guard On-Scene Coordinator (OSC) then transmits the information to the appropriate state and local response authorities and other parties, as necessary. Information on all releases reported to the NRC and EPA Regional Offices is electronically transmitted to the VNTSC in Cambridge, Massachusetts, where it becomes part of the ERNS database. Each EPA Region maintains its own Region-specific database, which is a subset of the national database. Until 1989, information on releases reported to the Coast Guard was provided to ERNS via the Marine Safety Information System. Since 1989, many releases which would have been reported to the Coast Guard in the past are now reported to the NRC.

Examples of notification information in ERNS include discharger identification, date of release, material released, cause of release, damage/injuries/deaths, amount released, source of release, incident location, response actions taken, authorities notified, and environmental medium into which the release occurred. Most of this information is obtained from the initial notification; it is cited as unverified data, because it may be incomplete or inaccurate. Depending on the severity of the release and response actions taken, the EPA or Coast Guard OSC may obtain further information from personnel at the release site or through discussing of the situation with state and local officials. In instances where notification information is verified, additional and more detailed data on the release, including, information related to response actions, can be added to ERNS. Although field samples may be collected by emergency response personnel, sampling data are not included in ERNS.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (U.S., Puerto Rico, and the Pacific Trust Territories, with limited coverage of U.S. coastal waters)

Identifiers: Latitude/longitude of the incident location, point source, country, city, and zip code; street address; zip code; city, municipality, or township; county; state; river reach number; highway and waterway mile markers (data elements exist, but are only included in ERNS if known at the time of release notification)

Time Coverage: 1986-present

Sample Characteristics:

Frequency of sample collection: Sampling data are not included in ERNS

Regularity of sample collection: Sampling data are not included in ERNS

Source information: Some data are collected at the source of the release; other databases (e.g., EPA's CERCLA Information System (CERCLIS), DOT's Hazardous Materials Information System (HMIS), and ATSDR's Hazardous Substances Emergency Event Surveillance System (HSEESS)) contain follow up/confirmatory data which help to identify the source of releases

Dispersion information: Some data in ERNS may describe elements which indicate the size of the release such as, property damage greater than $50,000, evacuation, response actions

Methods of Sample Analysis:

Samples pooled: Sampling and analytical data are not included in ERNS

Standard procedures used: Sampling and analytical data are not included in ERNS; NRC, EPA, and USCG provide a standardized interagency system for incident data

Approximate time between sample collection and analysis: Sampling and analytical data are not included in ERNS

Approximate time between sample analysis and data entry to database: Sampling and analytical data are not included in ERNS; approximate time between receiving data from NRC and EPA and data entry to ERNS varies; data are immediately received from NRC and entered into ERNS; data are reported daily to weekly from EPA regions and immediately entered into ERNS

Quality Assurance/Quality Control Procedures: Data entry is checked

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface, groundwater, leachate, municipal, private: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides and any other chemicals reported to ERNS as a release

SOIL

Residential, industrial, sediment: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, and any other chemicals reported to ERNS as a release

AIR

Outdoor urban and rural: Criteria pollutants, inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, acids/acid aerosols, and any other chemicals reported to ERNS as a release

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN), chemical name or mixture, reported name with a chemical table to correlate it with the CASRN; Chemical Hazards Response Information System (CHRIS) codes

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary release totals such as, annual releases by mode (marine, highway, offshore, pipeline, railway, underground storage tanks, air transport, facility, other); most commonly reported materials; annual reports of specific releases by region; comparisons of the number of release reports between states/calendar years/EPA Regions or cities; comparison of the number of release reports for broad chemical groups; and release reports categorized by the quantity of the material released

Availability: Any requester can obtain data; cost for data is assessed based on the materials used and the time and effort expended to fill the request

Form: Hard copy -- Computer printouts, Agency reports
Machine readable -- Tape (ASCII, Extended Binary Coded Decimal Interchange Code (EBCDIC))

Reports: Periodic reports which contain summaries of release notifications; standard ERNS reports which provide a one-page summary of the releases as reported to the federal government; *Quick Reference Fax Sheets* which include: *Overview of ERNS* (OSWER9360.0-29FS), *CERCLA Notifications* (OSWER 9360.22FS), and *Oil Notifications* (OSWER 9360.22FS); reports are distributed to DOT, the Occupational Safety and Health Administration (OSHA), the Agency for Toxic Substances and Disease Registry (ATSDR), and EPA's Offices of Solid Waste (OSW), Policy, Planning, and Evaluation (OPPE), Emergency and Remedial Response (OERR), and Chemical Emergency Preparedness and Prevention

Reference Documents: *CERCLA, Section 103; Title III of SARA, Section 304; The Federal Water Pollution Control Act, Section 311; The National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Sections 300.51 and 300.65*

Data/Reports Available From: Information on the national ERNS system or specific data may be obtained by calling the ERNS Information Line at (202) 260-2342 or by contacting the U.S. EPA, Freedom of Information Act Office, A-101, 401 M Street SW, Washington, DC 20460; for information concerning EPA Regional ERNS databases, contact the Freedom of Information Act Office of the specific EPA Region

EMISSIONS CERTIFICATION DATABASE

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Mobile Sources
Contact Person: Eldert A. Bontekoe, U.S. EPA, Office of Mobile Sources, 2565 Plymouth Road, Ann Arbor, MI 48105, (313) 668-4200

Objectives and Coverage:

The Emissions Certification Database contains emissions data on regulated pollutants (hydrocarbons, carbon monoxide, and oxides of nitrogen) from certain types of motor vehicles (automobiles and small trucks). Measurements are based on exhaust gases measured at the tailpipe. The measurements are taken by the U.S. EPA's Office of Mobile Sources, and the vehicles represent all new domestic and imported consumer vehicles introduced into the United States nationally. Test vehicles are selected based on the likelihood of being worst-case emitters. Each type of engine is tested once per year. The Emission Certification Database verifies emissions information supplied by manufacturers and is required under the Clean Air Act. The information is primarily used by the U.S. EPA and manufacturers for regulatory purposes to ensure emission compliance. Some analytical results are confidential.

Summary of Environmental Data:

Media: Air (automobile exhaust emissions)

Classes of compounds: Particulates (hydrocarbons), criteria pollutants (CO, NO_x)

Type of data available: Individual samples and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

All vehicles introduced into the United States each year are required to comply with emission standards under the Clean Air Act. Each engine family produced by a given manufacturer is tested for the regulated pollutants based on emissions measured at the exhaust pipe. Vehicles are tested over a fixed cycle (speed-time or hp-time tract), and results are calculated on a grams/mile or grams/BHp-Hr (BHp-Hr=break horse power per hour, a measure of the output of an engine) basis. Testing procedures are developed by the Society of Automobile Engineers (SAE).

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: No geographic identifiers; identified by vehicle engine type

Time Coverage: 1975-present

Sample Characteristics:

Frequency of sample collection: Each engine family is tested once per year; Manufacturers may apply to carry over old data if vehicle is the same as last year

Regularity of sample collection: Annually

Source information: Data are collected at the source

Dispersion information: Not available

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Society of Automobile Engineers standard procedures

Approximate time between sample collection and analysis: Seconds

Approximate time between sample analysis and data entry to database: 1 day

Quality Assurance/Quality Control Procedures: Data entry audits; field blanks; acceptable ranges for measured results; coordination with outside labs; comparison with manufacturer results on same vehicle

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Automobile emissions: Particulates (hydrocarbons), criteria pollutants (CO, NO_x)

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents; sorting is possible on thousands of variables (e.g., engine-specific details and correlations)

Availability: Requester must be approved; some data are confidential; on-line data available within U.S. EPA; files or log books only available to EPA personnel

Form: Hard copy -- Computer printouts
Machine readable -- Tape, diskette, bulletin boards, on-line (ASCII)

Reports: Notices are published in the Federal Register

Reference Documents: None

Data/Reports Available From: Notices are published in the Federal Register and provide the name and address of the contact person; written requests for computer printouts to the U.S. EPA Office of Mobile Sources, 2565 Plymouth Road, Ann Arbor, MI 48105, Attention: Certification Division

ENVIRONMENTAL MONITORING AND ASSESSMENT PROGRAM

Acronym: EMAP

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development

Contact Person: Thomas Dixon or Miriam Rodon-Naveira, U.S. EPA, Office of Research and Development, (RD-680), 401 M Street SW, Washington DC 20460, (202) 260-5782

Objectives and Coverage:

In 1988, the Science Advisory Board of the U.S. EPA recommended implementing a program within EPA to monitor the status and trends of ecological conditions and to develop innovative methods for anticipating emerging problems before they become crises. In response, EPA initiated EMAP. The first five years of the Program will involve the design and implementation of the system. EMAP objectives include: estimation of the current status, changes, and trends in indicators of the condition of the nation's ecological resources on a regional basis; monitoring of indicators of pollutant exposure and habitat condition; identification of associations between human-induced stresses and ecological condition; and generation of periodic statistical summaries and interpretive reports on status and trends to resource managers and the public. The EMAP networks will provide statistically unbiased estimates with quantifiable confidence limits over regional and national scales for periods of years to decades.

Six broad ecological resource categories have been defined within EMAP: near-coastal waters, inland surface waters, wetlands, forests, arid lands, and agroecosystems. Within each of these categories, EMAP is determining the ecological resource categories and resource sampling units that will be assessed in a series of annual surveys. Indicators of response, exposure, habitat, and stressors will be defined. These will determine the types of environmental assessments that will be conducted, such as biomarkers, pathogens, bioassays, tissue concentrations, ambient concentrations, exotics, habitat structure and landscape pattern.

In 1990, EMAP initiated its first demonstration project, a study of estuaries in the mid-Atlantic region. These data will be used for analyses to determine indices. Additional demonstration projects will be conducted over the next several years. Full implementation of monitoring in all resources is being targeted for 1995.

Summary of Environmental Data:

Media: Water, air, soil, food sources

Classes of compounds: Currently inorganic compounds, semi-VOCs, pesticides, PCBs (soil); acids (water); particulates, criteria pollutants, acids (air); additional classes will be added as the Program develops

Type of data available: Individual samples and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The probability-based EMAP sampling design will lead to unbiased estimates with known confidence of the extent of resource classes and their current ecological condition. The proposed sampling design uses a systematic triangular sampling grid of randomly placed points in the U.S. Grid density will vary to meet specific needs, but the baseline density will be one point per 640 km^2 (about 12,600 points in the contiguous United States, around 2,400 points in Alaska, and 56 points in Hawaii). A two-stage process is then used to select points from the grid for landscape description and sampling site selection. In the first stage, landscape within a hexagonal area centered on a subset of grid points sampled probabilistically from the large grid will be characterized to estimate the extent of each resource class and to aid selection of resource sampling units. In the second stage, a subset of resource sampling units is selected for each resource class, from which regional estimates are to be made.

EMAP will operate a series of annual surveys, measuring indicators during a particular season or other time period that is likely to be specific to each resource category. Distinct subsets of sampling points (resource sampling units) will be selected, and environmental assessments will be performed on a rotating four-year cycle. A particular site will therefore be sampled only every fourth year, and condition estimates will be based on four-year running averages. Consequently, EMAP will provide sufficient information about the conditions at any particular site for a period of 40 to 60 years. Standardized analysis procedures will be developed for each survey and study component.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude and universal transmercator coordinates of the monitor site

Time Coverage: Phased-in; first demonstration data collected 1990; full implementation expected by 1995

Sample Characteristics:

Frequency of sample collection: Once every four years samples will be collected at a specific monitoring site during a particular season or other time period that is likely to be specific to each resource category

Regularity of sample collection: Every four years

Source information: Not available

Dispersion information: Not directly available

Methods of Sample Analysis:

Samples pooled: Some assessments will be averaged over a season, others will have individual entries

Standard procedures used: Procedures and manuals will be determined as the Program develops; standard methods will be used when available

Approximate time between sample collection and analysis: To be determined

Approximate time between sample analysis and data entry to database: To be determined

Quality Assurance/Quality Control Procedures: Details not available at this time

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water: Acids (additional classes will be added)

SOIL

Sediment: Currently inorganic compounds, semi-VOCs, pesticides, PCBs, other physical and chemical characterization

AIR

Outdoor rural: Currently particulates, criteria pollutants, acids (HNO_3)

FOOD SOURCES

Fish/Shellfish: Inorganic compounds, pesticides, PCBs

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN) and database-specific codes to link with other existing databases

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Requester must be approved

Form: Hard copy -- Computer printouts; Agency reports; journal publications
Machine readable -- Tape, diskette, on-line (ASCII, SAS), CD-ROM (future)

Reports: Yearly reports will be published; special reports are available about the planning process, preliminary findings, and workshops; journal publications; periodical entitled *EMAP Monitor*

Reference Documents: *EMAP Information Management Committee Charter; Environmental Monitoring and Assessment Program Guidelines for Preparing Logistics Plans; Environmental Monitoring and Assessment Program (EMAP) Overview*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161, (703) 487-4650; state offices within given biogeographic regions; EPA Regional Offices; U.S. Department of Commerce, National Oceanographic and Atmospheric Administration

The following individuals specialize in various resource categories:

EMAP Information Management: Eugene Meier (702) 798-2237
EMAP Air/Deposition Database: Steve Bromberg (919) 541-2919
EMAP Forests Soil Productivity Database: Rick D. Van Remortel (702) 734-3295
EMAP Near Coastal Database: Richard W. Latimer (401) 782-3077

ENVIRONMENTAL RADIATION AMBIENT MONITORING SYSTEM

Acronym: ERAMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Radiation Programs
Contact Person: Geraldine A. Luster or Paula Goode, U.S EPA, Office of Radiation Programs, National Air and Radiation Environmental Laboratory, 1504 Avenue A, Montgomery, AL 36115-2601, (205) 270-3433

Objectives and Coverage:

ERAMS is comprised of nationwide sampling stations that provide air, surface water, drinking water, and milk samples from which environmental radiation levels are derived. The objective is to monitor and identify trends in the accumulation of long-lived radionuclides in these media. The surface water and drinking water data are compared with standards set forth in the U.S. EPA National Interim Primary Drinking Water Regulations (NIPDWR). The milk program is a cooperative effort with the Food and Drug Administration.

The field sampling stations are selected for wide population coverage as well as being located near possible sources of environmental radioactivity, including nuclear power plants and related industries. However, data may be too sparse for use in human health studies.

Summary of Environmental Data:

Media: Water (including surface water, drinking water, and precipitation); air; food sources (milk)

Classes of compounds: Radionuclides; particulates (gross beta radiation); radiation (alpha, beta, gamma)

Type of data available: Individual data entries are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Since 1973, environmental radiation monitoring has been conducted for airborne particulates and precipitation, drinking water, surface water, and pasteurized milk (at milk processing facilities). Gross beta radioactivity measurements and certain specific analyses are performed on air particulates and precipitation samples as indicator measurements in assessing the general impact of all contributing sources on environmental levels of radiation.

Airborne particulates and precipitation samples are collected continuously at 74 field stations located throughout the United States near present and potential sources of environmental radioactivity. Seventy-eight drinking water monitoring sites are located in areas near nuclear power plants and related industries, preferably in major population centers, and 58 surface water stations are located downstream from operating nuclear facilities. In a cooperative program with the U.S. Food and Drug Administration's Dairy and Lipid Product Branch, Milk Sanitation Section, monthly milk samples are collected at 65 pasteurized milk processing facility sampling sites, with one or more sites located in each state, Puerto Rico, and the Panama Canal Zone.

Sample collection for all media is conducted by state health departments (on a goodwill basis). After collection, samples are sent to the National Air and Radiation Environmental Laboratory (NAREL) for analysis. Samples are collected and analyzed using standard procedures from the EPA "Radiochemical Procedures Manual."

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude and universal transmercator coordinates of the nearest city centroid; name of city, municipality, or township; state

Time Coverage: 1973-present

Sample Characteristics:

Frequency of sample collection:

Air particulates/precipitation: Air particulates are collected continuously with a filter, and twice weekly field measurements of gross beta radioactivity are taken; precipitation samples are composited monthly at stations with air filters

Drinking water: Analyses include: (a) tritium on a quarterly basis; (b) gross alpha, gross beta, strontium-90, and gamma on annual composites; (c) radium-226 and -228 if the gross alpha exceeds certain levels; (d) specific iodine-131 on a quarterly sample per year for each station; and (e) an annual composite for plutonium and uranium for stations that exceed gross alpha levels

Surface water: Quarterly grab samples are taken; river and stream samples are analyzed quarterly for tritium and annually for specific gamma activity

Milk: Samples are composited on a monthly basis, according to production, from major milk suppliers representing more than 80% of milk consumed in a given population center. Monthly samples are analyzed for gamma emitting nuclides; quarterly composites are analyzed for strontium. For the first month of the 3 quarters beginning January, April and October, 10 regional composite samples of milk from states within each of EPA's 10 regions are analyzed for strontium-89 and strontium-90; also, all samples collected in July are analyzed for strontium-89 and strontium-90

If any samples in any of the media show increased concentrations above background or expected levels, the station is contacted and additional samples are collected

Regularity of sample collection:

Air particulates/precipitation: Air filters collect continuously and are changed every Tuesday and Friday; precipitation samples are collected as it rains or snows and are composited for the month collected

Drinking water and surface water are collected monthly or quarterly depending on the analysis being done

Milk is collected monthly or quarterly depending on the analysis being done

Source and dispersion information: Some drinking water stations have rivers or lakes as source water; these sources are identified in the database; all surface water samples are collected downstream from nuclear power plants or related industries; some milk samples are collected from dairies in urban areas located in the vicinity of nuclear power plants

Methods of Sample Analysis:

Samples pooled: Samples composited monthly and quarterly (see Sample Characteristics above)

Standard procedures used: Samples are analyzed using procedures from the EPA *Radiochemical Procedures Manual*

Approximate time between sample collection and analysis:

Air particulates/precipitation: field measurements are taken 5 to 29 hours after changing air filters; 6 weeks to 2 months for all analyses to be completed

Drinking water: Analysis begins one week after sample collection; 3-4 months for all analyses to be completed

Surface water: Analysis begins upon receipt of sample

Milk: 2-3 months

Approximate time between sample analysis and data entry to database: 7-10 days

Quality Assurance/Quality Control Procedures: Data entry audits, laboratory blanks, duplicates, spikes, external laboratory analyses

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Drinking water: Radionuclides (radium, tritium, uranium, strontium), radiation
Surface water: Radionuclides (tritium, gamma radiation)
Other (precipitation): Radionuclides (plutonium, uranium), radiation

SOIL Not applicable

AIR

Outdoor Urban: Particulates (gross beta radiation)

FOOD SOURCES

Pasteurized milk: Radionuclides (iodine, barium, cesium, potassium)

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requester can obtain data; available on-line through direct VAX access; users can call Ms. Bobby Weiler, (205) 270-3466 for on-line access

Form: Hard copy -- Agency reports
Machine readable -- Tape, on-line (ASCII, VAX backup, EBCDIC)

Reports: Quarterly reports, *Environmental Radiation Data*, published by the U.S. EPA Office of Radiation Programs, are available to states that operate the ERAMs network and to individuals requesting information

Reference Documents: None

Data/Reports Available From: State offices in states that operate the ERAMS network; U.S. EPA, Office of Radiation Programs, Washington DC, Dr. Charles Petko (205) 270-3411 or Paula Goode (205) 270-3433

FEDERAL REPORTING DATABASE SYSTEM

Acronym: FRDS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA); Office of Groundwater and Drinking Water

Contact Person: Cecil J. Sexton, U.S. EPA, Office of Groundwater and Drinking Water, 401 M Street SW, Washington, DC 20460, (202) 260-7276

Objectives and Coverage:

FRDS is a centralized database for information on public drinking water supplies, including their compliance with monitoring requirements, maximum contaminant levels (MCL), and other requirements of the Safe Drinking Water Act (SDWA) Amendments of 1986. Data are used for the Public Water System Supervision (PWSS) Program maintained by EPA's Office of Drinking Water. FRDS contains approximately 12 million records. Information tracked includes: owner/operator name and address; operational status; location; on-site visits; sources; violations; enforcement and compliance actions; treatment; variances and exemptions; area (county and population) the system serves; and historical information. Additional information is entered at each state's discretion. FRDS does not track private wells or public water supplies excluded by the SDWA.

Summary of Environmental Data:

Media: Surface water and ground water

Classes of compounds: Inorganic compounds, VOCs, semi-VOCS, trihalomethanes, pesticides, PCBs, dioxins/furans, radionuclides, microorganisms, physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The Safe Drinking Water Act Amendments of 1986 stipulate that all public water supply facilities must conduct monitoring, maintain records, and provide compliance and enforcement information to EPA. Monitoring must be performed in accordance with *40 CFR Part 141: The National Primary Drinking Water Regulations* and analysis must be done in accordance with *40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants*. Public water supply owners and operators are required to report monitoring results to the state (to the EPA Regional office in non-primacy states or Indian lands) at frequencies (daily, monthly, quarterly, or yearly, depending upon the contaminant) specified in state and federal regulations. Monitoring reports are submitted to state (or Regional) enforcement officials, who determine if a violation has occurred and submit quarterly reports to EPA Headquarters containing any new information for FRDS. Some states submit FRDS information manually, while others have developed automated data processing systems compatible with FRDS.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the zip code, city, county, and monitor site; street address; zip code; name of city, municipality, or township; county; state

Time Coverage: 1976-present

Sample Characteristics:

Frequency of sample collection: Varies depending upon the size (population served) of the public water supply and the monitoring requirements of state and federal regulations

Regularity of sample collection: Varies (see above)

Source information: EPA identification numbers are used to indicate source; source names are sometimes given at the option of the state (or EPA Regional office)

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: *CFR Part 141* allows public water supply facilities to pool up to five samples; if the public water supply serves a population of greater than 3,300, five samples can be pooled within their own system; if it serves a population of less than 3,300, it can pool five samples with four other public water systems

Standard procedures used: Monitoring is performed in accordance with *40 CFR Part 141: The National Primary Drinking Water Regulations* and analysis is done in accordance with *40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants*

Approximate time between sample collection and analysis: Varies with each contaminant

Approximate time between sample analysis and data entry to database: 4 months

Quality Assurance/Quality Control Procedures: Data entry audits; laboratory blanks (part of the Laboratory Certification Project maintained by the EPA, Office of Groundwater and Drinking Water, Technical Support Division)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface, Groundwater: Inorganic compounds, VOCs, semi-VOCS, trihalomethanes, pesticides, PCBs, dioxins/furans, radionuclides, microorganisms (total coliform, fecal coliform), physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers (FRDS 4-digit codes)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents (see Reports)

Availability: Any requester may obtain data; requester must be approved by EPA and states (or Regions) for computer access rights; information on a public water supply that has an ongoing enforcement case cannot by obtained

Form: Hard copy -- Computer printouts, files, Agency reports, journal articles
Machine readable -- Tape, diskette (ASCII; FILEGEN is used to generate data in any form), bulletin board, on-line

Reports: Quarterly reports, which include: *Comprehensive Report; Service Area and Source Data; Facilities and Population Served by Primary Water Supply Source; Distribution of PWSs (by State, Source); Violation by Population; PWSs: Months in Violation; Annual Data Evaluation/Random Selected Sample Systems; Violation by Primary Water Supply Source; Summary and Violation Date; Months in Violation by Date; Random Selected Systems; State Follow-up on Significant Noncompliers/Exceptions Report*; customized reports are also available

Reference Documents: *40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants*; *Safe Drinking Water Amendments of 1986*; *40 CFR Part 141: The National Primary Drinking Water Regulations*; *40 CFR Part 142: The National Primary Drinking Water Regulations Implementation*; *EPA Office of Groundwater and Drinking Water Supply Guidance Manual*; *Data Verification Protocol*

Data/Reports Available From: Cecil J. Sexton, U.S. EPA, Office of Groundwater and Drinking Water, 401 M Street SW, Washington DC 20460, (202) 260-7276 (for all forms of data and on-line approval); state and regional environmental protection agencies also authorize user accounts and passwords for on-line information

FISH INFORMATION NETWORK

Acronym: FIN
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development
Contact Person: Joan P. Baker, Western Aquatics, Inc., Suite 220, Executive Park, 1920 Highway 54, Duram, NC 27713, (919) 544-9454

Objectives and Coverage:

The FIN database contains data and information relating to the distribution and status of fish populations in surface waters in the Adirondack region of New York state that are sensitive to or already affected by acidic deposition. All available data on physical characteristics, fish populations, fisheries management procedures, and water chemistry for 2,759 lakes in the Adirondack Ecological Zone and approximately 600 other lakes in proximity to the Adirondacks have been incorporated into FIN. Efforts to compile data for other regions in the Northeast have been initiated. Most data were obtained from 2 major sources: the New York State Department of Environmental Conservation (NYSDEC) and Carl L. Schofield of Cornell University. Additional water chemistry data were obtained from Donald F. Charles of Indiana University. Data compiled in FIN have been recorded at the most specific level of detail possible. Also see separate entry for the Acid Deposition Data Network (ADDNET), which maintains 14 data sets that contain information on lake morphometry, station location, fish status, and water chemistry.

Detailed information was not available at the time of publication.

FLUORIDATION CENSUS

Acronym: None
Sponsoring Agency: U.S. Department of Health and Human Services, Centers for Disease Control (CDC), National Center for Prevention Services (NCPS)
Contact Person: Darrell H. Sanders, Jr., U.S. Department of Health and Human Services, CDC, NCPS, Dental Disease Prevention Activity, Atlanta, GA 30333, (404) 488-4451

Objectives and Coverage:

The Fluoridation Census was first collected from states in 1967. The census has been conducted on a periodic basis, with the most recent census being the 1989 census. The purpose of the census is to determine the proportion of the population that is receiving the benefits of optimally adjusted fluoridated water and to monitor this proportion over time. Further, information from this census helps target prevention programs administered by NCPS.

The NCPS maintains a master file of water systems that have reported fluoridation in the previous census. When the census is updated, these lists are sent to the states. The states are requested to update both the status of fluoridation of the water system and the population served by the water system.

Summary of Environmental Data:

Media: Water (drinking water)

Classes of compounds: Ions (fluoride)

Type of data available: Individual data entries

Estimation versus observational data: All observational data

Sample Design and Analysis:

The Fluoridation Census is intended to be a complete enumeration of public water supplies that contain fluoride, either through natural sources or through chemical additives. The NCPS maintains a master file of water systems that have reported optimum fluoridation in the previous census. Optimum levels are determined by the state and are given in the database. When the census is updated, the master list is sent to the states. The states are requested to update both the status of fluoridation of the water system and the population served by the water system. Only public water supplies are included in this census. Further, only the public water supplies that are optimally fluoridated are listed in the census. Water supplies are classified as community, military, native American, or school water supplies.

Geographic information is given for the site of the treatment facilities, but not for the extent of the distribution of the water system. There are water systems that cross county boarders, but the extent of the population served in each county are not given.

Analyses of fluoridation are conducted in accordance to EPA regulations. Each water system is analyzed separately.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Name and FIPS code for state and county; name of water system and name of community served

Time Coverage: Periodic census, 1967, 1969, 1975, 1980, 1985, 1988, 1989

Sample Characteristics:

Frequency of sample collection: Groundwater is measured once yearly, surface water is measured once every three years

Dispersion information: The size of the population served by the water system is given, however, the geographic boundaries of the served population are not given

Details of other sample characteristics were not available at time of publication

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Approved *Standard Methods for Examination of Water and Waste Water* published by the American Public Health Association, American Water Works Association, and Pollution Water Control Federation (most recent edition #17, 1989)

Details of other sample analysis characteristics were not available at time of publication

Quality Assurance/Quality Control Procedures: Details of the QA/QC procedures were not available at time of publication

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER
Drinking water: Ions (fluorides)

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries, including type of water system, type of fluoride chemical used to adjust water, total population served by water system

Availability: Any requestor can obtain diskettes with data on the current census and summary reports

Form: Hard copy -- Reports contain summary tables by states and territories
Machine readable -- Diskette (dBase)

Reports: Each census has a summary status report: *Fluoridation Census Summary, (year)*

Reference Documents: None

Data/Reports Available From: Darrell H. Sanders, Jr., CDC, NCPS, Dental Disease Prevention Activity, Atlanta, GA 30333, (404) 488-4451

GLOBAL ENVIRONMENT MONITORING SYSTEM

Acronym: GEMS

Sponsoring Agencies: World Health Organization (WHO); United Nations Environment Programme (UNEP); Food and Agriculture Organization (FAO) of the United Nations

Contact Persons:

GEMS/AIR: Dr. David Mage, WHO, 1211, Geneva 27, Switzerland, 41-22-91-3729; Gardner Evans, U.S. Environmental Protection Agency (EPA), Atmospheric Research and Exposure Assessment Laboratory (AREAL), MD-56, Research Triangle Park, NC 27711, (919) 541-3887 (U.S. contact)

GEMS/WATER: Dr. Martine Allard, WHO Collaborating Center on Surface and Ground Water Quality at the Canada Centre for Inland Waters (CCIW), National Water Research Institute, Burlington, Ontario, (416) 336-6441

GEMS/FOOD: Dr. Gerry Moy, WHO, 1211, Geneva 27, Switzerland, 41-22-791-3698; Jerry Burke, U.S. Department of Health and Human Services, Food and Drug Administration (FDA), Division of Contaminant Chemistry, Center for Food Safety and Applied Nutrition, 200 C Street SW, Washington, DC, (202) 245-1307 (U.S. contact)

Objectives and Coverage:

GEMS, established under the auspices of the WHO, UNEP, and the FAO, is a program which involves monitoring of air, water, and food quality on a global scale. Scientists from 60 countries throughout the world participate in GEMS. GEMS/AIR contains results of air quality sampling; GEMS/WATER includes freshwater quality sample results; and GEMS/FOOD contains food contamination results. Although the three programs do not cover many of the areas in the developing world, they do provide valuable information which indicates current regional, national, and global trends in environmental health.

The Collaborating Center on Air Pollution Control, established by the WHO and operated by the U.S. EPA, maintains the GEMS/AIR database on EPA computers using application systems designed specifically for the WHO. The WHO CCIW in Canada was established for the purpose of data handling for the GEMS/WATER database. The GEMS/FOOD database is maintained by the Information Systems Support Division at the United Nations (UN) International Computing Center, WHO headquarters in Geneva, Switzerland.

Data for each of the GEMS monitoring programs are summarized and assessed by scientists at the GEMS data centers, WHO, UNEP, and FAO (GEMS/FOOD data only). A series of air quality, water, and food assessment reports are issued, such as, air quality assessment reports which evaluate the relative exposures of populations to ambient air pollution in a wide range of urban areas and estimate the trends which emerge. It is hoped that dissemination of GEMS information on levels, trends, and health significance of environmental contamination will permit UN member countries to make national decisions for the improvement of environmental conditions of relevance to public health.

Summary of Environmental Data:

Media: Air; surface and ground water; food sources

Classes of compounds:

GEMS/AIR: Particulates; criteria pollutants (sulfur dioxide and some data on nitrogen dioxide, carbon monoxide, and lead)

GEMS/WATER: Inorganic compounds; VOCs (benzene); semi-VOCs (phenol); pesticides; PCBs; microorganisms (total and fecal coliform); physical and chemical indicators of water quality; ions (including fluoride)

GEMS/FOOD: Inorganic compounds; PCBs; pesticides; aflatoxins

Type of data available: Summary statistics are available on specific agents for all GEMS databases; individual data entries are only available with permission from WHO and UNEP for GEMS/FOOD and GEMS/WATER; information on the availability of individual data was unknown for GEMS/AIR at the time of publication

Estimation versus observational data: All observational data

Sample Design and Analysis:

The gathering of data is done by national institutions of UN member countries with help from relevant UN agencies. To maintain uniformity, a standardized coding system is used for each database to transfer data between countries and the data center. The data are checked and edited and any questions which arise are resolved through WHO headquarters. Countries receive reports from the data centers for scrutiny of their data. Any corrections or amendments are subsequently applied to the master database.

Monitoring sites included in GEMS/AIR are large urban areas with three identifiable sites within the metropolitan area: city center, industrial, and suburban. Air sampling data for total suspended particulate (TSP) and sulphur dioxide are collected by scientists from participating countries. Data are generally collected on a 24-hour basis and reported to the Collaborating Center on Air Pollution Control on a quarterly schedule.

Monitoring stations in GEMS/WATER are selected from existing national or local networks wherever possible; otherwise, new stations were established. Priority is given to rivers, lakes, and groundwaters used for water supply. Data are collected by national institutions on a schedule which varies from country to country and are forwarded to the WHO CCIW.

Food contamination data in GEMS/FOOD includes chemical and biological agents arising from environmental and industrial pollution, agricultural technology, food processing practices, and natural sources. Data are collected by national food contamination monitoring programs in countries producing the foodstuffs and importing countries at points of entry and are forwarded to WHO headquarters. Data items reflect the food name and its country of origin, contaminant, year

of sampling, number of samples analyzed, detection limit, and median, 90th percentile, and minimum and maximum measurement of the contaminant detected.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Global (over 60 countries)

Identifiers:

GEMS/AIR: Latitude/longitude of the monitor site; street address

GEMS/WATER: Latitude/longitude of the monitor site

GEMS/FOOD: Name and address of participating institutions and collaborating laboratories

Time Coverage:

GEMS/AIR: 1972-present

GEMS/WATER: 1976-present

GEMS/FOOD: 1979-present

Sample Characteristics:

Frequency of sample collection:

GEMS AIR: Varies; samples collected by individual countries; data collected daily by participating agencies; reported to the Collaborating Center on a quarterly schedule

GEMS WATER: Varies; samples collected by individual countries; data collection by participating agencies and the Collaborating Center varies from country to country

GEMS FOOD: Varies; samples collected by individual countries; data collected yearly by participating institutions; approximately every 3 years by the data center

Regularity of sample collection: Varies; samples collected by individual countries

Source information:

GEMS/AIR and GEMS/WATER: None

GEMS/FOOD: Data on global food contamination by food commodity is available; source of food contamination (e.g., farm) can be traced by some of the national institutions of UN member countries

Dispersion information:

GEMS/AIR: None

GEMS/WATER and FOOD: Sample results may indicate dispersion to food products and waterways

Methods of Sample Analysis:

Samples pooled: Unknown; samples collected by individual countries

Standard procedures used: Standard analytical procedures required of national institutions of each country; WHO standardized coding systems are used to transfer data between the countries and the data centers; the Global Water Data Management System (Glowdat), a water quality database, is used by the WHO CCIW for data processing and reporting

Approximate time between sample collection and analysis: Unknown; samples collected by individual countries

Approximate time between sample analysis and data entry to database: Unknown; samples collected by individual countries; approximate time between receival of data at the data center and entry to database is 6-12 months for GEMS/AIR, 3 months for GEMS/FOOD, and 1 month for GEMS/WATER

Quality Assurance/Quality Control Procedures: Each country has its own procedures for data collection; data entry audits are done at each of the data centers; GEMS/FOOD and GEMS/WATER include a quality assurance/quality control program for laboratory analysis that is maintained by designated laboratories; these programs are described in *GEMS/FOOD Analytical Quality Assurance Studies; GEMS/WATER Operational Guide* (information on the GEMS/AIR quality assurance/quality control program for laboratory analysis was unavailable at the time of publication)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface and groundwater: Inorganic compounds; VOCS (benzene); semi-VOCS (phenol); pesticides; PCBs; microorganisms (total and fecal coliform); physical and chemical indicators of water quality; ions (fluoride)

SOIL Not applicable

AIR

Outdoor Urban: Suspended particulate matter, criteria pollutants (sulfur dioxide and some data on nitrogen dioxide, carbon monoxide, and lead)

FOOD SOURCES

Plants, fish/shellfish, milk: Inorganic compounds (lead, cadmium, mercury, tin); PCBs; pesticides (organochlorine and organophosphorus compounds); aflatoxins

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents:

GEMS AIR: Storage and Retrieval of Aerometric Data (SAROAD) coding system (see Air Quality Subsystem entry)

GEMS/WATER: Chemical name or mixture; National Water Quality Data Bank of Canada (NAQUADAT) coding system

GEMS/FOOD: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics are available on specific agents for all GEMS databases; individual data entries are only available with permission from WHO and UNEP for GEMS/FOOD and GEMS/WATER; information on the availability of individual data was unknown for GEMS/SIR at the time of publication

Availability: WHO publications are available to the public; requester must obtain approval from WHO and UNEP for individual data for GEMS/FOOD and GEMS/WATER (unknown for GEMS/AIR)

Form: GEMS/AIR: Hard copy -- Computer printouts
Machine readable -- Tape, diskette (ASCII)

GEMS/WATER: Hard copy -- Agency reports
Machine readable -- Diskette (ASCII)

GEMS/FOOD: Hard copy -- Agency reports
Machine readable -- Diskette (ASCII; several other forms available)

Reports: Distributed to the UNEP and the WHO

GEMS/AIR: *Air Quality in Selected Urban Areas*, which gives a statistical analysis of GEMS air data, is prepared by the Collaborating Center on Air Pollution Control; assessment reports are produced by WHO

GEMS/WATER: Several; data summaries are prepared in 3-year intervals and published in *GEMS/WATER Data Summaries*; others include: *GEMS/WATER Operational Guide*, a directory of participating institutions; and *GEMS/WATER Data Evaluation Reports*

GEMS/FOOD: *Assessment of Chemical Contamination in Food* (3 years of data summaries); latest version was published in 1988 and includes 1983-1985 data (some data are not included for reasons of confidentiality)

Reference Documents:

GEMS/AIR: WHO guideline, *Selected Measurement Methods*

GEMS/WATER: Several listed in Agency reports, examples include: *Standard Methods for the Examination of Water and Waste Water*, American Public Health Association, American Water Works Association and Water Pollution Control Federation, 1989; *Water Quality Assessments, A Guide for the Use of Biota Sediment and Water in Environmental Monitoring*, Chapman, D. (ed.), (in press)

GEMS/FOOD: *Codex Alimentarius*, Codex Alimentarius Commission (includes acceptable limits for contaminants); Federal Registers and similar national publications which include food legislation (e.g., acceptable contaminant levels in food, sampling and analysis methods) in each country

Data/Reports Available From:

GEMS/AIR: Gardner Evans, U.S. EPA, Atmospheric Research and Exposure Assessment Laboratory, MD-56, Research Triangle Park, NC 27711, (919) 541-3887 (for published WHO documents); Dr. David Mage, WHO, 1211 Geneva 27, Switzerland, 41-22-791-3729 (for all other data forms and to request individual data)

GEMS/WATER: Dr. Martine Allard, WHO Collaborating Center on Surface and Ground Water Quality at the Canada Centre for Inland Waters (CCIW), National Water Research Institute, Burlington, Ontario, (416) 336-6441

GEMS/FOOD: Dr. Gerry Moy, WHO, Geneva 27, Switzerland, 41-22-791-3698

GREAT LAKES FISH MONITORING PROGRAM

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Great Lakes National Program Office
Contact Person: David DeVault, U.S. EPA, Great Lakes National Program Office, 5GL, 230 S. Dearborn St., Chicago, IL 60604, (312) 353-1374

The Great Lakes Fish Monitoring Program, begun in 1970, collects samples of rainbow smelt, coho salmon, and chinook salmon from the Great Lakes and analyses them for PCBs, DDT, hexachlorobenzene, dacthal, chlordane, dieldrin, toxaphene, mirex, heptachlorepoxide, and pentachlorophenyl methyl ether. The Program also performs analyses periodically for dioxins, and other substances for special studies. Some data are collected annually (smelt, coho), while other data are collected biennially (different species are studied in different years). Available reports include: *Contaminants in Fish from Great Lakes, Harbors, and Tributary Mouths* (D. Devault, *Toxicol.* 14:587); and *Polychorinated Dibenzofurans and Poloychlorinated Dibenzo-p-dioxins in Great Lakes Fish: A Baseline and Interlake Comparison* (D. Devault, *Environ. Tox. and Chem.*, Vol. 8).

Detailed information was not available at the time of publication.

HAZARDOUS SUBSTANCE RELEASE/HEALTH EFFECTS DATABASE

Acronym: HAZDAT
Sponsoring Agency: U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR)
Contact Person: Mike Perry, ATSDR, Office of the Assistant Administrator, Office of Information Resource Management, 1600 Clifton Road (E28), Atlanta, GA 30333, (404) 639-0720

Objectives and Coverage:

ATSDR, created by Congress in 1980, has the mission to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances in the environment. To achieve this goal ATSDR conducts health assessments and consultations at Superfund sites and other sites; conducts or funds health studies of individuals exposed to hazardous materials at these sites; and develops toxicological profiles of hazardous substances. As part of these activities, ATSDR is currently developing HAZDAT, a database that records ATSDR activities. At the time of this writing, past ATSDR data are being entered into HAZDAT. It is anticipated that HAZDAT may be available to some other federal agencies beginning April 1992. It is not known when it will be available to the general public. Data in HAZDAT include: site characteristics; activities and site events; contaminants detected; contaminant media; maximum concentration; population impacted by the site or event; community health concerns; ATSDR recommendations; environmental fate; exposure routes; and physical hazards at the site or event. HAZDAT also includes data from EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), including: CERCLIS number; site name; address; National Priority List (NPL) status; site description; latitude and longitude; and operable units (specific locations at each site). Substance-specific data from ATSDR toxicological profiles are included in HAZDAT: presence on ATSDR's Priority List of Hazardous Substances; health effects by route and duration of exposure; metabolites; interactions; susceptible populations; and biomarkers of exposure and effects. HAZDAT can be used by ATSDR personnel for research and information management purposes (e.g., to obtain a complete site history; for rapid access to toxicological data; to identify similarities of sites and events).

Summary of Environmental Data:

Media: Water, soil, air, food sources, human samples (urine)

Classes of compounds: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, ions (including fluoride), physical and chemical indicators of water quality

Type of data available: Summary statistics are entered into the database

Estimation versus observational data: All observational data

Sample Design and Analysis:

Activities of ATSDR are performed by three Divisions; the Division of Health Assessment and Consultation, the Division of Health Studies, and the Division of Toxicology. The Division of Health Assessment and Consultation conduct site assessments at Superfund National Priorities List (NPL) sites and at sites where emergencies involving hazardous materials have occurred. The Environmental Protection Agency (EPA) and state environmental protection agencies usually alert ATSDR of an emergency event. Emergency response is jointly provided by ATSDR, EPA, and other government agencies involved in emergency response. ATSDR provides recommendations for evacuation, spill clean up, etc. The Division of Health Assessments and Consultation also conduct health assessments at other sites (indoor and outdoor environments), when requested. When substance information is included in ATSDR's health assessments and consultations, the maximum concentration of each substance per media is included in HAZDAT.

When known exposures to individuals at sites visited by ATSDR have occurred, long term epidemiological and biological monitoring are conducted or funded by the Division of Health Studies. Information on the activities of the Division of Health Studies was unavailable at the time of publication.

Data from each of these ATSDR investigations and current medical literature have been used by the Division of Toxicology, in conjunction with EPA, to rank 275 substances at toxic waste facilities in order of priority. Toxicological profiles for 120 of these substances have been developed and are continually updated based on new information. Future plans include the development of profiles for the remaining substances.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (United States and U.S. Territories)

Identifiers: Latitude/longitude of the point source (from the EPA CERCLIS database); street address; zip codes; census tract; city, municipality, or township; county/parish; state; congressional district

Time Coverage: 1980-present

Sample Characteristics:

Frequency of sample collection: Varies, depending upon the conditions at the site and the agency collecting the samples

Regularity of sample collection: Varies, depending upon the conditions at the site and the agency collecting the samples

Source information: Data are collected at the source

Dispersion information: On-site and off-site sampling data indicate migration in some media

Methods of Sample Analysis:

Samples pooled: When substance information is included in ATSDR's health assessments and consultations, the maximum concentration of each substance per media are included in HAZDAT

Standard procedures used: Information not available at the time of publication

Approximate time between sample collection and analysis: Varies according to site and agency

Approximate time between sample analysis and data entry to database: Past ATSDR data are presently being entered into the database; it is anticipated that health assessment data will be entered at the completion of the assessment

Quality Assurance/Quality Control Procedures: Data entry audits; EPA and other government agencies involved in emergency response perform sampling and analytical QA/QC procedures

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface; groundwater; leachate; municipal; private: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, ions (including fluoride), physical and chemical indicators of water quality

SOIL

Residential; industrial; sediment; Superfund sites; dust: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides, asbestos

AIR

Outdoor urban and rural: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides, asbestos

FOOD SOURCES

Nondomesticated and domesticated mammals; plants; fish/shellfish: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides, asbestos

HUMAN SAMPLES

Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans; and clinical organ-system function tests

BULK CHEMICALS Not Applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical name or mixture; database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics are entered into the database; data can be aggregated by various topics

Availability: Currently, HAZDAT is available only to ATSDR staff; after HAZDAT has been verified for data accuracy, others may use and obtain data; will be available to other federal and state agencies in 1992, and to the general public later

Form: Hard copy -- Computer printouts; Agency reports
Machine readable -- On-line (IBM mainframe)

Reports: ATSDR does not yet provide regular reports on this database.

Reference Documents: None

Data/Reports Available From: Mike Perry, Agency for Toxic Substances and Disease Registry, Office of the Assistant Administrator, Office of Information Resource Management, 1600 Clifton Road (E28), Atlanta, GA 30333, (404) 639-0720

HISPANIC HEALTH AND NUTRITION EXAMINATION SURVEY

Acronym: HHANES
Sponsoring Agency: U.S. Department of Health and Human Services, Centers for Disease Control (CDC), National Center for Health Statistics
Contact Person: Robert Murphy, National Center for Health Statistics, Room 900, 6525 Belcrest Road, Hyattsville, MD 20782, (301) 436-7068

Objectives and Coverage:

HHANES, a data collection effort conducted by the National Center for Health Statistics (NCHS) from 1982 to 1984, was mandated to collect health data on Hispanics and to derive estimates of health and nutritional status that are comparable to estimates available for the general population from the National Health and Nutrition Examination Survey (NHANES) programs (see the description of NHANES in Part I of this Inventory). The goals of HHANES were: (1) to estimate the national prevalence of selected diseases and risk factors in Hispanic populations, (2) to estimate distributions of selected health parameters, and (3) to document and investigate reasons for trends in selected diseases and risk factors. HHANES collected and disseminated data obtained from physical examinations, diagnostic tests, anthropometric measurements, laboratory analyses, and personal interviews. A representative sample of Mexican Americans, Puerto Ricans, and Cuban Americans, who constituted approximately 76 percent of the 1980 Hispanic population in the United States, were interviewed; 85 percent of those interviewed were also examined. The database was specifically designed to assess exposure in minority populations (Hispanics) and Hispanics 6 months to 19 years of age and 45 to 74 years of age. The data collected included information on exposure to pesticides, lead, and other toxics as well as blood levels of a variety of toxicants and their metabolites. HHANES was the first special population survey undertaken by the NCHS. It was designed to identify unmet health care needs of Hispanics and has been used to study blood lead levels in Hispanic children and cigarette consumption among Mexican American smokers.

Summary of Environmental Data:

Media: Human samples (blood, urine, hair)

Classes of compounds: Inorganic compounds (trace metals, lead), semi-VOCs, pesticides, PCBs, cotinine, carboxyhemoglobin, thiocyanate, and erythrocyte protoporphyrin

Type of data available: Individual data entries on specific agents; summary statistics (e.g., geometric and arithmetic means, percentage of individuals with elevated levels, and percentage of individuals with quantifiable levels) on specific agents tested in sample populations

Estimation versus observational data: All observational data

Sample Design and Analysis:

HHANES used complex, multistage, stratified, clustered sample of defined populations to obtain data representative of the health and nutritional status of Hispanics 6 months to 74 years of age in the United States. The population studied was the civilian noninstitutionalized Hispanics from three areas of the country: Mexican Americans in the Southwest (defined as California, Arizona, New Mexico, Texas, and Colorado), Puerto Ricans in the New York City area (defined as selected counties in New York, New Jersey, and Connecticut); and Cuban Americans in Dade County (Miami), Florida. Using 1980 census data, counties from these target survey areas were identified and characterized by Hispanic population density and number. Based on this information, the sampling areas were identified. The stratification variables used were number of Hispanics, the percent of the population that was Hispanic, the ratio of the 1980 to 1970 Hispanic population, median income, and the percent of the Hispanic population that was urban. Based on these data, households and individuals within households were chosen for inclusion. Eligible Hispanics 6 months to 19 years in age and 45 to 74 years of age were oversampled to improve the reliability of estimates of their health characteristics and nutritional status.

Information on a wide range of demographic variables was obtained including age, national origin, sex, income, education, and marital status. Physical examinations, diagnostic tests (including blood pressure, electrocardiograms, and dental examinations), anthropometric measurements, laboratory analyses (including urinalysis, biochemical analysis of whole blood and serum, and oral glucose tolerance tests), personal interviews, and dietary interviews were conducted on individuals selected for participation. Using standard analytic and QC/QA procedures, blood samples were analyzed for pesticides, trace metals, lead, cotinine, carboxyhemoglobin, thiocyanate, PCBs, and erythrocyte protoporphyrin, and urine samples were analyzed for pesticides and PCBs. During a pilot test, hair samples from a subsample of 12- to 19-year-olds were tested for selected trace metals. Questions were asked regarding the type of heating fuel used, tobacco use (12- to 74-year-olds), farmwork history, use of Kwell for head or body lice, and pesticide exposure (12- to 74-year-olds).

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (i.e., the Southwest; the New York City area; and Dade County (Miami), Florida)

Identifiers: SMSA (standard MSA); state; region of the country

Time Coverage: 1982-1984

Sample Characteristics:

Frequency of sample collection: Sampling occurred on a daily basis in each primary sampling unit (county); each individual was sampled once

Regularity of sample collection: Blood and urine samples from each individual were collected at the time of his or her physical examination at the mobile exam center; individuals were examined mornings, afternoons, or evenings, weekdays or weekends; each individual was examined/sampled only once

Source information: Information was collected on use of pesticides at work and at home, smoking history (to compare with serum cotinine, carboxyhemoglobin, and thiocyanate concentrations), and occupation

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: EPA Toxicant Analysis Center in Bay St. Louis, Mississippi performed the pesticide and PCB analyses; the National Center for Environmental Health and Injury Control (NCEHIC) (formerly the Center for Environmental Health) performed the lead and erythrocyte protoporphyrin analyses; Dr. Edward Radford at the University of Pittsburgh conducted the thiocyanate and carboxyhemoglobin analyses; the University of California, San Francisco analyzed a small subset of the blood samples for cotinine; the University of New Mexico Primate Research Center analyzed blood samples for trace metals

Approximate time between sample collection and analysis: A few months; longest period of freezer storage before analysis was 2 to 3 years for pesticides; the lead samples were stored for a shorter period of time

Approximate time between sample analyses and data entry to database: Varied by analyte and lab

Quality Assurance/Quality Control Procedures: Field blanks, duplicates, spikes, external laboratory analyses, data entry audits; the EPA Toxicant Analysis Center performed and reviewed the QA/QC procedures; the lab participated regularly in an interlaboratory QC study; NCHS and EPA reviewed the QA/QC results; the NCEHIC lab also participated in an interlaboratory study

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES

Blood; urine; hair: Inorganic compounds, semi-VOCs, pesticides, PCBs, cotinine, carboxyhemoglobin, thiocyanate, erythrocyte protoporphyrin; and clinical organ-system function tests

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents; summary statistics (geometric and arithmetic means, percent with elevated levels, and percent with quantifiable levels) on specific agents

Availability: Any requester can obtain data as they become available on publicly accessible computer datatape; data are provided in a form that does not reveal individual identities or violate confidentiality.

Form: Hard copy -- Journal publications
Machine readable -- Tape (ASCII); pesticide and cotinine data not yet released on computer data tape

Reports: Summary statistics are published in reports on an irregular basis in *Vital and Health Statistics, Series 11*

Reference Documents:

Carter-Pokras, O., G.J. Pirkle, G. Chavez, and E. Gunter. 1990. Blood lead levels of 4-11 year old Mexican American, Puerto Rican, and Cuban children. *Public Health Reports.* 105(4): 388-393.

Interagency Committee on Nutrition Monitoring. September 1989. *Nutrition monitoring in the United States: The directory of federal nutrition monitoring activities.* Hyattsville, MD: U.S. Department of Health and Human Services, Public Health Services. DHHS Pub. No. PHS 89-1255-1.

Maurer, K.R., R. Russell-Briefel, C.M. Dresser, et al. 1985. National Center for Health Statistics. *Plan and operation of the Hispanic Health and Nutrition Examination Survey, 1982-84.* Vital and Health Statistics, Series 1, No. 19. Washington, DC: U.S. Government Printing Office. DHHS Pub. No. PHS 89-1321.

Najjar, M.F. and R.J. Kuczmarski. 1989. National Center for Health Statistics. *Anthropometric data and prevalence of overweight for Hispanics: 1982-84.* Vital and Health Statistics, Series 11, No. 239. Washington, DC: U.S. Government Printing Office. DHHS Pub. No. PHS 89-1689.

Perez-Stable, E.J., B.V. Marin, D.J. Brody, and N.L. Benowitz. 1990. Apparent underreporting of cigarette consumption among Mexican American smokers. *Am. J. Public Health.* 80(9): 1057-1061.

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4650; state offices; federal offices; regional libraries of the National Libraries of Medicine; schools of public health. For information, call the NTIS at (301) 436-8500. For information and copies of *Vital and Health Statistics*, call the Scientific and Technical Information Branch, NCHS at (301) 436-8500

INTEGRATED DATA BASE

Acronym: IDB
Sponsoring Agency: U.S. Department of Energy (DOE)
Contact Person: M.L. Payton, U.S. DOE, Office of Civilian Radioactive Waste Management, DOE/RW-132, Washington, DC 20585, (202) 586-9140

Objectives and Coverage:

IDB is a national database of spent fuel and radioactive waste inventories used for national program planning, decision-making, and other program management activities. This database compiles the historical waste inventories through the most recent data year. These include inventories from commercial as well as DOE facilities, except spent fuels produced from the manufacture of nuclear weapons. Information on spent fuels and wastes are included for nuclear reactors, storage facilities, reprocessing facilities, uranium mill tailings, and miscellaneous sources defined as part of the Resource Conservation and Recovery Act (RCRA).

Summary of Environmental Data:

Media: Bulk chemicals, soil

Classes of compounds: Radionuclides (waste forms include spent fuel, highly radioactive material, transuranic wastes, low-level waste, uranium mill tailings, miscellaneous radioactive materials, and mixed low-level wastes)

Type of data available: Summary statistics on specific waste forms (available for specific sites by year)

Estimation versus observation data: All data are inventory amounts; direct measurements are not available

Sample Design and Analysis:

Data are included from all commercial and government reactors, special fuel associated with government-sponsored research and demonstration programs, universities, private industries, storage facilities, and fuel reprocessing plants. Over the years, waste regulations have been revised, waste category definitions have changed, measurement instrumentation and calibration methods have been improved, and record-keeping has been upgraded at all waste generating and receiving sites. Therefore, the quality of the information over time has changed. In addition to the spent fuel and wastes from processing, uranium mill tailing information is available from all licensed commercial sites and from restoration sites. Sites are selected for restoration under the Uranium Mill Tailings Remedial Action Program (UMTRAP), the Formerly Utilized Sites Remedial Action Program (FUSRAP), the Decontamination and Decommissioning Program (D&D), and the Surplus Facilities Management Program (SFMP). UMTRAP site criterion is that the processing site must have had all or substantially all of the uranium production for sale to federal agencies prior to January 1971. FUSRAP site criterion is that the sites were formerly used to support the nuclear activities of DOE's predecessor agencies (the Manhattan Engineer District and the Atomic Energy Commission). The D&D program objective is to decontaminate and decommission inactive, surplus DOE facilities formerly associated with the government's defense efforts. The SFMP's objective is to decontaminate and decommission inactive, surplus DOE facilities formerly associated with civilian projects.

Information is available by site. However, the dispersion from the site, apart from transportation of packaged waste to waste disposal sites, is not available.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Facility name

Time Coverage: 1980-present (some data available as early as 1960)

Sample Characteristics:

Frequency of sample collection: Not applicable; frequency of data collection is yearly

Regularity of sample collection: Not applicable; data collection is done on a regular basis

Source information: Site specific

Dispersion information: Not available

Methods of Sample Analysis:

Samples pooled: Not applicable

Standard procedures used: Not applicable

Approximate time between sample collection and analysis: Not applicable

Approximate time between sample analysis and data entry to database: Not applicable; data are available for previous calendar year

Quality Assurance/Quality Control Procedures: Not applicable

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL
Industrial: Radionuclides

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS
Radionuclides

Conventions Used to Identify Agents: Definitions of spent fuel and radioactive waste are specified by DOE

DATABASE AVAILABILITY

Level of Data Aggregation: Data on specific waste forms are available by site, by year

Availability: Detailed information is available from specific DOE and commercial sites; database access available to DOE and DOE-sponsored contractors

Form: Hard copy -- Agency reports

Reports: Routinely available annually; distributed by DOE (see addresses below) to DOE field and area offices, sites and contractors, Environmental Restoration offices and contractors, and selected government agencies; annual report: *Integrated Data Base for 19xx: U.S. Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics*

Reference Documents: See reports

Data/Reports Available From: U.S. DOE, Office of Civilian Radioactive Waste Management, (202) 586-9687; U.S. DOE, Office of Environmental Restoration and Waste Management, (301) 353-4728 or (301) 353-3569; Oak Ridge National Laboratory, Integrated Data Base Program, (615) 574-6823

INTERAGENCY MONITORING OF PROTECTED VISUAL ENVIRONMENTS

Acronym: IMPROVE

Sponsoring Agency: U.S. Department of the Interior, National Park Service (NPS), Air Quality Division

Contact Person: Kristi Gebhart or William Malm, NPS, Air Quality Division, CIRA Building, Colorado State University, Fort Collins, CO 80523, (303) 491-8292

Objectives and Coverage:

IMPROVE consists of air quality data from Class I ("Clean Air") areas that include national parks and wilderness areas with special prevention of significant deterioration (PSD) status. This monitoring program is an interagency effort with the U.S. Environmental Protection Agency (EPA) and the U.S. Department of the Interior, including the U.S. Forest Service, U.S. Fish and Wildlife Service, and the Bureau of Land Management, providing financial support. NPS provides monitoring and maintains data to determine spatial and temporal trends in visibility in the NPS parks and wilderness areas for which visibility is an air quality related value. Monitoring is also conducted to determine what species of particulates (e.g., sulfates, nitrates) causes visibility problems. Data are presently used for visibility research. The data will also be used for regulatory purposes when a baseline for visibility has been established.

Summary of Environmental Data:

Media: Air

Classes of compounds: Particulates, criteria pollutants (sulfur dioxide), acid aerosols, inorganic compounds (including sulfates, nitrates)

Type of data available: Individual data entries and summary statistics are available

Estimation versus observational data: All observational data

Sample Design and Analysis:

Class I national parks with 6,000 acres of land or greater and class I wilderness areas with 5,000 or greater acres of land (as of August 7, 1977)) with PSD status are included in this sampling program. Of these sites, those where air quality permit investigations have been made by state environmental protection agencies are selected for monitoring.

Since fine particles cause most of the visibility degradation in protected areas, these are included in this air monitoring program. Ambient sulfur dioxide measurements are also collected at approximately twenty of these sites, selected to represent each geographic area of the United States Sample locations in the parks and wilderness areas include areas away from local sources (e.g., a parking lot) and easily accessible areas. Two-24 hour samples per week are collected throughout the year using continuous analyzers. Particulate filters are changed on a regular basis by NPS personnel and are analyzed at the University of California, Davis, CA. Information on sampling and analysis of acid aerosols and inorganic compounds was not available at the time of publication.

In the future, the IMPROVE sampling strategy may include the following changes: monitoring of additional pollutants; change of sample duration to better meet research needs; improved minimum detection limits; different monitoring sites, and inclusion in the National Park Service Environmental Database Management System (NPSEDMS). See separate entry for NPSEDMS.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the monitor site; name of park and monitoring site; state; elevation

Time Coverage: 1979-present (varies by site; some as early as 1979; others as late as 1988)

Sample Characteristics:

Frequency of sample collection: Two 24-hour samples per week

Regularity of sample collection: Regular

Source information: IMPROVE data are used to develop receptor and regression models to help identify sources

Dispersion information: Pollutant levels in national parks and wilderness areas reflect dispersion

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: None

Approximate time between sample collection and analysis: Several weeks

Approximate time between sample analysis and data entry to database: Several weeks

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, external laboratory analysis, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

OIL Not applicable

AIR

Outdoor Rural: Particulates, criteria pollutants (sulfur dioxide), inorganic compounds (including sulfates and nitrates), acid aerosols

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics (quarterly summaries of sample averages and standard deviations) are available

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII, SAS)

Reports: *Quarterly Data Summaries*, written by the University of California, are distributed to the National Park Service

Reference Documents: *IMPROVE Sampler Manual, Version 2*

Data/Reports Available From: Thomas Cahill, University of California, Crocker Nuclear Laboratory, Davis, CA 95616, (916) 752-4674

INTERNAL RADIATION DOSIMETRY SYSTEM

Acronym: OHSP (Offsite Human Surveillance Program)
Sponsoring Agencies: U.S. Environmental Protection Agency (EPA), Environmental Monitoring Systems Laboratory (EMSL); U.S. Department of Energy (DOE), Nevada Operations Office
Contact Persons: Anita A. Mullen, U.S. EPA, EMSL, P.O. Box 93478, Las Vegas, Nevada 89193-3478, (702) 798-2597; Michael A. Marelli, U.S. DOE, Nevada Operations Office, P.O. Box 98518, Las Vegas, Nevada 89193-8518, (702) 295-0961

Objectives and Coverage:

The information in OHSP is used for monitoring and documentation of human radionuclide exposure of families residing in communities and ranches surrounding the Nevada test site (Nevada, Utah, and California locations). Whole body and lung counts, as well as radiochemical bioassays of urine and fecal samples, are conducted. The database primarily includes internal radiation dosimetry measurements on a moderate size cohort over a twenty year period. Supporting data on noble gas or radionuclide measurements in air, water, animal tissue, and occasionally in plants are also maintained by the laboratory in charge of the Internal Radiation Dosimetry System. The EPA and DOE use results obtained from OHSP, along with these other data, to evaluate the total radiological dose to the region from the Nevada test site. Data in OHSP include names and social security numbers and are therefore considered confidential. Summary data may be obtained upon request and approval.

Summary of Environmental Data:

Media: Human samples (another related database maintained by EPA, the Sample Tracking and Data Management System (STDMS), covers water, air, and animal samples)

Classes of compounds: Radionuclides

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The original monitoring program started in December 1970 with 34 families (142 individuals) who resided in communities and ranches surrounding the Nevada test site. They were selected on the basis of their willingness to participate in the program and their location of residence in relation to possible releases from the site. Families who resided in areas not affected by such fallout were also selected to participate as controls. In 1981, families of the operators of the community monitoring stations were added to the program.

Urine samples are collected from the participants and analyzed for radionuclides on a 6-month basis (less often when traveling or scheduling problems arise). The original 34 families are sampled in the spring and fall, and the additional families in the summer and winter. If radionuclides are detected that may be excreted mainly in feces, then fecal samples are collected. Otherwise only urine samples are collected and analyzed. Whole body and lung counts are conducted on the same schedule.

If an individual or a family moves out of this geographic region, they are dropped from the monitoring program and replaced with a new family within the region who is willing to participate.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional

Identifiers: Latitude/Longitude of the zip code, city and county centroids, the point source and the monitor site by loran reading; street address; zip codes; city, municipality or township; county/parish; state

Time Coverage: 1970-present

Sample Characteristics:

Frequency of sample collection: Seasonal schedule but not always regular

Regularity of sample collection: Irregular; 6-month intervals attempted (sometimes affected by travel and scheduling problems)

Source information: Yes, utilizing the STDMS database

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Whole body and lung counters are intercalibrated to standards of the National Institute of Standards and Testing (NIST); standard EPA radiochemical methods used -- NRA 1.16 Determination of Tritium in Tissue, NRA 1.21 Determination of Tritium in Urine, NRA 2.17 General Operation of Gamma Ray Detection Systems, NRA 1.12 Simultaneous Analysis of Plutonium, Uranium and Thorium in Environmental Samples; all radiochemical procedures are traceable to NIST standards

Approximate time between sample collection and analysis: Immediately for whole body counts; 1 month for radiochemical bioassays

Approximate time between sample analysis and data entry to database: 1 week or less

Quality Assurance/Quality Control Procedures: Laboratory blanks, duplicates, spikes, external laboratory analyses, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES

Radionuclides in urine and feces (normally measure plutonium, americium and strontium, however other radionuclides can be detected)

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Requester must be approved; individual data are confidential when used with name or social security number. Summary data may be obtained upon request and approval.

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII)

Reports: Annual Agency report, *Offsite Environmental Monitoring Report*; journal publications periodically printed in *Health Physics Journal*

Reference Documents: *Nuclear Data/Canberra Software Documentation* (Whole Body Counting Series and Radionuclide Analysis Series); guidelines from International Committee on Radiological Protection and the National Committee on Radiological Protection

Data/Reports Available From: Anita Mullen, U.S. EPA, P.O. Box 93478, Las Vegas, Nevada 89193-3478, (702) 798-2597; confidential information (i.e. any identifying information of participants) will be deleted; participants may obtain their own data on hard copy; diskettes and tapes provided on request (not on-line)

LAKE ANALYSIS MANAGEMENT SYSTEM

Acronym: LAMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development, Environmental Research Laboratory-Deluth, Large Lakes Research Station
Contact Person: Mr. William L. Richardson, U.S. EPA, 9311 Groh Rd, Grosse Ile, MI 43138-1697 (313) 692-7611

Objectives and Coverage:

The Lake Analysis Management System (LAMS) is a compilation of multiple EPA Environmental Research Laboratory data containing physical and biological information on water, sediment, fish, biota (e.g., ducks), and phytoplankton from the Great Lakes Basin, including the Canadian portion. The primary objective of this database is to provide research information for various Great Lakes projects.

Summary of Environmental Data:

Media: Water (lakes), sediment

Classes of compounds: Inorganic compounds, PCBs, pesticides

Type of data available: Individual data entries on specific agents

Estimation versus observational data: Both observational and estimated data

Sample Design and Analysis:

LAMS currently includes data from approximately 12 projects; examples include the Green Bay Mass Balance Project and the Upper Great Lakes Connecting Channel Study. Sample design and analysis varies depending on the individual project. Generally, a hypothesis is developed based on a series of questions (e.g., what is the optimal expenditure of pollution control resources). A sampling framework is established (e.g., based on source, transport, fate, exposure, dose). Sites are chosen based primarily on recommendations by EPA's Regions 2 and 5 in collaboration with the Great Lakes National Program in Chicago. Examples of sampling methods (e.g., for the Green Bay project) include pumping and filtering of water samples from different depths, coring for sediment samples, and taking biological samples with nets. Sampling is done in conjunction with other organizations involved with the specific project, such as state agencies, individual companies, and EPA regions. When necessary, estimated data are derived from existing literature.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Great Lakes Basin including Canadian portion

Identifiers: Latitude/Longitude of the point source and the monitor site; name of state

Time Coverage: 1974-present

Sample Characteristics:

Frequency of sample collection: Data collected on an as-needed basis, i.e., for special research projects

Regularity of sample collection: Dependent on the objectives and design of the project

Source information: Yes

Dispersion information: Models and dispersion coefficients are used

Methods of Sample Analysis:

Samples pooled: Depends on the project

Standard procedures used: Various EPA standards are used as well as standards developed for individual projects

Approximate time between sample collection and analysis: Depends on the project

Approximate time between sample analysis and data entry to database: 1 year

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analysis, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER
Surface: Inorganic compounds; pesticides; PCBs

Municipal: Inorganic compounds; pesticides; PCBs

SOIL
Sediment: Inorganic compounds; PCBs

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture; Storage and Retrieval of Water Quality Data (STORET) identifiers (see separate entry for STORET)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Data available to anyone who can provide funding for processing or who is willing to obtain the data without assistance

Form: Hard copy -- Computer printouts, journal publications
Machine readable -- Tape, diskette (ASCII, variable)

Reports: *Upper Great Lakes Connecting Channels Project Report; Green Bay Mass Balance Project Report*

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; Debra Caudell, U.S. EPA, Environmental Research Laboratory, (313) 697-7600

LOCKHEED - EPA, ENVIRONMENTAL MONITORING SYSTEMS LABORATORY - LAS VEGAS

Acronym: LESC-EPA, EMSL-LV
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Environmental Monitoring Systems Laboratory (EMLS)
Contact Person: William H. Engelmann/Steve P. Gardner, 944 East Harman, Las Vegas, NV 89119, (702) 798-2664

Objectives and Coverage:

The Lockheed-EPA database was established to evaluate the performance of the indicator parameters specified for use in the Resource Conservation and Recovery Act (RCRA) ground-water monitoring program. After finding that the initially-specified indicators were unreliable, Lockheed-EPA recommended alternatives. The database is now being used to evaluate the success of other regulatory monitoring programs, to develop ground-water contamination profiles for hazardous waste disposal sites, and to design industry-specific ground-water monitoring systems to protect human health and the environment.

The database consists of data obtained from the records of various state and federal agencies responsible for ongoing investigations of waste disposal sites; these agencies, not Lockheed, collect and analyze samples. The database contains primarily ground-water monitoring data, but also contains some soil data from approximately 550 hazardous waste disposal site investigations across the United States. These sites are regulated by various laws including RCRA and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The data can be sorted by regulatory classification (e.g., RCRA site, CERCLA site, etc.); by industry type (e.g., mixed-disposal site, aerospace, wood-treatment, etc.); by location/site, industry, region, state, or nation; or by sampling date.

Summary of Environmental Data:

Media: Ground water, soil (Superfund sites)

Classes of compounds: Ions (e.g., chloride and fluoride), physical and chemical indicators of water quality (e.g., acidity, alkalinity, color, odor, turbidity, dissolved oxygen, hardness, BOD, salinity), inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides

Type of data available: Individual data entries and summary statistics on specific agents; statistics (frequency of detection, average concentration, mean concentration, and data variance) have been generated for specific wells, individual sites, specific industries, EPA regions, states, regulatory classification, and national summaries

Estimation versus observational data: All observational data

Sample Design and Analysis:

Sample collection and analysis are performed by various state and federal agencies, who are also responsible for performing standard QA/QC procedures. Lockheed-EPA reviews the data collected from agency records to ensure that the results are appropriate for entry into the database (i.e., that they are ground-water and not surface-water or leachate monitoring results, etc.). Information from the records (e.g., chemical/contaminant name, chemical concentration, collection frequency, etc.) is then entered into the database and tabulated. Basic statistics generated include frequency of detection, average concentration, and variance of measurements. Statistics are used to track trends in contaminant occurrence as a function of geographic location, industry type, and/or regulatory classification.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Location of point source and monitor site as indicated by state; hydrologic unit codes (U.S.G.S. hydrologic region); U.S. EPA Region

Time Coverage: 1978-1987; although data are still being generated at the site investigation level, they have not been collected or entered into the database since 1987

Sample Characteristics:

Frequency of sample collection: Varies by facility; Superfund sites may be limited to a single event; RCRA detection sites require quarterly monitoring; RCRA assessment monitoring may range from semi-annual to monthly; frequency for sanitary landfills has not been established

Regularity of sample collection: Each of the 550 facilities control their own sampling frequency

Source information: All of the data were generated as part of site-specific characterization and/or monitoring/remediation activities

Dispersion information: The individual site monitoring wells are identified as upgradient or downgradient of the site and/or onsite/offsite; also, for many sites backup hard copy site maps are available to identify sampling locations to support source-receptor investigations

Methods of Sample Analysis:

Samples pooled: No. Analytical scans for 11-45 compounds are entered as a group to track the non-detectable events; detectable concentrations are entered individually by chemical

Standard procedures used: Varies by agency and facility; most are site-specific and use standard collection protocols and sample handling/processing procedures

Approximate time between sample collection and analysis: Varies by number of analyses required (ranges from 31 to 250 analytes) and number of wells per facility (4 to 100)

Approximate time between sample analysis and data entry to database: Varies

Quality Assurance/Quality Control Procedures: Varies by facility/agency; QA/QC procedures are available in the original site - investigation file, but have not been incorporated in the active data files

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Ground water (hazardous waste sites): Ions (e.g., chloride and fluoride), physical and chemical indicators of water quality (e.g., acidity, alkalinity, color, odor, turbidity, dissolved oxygen, hardness, BOD, salinity), inorganic compounds, VOCs, trihalomethanes, semi- VOCs, pesticides, PCBs, dioxins/furans, radionuclides

The database contains records for Appendix IX compounds (245 substances for which monitoring is required at RCRA sites) and 800 tentatively identified organic compounds reported in RCRA and CERCLA site monitoring records. Some limited data are also available for leachates.

SOIL

Superfund Site: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs

This information has been filed in hard copy format when it was produced during the original site investigation, but it has not been incorporated into the database

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN), chemical name or mixture, database-specific numeric codes for ground-water contaminants, contaminant-specific analytical methodology (volatile, base/neutral, pesticide, inorganic)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents. Summary statistics are on specific agents. Statistics available for specific wells, individual sites, specific industries, EPA regions, states, regulatory classifications, and national summaries

Availability: Restricted to data collection agency

Form: Hard copy -- Computer printouts, Agency reports, journal publications

Reports: Yes, produced irregularly (as required to meet project objectives) and distributed to federal offices.

Reference Documents: None provided

Data/Reports Available From: Russell H. Plumb, Jr., Lockheed-ESC, Las Vegas, NV 89119, (702) 734-3265

LONG-TERM MONITORING PROJECT

Acronym: LTM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development

Contact Person: John Stoddard, Mantech Environmental Technology Inc., U.S. EPA, Environmental Research Laboratory, 200 SW 35th Street, Corvallis, OR 97333, (503) 757-4441

Objectives and Coverage:

LTM is a database designed to assess long-term trends in the acid-base status of individual lakes or streams in six rural areas: Maine, Vermont, the Adirondack and Catskill Mountain regions of New York, the Upper Midwest, and the Colorado Rockies. The results of monthly or quarterly samples taken in these lakes and streams are compiled. This information identifies any changes in pH status and other parameters which may have occurred over the sampled time period (1983 - present) and is indicative of trends in the region. Lakes and streams in other rural and urban areas will be included in this project in the future.

Summary of Environmental Data

Media: Surface water

Classes of compounds: Inorganic compounds; physical and chemical indicators of water quality; ions

Type of data available: Individual data entries are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Sites were selected based on pre-existing data from studies of acid deposition. Water samples are collected 1 meter below the surface from a boat in each lake and mid-stream. Samples are collected monthly in the Catskill Mountain regions; quarterly in Maine, Vermont and the Upper Midwest, and three times each summer in the Colorado Rockies. Water samples are transported to 1 of 6 laboratories nationwide, where they are analyzed for pH, acid neutralizing capacity, sulfate, nitrate, chloride, calcium, sodium, potassium, magnesium, total aluminum, dissolved organic carbon, electrical conductivity and color. In some locations, pH is measured in the field as well as in the laboratory using a pH meter.

Other monitoring networks, e.g., the National Acid Deposition Program-National Trends Network (NADP-NTN) (see separate entry for Acid Deposition System for a description of NADP-NTN), and the Multi-state Atmospheric Pollution and Power Production Study (MAPIIIS) (a privately funded database that provides regional air data), are used to obtain information on acid deposition. Based on this information, estimates of acid deposition and its relation to pH change can be made in the lakes and streams of the LTM.

Sites monitored have been the same throughout the project, although there are plans to include other lakes and streams in the future.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (lakes or streams in Maine, Vermont, the Adirondack and Catskill Mountains in New York, the Upper Midwest and Colorado Rockies)

Identifiers: Latitude/Longitude of the point source; name of state; hydraulic unit codes

Time Coverage: 1983-present

Sample Characteristics:

Frequency of sample collection: Samples are collected monthly in the Catskill Mountain regions; quarterly in Maine, Vermont and the Upper Midwest, and three times each summer in the Colorado Rockies

Regularity of sample collection: Regular

Source information: This project uses source information from sites included in other monitoring networks in which estimates of acid deposition and its relation to pH change have been made to relate sampling results and sources (see Sample Design and Analysis).

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: All methods listed in EPA/600/4-87/026 *Handbook of Methods for Acid Deposition Studies: Laboratory Analyses for Surface Water Chemistry* (1987)

Approximate time between sample collection and analysis: 1 month

Approximate time between sample analyses and data entry to database: 6 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, external laboratory analysis, data entry audits, natural audit samples (3 times/year); individual laboratories have primary responsibility; auditing and oversight is done by EPA laboratory in Corvallis, Oregon

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Inorganic compounds (calcium, sodium, potassium, magnesium, total aluminum); physical and chemical indicators of water quality (pH, acid neutralizing capacity, dissolved organic carbon, electrical conductivity, color); ions (sulfate, nitrate, chloride)

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requester can obtain data; diskettes in ASCII or SAS format will be sent upon request (not available on-line)

Form: Hard copy -- Computer printouts, journal publications
Machine readable -- Diskette (ASCII and SAS)

Reports: All data from 1983-1989 will be published as 11 journal articles in *Water, Air and Soil Pollution* in 1992 (in press)

Reference Documents: *Data Users Guide to the U.S. EPA Long Term Monitoring Project*

Data/Reports Available From: John Stoddard, ManTech Environmental Technology Inc., U.S. EPA Environmental Research Laboratory, 200 SW 35th Street, Corvallis, OR 97333, (503) 757-4441

MARINE POLLUTION RETRIEVAL SYSTEM

Acronym: MPRS

Sponsoring Agency: U.S. Department of Transportation, U.S. Coast Guard, Marine and Environmental Protection Division

Contact Person: Mary Robey, U.S. Coast Guard, Marine and Environmental Protection Division, 2100 Second Street SW, Washington, DC 20593, (202) 267-6670

Objectives and Coverage:

MPRS includes data on spills and potential spills (whenever there is a potential for a vessel to spill its contents, e.g., a grounding) into the navigable waters of the United States and on any land or air releases to U.S. coastal zones that the Coast Guard responded to. Data are classified into seven categories of information: chemicals, facilities, vessels, resources, violations, materials, and personnel. Spill and release information includes data on the product and amount spilled or released; the location, date, and time of the spill or release; the removal party; the funds expended; and the source (facility or vessel) of the spill or release. These data are used for justification of criminal action, and for monitoring and research purposes.

Summary of Environmental Data:

Media: Water; soil; air

Classes of compounds: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, acids/acid aerosols

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Field units of the U.S. Coast Guard respond to reported spills, potential spills, or releases in navigable waters and in other media within their jurisdiction. Water, air, and/or soil samples are collected when circumstances justify the need for sampling. These circumstances include source identification and justification of criminal action, and depend upon the characteristics of the spilled or released material (e.g., volatility). Samples are taken at the source, whenever necessary and possible, and in areas surrounding the source. If the source is unknown, samples are taken from the spill and suspected sources. The U.S. Coast Guard Central Oil Identification Laboratory (COIL) compares oil spill samples with suspected source oil samples using gas chromatography for source identification. Samples other than oil are analyzed by a local contractor.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the point source; name of city, municipality, or township; state

Time Coverage: 1973-present

Sample Characteristics:

Frequency of sample collection: Whenever the circumstances of a pollution incident or potential incident justify the need for sampling

Regularity of sample collection: Irregular, as stated above

Source information: Data are collected at the source of the spill or release for verification of the source, whenever necessary and possible

Dispersion information: Samples taken from areas surrounding source; samples taken from spill area when source is unknown

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: U.S. Coast Guard procedures included in the *Marine Safety Manual* (e.g., Oil Identification System (OIS) for analysis of oil in water and soil)

Approximate time between sample collection and analysis: 2 days

Approximate time between sample analysis and data entry to database: Varies; several days, depending upon workload at laboratory

Quality Assurance/Quality Control Procedures: Duplicates; data entry audits will be done in the near future

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface, groundwater, leachate, private: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides

SOIL

Residential, industrial, sediment: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides

AIR

Outdoor urban, industrial outdoor rural: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, acids/acid/aerosols

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes (Chemical Hazard Response Information System (CHRIS) codes)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents (data can be accessed in any form requested)

Availability: Any requester can obtain data

Form: Hard copy -- computer printouts
Machine readable -- Tape (ASCII)

Reports: *Polluting Incidents In and Around U.S. Waters,* available periodically (approximately every 3-4 years; the latest edition is 1986); distributed to other Coast Guard units and the National Technical Information Service (NTIS)

Reference Documents: Several, examples include *Comindant Instruction (COMDTINST) M16450.2 Series*, and the *Chemical Hazard Response Information System*

Data/Reports Available From: Mary Robey, U.S. Coast Guard, Marine and Environmental Protection Division, 2100 Second Street SW, Washington, DC 20593; reports available from the NTIS, Port Royal Road, Springfield, Virginia 22161

MICROBIOLOGY AND RESIDUE COMPUTER INFORMATION SYSTEM

Acronym: MARCIS

Sponsoring Agency: U.S. Department of Agriculture (USDA), Food Safety and Inspection Service, Science and Technology Program, Residue Evaluation and Planning Division

Contact Person: William T. Hubbert, D.V.M., USDA, Annex Building, 312th Street SW, Room 602, Washington, DC 20250, (202) 205-0007

Objectives and Coverage:

The Food Safety and Inspection Service (FSIS) of the USDA collects samples of meat and poultry at slaughtering establishments and from import shipments at ports of entry as part of its National Residue Program. The samples are analyzed for the presence of unacceptable concentrations of chemical compounds that may contaminate meat and poultry presented for inspection. The results of these analyses are contained in MARCIS. The compounds primarily include: pesticide chemicals approved for direct application to livestock and poultry or for treating crops that become components of animal feed or that are used in some way in the farm environment; animal drugs used to treat or prevent diseases or to enhance production; and environmental contaminants. (The Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA) establish acceptable levels of residues (tolerances) for these compounds in their respective areas of responsibility.) The MARCIS program is carried out as part of the Agency's responsibilities under the Federal Meat Inspection Act and the Poultry Products Inspection Act to ensure that USDA-inspected products in commerce are safe, wholesome, and free of adulterating residues. Results are evaluated to indicate prevalence and concentrations of residues, to identify producers marketing animals with violative concentrations of residues, evaluate residue trends, and identify problems within the industry for which corrective efforts may be needed. The National Residue Program also maintains the Residue Violation Information System (RVIS) database, which includes followup data on violations and is used by FSIS and the FDA.

Summary of Environmental Data:

Media: Food sources

Classes of compounds: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, radionuclides, microorganisms, antibiotics, veterinary drugs

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Residue testing of animals slaughtered in the United States is divided into three major activities: monitoring, surveillance, and exploratory projects. Each year, compounds are selected for monitoring based on the availability of laboratory methodology (because of the large number of potential residues that may occur in the food chain, analytical methods are not available for all compounds of interest) and the existence of an FSIS evaluation system for the compounds to be tested. This system classifies each pesticide, animal drug, and environmental contaminant according to its potential for harmful residues to occur in animals at slaughter, and inherent toxicity. It is intended for FSIS use as a guideline and not for the development of formal quantitative estimates of risk from meatborne residues. An advisory board of scientists from EPA, FDA, and USDA identify any significant new information that may affect a compound classification. Once compounds are selected and suitable methods are available, a monitoring program based on unbiased sampling, is designed to provide information on the occurrence of residue violations in specified animal populations. The number of samples chosen in an annual plan for a given compound-species combination is designed to detect a national problem that affects a specified percentage of the animal population of interest (the number of samples generally is chosen to provide 95% probability of detecting at least one violation when one percent of the animal population sampled is violative).

When the results of monitoring indicate that producers are marketing animals for slaughter with violative concentrations of residues, the animals are subjected to ongoing sampling and testing (termed surveillance sampling) until compliance is demonstrated. This sampling is directed at particular carcasses or products based on monitoring results. In-plant testing procedures may be performed by the inspector. Samples indicating the presence of a residue are submitted to an FSIS laboratory for analysis. Test results indicate the appropriate regulatory action.

When test results indicate a violative concentration of residues in an imported product, subsequent shipments of the same product group from the establishment are retained at the port of entry until laboratory results are known. If results are positive, the suspect product is not permitted to move into commerce. All shipments of the product from that country are placed on an increased testing schedule until a record of compliance is re-established for the country.

In addition, exploratory projects are often conducted to evaluate the occurrence of residues in animals for which no safe limits have yet been established, to evaluate new monitoring methods and approaches, and for a variety of other reasons. These studies may be nationwide or limited to specific geographic areas. Sample collection may be random and statistically based, or biased to obtain "worst case" information. The results are given either to the FDA, which has responsibility for establishing tolerances for animal drugs and environmental contaminants in food, or to the EPA, which sets pesticide tolerances in food. These results are included in MARCIS.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Street address; zip codes; name of city, municipality, or township; state

Time Coverage: 1976-present

Sample Characteristics:

Frequency of sample collection: Daily

Regularity of sample collection: Animals are randomly selected for monitoring at slaughtering establishments; sampling of import shipments at ports of entry is done on a pre-established schedule; surveillance sampling is conducted until compliance is demonstrated

Source information: Not applicable

Dispersion information: Sample results from slaughtering establishments indicate dispersion

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: FSIS standard procedures are published in the USDA publication, *Chemistry Laboratory Guidebook*; these procedures are modifications of established methods, including: methods of the Association of Official Analytical Chemists, Federal Register methods, historical official methods, and other published methods; these procedures have been modified and validated as needed by FSIS to provide acceptable performance characteristics to detect compounds in muscle, liver, kidney, or fat tissue

Approximate time between sample collection and analysis: Immediately for in-plant testing, and within 1 week for laboratory samples upon receipt at the laboratory

Approximate time between sample analysis and data entry to database: Within 48 hours

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, field audits, duplicates, spikes, external laboratory analysis, check of sample analysis, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES

Domesticated animals and birds: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, radionuclides, antibiotics, and veterinary drugs

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers, or other codes (CFR reference names are used when available; isomers of a compound are not listed separately; different salts, esters, etc. are listed separately if the use conditions of these substances appear in different CFR citations; metabolites are listed separately only when the tolerance citation refers to a specific metabolite, or when a suitable regulatory method is available for the metabolite; complex mixtures are listed as a single entry)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents (violative residue levels within each animal species or production class; results are given according to the tissue/organ targeted)

Availability: Any requester can obtain reports; individual data are confidential

Form: Hard copy -- Agency reports

Reports: Annual reports: *Compound Evaluation and Analytical Capability, National Residue Program Plan* includes compounds considered, criteria for evaluation, residue limits, FSIS residue analytical capability, a 10 year history of the NRP, and a program plan for the upcoming year; *Domestic Residue Data Book, National Residue Program* lists violative residue levels within each species or production class for the previous year

Reference Documents: *Meat and Poultry Inspection: The Scientific Basis of the Nation's Program; 40 CFR 180; 21 CFR 556; 21 CFR 109; 21 CFR 522, 524, 526, 529, 540, 544, 546, 548, 558; Chemistry Quality Assurance Handbook; Chemistry Laboratory Guidebook; The Microbiological Laboratory Guidebook*

Data/Reports Available From: Office of Information and Legislative Affairs, USDA, FSIS, Washington, DC 20250, (202) 447-9113

MONTH AND STATE CURRENT EMISSION TRENDS

Acronym: MSCET
Sponsoring Agency: Argonne National Laboratory for the U.S. Department of Energy (DOE)
Contact Person: Edward Kohout, 9700 South Cass Avenue, Argonne, IL 60439, (708) 972-7644

Objectives and Coverage:

MSCET provides monthly air emissions estimates and identifies trends for oxides of nitrogen (NO_x), sulfur dioxide (SO_2), and nonmethane volatile organic compounds (VOCs) by state, region, season, and sector (e.g., industrial, commercial, residential). Estimates are based on a variety of information, including energy consumption, type of technology used, and emission control technology. MSCET predominantly uses estimated data and modeling to generate emissions factors and other information. MSCET has developed methodologies and estimates for both stationary and mobile emissions sources. Estimates are available for the 48 contiguous United States and are used for monitoring, research, and regulatory purposes. MSCET also provides "flash reports," which are recent emission trends that provide a forecast for one additional year beyond the year cited in the most recently published EPA *Trends Report*.

As with most estimates, a level of uncertainty is associated with MSCET emission estimates due to lack of or insufficient data in some areas. The database is, however, useful in making comparisons across different regions and over time.

Summary of Environmental Data:

Media: Air (outdoor urban, outdoor rural, and/or stack emissions)

Classes of compounds: NO_x, SO_2, VOCs

Type of data available: Summary statistics on specific agents

Estimation versus observational data: Mostly estimated data

Sample Design and Analysis:

MSCET developed four separate methodologies for calculating emissions estimates based on emission source category. Methodologies were developed for: the electric utility industry, the transportation sector, the copper smelting industry, and all remaining sources, termed ICRIM (industrial fuel combustion, commercial/residential fuel combustion, industrial processes, and miscellaneous sources). Whenever possible, MSCET estimated emissions at the individual combustor (e.g., boiler) level; when this level of data were not available, emissions were estimated based on the type of technology used.

For electric utility estimates, MSCET used a consumption/emission factor (CEF) method, in which the amount of fuel consumed each month was multiplied by an appropriate emission factor, which included reductions in emissions if pollution control devices were used. In special cases, direct estimation methods (e.g., continuous emission monitors) were used instead of the CEF method.

For the transportation sector, MSCET methodology was based on an emission factor. Separate algorithms were used to estimate on-highway and off-highway (e.g., locomotive, aviation, and waterway) emissions. For on-highway sources, emissions were calculated using vehicle-miles-traveled (VMT) data and emission factors from EPA's MOBILE4 model, which includes speed, temperature, and altitude as major parameters. The U.S. Department of Transportation's publication *Highway Statistics* provided VMT by state and road type. For off-highway sources, EPA AP-42 Form was used, as well as sector-specific documents which provided statistics on operational and fuel consumption activity data. The Transportation and Energy and Emissions Modeling System (TEEMS) methodology was used to estimate various transportation emissions.

For copper smelters, data were supplied primarily by state air pollution control agencies and were computed using a plant-level sulfur mass balance technique based on actual measurements of fugitive emissions. NOx and VOC emissions from copper smelters are considered to be insignificant; therefore, these were estimated differently, using the ICRIM methodology described below. When mass balance data were unavailable, data from the EPA AP-42 Form and information from continuous emission monitors were used to estimate sulfur dioxide emissions. These data supplemented the 1985 National Acid Precipitation Assessment Program (NAPAP) Emissions Inventory data. In the absence of available sulfur-content value and heat value data at the state level, national-level sulfur-content values and heat values for the specific fuel type were used. Confidentiality of plant-level data prevented comprehensive quality assurance checks.

Methodology for the ICRIM sector utilized data from the 1985 NAPAP Emissions Inventory, which provided base-year estimates. When available, state-level activity data (usually from the State Energy Data System, or SEDS, database) were also used. MSCET then developed trends data using sector-specific growth rates, often derived from time-series data from the EPA's *National Air Pollutant Emission Estimates, 1940-1987* (also known as the EPA *Trends Report*), or from Federal Reserve Board (FRB) indexes of industrial production. The ICRIM methodology utilized a "shift-share" approach (e.g., states with a higher relative growth gain in share), based on NAPAP data. Monthly emissions were estimated by disaggregating annual emissions based on monthly activity data. Monthly shares before 1985 were held constant because these data were missing. If no appropriate trend indicator could be identified, emissions were held constant at the levels reported in the 1985 NAPAP Inventory.

Other data sources for the ICRIM emissions estimates included: the EIA's *Monthly Energy Review* for fuel consumption data; the U.S. Department of Commerce *Survey of Current Business* for industrial production data; DOE's *Quarterly Coal Report*; the *Natural Gas Monthly*; and data collected by the National Climatic Data Center (state-specific, population-weighted, heating-degree-day data).

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (48 contiguous states)

Identifiers: State; region (e.g., SE, NW, etc.); EPA Federal Regions 1-10

Time Coverage: 1975-present

Sample Characteristics:

Frequency of sample collection: Monthly

Regularity of sample collection: Data are collected as they become available

Source information: Some samples are taken at source

Dispersion information: None available, except for some copper smelter data

Methods of Sample Analysis:

Samples pooled: Yes

Standard procedures used: Methodologies developed from: the EPA 1985 National Acid Precipitation Assessment Program (NAPAP) Emissions Inventory; the EPA Trends Report; the EPA MOBILE4 model; and the Argonne National Laboratory's Transportation Energy and Emissions Modeling System (TEEMS) methodology

Approximate time between sample collection and analysis: 1 month

Approximate time between sample analysis and data entry to database: 1 month

Quality Assurance/Quality Control Procedures: Data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban; outdoor rural (industrial, agricultural, and/or residential); stack emissions: NO_x, SO_2, VOCs

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics on specific agents by geographic region, state, and season or month

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports
Machine readable -- Diskette (ASCII, SAS, Tab delimited)

Reports: *Current Emission Trends for Nitrogen Oxides, Sulfur Dioxide, and Volatile Organic Compounds by Month and State: Methodology and Results* (August 1990)

Reference Documents: *Review of the Month and State Emissions Trends (MSCET) Data Bases for the National Acid Precipitation Assessment Program* (1990, third-party review); data sources for the MSCET electric utility and some of the other MSCET emissions estimates included: (1) the Energy Information Administration's (EIA) Form 759: *Monthly Power Plant Report* (formerly FPC-4) (data on monthly fuel consumption); (2) Federal Energy Regulatory Commission Form 423: *Monthly Report of Cost and Quality of Fuels for Electric Plants* (formerly FPC-423) (data on monthly deliveries of fuels to plants and fuel quality); (3) EIA Form 767: *Steam-Electric Plant Operation and Design Report* (formerly Form 67) (fuel consumption data for individual boilers); (4) EPA Report AP-42: *Compilation of Air Pollutant Emission Factors* (estimated emission factors for stationary point and area sources); (5) Report EPRI-CS-4277-SR, *SO2 and NOx Retrofit Control Technologies Handbook*, and Report EPRI-CS-5361, *Retrofit Combustion Controls for Gas/Oil-Fired Utility Boilers* (two Electric Power Research Institute (EPRI) reports on retrofit controls with estimates of potential reductions in NOx emissions using low-Nox burners).

Data/Reports Available From: Chuck Cilek, (708) 972-4237

MONTHLY EMISSIONS INVENTORY FOR SULFUR DIOXIDE

Acronym: None
Sponsoring Agency: U.S. Department of Energy, Argonne National Laboratory
Contact Person: Don Hanson, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL, 60439, (708) 972-5061

This inventory of monthly emissions of SO_2 for 1975-1983 was designed to reflect actual annual SO_2 emissions variability. The database has been discontinued. Data include state-total and source-category-specific monthly SO_2 emissions for the continental U.S. Computation of monthly emission estimates involved a portioning of total annual SO_2 emissions to monthly values through the use of several databases. Also see the separate entries for the Month and State Current Emissions Trends (MSCET) and for the Acid Deposition Data Network (ADDNET).

Detailed information was not available at the time of publication.

NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM (VERSION 2)

Acronym: NAPAP
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Air and Energy Engineering Research Laboratory
Contact Person: Janice Wagner, U.S. EPA, MD-62, Research Triangle Park, NC 27711, (919) 541-1818

Objectives and Coverage:

The National Acid Precipitation Assessment Program (NAPAP) was authorized by Congress under the Acid Precipitation Act of 1980. This major research program was initiated to study the causes and potential adverse effects of acid deposition in and around the United States. A fundamental objective of the NAPAP research was to investigate emissions sources that may contribute to acid deposition. To achieve this objective, a NAPAP Task Group on Emissions and Controls developed historical and current (1985) inventories of acid deposition precursor emissions. Since long range pollutant transport plays a critical role in acid deposition, emissions inventories encompassed geographic areas larger than those where the acidification and deposition effects were observed. The investigation of acid precipitation in the United States (particularly in the northeast) and in Canada required development of emissions inventories for all states and provinces in both countries.

The NAPAP assembled data in two phases. The first phase involved data collection and quality assurance of total emissions and source characteristics of acid deposition precursors. Data in the NAPAP Emissions Inventory include point source emissions and facility data (i.e. documentation of physical parameters such as stack height) for 9,175 plants and 66,308 points (stacks) in the United States and Canada, as well as area source emissions estimates (e.g., for motor vehicle emissions) for 3,073 United States counties and 10 Canadian provinces. Emissions estimates of natural sources of total suspended particulates were also determined and included in the 1985 U.S. NAPAP Natural Particulate Emissions Inventory. Since these database characteristics are similar, although the source is different, the database characteristics described in this summary pertain to both.

The second phase included the development of a modelers' emissions inventory in which total emissions data were converted to a format suitable for use as input to regional atmospheric transport models. Hourly emissions by day of the week and season were calculated for speciated aggregate emissions. These models are used to study source-receptor relationships and regional impacts of pollutants involved in acid deposition.

(See the separate entries in part I of this inventory for the Acid Deposition System (ADS) and in Part II for the Acid Deposition Data Network (ADDNET).)

Summary of Environmental Data:

Media: Air (point and area source emissions)

Classes of compounds: Criteria pollutants (except ozone), VOCs, total hydrocarbons, total and size fractionated particulates, acids/acid aerosols, inorganic compounds

Types of data available: Individual data entries are available on specific agents

Estimation versus observational data: Predominantly estimated data

Sample Design and Analysis:

EPA worked closely with state air pollution programs to plan, fund, assemble and ensure the quality of the inventory data. EPA and states have the authority to collect required emissions data under Title 40, CFR, Part 51, Section 51.321-51.323. Environment Canada was the regulatory agency responsible for developing Canadian national emissions inventories. In a manner analogous to the State-EPA partnership in the United States, Environment Canada worked with provincial environment ministries to collect emissions data for Canadian industries.

Both the emissions and modelers' emissions inventories are divided into point and area sources. The database contains information on the precise location of point sources that emitted at least 100 tons per year of sulfur dioxide, nitrogen oxides, VOCs, total suspended particulates, or carbon monoxide during the 1985 base year. Area sources include mobile and stationary sources too numerous and too small to be listed individually, such as residential space heating. The United States point and area source emissions, as well as facility data (information on the engineering design and performance of industrial processes), were generated by state agencies using the National Emissions Data System (NEDS) methodology, in which emissions are estimated directly for each source. Individual state confidentiality restrictions prevented the complete reporting of some priority data elements. Environment Canada calculated source emissions for Canada following a similar methodology.

In addition to criteria pollutants, emissions estimates for primary sulfate particulate, total hydrocarbons, VOCs, hydrogen chloride, hydrogen fluoride, and ammonia, which also play an important role in the acid deposition process, were developed by EPA and Environment Canada through the application of emission factors.

Estimates of natural alkaline particulate emissions from unpaved roads, wind erosion, and dust storms (United States only) were also developed and included in the 1985 U.S. NAPAP Natural Particulate Emissions Inventory.

The total emissions data were converted into a modelers' inventory of emissions (using the Flexible Regional Emissions Data System - FREDS) in a format that can be used as input to regional atmospheric transport models. This format includes a grid of specific geographic areas, hourly emissions data, and is speciated (e.g., information on stable product chemical species rather than emitted chemical species is included; VOCs and TSP emissions are broken into various chemical species classes, which include 32 classes of VOCs, nitrogen dioxide and nitric oxide, sodium calcium, potassium and magnesium).

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (48 contiguous states and the District of Columbia); Canada (to 60 degrees north latitude)

Identifiers: Latitude/longitude and universal transmercator coordinates of the county and point source; name of county and state

Time Coverage: 1985

Sample Characteristics: Not applicable; no samples collected or analyzed

Frequency of sample collection: Not applicable; no samples collected; database reflects emissions estimates for 1985

Regularity of sample collection: Not applicable

Source information: Data represent source emissions

Dispersion information: Annual total emissions data are converted into a modelers' inventory of emissions which can be used as input to regional atmospheric transport models. This modelers' inventory is included in the 1985 NAPAP Modelers' Emissions Inventory (Version 2).

Methods of Sample Analysis:

Samples pooled: Not applicable; no samples analyzed, however, small and numerous sources (estimated data) are aggregated as area sources

Standard procedures used: Not applicable; no samples analyzed, however, U.S. emissions data were collected through the EPA National Emissions Data System (NEDS) (see separate entry in Part I of this Inventory); Environment Canada calculated source emissions for Canada following a similar methodology

Approximate time between sample collection and analysis: Not applicable

Approximate time between sample analysis and data entry to database: Not applicable; approximate time between data collection and entry into database varies

Quality Assurance/Quality Control Procedures: Data entry audits of inventories (checks for completeness, range checks, analysis of utility records, emissions confirmations by facilities for the largest emitters, and identification of missing values for priority data items)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban, outdoor rural, stack emissions: Total and size fractionated particulates, criteria pollutants (except ozone), VOCs, acids/acid aerosols, inorganic compounds

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers; pollutants are identified according to the location on the data record

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Agency report
Machine readable -- Tape (ASCII)

Reports: One report only, which reflects the base year 1985 -- *The 1985 NAPAP Emissions Inventory Version 2: Development of the Annual Data and Modelers' Tapes.* The objective of this report is to present information to assist users of the emissions and modelers' inventories. The report describes the data collection efforts, emissions summaries, methodologies, and data sources used to estimate and allocate the emissions estimates to the modelers' inventory; the quality assurance/quality control procedures; the formats of the modelers' inventory data tapes; and the information required to access the inventory data.

Reference Documents: Several used, listed at the end of each chapter in the report; examples include: *NEDS/NAPAP Emission Inventory Workshop Handbook; Criteria Pollutant Emission Factors for the 1985 NAPAP Emissions Inventory; EPA Emissions Confirmation Guide for Major Source Categories*

Data/Reports Available From: Agency report and magnetic tapes can be purchased from the National Technical Information Service (NTIS), 5285 Port Royal Road., Springfield, Virginia 22161, (703) 487-4650; agency report order number: EPA-600/7-89-012a; approximately 20 to 30 magnetic tapes available, examples include: *1985 Emissions Inventory Version 2 - United States and Canadian TSP Non-Mobile Sources Modelers Tape - Spring, Saturday 1985; NAPAP Emissions Inventory Version 2 - Point Source Data 1985; NAPAP Emissions Inventory Version 2 - Canadian Annual Area Sources 1985; NAPAP Emissions Inventory Version 2 - U.S. Point Source Modelers Inventory for 1985*; for a complete listing of available tapes, requests should be faxed to NTIS (fax #: 703 321-8547)

NATIONAL AIR MONITORING STATIONS

Acronym: NAMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)
Contact Person: David Lutz, U.S. EPA, OAQPS, Research Triangle Park, NC 27711, (919) 541-5476

Objectives and Coverage:

NAMS, part of the State and Local Air Monitoring Stations (SLAMS) network (see separate entry for SLAMS), was established to monitor ambient air concentrations of criteria pollutants and particulates as well as some other pollutants in areas with high pollutant concentrations and high population exposure. These stations meet stricter criteria than the rest of SLAMS for siting (fixed sites in areas of high population), and for instrument selection (all equipment at NAMS must meet the standards of the "List of Designated Reference and Equivalent Methods"; other SLAMS sites must only meet these criteria if they are used to designate attainment or non-attainment status for compliance with the Clean Air Act). Location of NAMS sites do not change over time, providing continuity in monitoring. NAMS data are submitted at least quarterly (often monthly) by states to OAQPS. Data obtained from NAMS (and other SLAMS sites) comprise most of the data found in the Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System (AIRS) (see separate entries for AQS in Part I and AIRS in Part II for further information).

Detailed information was not available at the time of publication.

NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE

Acronym: NATICH
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air and Radiation/Office of Air Quality Planning and Standards
Contact Person: Vasu Kilaru, U.S. EPA, Pollutant Assessment Branch, MD-13, Research Triangle Park, NC 27711, (919) 541-0850, (919) 541-5332

Objectives and Coverage:

NATICH was established to assist state and local air pollution agencies in developing and implementing air toxics control programs. Its primary purpose is to collect, classify, and disseminate air toxics information from state and local agencies, the U.S. EPA, and other federal and international agencies, thereby facilitating the exchange of information about air toxics and regulatory/monitoring programs. Information about the activities of various agencies, problems encountered by these agencies, and agency contacts can be found in the database as well as information about air pollutants (e.g., permit decisions, ambient air and source emissions test data, EPA risk assessment information). Bibliographic citations for published studies are also available.

Data from all federal, state, and local regulatory/control agencies are included in the database. As a result, the database covers all types of air toxics studies conducted in different locations and environments. The data in NATICH are not available through other databases. NATICH is presently linked to EPA's Toxic Release Inventory (TRI). (TRI contains information submitted by industry under the provisions of the Emergency Planning and Community Right to Know Act.) In the future, NATICH may also be linked to EPA's Aerometric Information Retrieval System (AIRS).

Summary of Environmental Data:

Media: Air

Classes of compounds: Criteria pollutants, inorganic compounds, VOCs, semi-VOCs, PCBs, dioxins/furans, asbestos

Type of data available: Individual data entries on specific agents; summary statistics (including pollutant information, e.g., information on health effects, exposure assessment), ambient monitoring data, etc.) on specific agents. Data can be sorted by activity (e.g., emissions testing for traditional sources, ambient monitoring), by pollutant (e.g., by name, code), or by source category. Bibliographic and agency information are also available.

Estimation versus observational data: All observational data

Sample Design and Analysis:

NATICH compiles data received from state and local agencies; it does not itself collect or analyze samples, nor does it review or analyze agency data. NATICH does not evaluate the suitability of agency sampling techniques or analytical methods for the determination of risk assessment, air standards, or criteria. NATICH includes data from all types of air toxics studies conducted in various locations throughout the United States.

The Clearinghouse collects information annually by sending data collection forms to all state and local agencies. Information may be submitted in three ways: (1) agency responses to annual surveys, (2) direct entry of data by agencies, and (3) electronic transfer of large data files. The information thus acquired is classified by agency, pollutant, and emission source, and includes data on general agency facts (including address and agency contacts), regulatory program descriptions and contacts, permits, acceptable ambient concentrations, ambient air monitoring studies, source tests, emissions inventories, research and methods development, and supporting publications. Citations and abstracts are included for published EPA, National Institute for Occupational Safety and Health (NIOSH), and other federal/international agency documents, such as emission factors documents, health assessments, source sampling/ambient monitoring methodologies, and technical monitoring documents. Ongoing EPA and NIOSH research projects, such as chemical hazard information profiles and epidemiology studies, are also cited and abstracted.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: City, municipality, or township, county/parish, state

Time Coverage: 1984-present

Sample Characteristics:

Frequency of sample collection: Data collected from agencies on a yearly basis

Regularity of sample collection: Varies by agency

Source information: For source testing, includes Standard Industrial Classification (SIC) codes, industry categories, and Source Category Codes (SCC); for permits, includes the SCC code and the process within the facility

Dispersion information: Not available in database; contacts in state and local organizations may be able to provide information; contact names are included in the database

Methods of Sample Analysis:

Samples pooled: Unknown

Standard procedures used: Varies by state or local agency

Approximate time between sample collection and analysis: Varies by agency

Approximate time between sample analysis and data entry to database: Varies

Quality Assurance/Quality Control Procedures: Data entry QA/QC is performed by the contractor that enters the data into the database. The Chemical Abstracts Service Registry Number (CASRN) and chemical name are checked and the data are checked for any inconsistencies. In addition, the state agencies can check the data and change incorrect entries. (The QC/QA for sample collection and analysis is performed by the state or local agency, not by NATICH.)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban; industrial outdoor rural; stack/source emissions; ambient monitoring information: Criteria pollutants, inorganic compounds, VOCs, semi-VOCs, PCBs, dioxins/furans, asbestos

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN) ; chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents. Summary statistics on specific agents; summary information includes pollutant, acceptable ambient limits, source testing data, etc.

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports
Machine readable -- On-line (ASCII)

Reports: Bimonthly newsletters containing information on research, agency case histories, and state, local, and federal air toxics programs and activities; special reports on specific air toxics issues; annual hard copy reports of all data contained in the database; and responses to requests for specific information. In addition, the user can generate 25 different reports in which the information is sorted by Agency, pollutant, Standard Industrial Classification (SIC) codes, industry category description, or key word on various topics including: Acceptable Ambient Levels, pollutant research information, methods development activities, non-health-related impacts, permitting information, emissions inventory, and source testing information.

Reference Documents: *NATICH Database Report on State, Local and EPA Air Toxics Activities (July 1990)*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161, (703) 487-4650; state and federal EPA Offices; for information, contact Vasu Kilaru, U.S. EPA, Pollutant Assessment Branch, MD-13, Research Triangle Park, NC 27711, (919) 541-0850, (919) 541-5332

NATIONAL COASTAL POLLUTANT DISCHARGE INVENTORY

Acronym: NCPDI

Sponsoring Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)

Contact Person: Daniel R.G. Farrow, NOAA, Office of Ocean Resources Conservation and Assessment (ORCA), Strategic Environmental Assessments (SEA) Division, Pollution Sources Characterization Branch, 6001 Executive Boulevard, Room 220, Rockville, MD 20852, (301) 443-0454

Objectives and Coverage:

The NCPDI, developed by the National Oceanic and Atmospheric Administration's Pollution Sources Characterization Branch, contains pollutant loading estimates for all point, nonpoint, and riverine sources located in coastal areas that discharge to the estuarine, coastal, and oceanic waters of the contiguous United States (excluding the Great Lakes). Discharge estimates for nine separate classes of pollutants in nine major source categories are included in this database. The estimates were originally made for the base year 1982, but can be considered to approximate pollutant discharge conditions during the period 1980-1985. A series of projects are currently underway to improve and refine the estimates for selected pollutant source categories and coastal areas. Information in this database is provided to resource managers at the federal, state, and local level to help develop effective management strategies to protect and restore these waters.

The development of these data is one of several interrelated activities of NOAA. A separate database is maintained for each of these activities (see the National Status and Trends Program and the National Shellfish Register of Classified Estuarine Waters for descriptions of related NOAA databases). Each of these databases use the same spatial framework and together are used by NOAA for the strategic assessment of the Nation's coastal and oceanic resources.

Summary of Environmental Data:

Media: Surface water

Classes of compounds: Inorganic compounds; pesticides (1982 and 1987 data available for 35 pesticides; original 1982 data available only for organochlorine pesticides); microorganisms; PCBs (original 1982 data only); physical and chemical indicators of water quality; other (petroleum hydrocarbons, nutrients, wastewater treatment sludges, and flow)

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: Most values based on estimates; some observational data

Sample Design and Analysis:

The NCPDI uses NOAA's National Estuarine Inventory (NEI) (see separate entry in Part II) data atlas, which was created to provide a spatial framework that could be used in several related NOAA projects. The spatial framework developed was the estuarine drainage area (EDA), defined by NOAA as that portion of a watershed that most directly affects an estuary and is delineated by U.S. Geological Survey (USGS) cataloging units and the head of the tide. Two atlas volumes were subsequently published detailing the land use and physical and hydrologic characteristics of the estuarine systems within the NEI.

The NCPDI was developed for three geographic regions in the United States: the Gulf of Mexico, East Coast, and West Coast. Seasonal and annual estimates of pollutant discharges from source categories were made for the base year, 1982, in each of these regions. Estimates are currently being updated to 1987 and will be completed in the next few years (updates have been completed for the Gulf of Mexico). Source categories for the 1982 estimates include: point sources, urban and nonurban non-point sources, sources upstream of coastal areas, irrigation return flow, oil and gas operations, marine transportation operations, accidental spills, and dredging operations. Only the point, nonpoint, and upstream source categories are included in the 1987 estimates.

The Land Use Data Analysis (LUDA) program of the USGS, which compiles data for 40 different types of land use in the United States, was the primary source of land use data for the NCPDI. Other sources, such as the National Resources Inventory of the U.S. Soil Conservation Service; the Bureau of the Census; the Census of Agriculture; and state, regional, and city planning agencies were also used. The result was a set of consistent land use estimates in acres that were used for analysis in each of the geographical regions. These data indicate the amount of surface area occupied by land use activities that affect pollutants contained in stormwater runoff.

Pollution estimates for each source category include: the level of activity in the base year; the quantity of wastewater or runoff discharged per unit of output or over a specified period of time; and the concentrations of pollutants in wastewater or runoff. For point sources, discharges are estimated primarily through EPA and state National Pollution Discharge Elimination System (NPDES) permit and compliance files. If such information is inaccurate or incomplete, engineering estimates of typical pollutant concentrations are made based on the facility type. For nonurban nonpoint sources in the East Coast, the Simulator for Water Resources on Rural Basins Model, a watershed modeling program, is used to estimate runoff and sediment discharge. Nitrogen and phosphorous discharges are based on the Cornell University Nutrient Simulation Model. Estimates of pollutant discharges for other constituents are made based on these parameters. For urban nonpoint sources, the volume of runoff is estimated and the pollutant load is calculated using information obtained from a former EPA database, the National Urban Runoff Program (NURP) (NURP has been discontinued, however, urban runoff data are not collected by cities). For upstream sources, monitoring information from USGS National Stream-Quality Accounting Network (NASQAN) stations is used to estimate pollutant mass loadings. A detailed description of these estimation methods is included in a set of Methods Documents.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (estuarine, coastal, and oceanic waters of the contiguous United States, excluding the Great Lakes, extending landward to the head of the tide and seaward to the boundary of the Exclusive Economic Zone (12 miles offshore))

Identifiers: Latitude/longitude of the point source; name of city, municipality, or township, and county; state; hydrologic unit codes; estuarine drainage area

Time Coverage: 1982, 1987 (estimates are periodically updated)

Sample Characteristics:

Frequency of sample collection: Not applicable -- no samples collected; estimates were made on a seasonal basis and aggregated to an annual basis for 1982; these estimates are presently being updated to 1987

Regularity of sample collection: Not applicable -- no samples collected; updating of pollution discharge estimates in the three geographic regions is an ongoing process

Source information: Point source information collected from states and NPDES permit files; data for non-point sources can be related to category of land use (e.g. agricultural, urban) but not to specific sources

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: Not applicable -- no samples analyzed

Standard procedures used: Not applicable -- no samples analyzed; (see Sample Design and Analysis for established data analysis and estimation methods used)

Approximate time between sample collection and analysis: Not applicable -- no samples collected or analyzed

Approximate time between sample analysis and data entry to database: Not applicable -- no samples analyzed; approximate time between data collection and data entry is 1 year

Quality Assurance/Quality Control Procedures: Data entry audits; audit trail (each data point can be traced back to its source of information)

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER:

Surface: Inorganic compounds (arsenic, iron, lead, mercury, zinc, cadmium, chromium, copper); pesticides (1982 and 1987 data available for 35 pesticides; original 1982 data only for organochlorine pesticides); microorganisms (fecal coliform bacteria); PCBs (original 1982 data only); physical and chemical indicators of water quality (biochemical oxygen demand, total suspended solids); petroleum hydrocarbons, nutrients (total nitrogen and phosphorus); wastewater treatment sludges; flow (wastewater flow or surface runoff)

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: *Database-specific* codes or identifiers (standard chemical abbreviations are used, prefixed with a seasonal or annual abbreviation)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents (e.g., data can be aggregated by pollutant, source category, individual source, spatial unit, temporal dimension)

Availability: Any requester may obtain data

Form: Hard copy -- Computer printouts
Machine readable -- Diskette (ASCII, SAS, Rbase)

Reports: *The National Coastal Pollutant Discharge Inventory* summarizes activities of the NCPDI; assessment reports on specific topics (e.g., the *National Coastal Pollutant Discharge Inventory: Point Source Discharges in Coastal Areas of Texas - A Summary By Estuarine Watershed for 1987; National Coastal Pollution Discharge Inventory: Publically Owned Treatment Works in Coastal Areas of the U.S.A.; The National Coastal Pollution Discharge Inventory Discharge Summaries for New Jersey*) are distributed to a targeted constituency with an interest in the report topic (government agencies and other users of this information), and are also available upon request; *Methods Documents* which describe the methodologies used to generate pollutant loadings for source categories are available

upon request; all reports include a discussion of data quality and limitations relevant to the report topic

Reference Documents: Several, which are listed in reports; examples include: *Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality; Control of Water Pollution from Cropland, Volume 1: A Manual for Guideline Development, and Volume 2: An Overview; Development Document for Effluent Limitations Guidelines and Standard for Specified Point Source Category*

Data/Reports Available from: Mitchell Katz, NOAA, ORCA, SEA Division, Pollution Sources Characterization Branch, 6001 Executive Blvd., Room 220, Rockville, MD 20852, (301) 443-0453 (for reports); Daniel R.G. Farrow, NOAA, ORCA, SEA Division, Pollution Sources Characterization Branch, 6001 Executive Blvd., Room 220, Rockville, MD 20852, (301) 443-0454 (for data requests); a letter describing the requested information should be sent

NATIONAL CONTAMINANT BIOMONITORING PROGRAM

Acronym: NCBP
Sponsoring Agency: U.S. Department of the Interior, U.S. Fish and Wildlife Service
Contact Person: Donald Steffeck, U.S. Fish and Wildlife Service, Division of Environmental Contaminants, 4401 North Fairfax Drive, Room 330, Arlington, VA 22203, (703) 358-2148

Objectives and Coverage:

Since 1967, the U.S. Fish and Wildlife Service (FWS) has periodically analyzed residues of selected organochlorine contaminants and potentially toxic elements in samples of fish and birds collected from a nationwide network of stations. This program, which originated as the FWS segment of the National Pesticide Monitoring Program (a multiagency monitoring effort), is now maintained by the FWS as the National Contaminant Biomonitoring Program (NCBP). NCBP documents temporal and geographic trends in concentrations of environmental contaminants that may threaten fish and wildlife and provides information on the success of regulatory actions intended to reduce environmental concentrations of toxic materials. The database covers freshwater streams and interior upland and wetland habitats.

The NCBP is scheduled to change its name and sample design in October 1992; the name will become the Biomonitoring of Environmental Status and Trends Program. In addition, the data will be made accessible to the general public. At present, it is only available through journal articles.

Summary of Environmental Data:

Media: Fish and bird samples

Classes of compounds: Pesticides, PCBs, VOCs, semi-VOCs, and inorganic compounds in fish (earlier data do not include the toxic metals and PCBs), pesticides and PCBs in birds

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Freshwater fish were collected from stations at key points in major rivers throughout the United States and in the Great Lakes from 1967 to 1988 at approximately 2 to 3 year intervals. The species of fish collected and statistical representativeness vary by region and year. The frequency of measurements and locations where samples were collected could bias site-specific evaluations. Three samples were collected from each station; two of a representative bottom-feeding species and one of a representative predatory species. Each were analyzed for organochlorine chemicals (pesticides, PCBs, industrial chemicals) and inorganic metals (arsenic, cadmium, copper, lead, mercury, selenium, and zinc). Laboratory analysts also looked for other p
otential contaminants in the 1988 collection by checking for unknown peaks on a gas chromatograph. Extrapolation of results to other fish and game animals may be uncertain.

In an effort to assess the body burden of organochlorine compounds in birds, the FWS analyzed starlings and wings from wild ducks shot or trapped by hunters in the United States from 1965 to 1985. (Sampling of ducks occurred during the 1965, 1966, 1969, 1972, 1976, 1979, 1981, 1982, 1984 and 1985 hunting seasons; sampling of starlings occurred from 1967 to 1985 at 2 to 3 year intervals.) For ducks, mallard wings were used since this species is found throughout the continental United States. Black ducks from the Atlantic Flyway were also included because mallards are not abundant there. The starling was chosen because it is numerous, widely distributed throughout the continental United States, and an omnivorous feeder.

Sampling of fish and birds is planned to occur approximately every five years as part of the Biomonitoring of Environmental Status and Trends Program. Other bioassessment methods will also be included in this new program.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the monitor site; name of state; hydrologic unit codes

Time Coverage: 1965-1985 for black ducks and mallards; 1967-1985 for starlings; 1967-1988 for fish

Sample Characteristics:

Frequency of sample collection: Varies; mainly on a 2-3 year basis; future sampling is expected to occur approximately every 5 years

Regularity of sample collection: Regular

Source information: None available

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: Each site consists of a pooling of 3-5 individual samples of fish and usually 10 or more bird samples

Standard procedures used: Biological sampling and bioassay techniques have varied according to species, year of analysis, and laboratory; FWS is in the process of standardizing these techniques to be used in the new program; standard FWS chemical extraction methods are used, which are classified according to the chemical analyzed; procedures are included in published journal articles

Approximate time between sample collection and analysis: 1 year, varies depending upon sample collection

Approximate time between sample analysis and data entry to database: 3 years; varies depending upon sample collection

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, data entry audits; confirmation of 10% of the samples is done by gas chromatography with mass spectrometry; interlaboratory cross checks were done on select samples up until 1980

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES

Fish: Pesticides; PCBs; VOCs; semi-VOCs; inorganic compounds (arsenic, cadmium, copper, lead, mercury, selenium and zinc)

Birds (ducks): Pesticides; PCBs

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

OTHER:

Birds (starlings): Pesticides; PCBs

Fish (non-consumable): Pesticides; PCBs; VOCs; semi-VOCs; inorganic compounds (arsenic, cadmium, copper, lead, mercury, selenium and zinc)

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Published articles
Machine readable -- Will probably be available after October 1992

Reports: 40 articles published to date; examples include: *National Contaminant Biomonitoring Program: Concentrations of Arsenic, Cadmium, Copper, Lead, Mercury, Selenium, and Zinc in U.S. Freshwater Fish, 1976-1984; Residues of Organochlorine Pesticides and Polychlorobiphenyls in Starlings From the Continental United States, 1982; Organochlorine Residues in Adult Mallard and Black Duck Wings, 1981-1982*; all articles published prior to 1980 are included in *Pesticide Monitoring Journal*, most articles published after this time are included in *Archives of Environmental Contamination and Toxicology*; articles discuss multiyear aggregated data and are generally available approximately every 2 to 3 years

Reference Documents: None

Data/Reports Available From: Donald W. Steffeck, U.S. Fish and Wildlife Service, Division of Environmental Contaminants, 4401 N. Fairfax Drive, Room 330, Arlington, VA 22203, (703) 358-2148

NATIONAL EMISSIONS DATA SYSTEM

Acronym: NEDS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS), National Air Data Branch
Contact Person: Jerry Husketh, U.S. EPA, NADB, MD-14, Research Triangle Park, NC 27711, (919) 541-5449

The National Emissions Data System (NEDS) provided source data for the AIRS Facility Subsystem (see separate entry) and the AIRS Area/Mobile Source Subsystem (currently under development) for point source and area air emissions, primarily for criteria pollutants. These two AIRS systems have replaced NEDS. Information on individual point sources was available through NEDS and is now available through AIRS, including: pollutant type and quantity; emissions control equipment; estimated percent of emission control efficiency; emission estimation methods used and emission estimates (for both point and area sources); identification of confidential information; universal transmercator zone and latitude longitude data; stack data; ash and sulfur content; and fuel use data, including fuel type, boiler design, combustor/processing method, and throughput, operating, and fuel process rates. Raw data or summary statistics (e.g., geographic and process-related summaries of emissions and fuel consumption) were available for individual plants for each criteria pollutant. Inventories of the total number of plants/points within a state or county were also available, as well as a ranking of plant emissions within a state or nationally for each criteria pollutant. Emissions could also be identified by Standard Industrial Classification (SIC) code and Source Classification Code (SCC). Responsibility for maintaining the NEDS database was shared by states, EPA Regional Offices, and EPA's National Air Data Branch (NADB). States submitted data annually to the Regional Office, which validated the data and sent them to the NADB for database updates.

Detailed information was not available at the time of publication.

NATIONAL ENVIRONMENTAL SPECIMEN BANK

Acronym: None

Sponsoring Agencies: U.S. Environmental Protection Agency (EPA), Office of Research and Development, and Office of Health Effects Research; U.S. Department of Commerce, National Institute of Standards and Technology (NIST)

Contact Person: Stephen A. Wise, NIST, Building 222, Room B-158, Gaithersburg, MD 20899, (301) 975-3112

Objectives and Coverage:

The National Environmental Specimen Bank, one of many projects within the National Biomonitoring Specimen Bank (NBSB) (see separate entry in Part II) at the National Institute of Standards and Technology, was established in 1979 as a pilot program to investigate the feasibility of long-term storage of environmental samples. Well-preserved and documented samples are archived for retrospective analysis as analytical techniques improve or as concerns about previously unidentified pollutants arise. To date, this pilot project has focused primarily on the establishment of a human liver bank, the analysis of approximately 20 percent of the archived liver specimens for selected organic and inorganic constituents, and research related to specimen banking. Approximately 600 liver specimens have been collected since 1980; analysis for trace elements, organic pesticides, and PCBs have been done on approximately 100 of these samples. In addition, NIST has made a comparison of different storage conditions and has developed sampling and storage protocols for archived specimens. The existing database on the stored human liver specimens and the unanalyzed liver specimens in the bank offer a number of opportunities, such as : providing baseline environmental data for monitoring pollutant trends over time and among different sites; providing the opportunity for retrospective analysis of samples from the past; and evaluating the stability of biological samples during storage.

Summary of Environmental Data:

Media: Human samples

Classes of compounds: Inorganic compounds, pesticides, PCBs

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

In 1980, liver samples were collected during autopsies performed at three locations: the Mayo Clinic in Minneapolis, Minnesota; the King County Medical Examiners Office in Seattle, Washington; and the State of Maryland Medical Examiners Office in Baltimore, Maryland. From 1981-1990, liver samples were obtained from the Seattle, Washington facility; in 1991, samples were obtained from the Baltimore, Maryland facility. These facilities work with local universities which serve as contractors for EPA and NIST for this project. The three geographic areas were chosen to represent the east and west coasts and the central United States. Liver samples are selected from adults 18 years of age or older, who did not have a long hospital stay, were not drug users, and were free from hepatitis and the human immuno-deficiency virus (HIV). Thus far, analysis for trace elements, chlorinated pesticides, and PCBs has included three groups of liver samples collected in 1980, 1982, and 1984.

Human liver samples are collected, processed, and stored under conditions that avoid or minimize contamination of the specimen or any other changes in specimen chemical composition. Non-contaminating materials are used for any contact with the sample (e.g., a titanium-bladed knife is used to avoid contamination from environmentally important trace elements found in conventional cutting instruments; clean, dust-free Teflon surfaces are used for sample preparation). Identical (e.g., homogeneous) sample aliquots are necessary to allow for valid comparison of analytical techniques and evaluation of the stability of specimens during storage. A cryogenic homogenization procedure using Teflon disk mills was developed by NIST scientists for this purpose. These mills homogenize sample aliquots, with subsampling errors due to nonhomogeneity estimated at less than 2 percent. This procedure minimizes contamination and eliminates the risk of potential changes in the sample associated with thawing and re-freezing. After sample preparation, the liver specimens are stored in Teflon bags or jars and frozen in liquid nitrogen at the NIST specimen bank facility. Presently, specimens are banked at -150^0 C to avoid the physical changes noted at other temperatures and because of the relative maintenance-free, low cost operation of liquid nitrogen vapor freezers. Information describing the sample and the sampling site are recorded and maintained in the National Environmental Specimen Bank database.

To address the question of storage stability, aliquots of the homogenized liver samples were analyzed for various inorganic and organic contaminants, and were stored under conditions such as freeze-dried, room temperature, and fresh frozen at -25^0, -80^0, or -150^0 centigrade (C) and reanalyzed in several years for comparison of storage conditions. Results of chemical analyses and physical evidence of changes (e.g., color changes, clumping, formation of ice crystals) in the sample aliquots were used for comparison purposes.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (Baltimore, MD; Minneapolis, MN; and Seattle, WA)

Identifiers: Name of city and state

Time Coverage: 1980-present

Sample Characteristics:

Frequency of sample collection: 50 samples per year

Regularity of sample collection: Irregular, based on availability; approximately one sample per week is typically collected

Source information: None

Dispersion information: Limited to geographic region

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: NIST sample collection and analytical protocols, e.g., Analysis of Human Liver Specimens

Approximate time between sample collection and analysis: 2-5 years (archiving of specimens is the goal)

Approximate time between sample analysis and data entry to database: 4-6 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, duplicates, spikes

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES:
Liver biopsies: Inorganic compounds, pesticides, PCBs

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Journal publications
Machine readable -- Diskette (ASCII)

Reports: Wise, S. et al. 1989. *Experiences in Environmental Specimen Banking, International Journal of Environmental Analytical Chemistry*, volume 37, pages 91-106; Zeisler, R. et al., eds. 1983. *Biological Trace Element Residues*; Zeisler, R. et al., eds. 1983. *The Pilot Environmental National Specimen Bank-Analysis of Human Liver Specimens*, National Bureau of Standards Special Publication 656

Reference Documents: Several, which are listed at the end of each publication

Data/Reports Available From: Stephen A. Wise, National Institute of Standards and Technology, Building 222, Room B-158, Gaithersburg, MD 20899, (301) 975-3112

NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

Acronym: NHANES
Sponsoring Agency: U.S. Department of Health and Human Services, Centers for Disease Control (CDC), National Center for Health Statistics (NCHS), Division of Health Examination Statistics
Contact Person: Robert Murphy, CDC, NCHS, Division of Examination Statistics, 6525 Belcrest Road, Room 900, Hyattsville, MD 20782, (301) 436-7068

Objectives and Coverage:

NHANES, a major data collection system of the National Center for Health Statistics (NCHS), is a series of discrete data collection surveys in which randomly selected groups of U.S. citizens are interviewed and examined to determine their health and nutritional status. The goals of NHANES are: (1) to estimate the national prevalence of selected diseases and risk factors, (2) to estimate national population reference distributions of selected health parameters, (3) to document and investigate reasons for trends in selected diseases and risk factors, (4) to contribute to the understanding of disease etiology, and (5) to investigate the natural history of selected diseases.

NHANES obtains health data from civilian noninstitutionalized individuals in locations throughout the United States (including Alaska and Hawaii); the study specifically includes minority populations and low-income populations. Young, old, and minority populations are oversampled to ensure that the data collected for these groups are reliable.

To date, two NHANES surveys have been completed and a third is underway. (A HANES survey specifically targeted for Hispanics (HHANES) is described separately in Part I of this Inventory.) The data for NHANES I were collected from 1971 to 1975, the data for NHANES II were collected from 1976 to 1980, and NHANES III was begun in 1984 and is expected to be completed in 1994.

NHANES has historically been a multi-agency effort. In addition to NCHS, the following agencies have participated in NHANES surveys: the U.S. Environmental Protection Agency, the Food and Drug Administration, the Department of Energy, the National Heart, Lung, and Blood Institute, the National Institute for Diabetes, Kidney, and Metabolic Disorders, the National Center for Environmental Health and Injury Control (NCEHIC), the National Institute of Environmental Health Sciences, the Centers for Disease Control, the National Institutes of Health, among others.

Summary of Environmental Data:

Media: Human samples (blood, urine)

Classes of compounds: Inorganic compounds (including trace metals), VOCs (NHANES III only), semi-VOCs, pesticides, cotinine, erythrocyte protoporphyrin, carboxyhemoglobin (NHANES II only), and thiocyanate (NHANES II only)

Type of data available: Individual data entries on specific agents; summary statistics (e.g., geometric and arithmetic means, percent elevated, and percent quantifiable) on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

NHANES studies are cross-sectional and use a complex, multistage, stratified, probability cluster sample of households throughout the United States. Primary sampling units (PSUs) are identified, and characterized using a wide range of stratification measures such as age, sex, race, national origin, education, income, and marital status. The number of PSUs identified and the number of people examined/interviewed is different for each NHANES. For NHANES I and II, over 20,000 people were interviewed/examined in 100 and 64 PSUs, respectively. For NHANES III, NCHS plans to interview/examine over 40,000 people in 81 PSUs.

Physical examinations, diagnostic tests (including blood pressures, electrocardiograms, bone densities (NHANES III only), dental examinations and spirometry); anthropometric measurements; laboratory analyses (including blood and urine tests, biochemical analysis of whole blood and serum, and oral glucose tolerance tests (NHANES II and III only); x-rays (x-rays of the hand and wrist were taken for NHANES I, x-rays of the cervical and lumbar spine and of the chest were taken in NHANES II, and no x-rays are planned for NHANES III); personal interviews; and dietary interviews are conducted on individuals. Blood and urine samples are analyzed using standard analytic and QC/QA procedures. Blood sera from NHANES II are being saved for later analysis under NHANES III. In addition, any sera available after protocol analyses were performed under NHANES II, were frozen and stored. These sera have been largely depleted by subsequent biochemical analyses for antigens to infectious agents. NHANES III is storing sera and white blood cells for future analysis. Longitudinal followup interviews were obtained from the adults in NHANES I (NHANES I Epidemiologic Followup Study). A similar followup is planned for NHANES III.

NHANES also provides information on consumption of foods. These data, in conjunction with contaminant information, might be used to estimate intake of certain toxicants.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: SMSA (Standard MSA), state, region of the country

Time Coverage: 1971-1994 (periodic)

Sample Characteristics:

Frequency of sample collection: Sampling occurs on a daily basis, but each individual is sampled only once

Regularity of sample collection: Samples are collected at the time of the physical exam which may be scheduled weekdays or weekends, mornings, afternoons, or evenings; each individual is examined once

Source information: For NHANES III, questions were asked regarding the smoking history of the sampled person and other household members, the source of drinking water, home heating sources, and occupational exposure to volatile substances. For NHANES II, questions were asked regarding smoking status (carboxyhemoglobin study), pica (lead study), pesticide and disinfectant exposure, and occupation.

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: The analytical procedures used for each NHANES are set by the agency conducting each test. For NHANES II, the U.S. Environmental Protection Agency analyzed the urine and blood samples for pesticide residues and metabolites, the Bureau of Labs of the Centers for Disease Control (CDC) analyzed blood samples for lead, and Dr. Edward Radford at the University of Pittsburgh analyzed blood for carboxyhemoglobin. For NHANES III, NCEHIC is measuring cadmium, lead, cotinine, erythrocyte protoporphyrin, pesticides, and volatiles

Approximate time between sample collection and analysis: Depends on analyte

Approximate time between sample analysis and data entry to database: Generally, immediately

Quality Assurance/Quality Control Procedures: Field blanks, duplicates, spikes, external laboratory analyses, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES

Blood; urine: Inorganic compounds, VOCs, semi-VOCs, pesticides, cotinine, carboxyhemoglobin, erythrocyte protoporphyrin; and clinical organ-system function tests

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents; summary statistics (geometric and arithmetic means, percent elevated and percent quantifiable) on specific agents

Availability: Any requester can obtain data, which are provided in a form that does not reveal individual identities or violate confidentiality (for NHANES III, data are not available to the public until after study completion in 1994)

Form: Hard copy -- Agency reports, journal publications (not available for NHANES III until 1994)
Machine readable -- Tape (ASCII) (not available for NHANES III until 1994)

Reports: Summary statistics are published in reports on an irregular basis in *Vital and Health Statistics, Series 11*

Reference Documents:

For NHANES I

National Center for Health Statistics. 1973, 1977. *Plan and operation of the Health and Nutrition Examination Survey, United States 1971-73.* Vital and Health Statistics, Series 1, No. 10a (1973) and 10b (1977). Washington, DC: U. S. Government Printing Office. DHEW Pub. No. PHS 79-1310.

Singer, J.D., P. Granahan, N.N. Goodrick, et al. 1982. National Center for Health Statistics. *Diet and iron status, a study of relationships: United States, 1971-74.* Vital and Health Statistics, Series 11, No. 229. Washington, DC: U.S. Government Printing Office. DHHS Pub. No. PHS 83-1679.

For NHANES II

Fulwood, R., C.L. Johnson, J.D. Bryner, et al. 1982. National Center for Health Statistics. *Hematological and nutritional biochemistry reference data for persons 6 months-74 years of age: United States, 1976-1980.* Vital and Health Statistics, Series 11, No. 232. Washington, DC: U.S. Government Printing Office. DHHS Pub. No. PHS 83-1682.

Mahaffey, K.R., J.L. Annest. 1986. Association of erythrocyte protoporphyrin with blood lead level and iron status in the Second National Health and Nutrition Examination Survey, 1976-1980. *Environmental Research.* 41:327-338.

McDowell A., A. Engel, J.T. Massey, and K. Maurer. 1981. National Center for Health Statistics. *Plan and operation of Second National Health and Nutrition Examination Survey, 1976-80.* Vital and Health Statistics, Series 1, No. 19. Washington, DC: U.S. Government Printing Office. DHHS Pub. No. (PHS) 89-1321.

Murphy, R. and C. Harvey. 1985. Residues and metabolites of selected persistent halogenated hydrocarbons in blood specimens from a general population survey. *Environmental Health Perspectives.* 60:115-120.

For NHANES III

Interagency Committee on Nutrition Monitoring. September 1989. *Nutrition monitoring in the United States: The directory of federal nutrition monitoring activities.* Hyattsville, MD: U.S. Department of Health and Human Services, Public Health Service. DHHS Pub. No. PHS 89-1255-1.

Woteki, C.E., R.R. Briefel, and R. Kuczmarski. 1988. Contributions of the National Cancer for Health Statistics. *Am. J. Clin. Nutr.* 47:320-8.

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; state offices; federal offices; regional libraries of the National Libraries of Medicine; schools of public health; for information, call the NTIS at (301) 436-8500; for information and copies of the *Vital and Health Statistics Reports*, call the Scientific and Technical Information Branch, NCHS at (301) 436-8500

NATIONAL HERBICIDE USE DATABASE

Acronym: None

Sponsoring Agencies: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs (OPP); U.S. Department of Agriculture, Economic Research Service; U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), Office of Resources Conservation and Assessment (ORCA), Strategic Environmental Assessments Division

Contact Person: Leonard Gianessi, Resources for the Future, Inc., 1616 P Street NW, Washington, DC 20036, (202) 328-5036

Objectives and Coverage:

The National Herbicide Use database, compiled by Resources for the Future (RFF), contains data on herbicide use in agricultural crop production throughout the United States. Estimates of use for 96 active ingredients on 84 crops in the 48 contiguous states of the United States are included in the database. Data available for each crop include 1987 estimates for the number of acres of harvested crop, the average rate of use per acre, the total number of acres treated, and the total pounds of active ingredient used. This information can be aggregated on a county, regional (group of counties), state, or national level. Data are used by regulatory officials, researchers, environmental groups, and planning agencies to design policies for herbicide monitoring in the environment and to evaluate proposed regulatory actions.

Summary of Environmental Data:

Media: Bulk chemicals

Classes of compounds: Pesticides

Type of data available: Individual data entries and summary statistics are available

Estimation versus observational data: All estimated data

Sample Design and Analysis:

Crop acreage estimates were taken from the 1987 Census of Agriculture, and estimates of herbicide use were taken from publicly available federal and state government reports. Additional insecticides and fungicides have been added to the database since 1987. This information was aggregated into summary statistics by scientists at Resources for the Future, Inc., based on surveys conducted by the Cooperative Extension Service of the U.S. Department of Agriculture and information obtained from company manufacturers.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Name of county and state

Time Coverage: 1987-present

Sample Characteristics:

Frequency of sample collection: Not applicable; no samples taken

Regularity of sample collection: Not applicable; no samples taken

Source information: Amount of pesticides used over a year in each state and county

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: Not applicable; no samples taken

Standard procedures used: Resources for the Future, Inc. standard procedures for data verification

Approximate time between sample collection and analysis: Not applicable; no samples taken

Approximate time between sample analysis and data entry to database: Not applicable; no samples taken; approximate time between data received and data entry to database is within 1 year

Quality Assurance/Quality Control Procedures: Data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS
Pesticides

Conventions Used to Identify Agents: Chemical name or mixture; database-specific codes or identifiers

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on a county, regional (group of counties), state, or national level

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Diskette (ASCII, dBase)

Reports: *Herbicide Use in the United States: National Summary Report; The Use of Herbicides in U.S. Crop Production: Use Coefficients Listed by State; The Use of Herbicides in U.S. Crop Production: Use Coefficients Listed by Active Ingredient; Herbicide Use Data, by County for the State of ( ); National Herbicide Report (County Level);* reports are available upon request; customized county reports which provide information on the estimated use of 96 active ingredients for any regional grouping of counties are also available

Reference Documents: None

Data/Reports Available From: Leonard Gianessi, Resources for the Future Inc., 1616 P Street NW, Washington, DC 20036, (202) 328-5025

NATIONAL HUMAN ADIPOSE TISSUE SURVEY

Acronym: NHATS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Toxic Substances (OTS)

Contact Person: Janet Remmers, U.S. EPA, OTS, National Human Monitoring Program, 401 M Street SW, Washington, DC 20460, (202) 260-1583

Objectives and Coverage:

NHATS is maintained by the National Human Monitoring Program for the purpose of detecting and quantifying the prevalence of toxic organic compounds in the general population. NHATS data are used to address part of OTS's mandate under the Toxic Substances Control Act (TSCA). Baseline levels of chemicals in human adipose tissue specimens collected from autopsied cadavers and surgical patients in the continental United States are measured. This monitoring program has been used primarily for establishing exposure trends for organochlorine pesticides and PCBs. In 1984, additional volatile and semi-volatile organic compounds were included to detect other potentially toxic compounds that might be entering the environment. This expanded target list was used in the analysis of adipose specimens collected during fiscal year 1982 (FY82). A follow-up study of the FY82 data was also conducted in order to identify any gas chromatography/mass spectrometry peaks which had not been previously identified. NHATS has also performed several other one-time special studies, such as for lead and cadmium, and a clinical study of transformer workers. The program is currently finishing analyses on samples collected in 1987. It is unclear whether the program will continue; no new sampling is planned.

The significance of this database is twofold. Human risk compound comparison with NHATS data allows EPA to more accurately assess the danger of these compounds to the human population from environmental sources. Secondly, if future sampling is done, compounds identified in this study may be selected for inclusion in the broad scan analysis (see Sample Design and Analysis) of future NHATs samples. This would provide EPA with long-term bioaccumulation information which could be tracked for possible long-term trends.

Summary of Environmental Data:

Media: Human samples

Classes of compounds: Semi-VOCs, pesticides, PCBs (1970-present); inorganic compounds and VOCs (1982); dioxins/furans (1982, 1987)

Type of data available: National and regional (census division) summary statistics are available on specific agents on a yearly basis

Estimation versus observational data: All observational data

Sample Design and Analysis:

Human adipose tissue specimens are collected according to a statistical survey design and are representative of a cross-section of the population. The sampling frame consists of Metropolitan Statistical Areas (MSAs) of the continental United States, partitioned into 17 strata. Approximately 1,000 samples are obtained each fiscal year (for some years, the sample size may be much less). Where MSAs or Standardized Metropolitan Statistical Areas (SMSA) cross stratum boundaries, they are divided to fit within the strata. A probability sample of MSAs is selected, with the probability proportional to the population size. Rural populations were not considered in the sampling strategy. A hospital, medical examiner, or pathologist within each selected MSA is designated to participate in the survey. Participants are requested to collect human adipose tissue specimens from autopsied cadavers and surgical patients. Quotas for sample collection for each participant are specified for age group, race group, and sex of donor. The extent to which these samples reflect the prevalence in the general population is unclear. If the tissue is collected from a cadaver, the donor should preferably have died suddenly (for example, from a car accident or a heart attack). Cachexic (i.e., physically wasted and malnourished) patients, victims of pesticide poisoning, and patients institutionalized for long periods of time are excluded. Samples are composited by region and age-group before analysis, and all samples are sent to the laboratory contractor (which changes from year to year).

Data on organochlorine pesticides and PCBs reported for the NHATS specimens up to the FY82 collection are based on packed column gas chromatography/electron capture detector analysis. The NHATS specimens collected during FY82 were selected for a broad scan analysis of volatile and semi-volatile organic TSCA-related chemicals using high resolution gas chromatography/mass spectrometry. Although broad scan analysis provided OTS with an expanded list of potentially toxic compounds in adipose tissue, a large number of unidentifiable peaks existed. Therefore, a procedure was subsequently developed to automatically characterize these unidentified peaks based on a forward library search approach. This procedure resulted in the tentative identification of many additional compounds, however, a significant number of peaks were still unresolved or unidentified in the gas chromatography scan. As a final choice the traditional reverse search approach was adopted on a larger set of target compounds that offered a greater degree of selectivity and sensitivity. On the set of FY 82 composite samples target compound analysis was done using three listings of chemicals selected as being among the most environmentally significant: the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 toxic chemical listing; the SARA Section 110 listing; and a listing of 16 priority compounds from the unidentified peaks study and targeted by EPA as chemicals of interest. Three-hundred and forty-nine compounds were identified from these listings.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Metropolitan Statistical Area (MSA), Standardized Metropolitan Statistical Area (SMSA)

Time Coverage: 1967-present (Public Health Service administered NHATS from 1967-1970; EPA from 1970-present)

Sample Characteristics:

Frequency of sample collection: Annual

Regularity of sample collection: Collection quota is given on a yearly basis; design does not specify that specimens must be collected at any specific time during the year

Source information: Not available

Dispersion information: Geographic trends rather than individual specific source receptor relationships can be inferred

Methods of Sample Analysis:

Samples pooled: Samples are composited according to geographic region and age group prior to analysis

Standard procedures used: NHATS has developed its own protocols, most of which are specifically designed for this program (e.g., broad-scan analysis method)

Approximate time between sample collection and analysis: Varies greatly -- 1-5 years; depends on budget availability for chemical analysis

Approximate time between sample analysis and data entry to database: 4-10 months, depending on the complexity of the data

Quality Assurance/Quality Control Procedures: Laboratory blanks; spikes; external laboratory analyses; data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES:

Adipose tissue: Semi-VOCs, pesticides and PCBs (1970-present); inorganic compounds and VOCs, (1982); dioxin/furans (1982, 1987)

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: National and regional (census division) summary statistics are available on specific agents on a yearly basis

Availability: Any requester can obtain data

Form: Hard copy -- Agency reports, journal publications
Machine readable -- Not available

Reports: Available on an irregular basis as analyses are completed; Available reports include: *Broad Scan Analysis of the FY82 National Human Tissue Survey Specimens; Characterization of the HRGC/MS Unidentified Peaks from the Analysis of Human Adipose Tissue; Baseline Estimates and Time Trends for Beta-benzene hexachloride, Hexachlorobenzene, and Polychlorinated Biphenyls in Human Adipose Tissue, 1970-1983; Identification of SARA Compounds in Adipose Tissue; Mirex Residue Levels in Human Adipose Tissue: A Statistical Evaluation; Analysis for Polychlorinated Dibenzo-p-dioxin (PCDD) and Dibenzofurans (PCDF) in Human Adipose Tissue: Method Evaluation Study,* also numerous journals articles

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

NATIONAL HUMAN MILK MONITORING PROGRAM

Acronym: None

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs (OPP)

Contact Person: Jerome Blondell, U.S. EPA, OPP, Health Effects Division (H7509C), 401 M Street SW, Washington, DC 20460, (703) 557-0336

Objectives and Coverage:

The National Human Milk Monitoring Program contains the results of two studies: the National Study to Determine Levels of Chlorinated Hydrocarbon Insecticides in Human Milk (conducted in 1975-1976), and a follow-up to this study, The Second National Study to Determine Levels of Chlorinated Hydrocarbon Insecticides and Polychlorinated Biphenyls in Human Milk (conducted in 1976-1978). The objective of these studies was to estimate the distribution of selected organochlorine pesticide and PCB levels in human milk among nursing mothers giving birth in general care hospitals in the United States. A total of 1,436 milk samples were collected in the first study and 1,842 in the follow-up study from women residing in urban and rural areas throughout the contiguous Unites States The studies were designed to provide information on the levels of pesticides and PCBs retained in human milk, the geographic variation in retention, and the characteristics of nursing mothers (including age, dietary information, race, and number of children nursed). Data collected are useful in estimating long-term trends in pesticide and PCB levels in human milk. However, the degree to which these results can be generalized to the entire population is limited because of potential selection bias (it was not known whether the subjects who agreed to participate in the study differed from those who elected not to participated in it.)

Summary of Environmental Data:

Media: Human milk samples

Classes of compounds: Pesticides, PCBs

Type of data available: Summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

General care hospitals (622) were chosen from those that participated in the EPA Second National Hospitalized Acute Pesticide Poisoning Study and were classified into one of five geographic regions (northeast, southeast, midwest, northwest, southwest). The regions were derived by grouping ten EPA regions into five. Within each of the regions, general care hospitals with nursery facilities were stratified and a certain percentage were selected according to number of births during a calendar year. Every effort was made to obtain information directly from the selected individuals (mothers).

Residue analysis performed at participating laboratories included isolating the fat from the milk and extracting the chlorinated hydrocarbons from the fat. Primary identification and quantification of the pesticides were performed using a gas chromatograph with an electron capture detector. During data analysis, standard chi-square tests for homogeneity of proportions were used to statistically investigate differences in distribution of the residues of each contaminant in mother's milk by geographic region, race, age, and number of children nursed. Differences in residue concentrations between urban and rural areas were also examined. Analyses were limited to the effects of factors individually rather than jointly; thus, reported differences with respect to one factor were not adjusted for the effects of all other factors. Also, because of the small sample sizes it was not possible to investigate the potential effects of employment in a pesticide related industry and exposure to pesticides at home or at work.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Geographic region (northeast, southeast, midwest, northwest, southwest)

Time Coverage: 1974-1978

Sample Characteristics:

Frequency of sample collection: Irregular; two studies conducted; mothers participating in the studies provided one sample per study

Regularity of sample collection: Samples were collected at the same time in each sampling period

Source information: No environmental samples were collected to examine the relationships between the mothers' milk samples and environmental concentrations of pesticides and PCBs. However, the results from the second study showed decreases in the concentrations of pesticides and PCBs in mothers milk since the time of the first study consistent with the banning or restriction of most of these materials in the United States after the first study.

Dispersion information: Limited to one of five geographic regions

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: EPA Analytical Standards for Chlorinated Pesticides; procedures listed in the *Manual of Analytical Methods* for the evaluation, storage, activation, and use of Florisil by Pesticide Community Studies Laboratories, Primate Research Center, Perrine, Florida (1971)

Approximate time between sample collection and analysis: Several months

Approximate time between sample analysis and data entry to database: 1 week

Quality Assurance/Quality Control Procedures: Duplicates, spikes, external laboratory analyses (designed and monitored by EPA), intralaboratory analyses, data entry audits, training of field epidemiologists and analytical chemists

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES
Maternal milk: Pesticides, PCBs

HUMAN SAMPLES
Milk: Pesticides, PCBs

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical or mixture name

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Agency reports

Reports: *National Study to Determine Levels of Chlorinated Hydrocarbon Insecticides in Human Milk; Second National Study to Determine Levels of Chlorinated Hydrocarbon Insecticides and Polychlorinated Biphenyls in Human Milk* (E.P. Savage et al (1984)); distributed to the National Technical Information Service (NTIS)

Reference Documents: Several listed at the end of each report; examples include: *Insecticides in Human Milk; DDT in Human Milk; The Insecticide Residues in Human Diet; Chlorinated Hydrocarbon Insecticides in Plasma and Milk of Pregnant and Lactating Women*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; Jerome Blondell, U.S. EPA, OPP, Health Effects Division (H7509C), Washington, DC 20460, (703) 557-0336 (for information on reports)

NATIONAL MARINE MAMMAL TISSUE BANK

Acronym: None
Sponsoring Agencies: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) and National Institute of Standards and Technology (NIST)
Contact Person: Stephen A. Wise, NIST, Building 222, Room B-158, Gaithersburg, MD 20899, (301) 975-3112

Objectives and Coverage:

The National Marine Mammal Tissue Bank was initiated in 1990 by NOAA, in conjunction with NIST, to establish a representative collection of tissues from marine mammals for future contaminant analyses and documentation of long-term trends in environmental quality. This project is one of the many activities of the National Biomonitoring Specimen Bank (see separate entry in Part II of this Inventory). The National Marine Mammal Tissue Bank is similar to the Alaskan Marine Mammal Tissue Archival Project (see separate entry in Part I of this Inventory) except that it focuses on the continental U.S., whereas the Alaskan project focuses on Alaskan marine mammals. Since most marine mammals are at or near the top of the food chain, chemical analysis of their tissues may be useful in determining whether bioaccumulation of contaminants associated with human industrial activities is occurring in the marine food chains. To date, only tissue samples from marine mammals in the Northeast have been collected for inclusion in the National Marine Mammal Tissue Bank. These include blubber and liver tissue samples from harbor porpoises caught in nets by commercial fisheries and from pilot whales stranded on Cape Cod in Massachusetts. Samples have been taken from a total of 14 of these animals to date. Plans for future sampling include tissue collection of marine mammals from all coastal regions of the continental U.S.

Detailed information was not available at the time of publication.

NATIONAL PARK SERVICE ENVIRONMENTAL DATABASE MANAGEMENT SYSTEM

Acronym: NPSEDMS
Sponsoring Agency: U.S. Department of the Interior, National Park Service, Air Quality Division
Contact Person: Mr. William Brick, Aerovironment, Rocky Mountains Region, 200 Union Boulevard, Suite 311, Lakewood, CO 80228, (303) 989-2667

Objectives and Coverage:

NPSEDMS is maintained by the National Park Service (NPS) for the purpose of assessing the effects of air pollution on vegetation in U.S. National Parks, primarily those designated as Class I ("Clean Air" areas).

This database consists of air sampling results for criteria pollutants within these parks. Utilizing these results, the NPS seeks to: assess the effects of air pollution on sensitive resources in these parks; understand the nature and sources of air pollution; assess the effects of emission control strategies to mitigate or eliminate the impact of existing and proposed emission sources on NPS resources; and provide NPS personnel with the information needed to comply with statutory resource management and protection responsibilities and to support other air quality related management needs.

Summary of Environmental Data:

Media: Air

Classes of compounds: Criteria pollutants

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

National Parks with 6,000 acres of land or greater are selected for inclusion in this program based on their Clean Air Act class designation (class I parks are included), as well as ecoregion representation and expected range of pollutant concentration.

A site visit is made at each park to determine appropriate sample locations, which include cleared areas with electric power and a telephone system nearby, if possible. Other sites may be selected for special sampling projects designed to determine damage to a particular plant life. Time-integrated air samples for sulfur dioxide (two 24-hour samples each week of the year) are collected on filter packs. If elevated concentrations are detected on a frequent basis, monitoring of sulfur dioxide is conducted 24 hours/day throughout the year, using continuous monitoring methods (pulsed fluorescence spectroscopy).

Air sampling for ozone is conducted 24 hours/day throughout the year, using continuous chemiluminescence (ultraviolet absorption photometry) monitors, at all sites except Steam Town National Historical Site, Scranton, PA.

Meteorological measurements are also taken at most parks in the program, with plans for these measurements to be taken at all of these parks in the future.

All air quality and meteorological measurements are reduced to hourly, arithmetic averages, except for vector wind speed, which is calculated to a vector average. All averages are reported to the EPA Aerometric Information Retrieval System (AIRS) (see separate entry in Part II of this Inventory).

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National, primarily in areas designated as Class I under the Clean Air Act

Identifiers: Latitude/longitude and universal transmercator coordinates of the monitor site; name of county and state

Time Coverage: 1980-present (most sites on-line since 1987)

Sample Characteristics:

Frequency of sample collection: Two 24-hour, time-integrated samples for sulfur dioxide/week in most locations; continuous monitoring of sulfur dioxide, ozone, and meteorological variables in some locations

Regularity of sample collection: Regular

Source information: Results of fine particulate sampling included in the NPS Visibility Monitoring Program Database are used to relate data from NPSEDMS to sources

Dispersion information: No data collected at source

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: NPS standard procedures are used for time-integrated samples; EPA reference and equivalent methods EQ0A-0577-019, EQ0A-0881-053, EQSA-0876-013, EQSA-0276-009 are used for continuous analyzers. The EPA methods are referenced in: *Quality Assurance Handbook for Air Pollution Measurement Systems (Volume 1: Principles; EPA 600/9-76-005; Volume 2: Ambient Air Specific Methods, EPA/600/4-77/027A); or Ambient Monitoring Guidelines for Prevention of Significant Deterioration, EPA 450/4-87-007*

Approximate time between sample collection and analysis: 1-2 months for time-integrated, sulfur dioxide samples; instantaneous for other continuous sulfur dioxide, ozone and meteorological measurements; precipitation data recorded on event basis

Approximate time between sample analysis and data entry to database: 24 hours-1 week for continuous measurements; 45-90 days after each calendar quarter for the integrated sulfur dioxide measurements

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; data entry audits; EPA quality assurance requirements for continuous measurements found in *40 CFR 58*, Appendix A are followed

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR:

Outdoor Rural: Criteria pollutants (ozone and sulfur dioxide) and meteorological measurements

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes or identifiers, or other codes (EPA's AIRS database codes)

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents; various data extremes, averages, and doses are summarized by month for ozone and sulfur dioxide; hourly measurements are available as well as graphical (time-series) plots of data for all air quality and meteorological data

Availability: Although the general public does not have on-line access to this system, any requester can obtain hard copies of the data by contacting any regional EPA office; federal, state, or local governmental agencies and subcontractors of EPA may obtain data through EPA's AIRS system

Form: Hard copy -- Computer printouts
Machine readable -- Tape, diskette (ASCII); on-line through EPA's AIRS system

Reports: Preliminary data available monthly for internal use only; *Quarterly and Annual Reports* (for 1989 and 1990); it is anticipated that separate reports for quarterly and annual data will be published for 1991; reports are distributed to state air pollution control agencies, EPA Regional Offices, NPS Regional Offices, U.S. Forest Service Regional Offices, and individual NPS units

Reference Documents: *Code of Federal Regulations, Chapter 40, Parts 53-60, Protection of the Environment*

Data/Reports Available From: Miguel Flores, Department of the Interior, National Park Service, Air Quality Division, P.O. Box 25287, Denver, Colorado 80225, (303) 969-2072

NATIONAL PESTICIDE SURVEY

Acronym: NPS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs
Contact Person: U.S. EPA, OPP Docket, Office of Pesticide Programs, 401 M Street SW, Washington, DC 20460, (800) 426-4791

Objectives and Coverage:

Primary objectives of the NPS include regulatory, monitoring, and research activities. The two goals of this one-time survey are: (1) to determine the frequency and concentration of pesticides and nitrate in drinking water wells nationwide, and (2) to improve EPA's understanding of how the presence of pesticides and nitrate in drinking water wells is associated with patterns of pesticide use and the vulnerability of groundwater to contamination. The program was designed to obtain information on public community water supply wells and rural domestic drinking water wells nationwide. The survey does not assess the presence of pesticides or nitrate at the local, county, or state levels, nor does it address the presence of pesticides or nitrate in ground water or surface water generally. Instead, the survey focused on the quality of water in drinking water wells before treatment, rather than the quality of drinking water at the tap.

Summary of Environmental Data:

Media: Water (wells -- municipal and private, before treatment or blending)

Classes of compounds: Pesticides, nitrate, inorganic compounds (127 analytes, total)

Type of data available: Summary statistics on specific agents

Estimation versus observational data: EPA sampled over 1,300 wells; estimated data were used to determine pesticide use because actual county-level data were not available

Sample Design and Analysis:

The National Pesticide Survey was designed to yield results that are statistically representative of the nation's approximately 94,600 community water supply wells and 10,500,000 rural domestic water supply wells. Stratified random probability sampling methods were used to select wells for water quality analysis. EPA sampled 540 community water supply wells in all 50 states and 752 rural domestic wells in 38 states. All counties in the United States were characterized according to (a) pesticide use, and (b) the relative vulnerability of ground water to contamination. Questionnaires were used to collect additional data describing the well and surrounding area; well construction; pesticide use on the property where the well was located; and information on crops, pesticide use, and land use within one-half mile of the well. Chemicals were chosen that had potential to leach into ground water and which were used in at least one million pound quantities nationwide in 1982. All pesticides regulated by the Safe Drinking Water Act were included.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the zip code centroid; street address; name of city, municipality, or township; county/parish; state; congressional district; well identification codes

Time Coverage: 1988-1990

Sample Characteristics:

Frequency of sample collection: Each site sampled once

Regularity of sample collection: Sampling of over 1,300 sites spread out evenly in two-week intervals during the year

Source and dispersion information: Questionnaires were used to identify locations and activities that might affect the presence and levels of pesticides in drinking water wells

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Most methods found in *Methods for the Determination of Organic Compounds in Drinking Water*, CERI (EPA/600/4-88/039); used 2 existing EPA methods (NPS Methods 7 and 9) and developed 6 new methods (NPS Methods 1-6)

Approximate time between sample collection and analysis: less than 14 days

Approximate time between sample analysis and data entry to database: Database is to be publicly released approximately a year and a half after the collection of the last sample

Quality Assurance/Quality Control Procedures: Lab blanks; field blanks; duplicates; spikes; external lab analysis; data entry audits; field audits; interviewer training; 24-hour hotline for sampling teams; logic checks; instrument control standards; reanalysis

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Groundwater, municipal, private: Inorganic compounds, pesticides

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical name or mixture; database - specific

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics on specific agents (data on single location -- per well -- at one point in time); data are cross-referenced by chemical

Availability: Any requester (except that names and addresses of private well owners are confidential); database will be publicly available approx. 8/91

Form: Hard copy -- Agency reports
Machine readable -- Tape (SAS)

Reports: *National Pesticide Survey: Project Summary* (Fall 1990); "Results and Findings"

Reference Documents: *National Pesticide Survey: Survey Analytes* (Fall 1990); *National Pesticide Survey: Analytical Methods* (Fall 1990);

Data/Reports Available From: Drinking Water Hotline (800) 426-4791; also available from state pesticide regulators (e.g., agriculture departments); drinking water regulators (e.g., health and/or environmental departments); and U.S. EPA, U.S. Department of Agriculture (USDA), and U.S. Geological Survey (USGS) headquarters and regions

NATIONAL RESIDENTIAL RADON SURVEY

Acronym: NRRS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Radiation Programs
Contact Person: Frank Marcinowski, U.S. EPA, Office of Radiation Programs, 401 M Street SW, (ANR-464), Washington, DC 20460, (202) 260-4189

Objectives and Coverage:

The Superfund Amendments and Reauthorization Act (SARA) (Public Law 99-499, 1986) Section 118(k) requires the U.S. EPA Administrator to conduct a national assessment of radon levels where people normally live and work, including educational institutions. The National Residential Radon Survey provides an estimate of the national frequency distribution of annual average radon concentrations in occupied residences (97.5% of the 1980 United States population) for each of the 10 EPA regions. The survey was designed to achieve reasonable precision in estimating the number of homes with relatively high levels of radon concentration (above 10 pCi/L). The survey is also intended to provide information from which correlations can be made between radon concentrations, house construction, and heating, ventilation, and air conditioning (HVAC) characteristics. In addition, the survey is designed to provide information on radon exposures to sensitive populations, such as children and smokers.

Summary of Environmental Data:

Media: Indoor air

Classes of compounds: Radon

Type of data available: Individual data entries and summary statistics are available on specific agents; also distribution estimates on a national and regional basis

Estimation versus observational data: Observational assessments

Sample Design and Analysis:

NRRS was divided into two phases. Phase I of the survey involved identifying the households to be sampled, interviewing the residents of each household, and placing the detectors. Phase II included panel maintenance, collection of the detectors, analysis of the data, and production of a final report. Houses selected were those that were defined by the United States Census as containing household populations, which account for approximately 97.5% of the United States population, and those in which permanent residents lived. The study did not include nonhousehold populations, such as inmates of institutions, military personnel in base housing or on ships, or residents of college dormitories, rooming houses, convents, or halfway houses. Following administration of the survey questionnaire, year-long alpha-track detectors (ATDs) were placed in the participating residences. Detectors were placed at each level of the home used as living areas, other than the basement. Single-level homes received one detector in the living area and one in the bedroom area. Multi-level homes received a maximum of 3 detectors. A total of 7,134 homes were selected for the survey, based on statistical and geographical coverage. After panel maintenance, 6,285 (88 percent of Phase I) homes remained for Phase II -- well above the target value of 5,000 homes required to meet the survey precision. The detectors were retrieved through the mail during the summer of 1990. The ATDs were analyzed, and statistical analyses performed on the data. No information is available on the homes that did not return the detectors.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Primary sampling unit (PSU), consisting of census-defined counties or county equivalents; latitude/longitude of the county centroid; census-tract (enumeration district); zip code; street address; name of city, municipality, or township; state

Time Coverage: 1989-1990

Sample Characteristics:

Frequency of sample collection: Yearly

Regularity of sample collection: Once a year, in June-August, in the same homes each year

Source information: Samples taken at individual homes

Dispersion information: Radon emanates from soil; hot spots are statistically identified through measurements

Methods of Sample Analysis:

Samples pooled: For certain analyses, the arithmetic average of measurements taken at several locations within a house are used

Standard procedures used: U.S. EPA Indoor Radon and Radon Decay Product Measurement Protocols; U.S. EPA Interim Protocols for screening and follow-up; Radon and Radon Decay Product Measurements

Approximate time between sample collection and analysis: 2 weeks-1 month

Approximate time between sample analysis and data entry to database: 2 weeks

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analyses, data entry audits, performance evaluation audits, technical systems audit

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not Applicable

SOIL Not Applicable

AIR

Indoor Homes: Radionuclides -- radon

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII)

Reports: *National Residential Radon Survey Statistical Analysis, Volumes 1-3*; available in summer 1992

Reference Documents: *Planning the Environmental Protection Agency's National Residential Radon Survey; The National Residential Radon Survey: Final Quality Assurance Project Plan*

Data/Reports Available From: Frank Marcinowski, U.S. EPA, Office of Radiation Programs, 401 M Street SW, (ANR-464), Washington, DC 20460, (202) 260-4189

NATIONAL SHELLFISH REGISTER OF CLASSIFIED ESTUARINE WATERS

Acronym: Register

Sponsoring Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA); Interagency Task Force on Shellfish Growing Waters (U.S. Environmental Protection Agency, U.S. Food and Drug Administration, U.S. Fish and Wildlife Service, NOAA)

Contact Person: Eric Slaughter, NOAA, Office of Ocean Resources Conservation and Assessment (ORCA), Strategic Environmental Assessments (SEA) Division, Human Activities Branch, 6001 Executive Boulevard, Rockville, MD 20852, (301) 443-8843

Objectives and Coverage:

The National Shellfish Register is a compilation of information about estuaries in the United States that have been classified for shellfishing. To protect public health, approximately 19 million acres in 24 states are currently classified as either approved, conditionally approved, restricted, or prohibited for shellfishing (for oysters, clams, and mussels). First published in 1966, the Register was developed to inventory acreage and classification status of shellfishing waters; later versions have also included information on water quality (based primarily on fecal coliform levels). The latest (1990) Register includes historical trends data; information on pollution sources (including point and nonpoint sources), productivity of waters, and state management efforts; reasons for changes from the 1985 classifications; and discussions of relationships between shellfish production, classifications, pollution, and public expenditures. The Register is updated every 5 years, and data are being digitized using NOAA's Geocoast Geographic Information System (GEOCOAST), which will store data, perform calculations, and print data onto nautical charts.

The development of these data is one of several interrelated activities of NOAA. A separate database is maintained for each of these activities (see the National Status and Trends Program and the National Coastal Pollutant Discharge Inventory (NCPDI) for descriptions of related NOAA databases). Each of these databases use the same spatial framework and together are used by NOAA for the strategic assessment of the Nation's coastal and oceanic resources.

Summary of Environmental Data:

Media: Surface water (estuaries)

Classes of compounds: Microorganisms, inorganic compounds, pesticides, PCBs, radionuclides; also meteorological and hydrographic data

Type of data available: Individual data entries on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The Register uses NOAA's National Estuarine Inventory (NEI), which was created to provide a spatial framework that could be used in several related NOAA projects. The spatial framework developed was the estuarine drainage area (EDA), defined by NOAA as that portion of a watershed that most directly affects an estuary and is delineated by U.S. Geological Survey (USGS) cataloging units and the head of the tide. Two atlas volumes were subsequently published detailing the land use and physical and hydrologic characteristics of the estuarine systems within the NEI.

Sampling requirements and procedures for the Register are based on the *National Shellfish Sanitation Program (NSSP) Manual.* The NSSP requires that a sanitary survey be performed before an area is approved as a source of shellfish harvesting. The sanitary survey identifies and evaluates all actual and potential sources of pollution; determines the distance of such sources from shellfish-growing areas; assesses the effectiveness and reliability of sewage treatment systems; ascertains the presence of poisonous or deleterious substances; and collects and analyzes water samples from the growing area, particularly for bacteriological quality. Sample collection should provide a profile of adverse pollution conditions, reflecting point sources and meteorological, hydrographic, and seasonal factors. Sampling is performed by state regulatory agencies, primarily for total or fecal coliform. Sanitary surveys are reviewed at least annually by the Food and Drug Administration (FDA) and are reevaluated every 3 years. "Hot spots," such as industrial discharge areas, are sampled routinely. For the 1990 Register, NOAA examined state data and/or conducted field investigations with state personnel for waters in over 100 estuaries.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National (24 shellfish-producing, coastal states)

Identifiers: National Ocean Survey nautical charts (being digitized); latitude/longitude of point source, and monitor site (sometimes available); state; estuarine drainage area

Time Coverage: 1966-present

Sample Characteristics:

Frequency of sample collection: States collect data monthly; Register data are compiled every 5 years

Regularity of sample collection: Varies; some states use adverse pollution conditions to determine when to sample; others use scheduled random sampling

Source information: State sanitary surveys identify pollution sources, their positional relationship, and the extent of their impact on shellfishing waters

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: FDA *National Shellfish Sanitation Program (NSSP) Manual*

Approximate time between sample collection and analysis: 1 week

Approximate time between sample analysis and data entry to database: Varies by state

Quality Assurance/Quality Control Procedures: Varies by state, but is referred to in the NSSP Manual

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Microorganisms (total and/or fecal coliform bacteria, vibrio bacteria, occasionally viruses, and dinoflagellates (for marine biotoxins, such as red tide, which causes paralytic shellfish poisoning)); inorganic compounds; pesticides; PCBs; and radionuclides (primarily Gulf of Mexico)

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Varies by state

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents; consistent with other NOAA programs which use the NEI framework

Availability: Federal, state, or local governmental agencies may obtain data; National Technical Information Service (NTIS); over 1,000 agencies and individuals in NOAA's user files will automatically receive the 1990 Register

Form: Hard copy -- Computer printouts, Agency reports
Machine readable (for classification and pollution source data only; not available for water quality results) -- Diskette (RBase, Excel); other forms, varies by state

Reports: Generated irregularly except for the Register itself, for which a report is generated every 5 years

Reference Documents: *1990 National Shellfish Register; The Quality of Shellfish Growing Waters in the Gulf of Mexico; The Quality of Shellfish Growing Waters on the East Coast of the United States; The Quality of Shellfish Growing Waters on the West Coast of the United States; NSSP Shellfish Sanitation Program: Manual of Operations*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; state offices (all relevant agencies in shellfish-producing states); federal offices (those part of the Interagency Task Force on Shellfish Growing Waters); industrial members of the Shellfish Institute of North America; contact individual state health agencies for specific results, or contact the Register for referrals to appropriate state official; Mitchell Katz, NOAA, (301) 443-8843

NATIONAL STATUS AND TRENDS FOR MARINE ENVIRONMENTAL QUALITY

Acronym: NS&T

Sponsoring Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), Office of Ocean Resources Conservation and Assessment (ORCA)

Contact Person: Thomas O'Connor, NOAA (OMA32), ORCA, Coastal Monitoring Bioeffects Assessment Division, 6001 Executive Boulevard, Rockville, MD 20852, (301) 443-8644

Objectives and Coverage:

The purpose of the NS&T Program is nationwide monitoring to determine the environmental quality of estuarine and coastal waters and to detect any spacial or temporal changes. The principal objectives of the NS&T database are to: 1) maintain and manage all chemical concentrations reported from NS&T monitoring programs for marine organisms and sediments; 2) provide data to other NOAA personnel for analysis; and 3) provide data to major data centers for permanent storage. NOAA coordinates its NS&T program with the Near Coastal component of EPA's Environmental Monitoring and Assessment Program (EMAP) (see separate entry for EMAP).

NS&T contains seven major components: the *Mussel Watch Project*; the *Benthic* Surveillance Project; Biological Effects Surveys and Research; Historical Trends Assessment; Specimen Banking; Regional Assessments; and a Quality Assurance Program. The *Mussel Watch Project* monitors chemical levels in bivalve molluscs (mussels and oysters) and sediments. The *Benthic Surveillance Project* monitors chemicals in benthic (bottom-dwelling) fish and associated sediments; frequency of external and internal disease conditions in fish is documented. *Biological Effects Surveys* are two- to three-year studies conducted in specific locations after previous studies have indicated potential for substantial environmental degradation. These studies are designed to provide detailed information of the magnitude and extent of ecosystem degradation. Biological effects research has been conducted in Boston Harbor, southern California, Tampa Bay, Long Island Sound, and the Hudson-Raritan Estuary; liver tumors, impaired reproduction, or genetic toxicity in fish resulting from exposure to chemical contaminants have been studied in these areas.

The *Historical Trends Assessment* project combines new and historical data to provide information about the evolution of environmental contamination, generally focusing on areas of highest contamination of specific chemicals; fish, shellfish, and sediment data have been added to provide information on long-term chemical contamination trends. The *Environmental Specimen Banking* Project (see separate entry for the National Biomonitoring Specimen Bank in Part II of this Inventory) maintains a specimen bank at the National Institute of Standards and Technology in Gaithersburg, MD, for future uses (e.g., testing of chemicals that have not yet been identified as toxic; use of new analytical methods). The *Regional Assessment* project seeks to compare local levels of contamination to national-scale results. Finally, the *Quality Assurance* project seeks to produce nationally uniform analytical results and to ensure comparability among data sets. All

participating laboratories must use standard procedures and standard reference materials, and must perform routine tests to check reliability of techniques against both known and unknown chemical samples.

The development of these data is one of several interrelated activities of NOAA. A separate database is maintained for each of these activities (see the National Shellfish Register of Classified Estuarine Waters and the National Coastal Pollutant Discharge Inventory (NCPDI) for descriptions of related NOAA databases). Each of these databases use the same spatial framework and together are used by NOAA for the strategic assessment of the Nation's coastal and oceanic resources.

Summary of Environmental Data:

Media: Fish/shellfish (mussels and oysters, bottom-dwelling fish); marine sediments

Classes of compounds: Inorganic compounds; semi-VOCs; pesticides; PCBs; radionuclides

Type of data available: Individual data entries on specific agents

Estimated versus observational data: All observational data

Sample Design and Analysis:

NS&T uses NOAA's National Estuarine Inventory (NEI) (see separate entry), which was created to provide a spatial framework that could be used in several related NOAA projects. The spatial framework developed was the estuarine drainage area (EDA), defined by NOAA as that portion of a watershed that most directly affects an estuary and is delineated by U.S. Geological Survey (USGS) cataloging units and the head of the tide. Two atlas volumes were subsequently published detailing the land use and physical and hydrologic characteristics of the estuarine systems within the NEI.

NS&T sampling includes approximately 300 sites from near-coastal and estuarine waters. Sites are located in all states, including Alaska and Hawaii. Monitoring sites are selected 10 to 100 km apart to collect data representative of large areas. Sites are regularly moved within areas, although sampling strategy does not change. Distances between sites are less in estuaries and embayments than along open stretches of coast. The site selection method is designed to avoid small-scale patches of contamination. A uniform set of environmental measurements is applied nationally. Information on source of pollutants is not determinable through the database. The NS&T Program includes urban, suburban, and rural areas, and avoids "hot spots" and/or known discharge points. Biological effects studies are conducted in areas that have moderate to high contamination levels.

In the Mussel Watch Project, six separate composites from each site (three for organic compounds and three for metal analyses) are collected. Each mussel composite contains 30 individuals, each oyster composite contains 20 individuals, and each sediment sample is made of three composites. For most contaminants, bivalves accumulate chemicals at different rates; therefore comparisons of biological data from different sites should always account for species type. Comparisons among sites can also be made for sediment samples. In the Benthic Surveillance

Project, chemical analyses are generally done on three composite samples of 10-20 fish livers each. Sixty individuals are analyzed for microscopic changes caused by disease. Nationwide, 15 different fish species are analyzed, with different species sampled at different sites. For the Specimen Banking project, approximately 10 percent of samples collected at NS&T sites are stored in liquid nitrogen at the National Institute of Science and Technology. The Historical Trends Assessments Project focuses on two types of trends: those involving a single contaminant or contaminant class, and those involving a number of contaminants at a specific geographical region over different time periods. Chemical trends in the sediment cores can be examined through 5 to 10 year intervals.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of monitor site

Time Coverage: 1984-present for benthic fish and sediments

Sample Characteristics:

Frequency of sample collection: Yearly

Regularity of sample collection: Regular

Source information: None available

Dispersion information: All samples taken in near-coastal and estuarine waters

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Benthic Surveillance and Mussel Watch Projects Sampling Protocols; NOAA Technical Memorandum NOS OMA 40; NOAA Technical Memorandum NMFS F/NWC-92; A Rapid High-Pressure Liquid Chromatographic Method for Isolating Contaminants from Tissue and Sediment Extracts (Northwest Fisheries Center); National Institute of Standards and Technology's (NIST) standard reference materials

Approximate time between sample collection and analysis: 6 months

Approximate time between sample analysis and data entry to database: 1 year

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; external lab analysis; data entry audits; annual inter-lab comparison exercises

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL

Sediment (marine): Inorganic compounds; semi-VOCs; pesticides; PCBs; radionuclides; (more specifically, for the Mussel Watch and Benthic Surveillance projects, this includes 24 polycyclic aromatic hydrocarbons (PAHs); 20 cogeners of PCBs; DDT and its and breakdown products (DDD and DDE); 9 other chlorinated pesticides; butyltins; 4 major elements; and 13 trace elements)

AIR Not applicable

FOOD SOURCES

Fish/Shellfish: Inorganic compounds; semi-VOCs; pesticides; PCBs; radionuclides; (more specifically, for the Mussel Watch and Benthic Surveillance projects, this includes 24 polycyclic aromatic hydrocarbons (PAHs); 20 cogeners of PCBs; DDT and its breakdown products (DDD and DDE); 9 other chlorinated pesticides; butyltins; 4 major elements; and 13 trace elements)

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Database-specific codes

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents; consistent with other NOAA programs which use the NEI framework

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, agency reports, journal publications, some microfilm
Machine readable -- Diskette, on-line (ASCII, Lotus, Excel, SPSS, Rbase, as needed)

Reports: Irregularly published; depends on data submissions and timing of analysis; over 200 documents available, including: *PCB and Chlorinated Pesticide Contamination in U.S. Fish and Shellfish: A Historical Assessment Report; A Summary of Selected Data on Chemical Contaminants in Sediments Collected During 1984, 1985, 1986, and 1987; A Summary of Data on Tissue Contamination from the First Three Years (1985-1988) of the Mussel Watch Project*

Reference Documents: None

Data/Reports Available From: State officers of coastal states; SEA Grant Program, (401) 792-6114; federal offices (NOAA, including NOAA Data Center, other offices if requested); Dr. Tom O'Connor (301) 443-8655

NATIONAL STREAM SURVEY

Acronym: NSS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development; National Acid Precipitation Assessment Program (NAPAP) (multiagency, including U.S. EPA)

Contact Person: Alan Herlihy, U.S. EPA, Environmental Research Laboratory, 200 SW 35th Street, Corvallis, OR 97333, (503) 757-4442

Objectives and Coverage:

The National Stream Survey (NSS) was a component of the National Surface Water Survey, which also included the Eastern and Western Lake Surveys (see separate entries for these databases elsewhere in this Inventory). The NSS covered surface waters in the mid-Atlantic and southeastern United States. Its objectives were to 1) determine the percentage, extent, location, and chemical characteristics of streams that were acidic or that had low acid neutralizing capacity (ANC) and thus might become acidic in the future; and 2) identify streams representative of important classes that might be selected for more intensive study or long-term monitoring. The NSS contains chemistry data, geographic attributes, and watershed descriptive information.

Summary of Environmental Data:

Media: Surface water (streams)

Classes of compounds: Inorganic compounds, ions (including fluoride); physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The NSS was designed to chemically and physically characterize a target population of streams in the mid-Atlantic and southeastern United States based on a probability sample. For the purposes of the NSS, streams were defined as water bodies that have drainage areas of less than 155 square kilometers (60 square miles), but are large enough to be represented as blue lines on 1:250,000-scale U.S. Geological Survey (USGS) topographic maps. This size was viewed as a reasonable compromise that includes streams large enough to be important for fish habitat, yet still small enough to be susceptible to the impacts of acidic deposition. During the spring of 1986, the NSS sampled stream segments (corresponding to river reaches) of a stream network at both upstream and downstream locations.

A two-stage statistical sampling procedure was developed to select a representative subset of 500 stream reaches as a probability sample from which the characteristics of the total reach population could be extrapolated. Reaches were excluded if they were too large, located within metropolitan areas or tidal zones, or affected by oil field brine, acid mine drainage, or point source pollution. The NSS used index values to describe the chemical status of each stream sampled. Users of the NSS can readily examine subpopulations of interest. The NSS also includes results of a pilot stream survey conducted in the southern Blue Ridge Province.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (mid-Atlantic; southeastern United States)

Identifiers: Latitude/Longitude of the monitor site; name of county/parish, state

Time Coverage: 1986

Sample Characteristics:

Frequency of sample collection: One time only

Regularity of sample collection: A total of one or two samples per site were collected in the spring of 1986

Source and dispersion information: Acidic deposition typically originates from nonpoint source pollution and impacts of various pollutants; specific sources are not determined in this database

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: EPA Methods for Chemical Analyses of Water and Wastes (modified for acidic deposition research); *Handbook of Methods for Acid Deposition Studies, Laboratory Analysis for Surface Water Chemistry; Handbook of Methods for Acid Deposition Studies, Field Operations for Surface Water Chemistry* (all published by the EPA Office of Research and Development)

Approximate time between sample collection and analysis: 2-28 days, varies by analyte

Approximate time between sample analysis and data entry to database: 3-6 months

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; external laboratory analyses; data entry audits; lab and field audits; natural audit samples

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Inorganic compounds; ions (including fluoride); physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents. Summary statistics are also available on specific agents, as cumulative distribution functions of regional stream acid-base status

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII, SAS)

Reports: *National Stream Survey -- Quality Assurance Report; Field Operations Report*

Reference Documents: *National Stream Survey Database Guide; A Sampling and Analysis Plan for Streams in the National Surface Water Survey*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for data or report copies); Susan Christie, (503) 757-4645 (for information on reports available)

NATIONAL URANIUM RESOURCE EVALUATION

Acronym: NURE
Sponsoring Agency: U.S. Department of Energy (DOE); U.S. Department of the Interior, U.S. Geological Survey (USGS)
Contact Person:

Objectives and Coverage:

NURE consists of radiometric and magnetic data from aerial surveys and geochemical data from waters and sediments. Data are available by latitude/longitude. Data are available from: USGS, EROS Data Center, Sioux Falls, SD 57198. For further information about NURE, write U.S. Department of Energy, P.O. Box 2567, Grand Junction, CO 81502.

Detailed information was not available at the time of publication.

NATIONAL VOC DATA BASE

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development
Contact Person: Dr. Larry T. Cupitt, U.S. EPA, Atmospheric Research and Exposure Assessment Laboratory (AREAL), Research Triangle Park, NC 27711, (919) 541-2270

Objectives and Coverage:

Anticipation of new federal regulations for air toxics has placed added emphasis on the measurement of volatile organic compounds (VOCs) in most states. Consequently, knowledge concerning ambient atmospheric concentrations of VOCs has advanced considerably in the last decade. A national ambient VOC database covering the period from 1970 to 1980 (Brodzinsky and Singh, 1983) was previously prepared for EPA. This database has now been updated to include the ambient outdoor and indoor VOC measurements collected between 1980 and 1987. Some personal VOC monitoring data (e.g., from EPA's VOC Total Exposure Assessment Methodology (TEAM)) (see separate entry) studies were also included. The database was prepared by collecting, evaluating, and consolidating reports (from researchers and the literature) of ambient and indoor VOC concentrations in urban, rural, remote, source-dominated, and indoor environments; it covers more than 300 potentially hazardous VOCs. All available data were included and given a quality rating. Nevertheless, the original references should be consulted to obtain more detailed information before using the database for specific applications.

The database, which is in dBase III+, is organized into 7 files: ambient daily average concentrations, indoor daily average concentrations, sampling and analysis methods, sampling site information, bibliographic data reference, chemical-specific and unit conversion information, and a file containing lists of synonyms of and chemicals related to, the VOCs in the database. The database is designed to be used with dBbase III+, which permits efficient linking of files and key fields such as data reference, site type, and chemical name.

The primary and secondary objectives of this exposure database are research and monitoring, respectively. The database can be used to: preliminarily compare air quality in urban, non-urban, source-dominated, and indoor environments; highlight areas of adequate and inadequate information; and provide a foundation for evaluating the implications of state and federal regulations.

Even though within the database the data are reported to three significant digits in ppv, this does not mean that all data are accurate to the ppt levels. Conversion of concentrations from $\mu g/m^3$ to ppb and different analytical techniques resulted in concentration values reported to three decimal places. Other limitations of the database include assumptions made in filling in less-than-detectable concentrations; combining multiple observations taken during a given day; and pooling results from

widely different sites, and different sampling and analysis protocols. These and other limitations must be kept in mind when using the database, which is primarily intended as a screening tool.

Summary of Environmental Data:

Media: Air

Classes of compounds: VOCs

Type of data available: Individual samples are entered into the database; individual data entries are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The data assembled in this project came from many different studies with a wide variety of objectives, sampling time and methods, and analytical techniques. The 1980s VOCs Database, published in 1983, contained data collected from 1970 to 1980 and was created under a previous EPA contract. In updating this database, data published prior to 1980 were not specifically sought, but were included in the 1987 database when discovered.

Data were sought by sending surveys to numerous individuals and by contacting researchers by telephone. In addition, a computerized literature search was conducted using the Chemical Abstracts Service Registry Number (CASRN) database accessed through the DIALOG Information Retrieval Service; this yielded 3,000 references. The titles of these references were reviewed and rejected if they indicated: (1) a study of emissions or sources; (2) a solely health-related study; (3) a laboratory or modeling study; or (4) an industrial workplace study. Thus of the original 3,000 references, 710 were determined to be potentially eligible for inclusion in the update. As many of these references as possible were located and reviewed. The database compilers actively sought only the 151 VOCs targeted in the 1980 database. However, data about other eligible VOCs that were sampled with the 151 targeted chemicals were also extracted. This increased the number of chemicals to 320. Chemicals that were eligible for inclusion were non-pesticides with vapor pressures greater than 10-6 Torr at 20°C known to exist predominantly in the gas phase, not the particle phase.

Data were collected primarily in the United States. (A very limited amount of data from Canadian sites were included in the 1980 database.) Data were sought from both indoor and outdoor environments; indoor concentrations were limited to either residential or office spaces, while outdoor spaces were limited to the fenceline and beyond. The vast majority of the data are surface measurements of ambient VOCs. The database includes some aircraft samples taken from the troposphere, but not from the stratosphere (10 to 50 km). When more than one sample was taken per day, daily average concentrations were calculated through a weighting scheme in which weights were assigned in proportion to the length of the sampling periods.

Within the database, the data are ranked and rated. In the 1980 VOCs database, a one-digit quality code was assigned as follows: 1 for excellent, 2 for good, 3 for acceptable, 4 for questionable, and Z when a quality code could not be assigned. However, the assignment of these

quality codes was subjective. The authors integrated the available published and unpublished information with their personal knowledge and experience to arrive at quality codes for the data. In the updated database, these codes were left intact for the existing records. For new records, however, a new and more objective ranking/rating system using composite scores was developed in which scores of 2.0 to 2.3, 2.3 to 2.9, 3.0 to 3.6, and more than 3.6 to 5.0 indicate satisfactory, average, good, and very good data quality, respectively. A score of less than 2 indicates that a quality code could not be assigned.

Users should consult the original references to obtain more detailed information and to assess the applicability of the rating and ranking scheme to their requirements before using the ranking and rating scores.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National; Canada (limited data for Canada only for 1970-1980)

Identifiers: Latitude/longitude of the city and monitor site; street address; city, municipality, or township; county/parish; state; Storage and Retrieval of Aerometric Data (SAROAD) number when available

Time Coverage: 1970-1984

Sample Characteristics:

Frequency of sample collection: Variable; depends on particular source of data

Regularity of sample collection: This is a compilation of data reported in the literature; no standard sampling regimen

Source information: No

Dispersion information: Not applicable

Methods of Sample Analysis:

Samples pooled: Depends on specific investigator; all of the values reported by the original investigator are included

Standard procedures used: Depends on specific investigator; sampling and analysis procedures are included for each chemical at each site for each reference

Approximate time between sample collection and analysis: Depends on specific investigator; this information, if provided, is included in the VOC method database file for each concentration reported

Approximate time between sample analysis and data entry to database: Unknown; varies among different studies

Quality Assurance/Quality Control Procedures: When the 1980 database was updated, data records from 28 randomly selected references (20 percent of the references from which data were extracted) were examined and checked for data extraction and input errors; virtually none were found. To ensure accuracy in the entry of new data, the following quality assurance procedures were used: only experienced data entry personnel were used; they worked short periods of time each day to avoid errors induced by fatigue and boredom; much of the data were transferred into the database directly from diskettes or magnetic tape (data were checked to ensure accurate transfer); error-checking routines were included in the dBase III+ software package; all data entries were checked independently to identify errors; scatterplots and other graphic display techniques were used to identify "outliers" or potentially erroneous data; data outliers were rechecked to ensure that the information was correct; and a number of EPA staff members and scientists reviewed the project for accuracy and consistency of data evaluation and reporting.

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Indoor homes and public buildings; outdoor urban, remote, suburban, source-dominated, and rural; personal; workplace/office: VOCs

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical name assigned by CAS; synonyms; database-specific codes; chemical formula written following CAS conventions

DATABASE AVAILABILITY

Level of Data Aggregation: Individual samples are entered into the database; individual data entries are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Agency reports, Diskette (ASCII); the database is available on microcomputer (IBM PC-compatible) diskettes for use with dBase III+; a utility program written in dBase III+ is also available for entering new data into one of five VOC databases and/or extracting pertinent data based on a set of user identifiable filters.

Reports: None

Reference Documents: *U.S. EPA Project Report: National Ambient Volatile Organic Compounds (VOCs) Database Update.* February 1988. Atmospheric Sciences Research Laboratory, Office of Research and Development, U.S. EPA, Research Triangle Park, NC 27711. EPA/600/3-88/010(a).

Brodinsky, R. and H.B. Singh. 1983. *Volatile Organic Chemicals in the Atmosphere: An Assessment of Available Data.* Environmental Sciences Research Laboratory, U.S. EPA, Research Triangle Park, NC. EPA-600/3-83-027(A).

Shah, J.J. and H.B. Singh. 1988. Distribution of volatile organic chemicals in outdoor and indoor air. *Environmental Science and Technology*. 2 22(12):1381-1388.

Data/Reports Available From: Dr. Jitendra Shah, President, G2 Environmental, Inc., 304 S.W. Hamilton Street, Portland, OR 97201, (503) 228-2335; National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161, (703) 487-4650

NATIONAL WATER INFORMATION SYSTEM II

Acronym: NWIS-II

Sponsoring Agency: U.S. Department of the Interior, U.S. Geological Survey (USGS), Water Resources Division (WRD)

Contact Person: John Briggs, USGS, WRD, National Center, MS-437, 12201 Sunrise Valley Drive, Reston, VA 22092, (703) 648-5624

Objectives and Coverage:

The National Water Information System II is the new name of the National Water Data Storage and Retrieval System (WATSTORE). The USGS is presently in the process of designing this new system which will include a broader range of environmental data than the current WATSTORE database (see separate entry for WATSTORE in this Inventory). Although the design of the program will change, all of the information from the current WATSTORE database will be transferred to the new system and available to users. The new system will be phased in during 1993 and 1994.

NATIONAL WATER QUALITY NETWORKS PROGRAM

Acronym: None
Sponsoring Agency: U.S. Dept. of the Interior, U.S. Geological Survey (USGS), Water Resources Division (WRD)
Contact Person: Timothy Miller, USGS, WRD, MS-412, National Center, 12201 Sunrise Valley Drive, Reston, VA 22092, (703) 648-6868

Objectives and Coverage:

USGS's National Water Quality Networks include the National Stream Quality Accounting Network (NASQUAN), the National Hydrologic Benchmark Network, the Radiochemical Surveillance Network, and the Tritium Network. The primary objective of NASQUAN, the largest of these networks, is to detect water quality conditions and trends over time in surface waters, and when possible to relate trends to upstream land and water use. A secondary objective is the estimation of constituent loads from the continent to coastal areas and the Great Lakes. In addition, information on the transport of constituents by rivers to the ocean is available through NASQUAN. Users can generate maps containing information of interest. Each NASQUAN station represents an integration of upstream water quality conditions, and therefore may not identify specific water quality conditions in other areas of the watershed.

The Radiochemical Surveillance Network operates at selected sites within NASQUAN; samples are taken for gross radiochemical data for several isotopes. NASQUAN data are used by state agencies to write federally mandated reports and by other government and private organizations for research.

The Benchmark Network monitors natural streamflow and water quality of small river basins known to be relatively unaffected by human activity. The objectives of the Benchmark Network are to document natural changes in hydrologic characteristics and to provide a comparative base for studying the effects of human activity on the hydrologic environment. Data from the Benchmark Network are used to detect water quality trends and to describe water quality conditions.

The Tritium Network monitors tritium concentrations in precipitation and streamflow at network stations. Detectable levels of tritium in the environment are used as a tracer to study the movement and mixing of water in the hydrosphere. Data from this network are used to study deposition and outflow of tritium for the continental United States and to approximate average residence times of water within river basins. Tritium data are best used to study processes that occur on a timescale of 10 to 100 years.

Summary of Environmental Data:

Media: Surface water

Classes of compounds: Inorganic compounds; microorganisms; physical and chemical indicators of water quality; ions (including fluoride) (NASQUAN and Benchmark Networks); radiochemicals (Radiochemical and Tritium Networks)

Type of data available: Individual data entries on specific agents at specific locations; some summaries of data are available

Estimation versus observational data:
NASQUAN and Benchmark Networks: All observational data
Tritium Network: Observational and estimated data

Sample Design and Analysis:

NASQUAN and Benchmark Network monitoring stations cover the entire United States (NASQUAN covers the continental United States, Hawaii, Alaska, and Puerto Rico; Benchmark includes the same except for Puerto Rico). NASQUAN currently includes 410 sites. These are generally selected near the downstream end of hydrologic units known as accounting units (established by the Water Resource Council) or at representative sites along coastal areas and the Great Lakes. (Accounting units are part of a standardized system to identify locations of water bodies based on hydrologic features, similar to the river reach system.) NASQUAN site selection allows for sampling of large rivers and major tributary streams for physical and chemical characteristics, and covers more than 90 percent of the surface water volume in the United States. Currently there are approximately 525 accounting units that range in size from 200 to 600 square miles. Sampling is conducted at a fixed location on a fixed schedule for each site. Hydrologic units include urban, suburban, and rural/agricultural areas.

The Radiochemical Network consists of 46 sampling sites within NASQUAN. The Benchmark Network consists of 58 sampling sites generally located in national or state forests, other reserve areas, or on private land. The Tritium Network includes 30 sampling sites (14 streamflow and 16 atmospheric precipitation sites) in approximately 11 states (previously, the Tritium Network was nationwide; data are available for these inactive sites). For years when no data were available at a given station, tritium deposition was estimated based on available data from other locations (e.g., Canadian and other sites operated worldwide by the International Atomic Energy Agency (IAEA)). Accuracy of most tritium samples are within 3 percent.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: NASQUAN, Radiochemical, and Benchmark Networks: National

Tritium Network: 11 states (although data are available for nationwide inactive sites)

Identifiers:

NASQUAN and Radiochemical Networks: Latitude/longitude of each monitor site; assigned codes for counties and monitoring sites; name of county/parish; state; hydrologic unit codes; station identification number and name; identification is made uniquely using sample location, date, and time

Benchmark Network: Latitude/longitude of county, monitor site; name of county, state; hydrologic code; downstream order number

Tritium Network: Latitude/longitude of the monitor site; name of county, state

Time Coverage:

NASQUAN and Radiochemical Networks: 1973-present

Benchmark Network: 1964-present

Tritium Network: Early 1960s-present (tritium deposition estimates available from 1953)

Sample Characteristics:

Frequency of sample collection: Mixed frequency, varies by site and chemical type, and network

NASQUAN: Originally, all sites were sampled monthly; now 60 percent of sites are sampled six times per year, 40 percent are sampled quarterly (dissolved trace elements are sampled quarterly; nutrients, major ions, field parameters, and bacteria are measured at each visit)

Radiochemical: Twice a year

Benchmark: 73 percent of the sites are sampled quarterly, 23 percent bimonthly, and 4 percent monthly

Tritium: Monthly composite precipitation samples (3-month composites at some stations) taken at Tritium Network stations, with monthly streamflow grab samples taken from selected Tritium Network locations

Regularity of sample collection:

NASQUAN, Radiochemical, and Benchmark: Samples are collected about the same time within each period; however, variance is allowed for weather conditions and workloads; variation may be plus or minus a few weeks

Tritium: Within the same week each month

Source and dispersion information: Not available through the USGS National Water Quality Networks (may be available through other databases, such as the EPA Needs Survey; Resources for the Future's *Environmental Data Inventory*; USDA 1982 *National Resource Inventory*; U.S. Census of Agriculture; Ethyl Corporation's *U.S. Gasoline Consumption Report*; the Salt Institute's *U.S. Road Salt Application Report*; the Department of Energy's *Trends in Motor Gasoline (1942-81)*)

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used:

NASQUAN, Radiochemical, and Benchmark: Methods for collection, preservation, and analysis are all USGS approved methods, such as: *Techniques of Water-Resource Investigations (TWRI)*, Book 5, Ch. A4, *Methods for Collection and Analysis of Aquatic, Biological, and Microbiological Samples*; TWRI, Book 5, Ch. A1, *Methods for Determination of Inorganic Substances in Water and Fluvial Sediments*; USGS Open File, Report 90-140, Methods for Collection of Surface Water and Bed-sediment Samples for Physical and Chemical Analyses

Tritium: Variation of the National Bureau of Standards Method 492

Approximate time between sample collection and analysis:

NASQUAN, Radiochemical, and Benchmark: For nutrients, approximately 2 weeks; for ions and trace elements, approximately 1 month

Tritium: 1-2 years

Approximate time between sample analysis and data entry to database:

NASQUAN, Radiochemical, and Benchmark: Approximately 2 months

Tritium: Varies according to USGS District Offices; generally every few years

Quality Assurance/Quality Control Procedures:

NASQUAN, Radiochemical, and Benchmark: Laboratory blanks; external laboratory analyses; data entry audits; standard water reference samples; blind analyses of samples of known concentration

Tritium: Lab blanks; some blind samples; the IAEA performs external lab analyses every 10 years

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: NASQUAN and Benchmark: Dissolved inorganics, major ions (including fluoride), trace elements, dissolved and total nutrients, bacteria, physical and chemical indicators of water quality

Radiochemical: Gross radiochemicals (alpha-radioactivity -- natural uranium; beta-radioactivity -- cesium-137, strontium-90/yttrium-90 equilibrium mixture; uranium; radium-226)

Tritium: Tritium

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical or mixture name; Storage and Retrieval of Water Quality Data (STORET) parameter codes and descriptions (see separate entry)

DATABASE AVAILABILITY

Level of Data Aggregation: Analytical results are stored as discrete data; individual data entries are available on specific agents; some summaries of data have been made and data analysis and interpretations published

Availability: Any requester can obtain data

Data for the NASQUAN, Radiochemical, and Benchmark Networks are stored in the USGS Water Storage and Retrieval System (WATSTORE) and in the EPA's Storage and Retrieval of Water Quality Information (STORET) database and can be accessed through either system (see separate entries for each of these systems elsewhere in this inventory); data can also be accessed through the USGS National Water Data Exchange (NAWDEX)

Some Tritium Network data (pre-1981) is stored in WATSTORE

Form: NASQUAN and Benchmark:

Hard copy -- Computer printouts; Agency reports (annual report by state)
Machine readable -- Tape; on-line (ASCII); CD-ROM available through US West, Inc., Denver, CO

Tritium:

Machine readable -- on-line

Reports:

NASQUAN, Radiochemical, and Benchmark: Agency reports (compilation of flow and water quality data by state); *Water Resources Division Information Guide* (overviews of programs, locations of USGS water regions and districts, contact persons); journal articles (e.g., on water quality trends, lead concentration, pesticides, acid precipitation, and fecal coliform in U.S. rivers)

Tritium: Some published reports -- *Residence Times in River Basins as Determined by Analysis of Long-Term Tritium Records; Tritium Deposition in the Continental United States, 1953-83*

Reference Documents: USGS Open File Report 83-533 (statistical summary of data from the USGS National Water Quality Networks)

Data Reports Available From:

NASQUAN, Radiochemical, and Benchmark: On-line registered users of STORET or WATSTORE (can be accessed directly or through the USGS National Water Data Exchange -- NAWDEX); on-line through USDS district offices and some federal and state agencies that have cooperative agreements with NAWDEX, (703) 648-5664; hard copy (call NAWDEX); for Information Guide, call USGS Chief Hydrologist for Operations, (703) 648-5031; for journal articles, call USGS Office of Water Quality's National Networks Coordinator, Bob (703) 648-6861

Tritium: On-line and some hard copy data available; call USGS District Offices, or Robert Michel, (703) 648-5968

NONOCCUPATIONAL PESTICIDE EXPOSURE STUDY

Acronym: NOPES

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Atmospheric Research and Exposure Assessment Laboratory, Office of Research and Development

Contact Person: Andrew E. Bond, U.S. EPA, Atmospheric Research and Exposure Assessment Laboratory (AREAL), MD-76, Research Triangle Park, NC 27711, (919) 541-4329

Objectives and Coverage:

EPA's Office of Research and Development (ORD) and Office of Pesticide Programs (OPP) conducted the Nonoccupational Pesticide Exposure Study (NOPES) to assess the level of pesticide exposure experienced by the general U.S. population. NOPES utilized the Total Exposure Assessment Methodology (TEAM) to estimate exposure. (See also Volatile Organic Compound TEAM (VOC TEAM), Particle TEAM (PTEAM), and Carbon Monoxide TEAM (CO TEAM)). The TEAM approach applies probabilistic population sampling techniques; indoor, outdoor, and personal exposure monitoring; and human activity pattern data for multiple routes of exposure to support total human exposure assessment. NOPES carried this process one step further by estimating potential human health effects associated with nonoccupational exposures to pesticides by selected study areas and associated monitoring seasons. The primary methodological objective of NOPES was to develop and refine the monitoring instrumentation, laboratory procedures, and survey questionnaires needed for a TEAM study of pesticides. The overall analytical objective of NOPES was to estimate the levels of nonoccupational exposure to selected household pesticides through air, drinking water, food, and dermal contact. Specific objectives were to: 1) estimate exposure levels for the populations of two urban areas of the United States; 2) assess the relative importance of each exposure pathway to the overall level of exposure; 3) characterize the components of variability in the observed exposure levels; and 4) investigate and, if possible, model the relationships between exposure levels, rates of use, activity patterns, and other factors that could contribute to variation in exposure levels.

Summary of Environmental Data

Media: Air, water, food sources, dermal contact

Classes of compounds: Pesticides

Types of data available: Individual data entries and summary statistics on specific agents

Estimation versus observational data: Air, water, and dermal contact pesticide concentrations were measured directly; food exposures were estimated indirectly

Sample Design and Analysis:

The NOPES project was designed to test whether the TEAM approach could be adapted to estimate exposures to selected household pesticides and pesticide degradation products from air, drinking water, food, and dermal contact in stratified random samples of the populations in two urban areas, Jacksonville, FL and Springfield and Chicopee, MA. Jacksonville was selected to represent an area of the country with relatively high pesticide use, and the Springfield region was selected to represent an area of low-to-moderate pesticide use. The Springfield area was broadened to include the neighboring town of Chicopee to increase the variety of housing types and ensure a sufficient population size for screening. The design also permitted examination of several components of the variation in pesticide air exposures, including regional differences, seasonal changes, short-term temporal variations, and interpersonal differences in patterns of use.

In each study area, the target population (i.e., the population from which statistical inferences were to be made) consisted of individuals at least 16 years of age. Participants were selected at random using standard area household survey sampling techniques. The NOPES sampling design is a three-stage design. Probability sampling was used at all stages of selection to ensure that the sample was statistically representative and to allow valid statistical inferences to be made from the data. In the first stage of the sampling design, a stratified sample of relatively small Census-defined geographic areas (blocks or groups of blocks) was randomly selected in each study area. At the beginning of each season's data collection, a second-stage random sample of housing units was selected, and the sample households were screened to ascertain characteristics of their dwellings and residents. The screening data were used to stratify the sample households into three categories based on the potential for exposure to pesticides from indoor air (high, medium, and low). The goal for each season's third-stage sample was to have 50 percent high-exposure respondents, 30 percent medium-exposure respondents, and 20 percent low-exposure respondents. Attempts were made to contact all persons selected in the third-stage sample for participation in the monitoring and interview portion of the study. Third-stage sample members were randomly selected, and no more than one person was selected from any one household. The final number of respondents selected for personal and indoor monitoring was 173 individuals in Jacksonville and 86 individuals in Springfield/Chicopee. The overall response rates from the third and second stages combined were 45 percent for Jacksonville and 40 percent for Springfield/Chicopee.

Methodology was developed for collecting and analyzing air samples for 32 selected pesticides and pesticide degradation products. Emphasis was placed on both identifying and quantitating the target pesticide compounds. The questionnaires and monitoring and analysis procedures were tested in a pilot study conducted in Jacksonville, FL in August and September 1985.

To permit assessment of regional and seasonal variations in exposure levels, the main NOPES data collection was conducted in three phases: Phase I—summer 1986 in Jacksonville, FL; Phase II—spring 1987 in Jacksonville, FL, and Springfield and Chicopee, MA; and Phase III—winter 1988 in Jacksonville, FL and Springfield, and Chicopee, MA. In both study areas, some sample members were asked to participate in all seasons of the study, whereas others were recruited only for a single season. Monitoring some people in more than one season permitted assessment of whether the overall differences observed between seasons were due to true seasonal variations or random sampling variations. Short-term temporal variations were addressed by monitoring some respondents twice in the same season.

For each sample member who agreed to participate in the study, a study questionnaire was administered, personal and area air sampling were conducted (two or more fixed-site locations; at least one inside and outside of the respondent's home), and an activity log questionnaire was administered at the end of the 24-hour monitoring period.

In some households drinking water samples (29) were collected for analyses. Dermal exposure during pesticide application events was also estimated for a small number of respondents by analyzing cotton gloves worn during typical application events following the regular monitoring period. Food exposure to pesticides was estimated indirectly by using residue concentration information from the Total Diet Study (see description in Part I of this Inventory) together with dietary intake data, which was collected for each individual in the survey population.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: City or municipality (Jacksonville, FL and Springfield/Chicopee, MA)

Identifiers: City, state

Time Coverage: 1985-1988

Sample Characteristics:

Frequency of sample collection: Single and multi-seasons data collection over three years

Regularity of sample collection: Samples were collected in Jacksonville, FL during the summer of 1985 and 1986, spring 1987, and winter 1988. Samples were collected in Springfield and Chicopee, MA during spring 1987 and winter 1988.

Source and dispersion information: In addition to indoor air monitoring, information on pesticide use and application in the last 48 hours was collected. Also, pesticide levels in house dust were analyzed in a subset of homes. Exploratory analysis of this database was conducted. Multivariate air exposure models for pesticides may be constructed in the future using the NOPES data.

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Analysis of the polyurethane foam (PUF) plug, water and glove samples followed protocols developed by Southwest Research Institute for the NOPES target compounds; chlordane and heptachlor concentrations were determined following American Society for Testing and Materials (ASTM) methods; extraction samples collected by PUF were analyzed according to EPA Method 608 (Methods 608, 1984); gas chromatography with an electron capture detector

(GC/ECD) was used for quantitation of chlorinated target compounds, and gas chromatography/mass spectrometry (GC/MS) served as a confirmation analysis

Approximate time between sample collection and analysis: 5-7 days

Approximate time between sample analysis and data entry to database: 14 days

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analysis, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Drinking water: Pesticides

SOIL Not applicable

AIR

Indoor homes; outdoor rural; personal monitor: Pesticides

FOOD SOURCES

Not directly measured; inferred indirectly by coupling pesticide residue information in the TDS with individual dietary intake data collected as part of NOPES

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requestor can obtain the data tapes by directly contacting EPA or accessing the files through the National Computer Center

Form: Machine readable -- tape (ASCII), on-line (ASCII)

Reports: *Nonoccupational Pesticide Exposure Study (NOPES) - Final Report* (EP^/600/3-90/003 distributed through EPA libraries and regional offices, and the Na[illegible] Technical Information Service (NTIS), NTIS Pub. No. PB90 - 152224/AS.

Reference Documents: *Nonoccupational Pesticide Exposure Study (NOPES) Phase I with Addendum.* EPA/0-90/001; *Nonoccupational Pesticide Exposure Study (NOPES) Phase II Interim Report, Vols. 1 and 2.* EPA/600/0-90/004; *Nonoccupational Pesticide Exposure Study (NOPES) Phase III Interim Report, Vols. 1 and 2.* (EPA/600/0-90/004).

Data/Reports Available From: NTIS, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; for data requests contact Andrew E. Bond, U.S. EPA, Atmospheric Research and Exposure Assessment Laboratory (MD-76), Research Triangle Park, NC 27711, (919) 541-14329

NORTHEAST REGIONAL OXIDANT STUDY

Acronym: NEROS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development, Atmospheric Research and Exposure Assessment Laboratory (AREAL)

Contact Person: John Clarke, U.S. EPA, Office of Research and Development, AREAL, MD-80, Research Triangle Park, NC 27711, (919) 541-3660

Objectives and Coverage:

The objective of the Northeast Regional Oxidant Study (NEROS) was to develop a database for the evaluation of an EPA regional model of ozone formation, transport, and removal and to obtain data for the study of oxidant formation and transport in urban plumes and on a regional scale. NEROS was a special-research field study conducted over one-month periods during the summers of 1979 and 1980. The 1979 study focused on the measurement of regional ozone and precursor patterns and development of data used to evaluate the performance of the model. The 1980 study focused on measurements to understand physical and chemical processes of ozone formation and transport, including: urban plume studies in Columbus, Ohio, and Baltimore, Maryland; regional plume dispersion and chemical studies; and ozone dry deposition and boundary layer structure measurements over forests and crop lands. NEROS included the northeastern portion of the United States, encompassing the area east of about 84° longitude and north of 38^0 latitude. NEROS was coordinated with a separate but related project called Persistent Elevated Pollution Episodes (PEPE). An extensive database was generated, called the General Distribution Database (GDDB) of PEPE-NEROS.

Summary of Environmental Data:

Media: Air

Classes of compounds: Criteria pollutants (NO_x, CO,O_3, SO_2), VOCs (hydrocarbons), ions (including sulfate, nitrate, ammonium), index of fine particles (scattering coefficient)

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

NEROS was a large field measurements program sponsored by the EPA Atmospheric Sciences Research Laboratory, other federal agencies (NASA, the Department of Energy, the National Oceanic and Atmospheric Administration, the Federal Aviation Agency, the Tennessee Valley Authority, and the National Science Foundation), industry, and universities in 1979 and 1980. Chemical, optical, and meteorological measurements were made from stationary and mobile platforms and included airborne and ground-based sampling and both *in-situ* and remote-sensing sampling. A Lagrangian sampling mode was used (i.e., an initial specified volume of air was sampled at several forecast positions as it was being transported over the study area). The sampling design provided three-dimensional validation data for a regional air model extending from eastern Ohio to the East Coast, and from northern Virginia to southern Maine.

In August, 1979, a regional-scale aircraft sampling program was conducted using three aircraft to obtain: continuous measurements of ozone, oxides of nitrogen, and sulfur dioxide; grab samples to be analyzed later for hydrocarbon species; scattering coefficient by nephelometer; and meteorological data. Aircraft flew alternately within the mixing layer and above it. Meteorological data were used to establish the orientation and spacing of the flight tracks. Surface deposition rates and cloud venting of boundary-layer ozone were also studied near Lancaster, PA.

The 1980 field program was conducted jointly with the Persistent Elevated Pollution Episodes (PEPE) program, which studied regional haze episodes. For the Columbus, Ohio, component of the 1980 NEROS study, three principal chemical sampling aircraft were used which were equipped to make continuous measurements of trace gases (O_3, NO/NO_y, and SO_2) and to sample for aerosols (e.g., particulate sulfur, sulfuric acid) and meteorological and navigational parameters. Each aircraft also collected integrated filter samples, which were analyzed for sulfate, nitrate, and other species. In addition, whole air grab sample canisters were taken for detailed hydrocarbon speciation. Other aircraft were used for fast-response and regional-scale measurements (e.g., remote-sensing in long-range flights, both outside the mixing layer and looking down into the mixing layer; vertical ozone profiles; and aerosol and ozone spatial distribution. The regional-scale transport data were conducted primarily over forests and croplands because these areas composed most of the study area and also to obtain uniformity of terrain offered by rural areas (urban areas have many confounding factors) and to study removal of pollutants by forests and croplands. The Canadian Atmospheric Environment Service also took aircraft measurements, filter samples at three sites, and meteorological soundings along the United States-Ontario border.

In addition to aircraft measurements, ground measurements in the 1980 Columbus, Ohio, study were taken at fixed sites for air quality parameters, such as ozone, NO/NO_y, hydrocarbon species, aldehydes, and meteorological data. Vertical ozone profiles above the ground were measured by a tethered balloon. Two mobile ground platforms also measured a variety of air quality parameters (gaseous and aerosol, including detailed aerosol size distribution); other mobile units made meteorological measurements.

The 1980 NEROS study also included the Baltimore, Maryland area for which *in-situ* pollutant and meteorological measurements were made using three aircraft and a mobile van on 22 days from July to August. Other pollutant measurements were made from ground stations and

a tethered balloon system; meteorological data were obtained from pilot balloons, radiosondes, and acoustic sounders.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (Northeast, from eastern Ohio to the East Coast and northern Virginia to southern Maine, with urban plume studies at Columbus, OH, and Baltimore, MD)

Identifiers: Latitude/longitude of the monitor site

Time Coverage: 1979-1980

Sample Characteristics:

Frequency of sample collection: Samples collected twice, once in 1979 and once in 1980, each time over a one-month period in the summer of each year

Regularity of sample collection: Sampling conducted on specific days during the field study, only during favorable meteorological conditions

Source information: Not available

Dispersion information: The 1980 study obtained data to analyze plumes from area and point sources, including the spread of the plume as it moved away from the source

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Both routine and new methods were employed; few procedures were standardized as EPA methods at the time of this study (1979-1980); state-of-the art instrumentation was used

Approximate time between sample collection and analysis: Varied -- immediate for real time samples (for ozone, oxides of nitrogen, SO_2); one week for canisters (for hydrocarbons); several months for filter packs (for sulfate, nitrate, etc.)

Approximate time between sample analysis and data entry to database: 6 months to 1 year

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; external laboratory analysis; data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor urban and rural: Criteria pollutants (NO_x, CO, O_3, SO_2), VOCs (hydrocarbons), ions (including sulfate, nitrate, ammonium), index of fine particle pollution (nephelometer scattering coefficient)

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics (grouped by day of measurement) are available on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- Reports; journal publications
Machine readable -- Tape (ASCII)

Reports: *Project PEPE-NEROS (1980): Measurements and Data Base -- An Overview* (NTIS PB 88-238472); *NEROS Baltimore Plume Study* (various volumes covering topics such as database format description, quality assurance, mission and description, and vertical wind profiles)

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for PEPE-NEROS Overview only); John Clarke, U.S. EPA, Office of Research and Development, AREAL, MD-80, Research Triangle Park, NC 27711, (919) 541-3660 (for all other reports, journal articles, and data)

OCEAN DATA EVALUATION SYSTEM

Acronym: ODES
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water
Contact Person: Bob King, U.S. EPA, Office of Water, (WH 556F), 401 M Street SW, Washington, DC 20460, (202) 260-7050

Objectives and Coverage:

The Ocean Data Evaluation System (ODES) was developed for the EPA 301(h) sewage discharge program and is used for regulatory and monitoring purposes. ODES contains a variety of data on the marine environment, including pollutant loadings and concentrations, environmental conditions, quality of receiving water, effluent data, bioaccumulation information, fish pathology, trawl sampling, benthic surveys, sediment chemistry and grain size, bioassays, and permit requirements.

Summary of Environmental Data:

Media: Water (primarily near sewage discharge outfalls), soil (marine sediments), human food sources (fish/shellfish)

Classes of compounds: Inorganic compounds, organic metals, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, microorganisms, ions (including fluoride), physical and chemical indicators of water quality

Type of data available: Individual data entries or summary statistics on specific agents, depending on the type of information. In general, data are "raw," and requires some manipulation and summarizing for analysis, which can be done through ODES.

Estimation versus observational data: All observational data

Sample Design and Analysis:

Certain municipalities, national estuary programs, ocean dumping programs, and other National Pollutant Discharge Elimination System (NPDES) permit holders are required to submit various types of marine monitoring data as part of their permits. Sampling strategy is typically based on the characterization of a point source of pollution (e.g., sewage treatment plant). If certain effluent limitations are not met by a wastewater treatment facility, additional monitoring could be required. ODES can store and analyze data. Information in ODES is accessed through a series of analytical tools that performs retrieval or analysis (e.g., scatterplots, bar charts, maps, or reports). ODES includes over 2 million entries with the majority of the data being from southern California.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the city, point source, and monitor site; name of city, municipality, or township; state

Time Coverage: 1979-present

Sample Characteristics:

Frequency of sample collection: Mixed frequency, varies by facility. Most data are collected quarterly, but different facilities are required to measure different types of data as frequently as daily and as infrequently as annually.

Regularity of sample collection: Permits do not specify at what time of day, month, etc., samples should be collected.

Source information: Yes, based on sampling strategy

Dispersion information: Yes, ODES dispersion models available

Methods of Sample Analysis:

Samples pooled: Some data are pooled (e.g., bioaccumulation data). Composite samples are often created from several grab samples of sediment or as many as 60 different fish specimens. Other data are analyzed and entered into the database individually (e.g., water quality, benthic data).

Standard procedures used: A wide range of methods are used, most of which are approved by EPA for 301(h) monitoring projects. Some examples include: EPA 206.2 (for heavy metals); Battelle SOP 5-202-02 (for PAHs); EPA Method 8010 (for halogenated organic compounds).

Approximate time between sample collection and analysis: 1 week

Approximate time between sample analysis and data entry to database: 6 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analyses, data entry audits; users can access QA/QC reports

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface (primarily water near sewage discharge outfalls): Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, microorganisms, ions (including fluoride), physical and chemical indicators of water quality

SOIL

Sediment (marine): Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, microorganisms

AIR Not applicable

FOOD SOURCES

Fish/Shellfish: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides, asbestos

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical name or mixture; database-specific codes (National Oceanographic Data Center (NODC) codes)

DATABASE AVAILABILITY

Level of Data Aggregation: Some data are pooled; some are entered into the database individually; a wide range of on-line tools are available to manipulate the data

Availability: Any requester can obtain data through a modem; a user-friendly, menu-driven interface allows the user to develop graphical representations, descriptive statistics, and maps, and to evaluate dispersion models

Form: Hard copy -- Computer printouts, Agency reports
Machine readable -- Tape, diskette, on-line (ASCII, SAS, Fortran)

Reports: Published irregularly (generally for evaluation of NPDES permit compliance)

Reference Documents: *ODES User Guide; ODES Tool Description Manual; ODES Data Submission Manual*

Data/Reports Available From: A user ID and password are available from: Kim Stahlman (703) 841-6005; for other information, call Bob King, U.S. EPA, Office of Water, (202) 260-7050 or Tad Deshler, TetraTech, (206) 822-9596

PARTICLE TOTAL EXPOSURE ASSESSMENT METHODOLOGY STUDY

Acronym: PTEAM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Atmospheric Research and Exposure Assessment Laboratory, Office of Research and Development; California Air Resources Board

Contact Person: Lance A. Wallace, U.S. EPA, EPIC Building, 166 Bicher Road, Vint Hill Farms Station, Warrenton, VA 22186-5129, (703) 341-7509; Peggy Jenkins, California Air Resources Board, Sacramento, CA (916) 323-1504

Objectives and Coverage:

The primary objective of the PTEAM was to estimate the frequency distribution of exposure of an urban population to inhalable and respirable particles. The study attempted to determine the sources of particle exposures through the combination of mass and chemical measurements made on personal, indoor, and outdoor particle samples. (See also the Volatile Organic Compound Total Exposure Assessment Methodology Study (VOC TEAM), the Carbon Monoxide Total Exposure Assessment Methodology Study (CO TEAM), and the Nonoccupational Pesticide Exposure Study (NOPES) in Part I of this Inventory.)

As a preliminary to the PTEAM population study, a nine-home prepilot study was conducted in March 1989 in the San Gabriel Valley of Southern California, which includes cities such as Arcadia, Temple City, El Monte, Monrovia, Azusa, Covina, and Glendora. The primary purpose of this nine-home study was to develop a methodology for personal exposure monitoring of particulates that could be applied later in the large-scale main population study. Personal aerosol monitoring conducted during this prepilot study included 12-hour measurements over a period of several days of 2 participants in each of 9 volunteer households, using personal exposure monitors (PEM). Microenvironmental monitoring (MEM), in which particles were measured in and near the homes of participants, was also conducted.

The full-scale field study took place in the fall of 1990. The main goal of the study was to estimate the frequency distribution of exposures to PM_{10} (particulate matter less than 10 μm in aerodynamic diameter) for all nonsmoking Riverside residents aged 10 and above, based on a probability sample of 175 residents. Several other objectives included: 1) estimating the frequency distribution of indoor concentrations in residences and immediate outdoor air (e.g., back yards) concentrations of fine (aerodynamic diameter < 2.5 μm) and coarse (aerodynamic diameter between 2.5μm and 10 μm) fractions of PM_{10}; 2) determining the relationships between indoor, outdoor, and personal measurements; 3) using the concurrent indoor and outdoor measurements to determine the contribution of outdoor air to indoor and personal concentrations; 4) identifying activities affecting personal exposures to PM_{10} using "12-hour recall" questionnaires answered by the participants; 5) determining the sources of particles using measurements and diary data; 6) estimating the contribution of environmental tobacco smoke (ETS) and other particle sources to

total particle exposure; and 7) confirming the existence of the "personal cloud" effect, and identifying its source, if possible.

Summary of Environmental Data

Media: Air

Classes of compounds: Particulates (PM_{10}, $PM_{2.5}$, particle-bound elements, particle-bound polyaromatic hydrocarbons (PAHs), particle-bound phthalates, nicotine)

Types of data available: Individual data entries and summary statistics on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Since the PTEAM Study was a cooperative venture through an independently funded research effort supported by the California Air Resources Board (CARB); the study site (Riverside) was in California. In addition to particle mass and elements, the particle-bound organic compounds and semi-volatile organic compounds were measured as indicators of potential mutagenicity and carcinogenicity. Thus an additional objective was to measure semi-volatile organics in subgroups of the southern California test population. CARB sponsored the measurement and analyses of polyaromatic hydrocarbons (PAHs) and phthalates in both indoor and outdoor microenvironmental samples.

Riverside, California was selected as the urban area most suitable for performing the PTEAM study because of the temporal variability of inhalable particulate concentrations and the absence of a single dominant stationary source of pollutants. A probability sampling design was used to select participants in Riverside to provide the basis for interferences to the target population's personal exposures to inhalable particles (PM_{10}). A stratified multistage area household sampling design was used because the environmental samples had to be collected in-person and because face-to-face interviewing were necessary to obtain the highest response rates. Geographic areas were selected at the first stage of sampling. At the second stage, brief interviews were conducted for a sample of housing units within the selected areas to identify the household members eligible for the PTEAM study. These data were used by the interviewer to determine which individual, if any, to select from the household for personal exposure monitoring. For each Riverside resident, the overall probability of being selected was approximately equal, except for people who worked outside the home at least 30 hours per week and for people who were exposed to passive smoking in their homes. The latter subpopulations were slightly oversampled to obtain sufficient sample sizes to support separate statistical analyses. The survey design resulted in a sample of people from which defensible inferences could be made to the target Riverside population of 139,000.

In the Riverside PTEAM Study a total of 178 nonsmoking persons aged 10 or older were selected for monitoring over 2 consecutive 12-hour periods. During each monitoring period, one personal, indoor, and outdoor PM_{10} and one indoor and outdoor $PM_{2.5}$ samples were scheduled for collection. Approximately 4 persons were monitored each day from September 22 through November 9, 1990. To provide source characterization data, additional samples were collected to

measure nicotine levels and air exchange rates in each study home. Under direction from the California Air Resources Board, particle-bound PAH/phthalate samples were collected in a subset of 135 homes. A fixed monitoring site was set up at one location in Riverside to monitor ambient levels of particulates during each 12-hour period throughout the study. Samples for PM_{10} and dichotomous samplers were operated at this site alongside personal and stationary monitors identical to those used for participant monitoring. A mobile laboratory was set up in Riverside for weighing all particulate filters.

Over 95 percent of the personal and stationary particulate samples, nicotine samples, and air exchange samples were successfully collected as scheduled. Over 90 percent of the PAH/phthalate samples were successfully collected. The only significant portion of data not collected as intended was the measurement of meteorological conditions at the monitoring site. Meteorological data were obtained from three airports in the vicinity of Riverside to supplement data from the monitoring site.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Riverside, CA

Identifiers: *Latitude/longitude of the city; state*

Time Coverage: September-November 1990

Sample Characteristics:

Frequency of sample collection: Daily for 48 days (September 22, 1990 to November 9, 1990)

Regularity of sample collection: Regular; indoor, outdoor, and personal samples were collected on different subjects each day except at the central site where 96 consecutive 12-hour samples were collected

Source information: Air exchange information can be used to model indoor particle concentrations

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Storage and weighing of filters followed standard EPA procedures; collection and analysis of personal particle, nicotine, PAHs, and phthalates followed protocols developed by Harvard University and/or Research

Triangle Institute; techniques developed by EPA, Desert Research Institute, and Lawrence Berkeley Laboratory were used for x-ray fluorescence (XRF) analysis

Approximate time between sample collection and analysis: 1-2 days for particle mass; 6 months for XRF; 1 year for air exchange and nicotine mass

Approximate time between sample analysis and data entry to database: 16 months after completion of the field study

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, external laboratory analysis, data entry audits, field performance audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Indoor homes and public buildings; outdoor urban; personal monitor: Particulates (PM_{10}, $PM_{2.5}$ in indoor and outdoor samples only, particle-bound elements, particle-bound PAHs and particle-bound phthalates inside and outside of a subset of 135 homes, nicotine)

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requestor can obtain data

Form: Hard copy -- Agency reports
Machine readable -- Tape or diskette (ASCII, SAS or dBase III)

Reports: Final study report not yet available; *Particle Total Exposure Assessment Methodology (PTEAM): Riverside California Pilot Study* (draft final report prepared by Research Triangle Institute)

Reference Documents:

Özkaynak, H., J.D. Spengler, J.F. Ludwig, D.A. Butler, C.A. Clayton, E. Pellizzari, and R.W. Wiener. 1990. *Personal Exposure to Particulate Matter: Findings from the Particle Total Exposure Assessment Methodology (PTEAM) Prepilot Study.* Proceedings of the Fifth International Conference on Indoor Air Quality and Climate. July 29-August 3, 1990, Toronto, Canada. Paper can be obtained by calling Haluk Özkaynak at the Harvard School of Public Health at (617) 432-4112.

Spengler, J.D., H. Özkaynak, J. Ludwig, G. Allen, E.D. Pellizzari, E.D., and R.W. Wiener. 1989. *Personal Exposures to Particulate Matter: Instruments and Methodologies for PTEAM Study.* Presented at the EPA/Air and Waste Management Association (AWMA) Conference on Total Exposure Assessment Methodology -- A New Horizon, Las Vegas, NV. Paper can be obtained by calling the AWMA at (412) 232-3444.

Pellizzari, E.D. 1990. *Particle Total Exposure Assessment Methodology (PTEAM) Work Plan. Volume I: Study Design*, U.S. EPA contract # 68-02-4544, Atmospheric Research and Exposure Assessment Laboratory, Research Triangle Park, NC. Paper can be obtained by calling Eto Pellizzari at Research Triangle Park Institute, (919) 541-6579.

Wallace, L.A., E. Pellizzari, L. Sheldon, R. Whitmore, H. Zelon, A. Clayton, R. Shores, K. Thomas, D. Whitaker, P. Reading, J. Spengler, H. Özkaynak, S. Froehlich, P. Jenkins, P., L. Ota, and D. Westerdahl. 1991. *The TEAM Study of Inhalable Particles (PM_{10}): Study Design, Sampler Performance, and Preliminary Results.* Presented at the AWMA 84th Annual Meeting & Exhibition, Vancouver, British, Columbia, June 16-21. Paper can be obtained by calling AWMA at (412) 232-3444.

Perritt, R., C. Clayton, E. Pellizari, L. Wallace, and J. Spengler. 1991. *Particle Total Exposure Assessment Methodology (PTEAM) Study*, paper presented at May 1991 EPA AWMA Symposium on Measurement of Toxic and Related Air Pollutants. Paper can be obtained by calling AWMA at (412) 232-3444.

Data/Reports Available From: Lance A. Wallace, U.S. EPA, EPIC Building, 166 Bicher Road, Vint Hill Farms Station, Warrenton, VA 22186-5129, (703) 341-7509

PERMIT COMPLIANCE SYSTEM

Acronym: PCS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water Enforcement and Permits

Contact Person: Dela Ng, Office of Water Enforcement and Permits (EN-338), U.S. EPA, 401 M Street SW, Washington, DC 20460, (202) 475-8323 (For information on sampling design: George Gray, (202)-475-8313

Objectives and Coverage:

PCS is a computerized information system for tracking the permit, compliance, and enforcement status of permittees under the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program. The primary objectives of PCS are regulation and monitoring of discharge sources. Information in the database is compiled on major permittees only (approximately 7,100 out of 63,000 permittees nationwide).

Summary of Environmental Data:

Media: Effluent discharges, both municipal and private

Classes of compounds: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, PCBs, ions (including fluoride), dioxins/furans, radionuclides, microorganisms, physical and chemical indicators of water quality

Type of data available: Summary statistics on specific agents. The specific summary statistics describe a single monitoring location for a specific period in time (usually a month or a quarter). Monthly or quarterly sample results are grouped and reported as monthly and daily maximums.

Estimation versus observational data: All observational data

Sample Design and Analysis:

The sampling strategy is specified in the National Pollution Discharge Elimination System (NPDES) permit and is based on Effluent Guidelines developed by the EPA Office of Water Regulations and Standards (OWRS). The Guidelines provide general guidance (e.g., required effluent concentration levels of pollutants based on type of industry), but the actual specifications are developed by the permit writer, which is the state, if EPA-approved, or the EPA Regional Office. Permits are site-specific in determining effluent concentration limits, monitoring and reporting requirements. Changes in sampling protocol are determined by the NPDES permit requirements.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the point source; name of city, municipality, or township; state; river reach number

Time Coverage: 1986-present

Sample Characteristics:

Frequency of sample collection: Mixed frequency; site-specific, based on the NPDES permit requirements; varies by chemical

Regularity of sample collection: Regular; sample collection is based on NPDES permit requirements

Source information: Data collected at source

Dispersion information: Not available through PCS

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Procedures determined by NPDES permit requirements, based on analytical methods in *40 CFR*, Part 136; if none stated in Rule for a specific agent, permit writer must specify methods in permit. General guidance provided by Effluent Guidelines developed by EPA OWRS.

Approximate time between sample collection and analysis: If on-site -- 8 hours; if laboratory analysis -- 48 hours

Approximate time between sample analysis and data entry to database: Approximately 60 days

Quality Assurance/Quality Control Procedures: EPA Regions and states have their own QA/QC methodologies; data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER (Effluent discharges)

Municipal and private: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, microorganisms, ions (including fluoride), physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: STORET (Storage and Retrieval of Water Quality Data) parameter codes. STORET codes are cross-referenced to Chemical Abstracts Service Registry Number (CASRN) numbers, but database can only be searched through STORET codes.

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics on specific agents

Availability: Any requester can obtain data

Form: Hard copy -- computer printouts

Reports: On an ad-hoc request basis

Reference Documents: *PCS Executive Summary*

Data/Reports Available From: U.S. EPA Library, Washington, DC; Freedom of Information requests; or, contact George Gray (202) 475-8313

PESTICIDE INFORMATION NETWORK

Acronym: PIN
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs
Contact Person: Constance A. Hoheisel, (H7507C), 401 M Street SW, Washington, DC 20460, (703) 557-5455

Objectives and Coverage:

PIN enables pesticide monitoring data generated by a variety of sources to be routinely identified, obtained, and utilized. PIN also provides federal, state, and local agencies with a means of sharing information and expertise on pesticides. In addition, information in PIN is used to enhance the accuracy of pesticide risk assessments and risk/benefit regulatory decisions regarding exposure and effects of pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). PIN is composed of three files:

1) The Pesticide Monitoring Inventory (PMI) is a nationwide compilation of synopses of pesticide monitoring projects conducted by federal, state, and local governments as well as private groups. PMI includes the location of the monitoring project, the pesticide(s) involved, an abstract of the project, and the name and address of a contact person. PMI does not contain hard data or results; these can be obtained from individual contact persons for each project.

2) The Restricted Use Products (RUP) File is a regulatory file that serves as an information resource for states. Information provided includes pesticide active ingredients, dates of restriction, reasons for restriction, and all products that contain the restricted active ingredients.

3) The Coordination File is a cross-referencing chemical index of all synonyms for the active ingredients listed in the PMI and RUP files.

In addition, by 1992, PIN will include a database containing monitoring data from the late 1970s to the present for pesticides in ground water. PIN will also include a file on the environmental fate of pesticides, including chemical and physical parameters (e.g., solubility, soil conditions, pH, half-life, etc); computerized fact sheets on pesticides; and certification and training data for pesticides.

Summary of Environmental Data:

Media: Water; soil; air; food sources; non-food sources (plants, animals); human samples; bulk chemicals

Classes of compounds: Pesticides (some studies also contain information required for drinking water testing on inorganic compounds, VOCs, dioxins/furans, aesthetic)

Type of data available: Descriptions of monitoring projects (individual data entries for groundwater projects will soon be available)

Estimation versus observational data: All observational data

Sample Design and Analysis:

Projects for inclusion in PIN are solicited from users of the network and through notices in the *Federal Register*, brochures, newsletters, and presentations at meetings. All project managers are contacted annually to update information. The PMI is a collection of projects, each with its own specific design. The database was not designed with any specific population in mind.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Street address; zip codes; county/parish; state; latitude/longitude of the monitor site (occasionally available)

Time Coverage: 1970-present

Sample Characteristics:

Frequency of sample collection: Irregular; each project has its own sampling frequency

Regularity of sample collection: Varies by source

Source and dispersion information: Not provided in database

Methods of Sample Analysis:

Samples pooled: Depends on source of data

Standard procedures used: Managers of the various projects are requested to provide references for methods and standard procedures when they submit project data

Approximate time between sample collection and analysis: Not applicable

Approximate time between sample analysis and data entry to database: Unknown

Quality Assurance/Quality Control Procedures: Unknown

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface; ground water; leachate; municipal; private: Pesticides (also some information on inorganic compounds, VOCs, semi-VOCs, dioxins/furans, aesthetic)

SOIL

Residential; industrial (farm/agriculture); sediment; dust: Pesticides

AIR

Indoor homes and public facilities; outdoor urban and rural; personal monitor: Pesticides

FOOD SOURCES

Gamebirds; mammals (domesticated and nondomesticated); plants; fish/shellfish: Pesticides

HUMAN SAMPLES

Pesticides

BULK CHEMICALS

Pesticides

OTHER

Plants (non-consumable): Pesticides
Animals (non-consumable): Pesticides

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN), chemical name, EPA Register number (RUP file only), EPA PC code (formerly the Shawnessy code, assigned to active ingredients when data submitted to the Office of Pesticide Programs -- RUP file only)

DATABASE AVAILABILITY

Level of Data Aggregation: Depends on source of data

Availability: Any on-line requester can obtain data through modem; free service; monitoring data not currently available in PIN -- can be obtained from individual project managers listed in PMI file; in the future, monitoring data for pesticides in ground water will be available in PIN

Form: Machine readable -- On-line (ASCII); diskette (for RUP file only)

Reports: On-line, generated by user

Reference Documents: On-line manuals

Data/Reports Available From: (703) 557-7499 (user support); Constance Hoheisel, (H7507C), 401 M Street SW, Washington, DC 20460, (703) 557-5455

RADIOACTIVE MATERIALS RELEASED FROM NUCLEAR POWER PLANTS

Acronym: None
Sponsoring Agency: U.S. Nuclear Regulatory Commission (NRC)
Contact Person: Joyce L. Tichler, (516) 282-3801, or Herbert Bernstein, (516) 282-2261, Brookhaven National Laboratory, Scientific Information Systems Group, ASD/DAS, Building 051, Upton, NY 11973

Objectives and Coverage:

Atmospheric, effluent, and solid waste releases of radioactive materials from nuclear power plants (planned, existing, or closed) are governed by 10 C.F.R. Parts 20 and 50 and by limits established in site-specific technical specifications (NRC-approved) for each facility. Through the Office of Nuclear Reactor Regulation, the Nuclear Regulatory Commission (NRC) maintains a record of radioactive releases from licensed nuclear reactors to ensure that they are within regulatory requirements. This database contains data from licensed nuclear power plants that were declared by the utilities to be in commercial operation from 1978 onward, and includes facilities which are permanently or indefinitely shut down or are not yet in commercial operation.

Summary of Environmental Data:

Media: Water (liquid effluent); air (emissions); soil (solid waste)

Classes of compounds: Radionuclides

Type of data available: Individual samples are entered into the database; annual summary statistics are available in published reports

Estimation versus observational data: Observational data for operating facilities; estimated data for closed or pre-operational facilities

Sample Design and Analysis:

The sampling strategy is based on radioactive releases reported by licensed nuclear power facilities as of December 31st for each year. Data consist of activity in Curies (both total and by nuclide, airborne, liquid, and solid) reported quarterly, semiannually, or annually and presented in written reports as annual releases. Generally, quarterly, semiannual, and annual data are all contained in the database, although licensed facilities are only required to report annual releases. The database only covers planned releases, which result from normal operation or from anticipated operational occurrences. Major unplanned releases -- such as accidents -- are not included; however, unplanned releases or radioactive materials from miscellaneous actions such as equipment failure, operator error, or procedure error that are not of such consequence as to be considered accidents are included in this database. The release information is used for modeling population dose by the Pacific Northwest Laboratory, which combines meteorological and population information with release data for a specified area around each plant.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the point source (facility location); street address (if known); city; zip code; state; distance and direction of the plant form a known municipality or population center (e.g., "50 miles northeast of...")

Time Coverage: 1978-present

Sample Characteristics:

Frequency of sample collection: Mixed frequency, varies by facility; the data may be provided on a quarterly, semiannual, or annual basis, depending on the licensee; written reports publish only annual data

Regularity of sample collection: Varies by facility

Source information: Emissions from specific plants

Dispersion information: The database itself does not include the necessary data to evaluate dispersion; however, Pacific Northwest Laboratory has performed model runs that combine these release data with meteorological and other data obtained from plant operators and NRC to estimate population dose due to radioactive releases from nuclear power plant sites

Methods of Sample Analysis:

Samples pooled: Pooled for annual reports; individual samples available in database

Standard procedures used: Different analytical methods are used by different licensees

Approximate time between sample collection and analysis: Varies by facility

Approximate time between sample analysis and data entry to database: Varies; usually a few months

Quality Assurance/Quality Control Procedures: Data entry audits -- the processed data is returned to the plants for review; the annual data are reviewed by the sponsoring agency (NRC), and inter-year comparisons are done and corrections made

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Liquid effluent: Radionuclides

SOIL

Solid waste: Radionuclides

AIR

Stack Emissions: Radionuclides

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Individual nuclides (chemical mixtures formed by the released elements are not identified)

DATABASE AVAILABILITY

Level of Data Aggregation: The reports from the plants are reduced to a common report format; individual quarterly data, when reported, are retained in the computerized record, but the written report gives annual data

Availability: Any requestor can obtain reports; special reports may be arranged

Form: Hard copy -- Annual reports
Machine readable -- Not currently available; may be available in future

Reports: Annual reports -- *Radioactive Materials Released from Nuclear Power Plants*

Reference Documents: None

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; U.S. Nuclear Regulatory Commission, Office of Information Resources Management, (301) 492-7585; Joyce Tichler, Brookhaven National Laboratory, (516) 282-3801 (for special reports)

RECALL DATABASE

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air and Radiation
Contact Person: Stuart Romanow, U.S. EPA, Office of Air and Radiation, Office of Mobile Sources, Manufacturers Operations Division, Recall Branch, (EN-340F), 401 M Street SW, Washington, DC 20460, (202) 260-6511

Objectives and Coverage:

The Recall Database includes vehicle emissions results generated specifically for enforcement purposes. Selected in-use motor vehicles are subjected to emissions testing to determine if they comply with federal emissions standards. These data are used in investigations which may result in a recall of a class of vehicles to correct an emissions nonconformity. The testing is conducted at selected sites to be representative of the national population.

Summary of Environmental Data:

Media: Air (vehicle emissions)

Classes of compounds: VOCs (evaporative hydrocarbons); criteria pollutants (carbon monoxide, nitrogen oxides)

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The Recall Branch of EPA selects a vehicle class (an engine family, with a subset of similar vehicles sometimes included) for emissions testing based on previous performance and information obtained from manufacturers and other sources. Emissions testing is done at the Motor Vehicles Laboratory in Ann Arbor, Michigan or the Virginia Testing Laboratory in Washington, DC. A certain percentage (dependant upon resources) of the selected vehicles are also tested at the Department of Health, Denver, Colorado, to determine if vehicles comply at high altitudes. Testing at these sites is considered by the Recall Branch to be representative of the national population, since there is no significant bias in selection. A randomized list of vehicles in the selected vehicle class and geographical area(s) is obtained from the state(s) motor vehicle registration office. Based on a telephone questionnaire administered to owners, a sample of vehicles which have been properly maintained and used are selected for testing from this list. Emissions testing following the Federal test procedure described in 40 CFR 86 includes measurements of total exhaust hydrocarbons, carbon monoxide, and oxides of nitrogen in grams per mile; evaporative hydrocarbon emission measurements are expressed in grams per test. If an initial surveillance program indicates possible noncompliance, a confirmatory testing program of the vehicle class is generally implemented, which consists of additional emissions testing of properly maintained vehicles. This testing procedure employs more stringent vehicle screening criteria. The vehicle class is investigated whenever elevated emissions are detected, which results in a recall of the affected vehicles if a problem is found.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Region of state (Washington, DC; Detroit/Ann Arbor, Michigan; and the Denver, Colorado areas)

Identifiers: Name of test site

Time Coverage: 1977-present

Sample Characteristics:

Frequency of sample collection: Varies from site to site

Regularity of sample collection: Varies, depending upon program needs and resources

Source information: All data collected at the source

Dispersion information: None available

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Vehicle emissions testing procedures described in *40 CFR 86*

Approximate time between sample collection and analysis: 10 minutes

Approximate time between sample analysis and data entry to database: 4 weeks following the completion of testing for a class of vehicles

Quality Assurance/Quality Control Procedures: Duplicates and external laboratory analysis are done as part of a three component (gases, vehicles, equipment) Correlation Program; gas cylinders named by a reference laboratory are analyzed by the database laboratories for concentrations of a particular pollutant; vehicles tested at one laboratory are subjected to repeat testing at other database laboratories; inspection of equipment to determine conformance with *40 CFR 86, Subpart B*; other procedures include an extensive check of the translation from raw data to the processed form (to look for any errors during testing); and "test monitoring", in which the testing procedures are viewed by another person; these procedures are included in the *Virginia Testing Laboratory Quality Control Procedures Manual*, the *Motor Vehicles Laboratory Quality Control Procedures Manual*, and the *Colorado Department of Health Quality Control Procedures Manual*

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Vehicle Emissions: Criteria pollutants (carbon monoxide, nitrogen oxides); VOCs (total exhaust hydrocarbons, evaporative hydrocarbons)

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics (mean emission levels and failure rates by vehicle class) are available on specific agents

Availability: Any requester can obtain data; individual data are available on-line through the Michigan Terminal System (MTS) for requesters who have a Wayne State University MTS account; hard copy only, if requester doesn't have an MTS account at Wayne State University

Form: Hard copy -- Computer printouts; files or log books
Machine readable -- On-line (MTS in MICRO)

Reports: Summary reports (in a computer printout format), which contain mean emission levels and failure rates for each vehicle class, are prepared for internal use at the completion of vehicle testing

Reference Documents: *40 CFR 86; Virginia Testing Laboratory Quality Control Procedures Manual; Motor Vehicles Laboratory Quality Control Procedures Manual; Colorado Department of Health Quality Control Procedures Manual*

Data/Reports Available From: Public Information Reference Unit, EPA Headquarters Library, 401 M Street, S.W., Washington, DC 20460, (202) 260-5926 (for examination and reproduction of computer printouts); Stuart Romanow, U.S. EPA, Office of Air and Radiation, Office of Mobile Sources, Manufacturers Operations Division, Recall Branch, 401 M Street, SW, Washington, DC 20460, (202) 260-6511, to request access to the MTS at Wayne State University; once request is granted, a commercial account and identification number must be obtained by contacting Claire Jackman, Computing and Information Technology, Wayne State University, 5925 Woodward Avenue, Detroit, Michigan 48202, (313) 577-1962; the account and identification numbers must then be given to Stuart Romanow

RECORDS OF DECISION SYSTEM

Acronym: RODS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Emergency and Remedial Response and Office of Solid Waste and Emergency Response
Contact Person: Mike Cullen, U.S. EPA, Office of Emergency and Remedial Response, 401 M Street SW, Washington, DC 20460, (202) 475-9369

Objectives and Coverage:

RODS was established to track site clean-ups under the Superfund program and to justify the type of treatment chosen at each site. RODS stores information on: technologies used to clean up sites and justification for their use; site history and characteristics; community participation; enforcement activities; and scope of response action. Information is obtained from EPA Regional Offices on an ongoing basis. RODS is available on EPA's mainframe computer, as well as in tape format. In addition, the National Technical Information Service (NTIS) maintains hard copies of RODS as well as abstracts. Information on on-line access, reports, and user manuals are available from Thomas Batts, (202) 245-3770.

Detailed information was not available at the time of publication.

REGIONAL AIR POLLUTION STUDY

Acronym: RAPS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development

Contact Person: Joan Novak, U.S. EPA, Office of Research and Development, Atmospheric Research and Exposure Assessment Laboratory, MD-80, Research Triangle Park, NC 27711, (919) 541-4545

Objectives and Coverage:

The Regional Air Pollution Study (RAPS), conducted from 1974 to 1977, served as a comprehensive study of an urban area for which all interrelated processes affecting air pollution emissions, dispersion, composition, and atmospheric effects could be studied concurrently. RAPS was established with three main objectives: to develop, evaluate, and validate air quality simulation models on a regional scale, covering urban and rural stationary and mobile sources; to develop, evaluate, and validate models of local-scale phenomena that complement regional-scale models; and to create a comprehensive, accurate, and readily retrievable database based on field investigations for all criteria pollutants and selected non-criteria pollutants that describe atmospheric effects on pollutant dispersion and composition. This database was then used to evaluate air quality simulation models. Because of the availability of extensive monitoring data associated with RAPS, additional independent research projects were conducted by various groups in the same geographical area during the same time period.

Summary of Environmental Data:

Media: Air

Classes of compounds: Criteria pollutants (sulfur dioxide, particulates, carbon monoxide, nitrogen oxides, ozone), total hydrocarbons, methane, index of fine particles (scattering coefficient)

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

RAPS was designed to quantify the effects of air emissions on air quality at the level of an Air Quality Control Region (AQCR). Criteria for selection of a specific AQCR included: a geographic area isolated enough so that inflows of emissions into the area were not a confounding factor; an area with heterogeneous types of emissions; an area in which existing pollution control programs were in place to meet air quality standards; and an area in which climatic conditions were relatively stable (e.g., free of the effects of sea breeze, no severe terrain). The St. Louis, Missouri/Illinois area was selected for RAPS from a group of 33 Standard Metropolitan Statistical Areas with populations greater than 400,000.

The RAPS field measurement program consisted of: continuous measurements from 25 stations in a Regional Air Monitoring System (RAMS), which provided an extensive database for model evaluation and development; an emissions data inventory (which included both point and area source emissions); and meteorological measurements (radiosondes and pibals). RAMS was designed to provide continuous, surface-based aerometric measurements; stations were located in concentric circles with average radii from a central urban station of 5, 11, 20, and 44 kilometers. Stations were concentrated at the center of the network because a criterion for site locations required minimum spacing where concentrations and gradients were highest. Four rural sites were spaced approximately 90' azimuth and were located to provide background measurements regardless of wind direction. Concentrations of gaseous pollutants are available as minute average values and as hourly average values. Hourly emissions data combined several categories of point and area source emissions: river vessels, fugitive dust, highways, railroads, stationary residential and commercial sources, off-highway mobile sources, stationary industrial sources, and airports. Instrumentation used included: real-time pollutant analyzers to measure ozone, nitrogen oxides, sulfur gases, and carbon compounds; meteorological sensors; high volume samplers for particulates; nephelometer and dichotonious samplers; and test/control systems.

RAPS data were collected prior to issuance of EPA monitoring guidelines for State and Local Air Monitoring Stations (SLAMS) (see separate entry), but many of the concepts in SLAMS guidelines were tested in RAPS.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Region of two states (St. Louis, Missouri and St. Louis, Illinois -- St. Louis Air Quality Control Region)

Identifiers: Latitude/longitude of the monitor site; universal transmercator coordinates of the point source and monitor site; street address; zip code; city, municipality, or township; county/parish; state

Time Coverage: 1974-1977

Sample Characteristics:

Frequency of sample collection: Mixed frequency: continuous (24 hours a day) for RAMS data (average minute values, based on 120 1/2-second data readings); daily for particulates; emissions data collected on an hourly basis; 6-hour intervals for meteorological radiosondes; 1-hour intervals for meteorological pibals

Regularity of sample collection: Regular

Source information: Data were collected at the sources and surrounding areas; the purpose of the study was to collect necessary information to evaluate air quality models which relate data to sources

Dispersion information: Local and regional meteorological and air quality monitoring data were collected to predict the transport and dispersion of pollutants from the source

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Both routine and new methods were employed; few procedures were standardized as EPA methods at the time of this study (1974-1977); state-of-the-art instrumentation was used; National Aerosol Sampling Network (NASN) protocols were used for high volume filter samples

Approximate time between sample collection and analysis: Immediate for the majority of data -- collection was real-time (continuous); one week for canister and grab samples for hydrocarbons

Approximate time between sample analysis and data entry to database: 1 week to 1 month

Quality Assurance/Quality Control Procedures: Daily span and drift checks were performed on gaseous analyzers, and additional visual and algorithmic checks were also made

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Outdoor Urban and Rural: Criteria pollutants (sulfur dioxide, particulates, carbon monoxide, nitrogen oxides, ozone), total hydrocarbons, methane

Stack Emissions: Criteria pollutants (sulfur dioxide, particulates, carbon monoxide, nitrogen oxides) total hydrocarbons

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: EPA's National Emissions Data System (NEDS) codes

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents; summary statistics as hourly averages are available for each parameter at each site

Availability: Any requester can obtain data

Form: Hard copy -- Agency reports
Machine-readable -- Tape (IBM Binary; ASCII for radiosonde and pibal data only)

Reports: *Regional Air Pollution Study (RAPS) Emission Inventory Summarization* (NTIS No. PB-293 107/OBE); *Documentation of the Regional Air Pollution Study (RAPS) and Related Investigations in the St. Louis Air Quality Control Region* (NTIS No. PB80-138241); *Regional Air Pollution Study (RAPS) Final Report*

Reference Documents: *Evaluation of Emission Inventory Methodologies for the RAPS Program; History, Implementation and Operation of the Regional Air Monitoring System: St. Louis, Missouri 1974-1977; Regional Air Pollution Study (RAPS) Emission Inventory Handbook*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; Joan Novak, U.S. EPA, AREAL, MD-80, Research Triangle Park, NC 27711, (919) 541-4545

RESOURCE CONSERVATION RECOVERY INFORMATION SYSTEM

Acronym: RCRIS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response

Contact Person: Kevin Phelps, U.S. EPA, Office of Solid Waste and Emergency Response, 401 M Street SW, Washington, DC 20460, (202) 260-4697

Objectives and Coverage:

Under the Resource Conservation and Recovery Act (RCRA), generators, transporters, treaters, storers, and disposers of hazardous waste, as defined by the federally recognized hazardous waste codes, are required to provide information concerning their activities to state environmental agencies, who in turn provide the information to regional and national U.S. EPA offices. The information is used to ensure compliance with federal regulations under RCRA. The primary objectives of RCRIS (formerly the Hazardous Waste Data Management System -- HWDMS) are to monitor and regulate notification, permit, compliance, and corrective action activities conducted by hazardous waste facilities across the nation. HWDMS provided this information on a facility level; by January 1, 1992, all states will shift over to the RCRIS program, which provides unit level data and integrated corrective action information. At that time, HWDMS, for which facility data only was available, will be archived and will become obsolete; the data will be incorporated into RCRIS in a new format. The database was not designed to provide exposure information; quantitative monitoring data are not included. RCRIS provides qualitative information on hazardous waste facilities that have applied for permits.

Summary of Environmental Data:

Media: Water, soil, bulk chemicals

Classes of compounds: Hazardous waste codes as defined in 40 CFR, Part 261, subpart D, including inorganic compounds; pesticides; VOCs; semi-VOCs; ignitable, corrosive, and reactive wastes

Type of data available: Both individual data entries and statistical summaries are available; information is provided for specific sites and types of facilities

Estimation versus observational data: All observational data

Sample Design and Analysis:

A hazardous waste facility applies for a permit to store, treat, generate, transport, or dispose of hazardous waste by notifying the environmental agency in that state. The state receives and reviews the permit applications (including conducting on-site inspections), enters the data into the RCRIS system, and transfers the information to the regional U.S. EPA office. The regional office conducts its own on-site inspections, compares information with state-supplied data, and resolves any discrepancies in information. The data are then transferred to U.S. EPA's Office of Solid Waste and Emergency Response, which integrates the data into the RCRIS system. After a permit for a hazardous waste handler has been approved, the U.S. EPA Office of Solid Waste and Emergency Response verifies and updates permit application information by reviewing biannual reports submitted by facilities and possibly through on-site inspections of selected facilities, particularly if information has changed for a permit.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude (of hazardous waste facilities); street address; zip code; city, municipality, or township; county/parish; state; congressional district; river basin code (U.S. Geological Survey); EPA regional codes

Time Coverage: 1980-present

Sample Characteristics:

Frequency of sample collection: Data are collected through permit applications; additional information is collected by the RCRA program staff through inspections and/or other actions at a facility; monitoring data are not included in the database

Regularity of sample collection: Not applicable

Source information: Source is always known as part of the permitting process

Dispersion information: If a release occurs, a facility may be subject to corrective action, and therefore information on the "spread" may be found in the corrective action descriptive information in RCRIS

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: None

Approximate time between sample collection and analysis: Not applicable

Approximate time between sample analysis and data entry to database: Not applicable

Quality Assurance/Quality Control Procedures: Data entry audits; regional EPA offices and states crosscheck information and resolve discrepancies before sending information to the EPA Office of Solid Waste and Emergency Response

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water and ground water: Some information on discharged wastes to surface water, groundwater, and leachate

SOIL

Sediment: Some information on hazardous waste industrial sediments and sludge discharges

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS

Lab packs

Conventions Used to Identify Agents: Federally recognized hazardous waste codes as identified in 40 CFR Part 261, subpart D

DATABASE AVAILABILITY

Level of Data Aggregation: Permit information is provided by specific sites/facilities; individual site information and statistical summaries by types of facilities are available

Availability: Any requester can obtain data; requester must fill out a Freedom of Information Act application

Form: Hard copy -- Computer printouts
Machine readable -- Tape (ASCII) available at National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Reports: Biennial reports that follow up on original permit application information; sometimes monitoring data in water, air, or soil are included

Reference Documents: None

Data/Reports Available From: Liza Hearns, U.S. EPA, Office of Solid Waste and Emergency Response, 401 M Street SW, Washington, DC 20460, (202) 260-4697

SAMPLE TRACKING AND DATA MANAGEMENT SYSTEM

Acronym: STDMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Nuclear Radiation Assessment Division
Contact Person: Charles Costa, U.S. EPA, Nuclear Radiation Assessment Division, P.O. Box 93478, Las Vegas, Nevada 89193-3478, (702) 798-2305

Objectives and Coverage:

STDMS contains noble gas or radionuclide measurements in air, water, animal tissue, and plants in areas surrounding the Nevada test site (Nevada, Utah, and California locations). Measurements include gamma spectrometry, tritium, strontium, and plutonium in surface and ground water; gross beta, tritium, noble gases (krypton, and xenon), and gamma emitters in outdoor air; and cesium, strontium, and plutonium in blood, bone, and tissue of animals. Sampling of plants for radionuclides is occasionally done. These data are used as supporting data for the Internal Radiation Dosimetry System (see separate entry in this Inventory) which documents human radionuclide exposure of families residing in this area. Results from both databases are used to evaluate the total radiological dose to the region from the Nevada test site.

Detailed information was not available at the time of publication.

STATE AND LOCAL AIR MONITORING STATIONS

Acronym: SLAMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS); U.S. EPA Regions; states
Contact Person: David Lutz, U.S. EPA, OAQPS, Research Triangle Park, NC 27711, (919) 541-5476

Objectives and Coverage:

SLAMS were established to meet the Clean Air Act requirement that every state create a network of air monitoring stations for criteria pollutants, using criteria set by OAQPS for their location and operation. States are required to provide OAQPS with annual summaries of monitoring results at SLAMS sites, although most states supply this information more frequently (monthly or quarterly). National Air Monitoring (NAMS) sites, part of the SLAMS network, are located in areas of high population and high pollution concentration; other SLAMS sites may be located in other areas. Also, NAMS sites remain at the same location over time; this may not be true for other SLAMS sites. All SLAMS monitoring sites meet uniform criteria and follow standard procedures established by OAQPS for analytical methodology and quality assurance. SLAMS data comprise most of the data found in the Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System (AIRS) (see separate entries for AQS in Part I and AIRS in Part II for further information).

Detailed information was not available at the time of publication.

STATE/EPA RESIDENTIAL RADON SURVEY

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Radiation Programs
Contact Person: Jeffrey Phillips, U.S. EPA, Office of Radiation Programs, 401 M Street SW, Washington, DC 20460, (202) 260-4114

Objectives and Coverage:

The State/EPA Residential Radon Survey is a cooperative effort between regional U.S. EPA offices and state health departments in an attempt to characterize the extent and magnitude of the indoor radon (^{222}Rn) problem. The U.S. EPA provides assistance to the 34 currently participating states in the selection and testing of a probability-based sample of houses. Short-term radon measurements are taken in the lowest liveable area during the heating season for all participating homes, and during the other three seasons in ten percent of the sample homes for long-term monitoring. Through the program, individual states are able to characterize the radon distribution on a statewide basis and for regions within their state. Consequently, states are able to prioritize the allocation of resources toward radon programs based on a sound assessment of the radon problem in the state. Individual homeowners are also provided a basis for determining whether additional measurements are needed for making mitigation decisions. U.S. EPA recommends that homeowners perform different types of follow-up measurements for screening readings between 4 pCi/l (picocuries per liter) and 20 pCi/l and for readings above 20 pCi/l.

The state radon surveys provide direct estimates of how many houses in the target population are affected by these action levels. States not included as of 1991: Arkansas, Delaware, Florida, Illinois, Maryland, Mississippi, Montana, New Hampshire, New Jersey, New York, South Dakota, Oregon, Texas, Utah, Virginia, and Washington. Currently, there is no relationship between this survey and EPA's National Residential Radon Survey (NRRS) (see separate entry). The database results should not be used directly to assess annual averages or health risks because they represent screening measurements and may overstate annual average concentrations in living areas.

Summary of Environmental Data:

Media: Indoor air

Classes of compounds: Radon

Type of data available: Radon concentration distributions for a given state

Estimation versus observational data: Observational data from actual samples

Sample Design and Analysis:

The survey utilizes short-term, charcoal canister measurement devices that are analyze the U.S. EPA laboratory in Montgomery, Alabama. In addition, long-term screening dev designed to measure annual average indoor radon concentrations are placed in a 10% subsam of houses. Screening measurements have been made in over 46,000 randomly selected hou representing a population of more than 25 million houses. Measurements are made in the low livable area during the heating season in closed-house conditions. For the long-term screenin subsamples, measurements are also taken in the other three seasons. The target population consists of owner-occupied, private or main residences with: a) a listed telephone number, b) a permane t foundation, and c) at least one floor at or below grade level. This target population excludes most mobile homes, high rise apartments, renters, businesses, and seasonal homes.

For each state, a probability sample of listed residential telephone numbers was selected from a sampling frame constructed from telephone directories for all communities in the state Counties suspected of having elevated indoor radon levels and/or having low population density were sampled more heavily to ensure good coverage of all geographic areas in the state and to enhance the chance of finding areas with elevated radon concentrations. Statistical analyses of the measurements provide statistically valid results and projections for states and regions within states.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: 34 states

Identifiers: Zip code; county; state

Time Coverage: 1986-present

Sample Characteristics:

Frequency of sample collection: Each year, different states are sampled; each home is sampled only once

Regularity of sample collection: Short-term sample taken during the heating season; 10 percent subsample of homes also have year-long detectors

Source information: Measurements taken at lower levels close to radon source from soil

Dispersion information: Not available

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: U.S. EPA Radon Measurement Protocol

Approximate time between sample collection and analysis: 1 week for initial raw data; 2-5 months for data to be weighted (statistical adjustment carried out by the contractor)

Approximate time between sample analysis and data entry to database: 5 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR

Indoor Homes: Radon

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Radon identified as radon ^{222}Rn

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requester can obtain short-term radon measurement data; long-term measurement data are provided to states only; data available on-line (direct VAX access through EPA's Office of Radiation Programs) by contacting Jeffrey Phillips, (202) 260-4114

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette, on-line (direct VAX access)

Reports: Press release kit in October of every year, distributed by U.S. EPA External Affairs Office

Reference Documents: *A Cumulative Examination of the State/EPA Radon Survey*

Data/Reports Available From: Jeffrey Phillips, U.S. EPA, Office of Radiation Programs, (202) 260-4114

STORAGE AND RETRIEVAL OF WATER QUALITY DATA

Acronym: STORET
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water
Contact Person: Thomas Pandolfi, U.S. EPA, (PM-218-B), 401 M Street SW, Washington, DC 20460, (202) 260-7030

Objectives and Coverage:

STORET was developed as a uniform data collection and reporting system for chemical, physical, and biological water quality data in the United States, U.S. Territories, and parts of Canada. STORET can be used to store, retrieve, and analyze data (including trends) for both surface water (including effluent) and ground water, and is particularly useful for areas near discharge sources. Used in conjunction with the Reach Pollutant Assessment file (see separate entry), STORET forms the basis for many other water information systems. The majority of the data in STORET is from non-EPA sources, including states and other federal agencies (e.g., U.S. Geological Survey (USGS), U.S. Army Corps of Engineers, U.S. Forest Service, Bureau of Reclamation, and the Tennessee Valley Authority). EPA maintains the database for its users. STORET is accessible to anyone who wishes to obtain information. In addition to its monitoring objectives, STORET is used for regulatory purposes; for example, EPA uses STORET for its national water quality analysis program. The primary component systems within STORET include the Water Quality System, the Biological System, the Daily Flow System, and the Fish Kill File.

The *Water Quality System* (WQS) is composed of physical and chemical data obtained during monitoring of waterways. WQS contains data on sampling collection sites (stations) and on the samples collected, including information on where, when, and how samples were collected; the aquifer in which or above which the site is located; parameters tested for; and test results. Ambient water quality and effluent chemistry information is included. Some data on fish tissue and sediment are also included. WQS can be linked to other water databases, such as BIOS and the Permit Compliance System (see separate entry).

The *Biological System* (BIOS) contains biological data on aquatic organisms, including distribution, abundance, physical condition, and habitat descriptions. BIOS can incorporate statistical methodologies for biological analysis. Information in BIOS includes site (station) collection data (including location identifiers, hydrology, site description, and time of sample collection); a complete record of observed biota (e.g., taxonomic identity, species counts); and possibly sampling environment data (e.g., meteorology, physical and chemical water conditions). BIOS can be linked to STORET's Water Quality File and to EPA's Permit Compliance System (PCS).

STORET's *Daily Flow System* contains daily observations at U.S. Geological Survey gaging stations, primarily of stream flow. It also includes some water quality parameters, such as

temperature, dissolved oxygen, pH, and chloride. This information can be used for analyzing waste load allocations and for other regulatory analyses.

The *Fish Kill File*, for which data collection began in 1960 and was discontinued in 1990, tracks fish kills in the United States caused by pollution resulting from a variety of human activities (i.e., industrial, municipal, agricultural, transportation). The purpose of this File is to obtain information on the effects on fish of pollutants discharged to surface waters, and to allow EPA and states to determine causes of fish kills. Data in the File include location, circumstances, total number of fish killed, and number of each species killed. Other information in the File includes primary land use surrounding the kill site, causes of the kill, pollutants identified at the site, and sources of pollutants. Reporting is voluntary, and therefore it is probable that numerous fish kills go unreported.

Summary of Environmental Data:

Media: Water (surface water, ground water); soil (sediment); food sources (fish)

Classes of compounds: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, ions (including fluoride), physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

STORET includes 150 million water sample observations from 800,000 sampling sites in all 50 states from virtually all rivers and waters contiguous to the United States and in U.S. Territories (Guam and Puerto Rico) and portions of Canada. Because the data are collected from different organizations, STORET does not have an overall sampling strategy. The primary source of data is monitoring information provided by states; the largest single contributor of data is the U.S. Geological Survey, which transfers data from its WATSTORE system to STORET (USGS water quality data are transferred monthly; daily values data are transferred every six months; see separate entry for WATSTORE). Monitoring strategies (e.g., sampling frequency, constituents sampled) are established by the collecting agency. General EPA guidelines for water quality monitoring exist and may be followed by some of the states and other agencies submitting data to STORET, but information on individual agency monitoring practices is not readily available. (Examples of some EPA monitoring guidelines include: *Technical Guidance Manual for Performing Waste Load Allocations; Technical Support Document for Water Quality-Based Toxics Control; Guidelines for the Preparation of State Water Quality Assessment (305(b)) Reports; and Assessing Biological Integrity in Running Waters: A Method and Its Rationale.*) Participating groups are identified with unique codes, and some information regarding individual sampling strategy for specified locations can be retrieved upon request. New information is submitted daily by users; updates of data files are conducted weekly. Information is checked for reasonableness (e.g., that results for tests fall within the possible range) when added to the system, but users are largely free to define the information they submit.

EPA guidelines exist for data definition and quality; these are optional but strongly encouraged by EPA for STORET users.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National; U.S. Territories; portions of Canada

Identifiers: Latitude/longitude of the point source and monitor site; state; hydrologic unit code; river reach number; county; basin; (some data may also be identified by street address; zip codes; census tract; name of city, municipality, or township; and/or county/parish)

Time Coverage: 1950s (some data from 1910s)-present

Sample Characteristics:

Frequency of sample collection: Varies by organization

Regularity of sample collection: Depends on organization and purpose

Source information: Not available, but the Industrial Facilities Discharge File and the Environmental Display Manager (see separate entries) may be useful in identifying sources in the vicinity

Dispersion information: None available

Methods of Sample Analysis:

Samples pooled: Varies by organization

Standard procedures used: Usually, EPA or state methods; EPA guidelines exist for data definition and quality; these are optional but strongly encouraged by EPA for STORET users

Approximate time between sample collection and analysis: Varies by organization

Approximate time between sample analysis and data entry to database: Varies; STORET's Water Quality System and Biological System are updated weekly; the Daily Flow System is updated twice each year

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; data entry audits; QA/QC procedures for states as specified in Section 106 of the Clean Water Act

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water and ground water: Inorganic compounds, VOCs, trihalomethanes, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, microorganisms, ions (including fluoride), physical and chemical indicators of water quality, asbestos

SOIL

Sediment: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos

AIR Not applicable

FOOD SOURCES

Fish: Inorganic compounds, VOCs, pesticides, PCBs

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); database-specific codes ("parameter" codes which identify the constituent, media, and unit); cross-referenced to Chemical Abstracts Service Registry (CASRN) numbers if possible

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries or summary statistics; the database can also plot the data on 3-D graphs and maps by ranges of values and can perform any statistics available through SAS, to which the system is linked

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts
Machine readable -- Tape, diskette (ASCII, SAS)

Reports: Generally, users retrieve own data and can generate reports (text and graphics)

Reference Documents: STORET User Handbook; (also training seminars and conferences and regional contact people)

Data/Reports Available From: Data may be obtained either by direct access through the EPA National Computer Center IBM-3090 computer (can be accessed through most personal computers with modems), or by requesting data of interest; states or Regional EPA offices have direct access to STORET and can use it free of charge; private groups can access

STORET for a fee through National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; anyone can call their EPA Regional Office and receive information (hard copy or on-line) on parameters (constituents) -- a fee may be charged, depending on the individual request; for the Fish Kill File, data collected since 1986 is available in hard copy only

To set up a STORET account: Call (800) 424-9067 or (703) 883-8861

SYNTHETIC ORGANIC CHEMICALS, UNITED STATES PRODUCTION AND SALES

Acronym: Annual SOC Report
Sponsoring Agency: U.S. International Trade Commission
Contact Person: James A. Emanuel, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436, (202) 252-1367

Objectives and Coverage:

The Synthetic Organic Chemicals, United States Production and Sales database consists of information collected annually by the United States International Trade Commission (ITC) on the production and sales of each synthetic organic chemical produced in the United States. Originally requested by the House Ways and Means Committee in 1916, this information is a legal requirement of companies and is compiled into annual ITC reports that list summary statistics within 15 specified groups of organic chemicals. Statistical comparisons with previous years are included. These published reports are provided to various federal agencies and are available to the general public upon request.

Summary of Environmental Data:

Media: Bulk chemicals

Classes of compounds: Synthetic organic chemicals (including VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, acids, bases)

Type of data available: Summary statistics are available on a large number of organic chemicals

Estimation versus observational data: All observational data

Sample Design and Analysis:

An annual questionnaire of total output is sent to all known producers of approximately 6000 synthetic organic chemicals in the United States by the International Trade Commission. Producers are legally required (under the Tariff Act of 1930) to complete the questionnaire and return it to the Commission. The questionnaire separates organic chemicals into 15 classifications: coal tar, tar crudes and pitches; primary products from petroleum and natural gas for chemical conversion; cyclic intermediates; dyes; organic pigments; medicinal chemicals; flavor and perfume materials; plastics and resin materials; rubber-processing chemicals; elastomers; plasticizers; surface-active agents; pesticides and related products; miscellaneous end-use chemicals and chemical products; and miscellaneous cyclic and acyclic chemicals.

Within each classification, the ITC specifies a minimum reportable quantity based on the volume of production or sales or value of sales. Data are published so as not to reveal individual company operations. A disclosure of confidentiality can also be requested by companies so that company names will not be identified.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: No geographic indicators used

Time Coverage: 1916-present

Sample Characteristics:

Frequency of sample collection: Not applicable -- no samples collected; data on total output submitted annually by companies who fill out a questionnaire

Regularity of sample collection: Not applicable -- no samples collected

Source information: All data collected at the source

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: Chemical specific production and sales are aggregated using data supplied from approximately 700 primary manufacturers of chemicals

Standard procedures used: Not applicable -- no samples analyzed

Approximate time between sample collection and analysis: Not applicable -- no samples collected or analyzed

Approximate time between receipt of questionnaire and data entry to database: 1 month

Quality Assurance/Quality Control Procedures: Data entry audits; comparison of current data to previous years and to data supplied by other domestic producers; phone calls to reporting companies by agency staff; no independent verification of original data used by the manufacturers

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS

Synthetic organic chemicals (including VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, acids and bases)

Conventions Used to Identify Agents: Chemical name or mixture; Chemical Abstracts Service Registry Number (CASRN) (the CASRN for most chemicals is shown in the questionnaire but not in the report)

DATABASE AVAILABILITY

Level of Data Aggregation: Summary statistics are available on specific agents by manufacturer

Availability: Any requester can obtain summary data; summary data are available in an annual published report which is provided to various federal agencies and available to other federal, state, or local government agencies, as well as to the general public

Form: Hard copy -- Agency reports
Machine readable -- Bulletin board (quarterly reports only)

Reports: Annual reports: *Synthetic Organic Chemicals United States Production and Sales*, provides the following data within each of the 15 groups of organic chemicals: a summary of statistical data; statistics on products in as great detail as is possible without revealing the operations of individual producers; data identifiable by manufacturers' codes; and a directory of manufacturers. Appendices include corporate telephone numbers and office addresses of manufacturers; synonymous names for cyclic intermediates; data aggregated in the format of the Harmonized

System (for comparability with Standard Industrial Classification (SIC) format); and an alphabetical index of all the products within the edition of the report

Quarterly Reports: *Preliminary Report on Production of Selected Synthetic Organic Chemicals (including synthetic plastics and resin materials)*

Reference Documents: *Colour Index*, published jointly by the Society of Dyes and Colourists and the American Association of Textile Chemists and Colorists; *Chemical Abstract Service Registry Numbers* and *SOCMA Handbook: Commercial Organic Chemical Names*, published by the Chemical Abstracts Service of the American Chemical Society

Data/Reports Available From: Office of the Secretary, ITC, 500 E Street SW, Washington, DC 20436, (202) 205-1807 (for copies of Agency reports) or call (202) 205-1809 and leave a recorded request; requests may also be faxed to (202) 252-2186; quarterly reports on electronic bulletin board may be accessed by calling (202) 205-1948 (a password will be given; the I.D. will be the requester's name)

TOTAL DIET STUDY

Acronym: TDS

Sponsoring Agency: U.S. Department of Health and Human Services (DHHS), U.S. Food and Drug Administration (FDA), Division of Contaminants Chemistry

Contact Person: Ellis L. Gunderson, U.S. FDA, 200 C Street SW, (HFF-420), Washington, DC 20204, (202) 245-1152

Objectives and Coverage:

Since 1961, the Total Diet Study (TDS), also known as the Market Basket Study, provides yearly estimates of dietary intakes of selected pesticides, industrial chemicals, radionuclides, and elements or nutrients for the U.S. population. These intakes are then compared with established safe or recommended dietary intake levels. TDS also allows FDA to: identify dietary trends over time; observe potential public health problems; follow up on isolated contamination incidents; check the effectiveness of U.S. regulations regarding chemical levels in foods; and guide other FDA food monitoring programs.

Summary of Environmental Data:

Media: Drinking water, human food sources

Classes of compounds: Inorganic compounds, semi-VOCs, pesticides, PCBs, radionuclides

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: Estimates based on observational data

Sample Design and Analysis:

In the Total Diet Study, typically consumed foods are purchased at the retail level, prepared for consumption, and analyzed for residue and dietary intake levels. The TDS was established in 1961 to determine dietary intake of radionuclides resulting from atmospheric testing of nuclear weapons; analyses for selected nutrients and pesticides were also performed. Over the years, additional analytes have been added (currently, testing is done for over 200 analytes, of which approximately 51 are usually detected annually). From 1961 to 1982, the number and types of foods, population groups, collection sites, and analytical methods varied. Food was collected at one location before 1982 (Washington DC) four times a year, and a "composite sample approach" was used -- individually prepared food group items were composited by weight. Prior to 1982, food items and diets were based on the 1955 and 1965 U.S. Department of Agriculture (USDA) Household Food Consumption Surveys.

The TDS was redesigned in 1982, based on updated analysis of individual foods and new dietary information from two surveys (the USDA 1977-1978 Nationwide Food Consumption Survey (NFCS, see entry in Appendix D) and the National Center for Health Statistic's Second National Health and Nutrition Examination Survey (NHANES) of 1976-1980) (see separate entry for this database), allowing for assessment of dietary intakes for a greater number of population (age-sex) groups. Since 1982, food collections (known as "market baskets") have been performed by FDA district office inspectors four times each year, once from each of four geographical regions of the United States (East, West, South, and Central), representing the total diet of the U.S. population. Each market basket has consisted of 234 identical foods purchased in grocery stores in three cities within each geographical area; after food preparation according to specific instructions, the three subsamples of each food are combined to form a sample for analysis. Individual analyses of 234 food items depicting eight population groups (ranging from infants to elderly adults) have been performed for over 200 analytes annually. Most of the analyses use multiresidue analytical methods. Separate analyses are performed for radionuclides (for which monitoring was discontinued from 1967-1972, and resumed in 1973).

Total Diet Study analyses are performed for prepared, rather than raw, foods; therefore, because food preparation may reduce levels of chemical residues, analytical procedures in the TDS are modified from those used in other FDA regulatory programs to permit measurement at levels 5 to 10 times lower than measurements used in those programs; generally, residues present at or above 1 ppb can be measured in the TDS.

Results prior to and after 1982 are not directly comparable because of the substantial redesign of the Total Diet Study in 1982 (e.g., design of diets, analysis of individual foods versus composites, expanded coverage of population (age-sex) groups, and use of different or additional analytical methods). Beginning in the fall of 1991, the Total Diet Study has expanded its food collection and analysis to 265 food items, and will be expanding the number of age-sex population groups.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: City, municipality, or township; Standard Metropolitan Statistical Area (SMSA); state

Time Coverage: 1961-present

Sample Characteristics:

Frequency of sample collection: Quarterly

Regularity of sample collection: Variable collections; quarterly on average; collections are spread over a 4-5 week period so laboratory can accommodate sample preparation workload

Source information: None

Dispersion information: Qualitative information through regional estimates of dietary uptake of residues from food

Methods of Sample Analysis:

Samples pooled: Each collection consists of the purchase of identical foods from grocery stores in 3 cities within a geographical area; the 3 subsamples of each food (from the 3 cities) are combined to form a sample for analysis; these samples are then analyzed individually

Standard procedures used: FDA Pesticide Analytical Manual (1968 and revisions) and numerous other analytical methodologies for elements, dioxins, pesticides, PCBs, etc.); Association of Official Analytical Chemists' Official Methods of Analysis; American Public Health Association Standard Methods for the Examination of Water and Wastewater

Approximate time between sample collection and analysis: Several weeks

Approximate time between sample analysis and data entry to database: 3 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, duplicates, spikes, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Municipal: Inorganic compounds, semi-VOCs, pesticides, PCBs, radionuclides

SOIL Not applicable

AIR Not applicable

FOOD SOURCES

Domesticated mammals (dairy products and meat); plants (vegetables and fruit); fish/shellfish: Inorganic compounds, semi-VOCs, pesticides, PCBs, radionuclides

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture; database-specific codes

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Any requester can obtain data; computerized database is available from 1982-present; hard copies of articles summarizing data are available for 1961-1981

Form: Hard copy -- Computer printouts, Agency reports, journal publications

Reports: *History of the Food and Drug Administration's Total Diet Study -- 1961 to 1987; FDA Total Diet Study, April 1982-April 1984, Dietary Intakes of Pesticides, Selected Elements, and Other Chemicals; Residues in Foods 1990*; numerous other reports and journal articles

Reference Documents: *Documentation for the revised Total Diet Study: Food List and diets*; numerous methods for analysis of specific chemicals

Data/Reports Available From: State Departments of Food and Agriculture and Departments of Health; FDA District Offices; U.S. Environmental Protection Agency; USDA; National Oceanic and Atmospheric Administration; limited reference documents available through National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4650; Ellis L. Gunderson, FDA, (202) 245-1152

TOXIC RELEASE INVENTORY

Acronym: TRI
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Toxic Substances
Contact Person: Steve Newburg-Rinn, U.S. EPA, Office of Toxic Substances, 401 M Street SW, Washington, DC 20460, (202) 382-3757

Objectives and Coverage:

TRI contains data on annual estimated releases of over 300 toxic chemicals to air, water, and land by the manufacturing industry. (Releases to land include: landfills; land treatment/application farming; and surface impoundments, such as topographic depressions, man-made excavations, or diked areas.) Industrial facilities provide the information, which includes: the location of the facility where chemicals are manufactured, processed, or otherwise used; amounts of chemicals stored on-site; estimated quantities of chemicals released; on-site source reduction and recycling practices; and estimated amounts of chemicals transferred to treatment, recycling, or waste facilities. The Emergency Planning and Community Right-to-Know Act of 1986 and the Pollution Prevention Act of 1990 mandated that EPA collect this information and make it available to the public in a computerized database.

Communities use TRI to obtain information about chemical releases in their area and for emergency response planning for chemical accidents. TRI data are also used by government agencies for regulatory purposes, such as permitting, inspection, and compliance reviews of facilities. TRI is often used in conjunction with other EPA databases to provide support for major environmental laws, such as the Clean Air Act, the Clean Water Act, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), and the Safe Drinking Water Act. In addition, TRI data are used for research purposes by federal, state, and local governments and private groups to study human health problems, particularly as a tool for risk screening to assess potential environmental and health risks. More recently, TRI has been used to encourage and assist in implementation of pollution prevention (including source reduction) programs at industrial facilities.

Summary of Environmental Data:

Media: Air (point and non-point source emissions), water, soil or sediment, bulk chemicals, ions (including fluoride), underground injection, off-site transfers (including transfers to publicly owned treatment works, or POTWs)

Classes of compounds: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, asbestos, acids/acid aerosols, bases

Types of data available: Individual entries and summary statistics are available on specific agents

Estimation versus observational data: Most data are estimated; observational data are used if available; methods of estimation may change from year to year, causing apparent changes in values

Sample Design and Analysis:

Title III of the Superfund Amendments and Reauthorization Act of 1986 requires facilities in the manufacturing sector (Standard Industrial Classification codes 20-39) to report releases of over 300 specified chemicals in over 20 chemical categories to local and federal agencies. Only those facilities that have 10 or more full-time employees and either manufacture or process more than 25,000 lbs. or use more than 10,000 lbs. of chemicals per year must comply. These facilities must report annual releases to their state and to EPA on July 1 following each calendar year of coverage.

The TRI data for chemical releases to land are limited to releases within the boundary of a facility. Releases to land include: landfills; land treatment/application farming; and surface impoundments, such as topographic depressions, man-made excavations, or diked areas. Air releases are identified as either point source releases or as non-point (i.e., fugitive) releases, such as those occurring from vents, ducts, pipes, or any confined air stream. Surface water releases include discharges to rivers, lakes, streams, and other bodies of water. In addition, the database covers releases to underground injection wells (where chemicals are injected into the groundwater) and offsite transfers of chemicals to either publicly owned treatment works (POTWs) or any other disposal, treatment, storage, or recycling facility.

Release quantities are expressed as total annual amount, and the database does not indicate whether peak releases or accidents occurred during the year. In addition, accuracy of data can vary greatly. Estimates based on amount of chemical used during a year or on weight of drums can be fairly accurate. Where monitoring of waste streams has not been done, release estimates may be within 20 percent of the actual amount released, although infrequent nonrepresentative sampling may lead to much less accuracy. Estimates of fugitive air emissions and complex wastewaters for which monitoring data are not available may be off by one or even two orders of magnitude. Overall, 1987 total annual releases appear to have been underestimated by 2 percent. For non-zero release estimates, more than three-quarters were within a factor of 2 of EPA's best estimate. About 15 percent were in error by an order of magnitude or more. Finally, estimating exposure based on release quantities requires an analysis of chemical and site-specific characteristics; there is no simple conversion of release quantity to concentration in the environment or dose received by individuals.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the zip code centroid and of the facility; street address; zip code; name of city, municipality, or township; county/parish; state

Time Coverage: 1987-present

Sample Characteristics:

Frequency of sample collection: Annual

Regularity of sample collection: Regular (for 1987, approximately 66 percent of facilities were in compliance with reporting requirements)

Source information: Data are collected at the source, by the industrial facilities themselves

Dispersion information: Generally not available, but off-site transfers are included

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Vary by facility; EPA analytical methods are available for 146 of the 308 chemicals in TRI (available from EPA's Office of Water Regulations and Standards, Office of Solid Waste, and Office of Research and Development); development of standardized methods for the other 162 chemicals is being considered, to be based on determinations of which chemicals should be regulated next; a Guidance Manual for facility inspectors is available to determine whether facilities have identified all reportable chemicals and have calculated thresholds properly

Approximate time between sample collection and data entry to database: 9 months

Quality Assurance/Quality Control Procedures: Data entry audits; Toxic Release Inventory Data Quality Program, which includes detailed reporting instructions, 18 industry-specific guidance documents, and accuracy evaluations; site visits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Inorganic compounds, VOCs, pesticides, PCBs, asbestos, ions (including fluoride)

Groundwater: Inorganic compounds, VOCs, ions (including fluoride)

SOIL

Industrial: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, asbestos

AIR

Outdoor urban and rural: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, asbestos, acids/acid aerosols

Aggregate stack emissions: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, asbestos, acids/acid aerosols

HUMAN SAMPLES Not applicable

BULK CHEMICALS

Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, asbestos, acids, bases

OTHER

Also includes underground injection wells and off-site transfers to POTWs, recycling facilities, treatment facilities, etc.

Conventions Used to Identify Agents: Chemical Abstracts Service Registry Number (CASRN); chemical or mixture name

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents for each reporting facility

Availability: Any requester can obtain data; on-line if registered to use the National Library of Medicine's (NLM) Toxicology Data Network (TOXNET) computer services, 24 hours/day by direct dialing or through TELENET, TYMNET, or COMPUSERVE; NLM is also available at over 4,000 libraries nationwide

Form: Hard copy -- Computer printouts; Agency reports; Microfilm
Machine readable -- On-line (ASCII); tape; diskette; CD-ROM

Reports: Routinely available annually; distributed through the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, state offices, federal offices, and regional libraries of the National Library of Medicine; special reports can be developed through appropriate software; examples of reports include: *The Toxic Release Inventory: National Report for 1989 Data; Chemicals in Your Community: A Guide to the Emergency Planning and Community Right-to-Know Act; Risk Screening Guide*

Reference Documents: User manuals for various systems (e.g., EPA IBM system; public access through TOXNET)

Data/Reports Available From: National Library of Medicine's TOXNET system, (301) 496-6531; Emergency Planning and Community Right-to-Know Hotline (to develop reports), (800) 535-0202; Emergency Planning and Community Right-to-Know Reporting Center (for hard copy), (202) 488-1501; National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650, or Government Printing Office (for magnetic tapes), (202) 783-3238; TRI US, (for on-line user support and search assistance), (202) 382-3531

TOXIC SUBSTANCES CONTROL ACT TEST SUBMISSIONS

Acronym: TSCATS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Toxic Substances
Contact Person: Geraldine D. Nowak, U.S. EPA, Office of Toxic Substances, 401 M Street SW, Washington, DC 20460, (202) 260-2320

Objectives and Coverage:

TSCATS is an index of unpublished, nonconfidential studies covering chemical testing results and adverse effects of chemicals on health and ecological systems. The studies are submitted by United States industry to the EPA under the Toxic Substances Control Act (TSCA). The majority of these studies include laboratory studies conducted on chemicals. There are few epidemiological studies and chemical spill studies included in the database, however, the emphasis is on laboratory studies. Documents in the database include: TSCA chemical test results; health and safety studies; notices of substantial risk of injury to health or the environment; and informational submissions that contain data on exposure, epidemiology, environmental fate, and monitoring.

A TSCATS record includes the chemical name, Chemical Abstracts Service Registry Number (CASRN), TSCA section, title, public file document number, microfiche number, submitting organization, performing organization, study purpose, chemical effect, organism tested, route of administration, and keywords and abstracts for a select number of studies. Submitted documents are available on microfiche within the TSCATS system.

TSCATS contains information that is pertinent to the risk assessment and hazard evaluation processes. The information can be used in conjunction with published material and is a valuable source in the absence of published data. The data are used by federal and state agencies, researchers, toxicologists, risk assessors, and trade and professional associations.

Summary of Environmental Data:

Media: Bulk chemicals

Classes of compounds: Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, acids, bases, all other substances covered under TSCA

Types of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: Mostly observational data; some estimated data

Sample Design and Analysis:

Each study within TSCATS contains its own sample design and analysis. The submitted data are reviewed by EPA representatives to determine: if additional information is needed, the safety and use of the chemical, and if the data was submitted under the right section of TSCA. Data are used for chemical regulation and are made available to the public under Section 10 of TSCA: *The Research, Development, Collection, Dissemination, and Utilization of Data*. New documents are added to the database quarterly.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Name of submitting organization and contractor (laboratory where research was done)

Time Coverage: 1985-present

Sample Characteristics: Each study within TSCATS contains its own sampling protocols

Frequency of sample collection: Not applicable (see above)

Regularity of sample collection: Not applicable (see above)

Source information: None

Dispersion information: Most studies do not contain dispersion information, except for some ecological studies submitted under Section 4: *Testing* of TSCA

Methods of Sample Analysis:

Samples pooled: Not applicable (see above)

Standard procedures used: Procedures for compiling and submitting information depend upon the applicable section of TSCA; most documents are submitted under Section 4: *Testing*; Section 6: *Regulation of Hazardous Chemical Substances;* or Section 8: *Health and Safety Studies*; also, Section 10: *The Research, Development, Collection, Dissemination, and Utilization of Data,* specifies procedures for making the studies available to the public

Approximate time between sample collection and analysis: Not applicable; no samples analyzed

Approximate time between sample analysis and data entry to database: Not applicable; no samples analyzed; approximate time between information received by EPA and data entered into the database is 3 to 6 months

Quality Assurance/Quality Control Procedures: Each study has its own quality assurance/quality control procedures; none required under TSCA

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER Not applicable

SOIL Not applicable

AIR Not applicable

BULK CHEMICALS

Inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, acids, bases, any other substance covered under TSCA

Conventions Used to Identify Agents: CASRN; chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents for each reporting facility

Availability: Any requester can obtain data; on-line from the National Library of Medicine (NLM) (TSCATS are also contained in the TSCATS, TOXLINE, TOXLIST, HSDB, and RTECS files); compact disc (CD-ROM) from SilverPlatter Information, Inc., Wellesley, MA; once references of the document or submission are found on-line or on CD-ROM, the complete submission or document can be obtained on microfiche through Chemical Information Systems, Inc., or the National Technical Information Service (NTIS); hard copies of TSCATS Source Documents may be reviewed and copied at the EPA, Office of Toxic Substances, Public Docket Room, and the Office of Toxic Substances Chemical Library

Form: Hard copy -- Computer printouts; microfiche (of the submitted documents)
Machine readable -- On-line; diskette (CD-ROM); magnetic tape

Reports: Health and safety studies and studies of substantial risk submitted under Section 8 of TSCA are irregularly distributed in report form to the National Technical Information Service (NTIS) and the TSCA Hotline Office, (202) 554-1404

Reference Documents: Each study contains its own reference documents; the *Toxic Substances Control Act* is used as a reference document for the database

Data/Reports Available From: National Library of Medicine, On-line Access, 8600 Rockville Pike, Bethesda, MD 20894, (301) 496-6193 (for a password and user code); SilverPlatter Information, Inc., 37 Walnut Street, Wellesley Hills, MA 02181, (617) 235-1715 (for compact disc in CD-ROM); Chemical Information Systems, Inc., 7215 York Road, Baltimore, MD 21212, (301) 321-8440 or 1-800-CIS-USER or the National Technical Information Service (NTIS) 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for documents on microfiche; orders must include the microfiche number); NTIS or the TSCA Hotline Office, 1-800-424-9065 or (202) 554-1404 (for reports); U.S. EPA, Office of Toxic Substances Public Docket Room, 401 M Street SW, Room G-004 Northeast Mall, Washington, DC 20460, (202) 260-7099, or U.S. EPA, Office of Toxic Substances Chemical Library, 401 M Street SW, Room B-002 Northeast Mall, Washington, DC 20460, (202) 260-3944 (to review and copy hard copies of TSCATS Source Documents)

VOLATILE ORGANIC COMPOUND TOTAL EXPOSURE ASSESSMENT METHODOLOGY STUDY

Acronym: VOC TEAM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Acid Deposition, Environmental Monitoring and Quality Assurance

Contact Person: Lance A. Wallace, U.S. EPA, EPIC Building, 166 Bicher Road, Vint Hill Farms Station, Warrenton, VA 22186-5129, (703) 341-7509

Objectives and Coverage:

The Total Exposure Assessment Methodology (TEAM) was designed by the EPA to develop and demonstrate methods to measure human exposure to toxic substances in air and drinking water. (See also the Nonoccupational Pesticide Exposure Study (NOPES), the Carbon Monoxide TEAM Study (CO TEAM), and the Particle TEAM Study (PTEAM) in this Inventory.) The goals of VOC TEAM were to develop methods to measure individual total exposure (from air, food, and water) and the resulting body burden of toxic and carcinogenic chemicals, and to apply these methods within a probability-based sampling framework to estimate exposures and body burdens of urban populations in several U.S. cities. To achieve these goals, air sampling was conducted to measure personal exposure to airborne toxic chemicals and a specially-designed spirometer was developed and used to measure the same chemicals in exhaled breath. The survey design consisted of a three-stage stratified probability selection approach to ensure inclusion of potentially highly exposed groups. Related objectives of the VOC TEAM studies were to: determine the relationships between personal, indoor, outdoor, and blood, urine, and exhaled breath concentrations; determine the variability of VOC concentrations within a home; and determine seasonal and multi-year variability. The Study was conducted in three phases.

A field test of the methodology (Phase I) was carried out between July and December 1980 in Bayonne, and Elizabeth, New Jersey and Research Triangle Park, NC. The objective of Phase II, carried out between September 1981 and February 1983, was to estimate the distribution of exposures to target substances for a target population in an industrial/chemical manufacturing area (Bayonne, and Elizabeth, New Jersey) and to compare these estimated exposures to those estimated for populations in nonchemical manufacturing areas (Greensboro, NC and Devils Lake, ND). In Phase III, carried out between February and June 1984, the methodology refined during Phase II was applied to target populations in California. After completion of these three phases, a separate VOC TEAM study was carried out in Baltimore, MD during 1987 because Baltimore lacks the petroleum and chemical manufacturing plants present in most of the previous TEAM study sites and may therefore be more representative of many U.S. cities. Focused studies were also conducted in New Jersey and Los Angeles during 1987 to further explore the sources and factors contributing to personal VOC exposures identified in the earlier TEAM studies.

Summary of Environmental Data

Media: Air, water, human samples (exhaled breath)

Classes of compounds: VOCs

Types of data available: Individual data entries and summary statistics on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

Major studies were conducted in two areas: Elizabeth, and Bayonne, New Jersey; and Los Angeles, Antioch, and Pittsburgh, CA. In addition, two smaller comparison studies were conducted in Greensboro, NC and Devils Lake, ND. In New Jersey, an initial probability sample of 11,400 residents (5,550 households) located in 108 areas in Elizabeth and Bayonne were polled to collect data on age, sex, occupation, and smoking status. A stratified probability sample of these individuals yielded 355 participants. The probability-based survey design provided a basis for robust inferences to the approximately 128,000 members of the target population, which included individuals who were over 6 years of age and were residents of the target cities when the study was conducted in the fall of 1981. A return visit was made to 157 of the original participants in the summer of 1982, and a final visit was made to 49 of these 157 persons during January and February of 1983. The individuals contacted on each return visit were a probability sample of the participants from the previous visit. All participants also completed questionnaires about their age, sex, occupation, and activities during the sampling period. An extensive quality assurance program was implemented for all sampling and analysis activities.

Two comparison studies were conducted. A small comparison study was undertaken in Greensboro, NC in May 1982. Greensboro was selected because its population is similar in size to the Bayonne-Elizabeth area and it has similar small industries, but no chemical manufacturing or petroleum refining operations. The target sample size was set at 25 for a 3-stage sample survey designed to represent 131,000 Greensboro residents. The location of the second comparison study, Devils Lake, ND, was selected to investigate whether the population of a small, rural, agricultural town far from any industry would exhibit personal exposures different from those of the northern New Jersey population. The target sample size was set at 25 subjects to represent approximately 7,000 residents.

Between February and March of 1984, 117 residents selected from 1,063 households representing 360,000 residents in the South Bay section of Los Angeles participated in the study. Between May and June of 1984, a second study included 52 of these participants. During June 1984, residents of Antioch, and Pittsburgh, CA were selected for participation from 502 households representing a population of 91,000. The overall response rates in the TEAM studies ranged from 44 percent in New Jersey to 76 percent in North Carolina. Los Angeles and Antioch/Pittsburgh overall response rates were about 57 percent while the overall response rate in North Dakota was 64 percent.

Personal and outdoor air samples were collected in glass cartridges containing solid granular sorbent Tenax-GC using DuPont sampling pumps for 12 hours at approximately 30 mL/minute

(target volume of 20L). Breath samples were collected using a specially-designed spirometer mounted in a van. The subjects provided breath samples at the end of the 24-hour sampling period. Water samples were collected from the tap at each participant's home after a 20-second flushing period. Samples were collected in 2-ounce glass jars containing sodium thiosulfate to quench residual chlorine reactions.

Air and breath samples were analyzed by capillary gas chromatography mass spectrometry (GC-MS) techniques followed by a combination of manual and automated analyses of spectra. Water samples were analyzed by a purge and trap GC utilizing a Hall electroconductivity detector for halogenated compounds and a flame ionization detector for aromatics.

A total of nearly 5,000 air, breath, and drinking water samples were collected for 400 respondents (600 person-days) in the New Jersey, North Carolina, and North Dakota sites. This represented about 95 percent of all samples originally scheduled. During the California phase, about 1,800 air, breath, and drinking water samples were collected from 188 respondents (240 person-days). This represented about 98 percent of all samples originally scheduled.

In 1985, Congress appropriated resources for further studies of exposure to VOCs. In response, three studies were carried out in 1987 in Los Angeles, CA; Baltimore, MD; and New Jersey. The major goal of the February 1987 Los Angeles VOC TEAM Study was to determine the personal, indoor, and outdoor air concentrations of 25 VOCs for a subset of Los Angeles residents. The major goals of the later study in July 1987 (cosponsored by the EPA and the California Air Resources Board) were to measure VOC concentrations in personal, indoor, and outdoor air in the exhaled breath of persons living in households that had previously been measured in 1984; to determine room-to-room variability within homes; to determine source emission rates by measuring air exchange rates in each home; and to extend the coverage of chemicals sampled and analyzed by employing additional sampling and analysis methods. The samples were collected primarily using Tenax cartridges.

The primary goal of the Baltimore study was to determine the frequency distribution of the VOC exposures of a subgroup of Baltimore residents. About 150 residents drawn from two areas representing different socioeconomic groups participated in the study. As in the Los Angeles study, personal, indoor and outdoor air concentrations were measured over two consecutive 12-hour periods, and breath samples were collected at the beginning and end of each period. Most of the indoor and outdoor air samples were collected using evacuated cylinders, rather than Tenax cartridges. Air exchange measurements were again taken for all homes.

In 1987, the TEAM study in New Jersey focused on several sources of exposure in 11 homes for the purpose of testing hypotheses formed as a result of earlier TEAM studies. Hypotheses regarding major sources of exposure to several chemicals included: 1) exposures to tetrachloroethylene are mainly due to storing dry-cleaned clothes in the home or wearing them; 2) exposures to aromatic compounds may be partially due to storing cars, lawn mowers, gasoline, kerosene, etc. in attached garages or other areas in the home; and 3) hardware stores may be important sources of exposure to many toxic organic chemicals. Personal, indoor, and outdoor air samples, and breath samples were collected for each participant over a 3-day or 5-day monitoring period. Air exchange rates were also measured to allow the calculation of source emission rates.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: City or municipality (Elizabeth-Bayonne, NJ; Los Angeles, CA; Baltimore, MD; Antioch-Pittsburgh, CA; Greensboro, NC; Research Triangle Park, NC; Chapel Hill, NC; and Devils Lake, ND)

Identifiers: City, state; latitude/longitude of the city

Time Coverage: 1980-1987

Sample Characteristics:

Frequency of sample collection: Daily during different seasons (two 12-hour samples per person and household)

Regularity of sample collection: 12-hour sample collections were initiated between 6-9 am and 4-9 pm

Source and dispersion information: Not directly measured; questionnaire data isolates activities as potential VOC sources

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: Air and breath samples were analyzed by capillary gas chromatography/mass spectrometry (GC-MS) techniques followed by a combination of manual and automated analyses of spectra; water samples were analyzed by a purge and trap GC with a Hall electroconductivity detector for halogenated compounds and a flame ionization detector for aromatics; sampling and analytical protocols and standard operating procedures can be found in Volumes II, III, and IV of *The Total Exposure Assessment Methodology (TEAM) Study* (see "Reports" for citations)

Approximate time between sample collection and analysis: 1-3 months

Approximate time between sample analysis and data entry to database: Approximately 1 year

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analysis, data entry audits, and field performance audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Drinking water: VOCs

SOIL Not Applicable

AIR

Indoor homes and public buildings; outdoor urban and rural; personal monitor: VOCs

FOOD SOURCES

VOCs (limited market basket analysis in early studies)

HUMAN SAMPLES

Exhaled breath: VOCs (Some blood and urine samples were collected in early studies but they were not helpful, so their collection was discontinued)

BULK CHEMICALS Not applicable.

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents

Availability: Any requestor can obtain data

Form: Hard copy -- Agency reports, journal publications
Machine readable -- Tape (ASCII, SAS), diskette (ASCII, SAS)

Reports: *The Total Exposure Assessment Methodology (TEAM) Study*, a report of four volumes, is distributed to the National Technical Information Service (NTIS) (Set Pub. No. PB 88-100 052); *Volume I, Summary and Analysis*, (Pub. No. PB 88-100 060); *Volume II, Elizabeth and Bayonne, N.J., Devils Lake, North Dakota and Greensboro, North Carolina*, (Pub. No. PB 88-100 078); *Volume III, Selected Communities in Northern and Southern California*, (Pub. No. PB 88-100 086); *Volume IV, Standard Operating Procedures Employed in Support of an Exposure Assessment Study*, (Pub. No. PB 88-100-094)

Reference Documents:

Pellizzari, E.D. et al. 1989. *Baltimore Total Exposure Assessment Methodology (TEAM) Study, Final Report*, EPA Contract #68-02-4406, U.S. EPA, Research Triangle Park, NC. To obtain a copy, contact Eto Pellizzari at Research Triangle Institute, (919) 541-6579.

Pellizzari, E.D. et al. 1989. *Comparison of Indoor and Outdoor Toxic Air Pollutant Levels in Several Southern California Communities, Final Report*, Contract #68-02-4544, U.S. EPA, Research Triangle Park, NC.

Wallace, L.A. et al. 1988. The California TEAM study: breath concentrations and personal exposures to 26 volatile compounds in air and drinking water of 188 residents of Los Angeles, Antioch, and Pittsburgh, California. *Atmos. Environ.* 22:2141-2163.

Wallace, L.A. et al. 1989. The influence of personal activities on exposure to volatile organic compounds. *Environ. Res.* 50:37-55.

Wallace, L.A. et al. 1991. The Los Angeles TEAM study: personal exposures, indoor-outdoor air concentrations, and breath concentrations of 25 volatile organic compounds. *J. of Exposure Analysis and Environmental Epidemiology.* 12:157-192.

Data/Reports Available From: National Technical Information Service, 5285 Port Royal Road., Springfield, VA 22161, (703) 487-4650; Lance A. Wallace, U.S. EPA, EPIC Building, 166 Bicher Road, Vint Hill Farms Station, Warrenton, VA 22186-5129, (703) 341-7509

WATER DATA STORAGE AND RETRIEVAL SYSTEM

Acronym: WATSTORE
Sponsoring Agency: U.S. Department of the Interior, U.S. Geological Survey (USGS), Water Resources Division
Contact Person: John Briggs, USGS, National Center, MS-437, 12201 Sunrise Valley Drive, Reston, VA 22092, (703) 648-5624

Objectives and Coverage:

The USGS, through its Water Resources Division, investigates the occurrence, quantity, quality, distribution, and movement of surface water and groundwater in the United States. WATSTORE is the USGS's repository for all of its water data, grouped into seven files stored by common characteristics. The *Water Quality File* contains analytical results of water samples that describe the chemical, physical, biological, and radiochemical characteristics of both surface and ground waters. The *Groundwater Site Inventory File* contains inventory data on wells, springs, and other sources of groundwater, and includes site location and identification, geohydrologic characteristics, well construction history, and one-time field measurements (such as water temperature). The *Daily Values File* includes parameters measured or observed on a daily or a continuous basis, such as streamflow, river stages, reservoir contents, water temperatures, specific conductance, sediment concentrations and discharges, and groundwater levels. The *Unit Values File* contains information on water parameters measured on a schedule more frequent than daily such as rainfall, stream discharge, and temperature data. The *Peak Flow File* contains peak observations for annual maximum streamflow and gage height values at surface water sites. The *Water Use File* contains summary data on water use throughout the United States. The *Station Header File* is an index of sites from three other WATSTORE files (the Daily Values, Peak Flow, and Water Quality files), and includes information such as identification, location, and physical description of sites.

The hydrologic data contained in WATSTORE are used by government agencies and private organizations to determine the adequacy of water supplies; design dams, bridges, and flood control projects; allocate irrigation waters; locate sources of pollution; plan for energy development; and predict the potential effect of radioactive waste disposal on water supplies. In addition to its data processing, storage, and retrieval capabilities, WATSTORE can provide a variety of products, ranging from simple data tables to complex statistical analyses.

The USGS is presently in the process of designing a new system which will replace WATSTORE. This new system will be called the National Water Information System II and will include a broader range of environmental data than the current WATSTORE database (e.g., when and where samples were collected). Although the design of the program will change, all of the information from the current WATSTORE database will be transferred to the new system and will be available to users. The new system will be phased in during 1993 and 1994.

Summary of Environmental Data:

Media: Surface water; ground water; leachate; municipal and private water; precipitation; soil and sediment

Classes of compounds: Inorganic compounds; VOCs; trihalomethanes; semi-VOCs; pesticides; PCBs; dioxins/furans; radionuclides; asbestos; microorganisms; physical and chemical indicators of water quality; ions (including fluoride and chloride)

Types of data available: Individual data entries on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

The USGS collects data at stream gaging stations, lakes, reservoirs, surface water quality stations, sediment stations, water level observation wells, and ground water quality wells. Monitoring sites are selected based on the specific purpose of the individual project (e.g., long term trend analysis; determination of the general characteristics of an area; a specific, identified problem). Each year many water data collection sites are added and others are discontinued.

As of 1981, the Station Header File included information on nearly 263,000 sites; the Groundwater Site Inventory File contained data for nearly 700,000 sties; the Water Quality File had results of more than 1.8 million analyses for 185 different constituents; and the Daily Values file contained more than 200 million daily values.

Digital recorders are used at many field locations to record values for parameters such as river stages, conductivity, water temperature, turbidity, wind direction, fluorides, and chlorides. Data are recorded and transmitted to the central computer facilities of the USGS at its National Center. Samples requiring laboratory analysis are analyzed at one of two laboratories of the Water Resources Division and results are transmitted to the central computer facilities.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: National

Identifiers: Latitude/longitude of the county, point source, and monitor site; name of county and state; USGS hydrologic unit codes

Time Coverage: 1880-present

Sample Characteristics:

Frequency of sample collection: Varies by parameter; *Daily Values File*: daily or continuous measurements, including daily mean values and daily maximum and minimum values; *Unit Values File*: more frequent than daily (e.g., observations every 5, 15 minutes, etc.); *Peak Flow File*: annually; *Ground-Water Site-Inventory File*: one-time basis for field measurements (e.g., water temperature); *Water Quality File:* weekly, monthly, and quarterly

Regularity of sample collection: Depends upon measurement (see sample frequency above)

Source information: None

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: USGS procedures listed in Regional Analyses of Streamflow Characteristics; Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples; and Methods of Measuring Water Levels in Deep Wells; EPA and USGS procedures listed in Methods for Determination of Inorganic Substances in Water and Fluvial Sediments; Methods for the Determination of Organic Substances in Water and Fluvial Sediments; and Methods for Determination of Radioactive Substances in Water and Fluvial Sediments

Approximate time between sample collection and analysis: Immediate for continuous measurements; varies according to constituent for other measurements (hours to several months)

Approximate time between sample analysis and data entry to database: Less than 1 week

Quality Assurance/Quality Control Procedures: Laboratory blanks; field blanks; duplicates; spikes; external laboratory analysis

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water; ground water; leachate; municipal; private; precipitation: Inorganic compounds; VOCs; trihalomethanes; semi-VOCs; pesticides; PCBs; dioxins/furans; radionuclides; asbestos; microorganisms; physical and chemical indicators of water quality; ions (including fluoride and chloride)

SOIL

Sediment; Superfund sites: Inorganic compounds; VOCs; semi-VOCs; pesticides; PCBs; dioxins/furans; radionuclides; asbestos; microorganisms

AIR Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: EPA Storage and Retrieval of Water Quality Data (STORET) codes

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries on specific agents

Availability: Any requester can obtain data; a variety of formats is available; users most often request data in the form of tables that contain lists of data, or condensed indexes that indicate the availability of data stored in the files; computer-printed graphs (bar graphs, line graphs and plots, frequency distribution curves, X-Y point plots, site-location map plots, hydrographs, contour plots, and three-dimensional plots) are also available; WATSTORE interfaces with the Statistical Analysis System (SAS) to provide extensive analyses of data such as variance, transformations, and correlations

Form: Hard copy -- Computer printouts; Agency reports
Machine readable -- Magnetic tape; diskette (ASCII; other data formats are available; the format is dependent upon the report); CD-ROM

Reports: Annual reports, *Water Resources Data for (state and year)*, generated for each state, and reports generated by ad-hoc request are distributed to the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161 (703) 487-4650, EPA, all state environmental protection offices, Army Corp of Engineers, regional libraries of the National Libraries of Medicine and other libraries that have requested copies, and local government offices; examples of reports generated by ad-hoc request include *Guidelines for Collection and Field Analysis of Groundwater Samples for Selected Unstable Constituents; Application of Surface Geophysics to Groundwater Investigations*

Reference Documents: Several; primary documents used include: *National Handbook of Recommended Methods for Water Data Acquisition; American Standards for Testing and Materials; Techniques of Water Resources Investigations of the USGS*

Data/Reports Available From: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for reports); National Water Data Exchange (NAWDEX), USGS, 421 National Center, Reston, VA 22092, (703) 648-5676 (for on-line data retrieval)

WESTERN LAKE SURVEY

Acronym: WLS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development; National Acid Precipitation Program (NAPAP) (multiagency, including U.S. EPA)

Contact Person: Alan Herlihy, U.S. EPA, Environmental Research Laboratory, 200 WE 35th Street, Corvallis, OR 97333, (503) 757-4442

Objectives and Coverage:

The Western Lake Survey, Phase I, was conducted in 1985 as part of the National Surface Water Survey, which also included the Eastern Lake Survey and the National Stream Survey (see entries on these databases elsewhere in this Inventory). The purpose of the National Surface Water Survey was to assess through monitoring the effects of acidic deposition on surface waters. The primary objectives of the WLS were to determine in potentially sensitive areas of the western United States 1) the percentage and location of lakes that were acidic; 2) the percentage and location of lakes that had low acid neutralizing capacity (ANC); and 3) the chemical characteristics of lakes, providing a database for selecting lakes for future studies.

Summary of Environmental Data:

Media: Surface water (lakes)

Classes of compounds: Inorganic compounds; ions (including fluoride); physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

A statistical procedure was applied in selecting a subset of lakes in the western United States as a probability sample to estimate the physical and chemical characteristics of a target population of lakes from the results of the chosen sample with a known degree of confidence. A total of 719 lakes were sampled, representing an estimated 10,393 lakes in the target lake population. In addition, 32 special interest lakes were sampled. A majority of the lakes sampled were expected to exhibit low alkalinity. A single sample was collected from each lake in the fall; thus, results are applicable to the fall season only; representation of other periods during the year (e.g., levels in the spring of 1985) in western lakes is unknown.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Regional (mountainous western United States)

Identifiers: Latitude/Longitude of the monitor site; name of county/parish; state

Time Coverage: 1985

Sample Characteristics:

Frequency of sample collection: One time only

Regularity of sample collection: Regular

Source and dispersion information: Acidic deposition typically originates from nonpoint source pollution and impacts of various pollutants; specific sources are not determined in this database

Methods of Sample Analysis:

Samples pooled: No

Standard procedures used: EPA Methods for Chemical Analyses for Water and Wastes (modified for acidic deposition); Handbook of Methods for Acid Deposition Studies, Laboratory Analysis for Surface Water Chemistry; Handbook of Methods for Acid Deposition Studies, Field Operations for Surface Water Chemistry (all published by the EPA Office of Research and Development)

Approximate time between sample collection and analysis: 1-28 days, varies by analyte

Approximate time between sample analysis and data entry to database: 3-6 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates, spikes, external laboratory analyses, data entry audits, field and laboratory audits, methods comparability study

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface: Inorganic compounds; ions (including fluoride); physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific agents. Summary statistics are also available on specific agents, as cumulative distribution functions of regional lake acid-base status.

Availability: Any requester can obtain data

Form: Hard copy -- Computer printouts, Agency reports, journal publications
Machine readable -- Tape, diskette (ASCII, SAS)

Reports: *National Surface Water Survey, Western Lake Survey, Phase I—Field Operations Report Quality Assurance Plan; Quality Assurance Report*

Reference Documents: *National Surface Water Survey: Western Lake Survey—Phase I, Database Dictionary; Analytical Methods Manual*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650 (for data or report copies); Susan Christie, (503) 757-4645 (for information on reports available)

WISCONSIN FISHERIES DATABASE

Acronym: FISH.WIS

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Research and Development (ORD)

Contact Person: Kenneth E.F. Hokanson, Ph.D., U.S. EPA, ORD, Environmental Research Laboratory, 6201 Congdon Boulevard, Duluth, MN 55804, (218) 720-5757

Objectives and Coverage:

The Wisconsin Fisheries Database (FISH.WIS), a merger of a biological and a chemical database, covers over 400 lakes in northern Wisconsin. FISH.WIS was originally created to assess acid rain impacts on lake biota (e.g., fish health in relation to water quality) by adding fisheries records to chemical data about the lakes studied. Information on the presence of metals in lakes was also included. Data in FISH.WIS include lake chemistry and composition, drainage (e.g., agricultural or natural areas), inlet and outlet information, water source, flow information, a pollution index (indicating absence or presence of pollution), and information on the presence of fish species with codes of relative abundance. FISH.WIS is designed to assess rural areas having minimal human disturbance. Completed in 1984, this database is currently not funded. It has not been used to examine the effects of water quality on fish or to study ecological relationships.

Summary of Environmental Data:

Media: Surface water

Classes of compounds: Inorganic compounds, ions (including nitrate, sulfate, phosphorous, ammonia, magnesium, calcium, iron), physical and chemical indicators of water quality

Type of data available: Individual data entries and summary statistics are available on specific agents

Estimation versus observational data: All observational data

Sample Design and Analysis:

For chemical analysis, lakes representative of the aquatic (recreational) resources in the region were sampled to assess factors that might make the lakes susceptible to acidification. The study area encompassed lakes within the Upper Wisconsin River Basin, bounded by the coordinates 46°07'N, 89°09'W to the north and 45°11'N, 89°41'W to the south. Approximately 90% of the land was forested, with a relatively low population density (9.3 persons/km^2). Lake selection was intentionally biased to include most lakes in the study area with surface area greater than 100 hectares (ranging to as small as 3.9 hectares) for which no recent water quality data were available. Direct sampling was done for physical and chemical characteristics. Both in-lake and watershed measures were obtained. In addition, a cluster analysis was performed using alkalinity, color, and chlorophyll *a* data, which resulted in three clusters of lake types: lakes dominated by surface runoff; lakes dominated by groundwater; and those dominated by precipitation. Further analysis of factors that may contribute to lake susceptibility to acid precipitation was conducted through discrimination analysis of 18 watershed characteristics across the three lake clusters. Records obtained from the Wisconsin Fisheries Department indicating the presence of fish species were then added to the chemical database. The measurements showed that the potentially sensitive low alkalinity lakes in northcentral Wisconsin lack surface inlets or outlets, and that their chemistry is associated with precipitation chemistry.

DATABASE CHARACTERISTICS

Geographic Characteristics:

Coverage: Region of state (northern Wisconsin lakes)

Identifiers: Latitude/longitude of the monitor site; name of city, municipality, or township; state; hydrologic unit codes

Time Coverage: 1979-1983 (biological data on fish are available from 1940-present)

Sample Characteristics:

Frequency of sample collection: Usually in early spring and late fall; occasionally in summer and winter

Regularity of sample collection: Regular

Source information: None

Dispersion information: None

Methods of Sample Analysis:

Samples pooled: Data are available individually or by category (e.g., fish, metals, field measurements)

Standard procedures used: American Public Health Association Standard methods for the examination of water and wastewater (1975); EPA methods for chemical analysis of water and wastes (1979)

Approximate time between sample collection and analysis: 24-48 hours

Approximate time between sample analysis and data entry to database: Immediate-2 months

Quality Assurance/Quality Control Procedures: Laboratory blanks, field blanks, duplicates (laboratory and field), spikes, external laboratory analyses, data entry audits

ENVIRONMENTAL DATA

Classes of Compounds Analyzed by Media:

WATER

Surface water (lakes): Inorganic compounds, ions (including nitrate, sulfate, phosphorous, ammonia, magnesium, calcium, iron), physical and chemical indicators of water quality

SOIL Not applicable

AIR Not applicable

FOOD SOURCES Not applicable

HUMAN SAMPLES Not applicable

BULK CHEMICALS Not applicable

Conventions Used to Identify Agents: Chemical name or mixture

DATABASE AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents

Availability: Database is currently unfunded; however, data files are available to requesters

Form: Machine readable -- Tape (ASCII)

Reports: Eilers, J.M. et al., "Hydrologic Control of Lake Susceptibility to Acidification," *Canadian Journal of Fisheries and Aquatic Sciences,* Vol. 40, 1983

Reference Documents: None

Data/Reports Available From: Gary Glass, U.S. EPA, Office of Research and Development, Environmental Research Laboratory, 6201 Congdon Boulevard, Duluth, MN 55804, (218) 720-5526

PART II: DATA HANDLING SYSTEMS

ACID DEPOSITION DATA NETWORK

Acronym: ADDNET
Sponsoring Agency: Multiagency under the National Acid Precipitation Assessment Program (NAPAP)(includes U.S. Department of Energy and U.S. Environmental Protection Agency)
Contact Person: Richard J. Olson, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, (615) 574-7819

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

Acid Deposition System (ADS)
Acidification Chemistry Information Database (ACID)
Alkalinity, Lake Area, and Deposition for New England States
Ambient Ozone Concentrations
Fish Information Network (FIN)
Monthly Emissions Inventory for Sulfur Dioxide
National Acid Precipitation Program (NAPAP)

Description

The Acid Deposition Data Network was established in 1978 to provide reliable data to support assessments and policy analysis for the National Acid Precipitation Assessment Program (NAPAP) and to facilitate timely exchange of accurate, usable data among NAPAP and other data sources. This database provides national geographic coverage from 1970 through 1988. ADDNET lost funding in 1988, but the information is archived. The component databases were divided into various subject areas: agriculture, geographic base data (e.g., U.S. Census county codes), climate, vegetation, forestry, air quality, land use/land cover, population, water quality, and terrain. Pollutant source information is available, and dispersion information is available for air but not for water. When the program was fully funded, researchers from state and federal agencies could request specific reports and data link-ups.

DATA SOURCES

ADDNET contains 55 data sets that have been certified to ensure consistency across all areas of assessment. The objective was to link approximately 50 independent state and federal agency databases (over 30 additional data sets were being edited for addition to ADDNET when the program lost funding; these additional data sets were never included). Each component data set was responsible for designing and implementing its own sampling strategy and collection. Ten of the 55 integrated databases are related to atmospheric and water chemistry. These databases contain measurements in each of the media for criteria pollutants, VOCs, particulates, and physical

ADDNET, QA/QC spot-checks were conducted to verify information, but, in general, QA/QC procedures were prepared by each of the individual data sources. ADDNET spot-checked individual values and traced the values back to the data entry of the component database.

DATA PRESENTATION

The ADDNET program put the individual databases into a common format, converted all units to metric units, and established consistent codes for missing fields and values. Individual entries, summary statistics, and cross-referenced data are available. Observational data provide the basis for county-level estimates. ADDNET data can be identified by latitude/longitude of the county centroid, point source and monitor site, and physical description of the point source, monitor site, county, and state. Samples were collected monthly or annually (when aggregated).

DATA AVAILABILITY

Level of Data Aggregation: Individual samples are entered into the database

Availability: May be available to government agencies if funding provided; data not routinely available

Form: Machine readable -- Tape (SAS)

Reports: No

Reference Documents: *ADDNET Notebook: Documentation of the Acid Deposition Data Network (ADDNET) Database Supporting the National Acid Precipitation Assessment Program* (1987)

Data Reports Available From: Richard J. Olson, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, (615) 574-7819

ACIDIFICATION CHEMISTRY INFORMATION DATABASE

Acronym: ACID
Sponsoring Agency: U.S. Department of Energy (DOE), Brookhaven National Laboratory
Contact Person: George R. Hendrey, U.S. DOE, Brookhaven National Laboratory, Terrestrial and Aquatic Ecology Division, Building 318, Upton, NY 11973, (516) 282-3262

Description

ACID was established to analyze the effect of acid deposition on surface waters of the United States by examining historical trends at regional and national scales. ACID is a comprehensive database that combines data from existing computerized databases (e.g., Storage and Retrieval of Water Quality Data (STORET)) with other data sets from a variety of sources (e.g., state agencies). Approximately 75 percent of the sampling stations come from STORET. ACID currently contains data for the 48 contiguous United States from 48,692 water quality sampling stations and 819,002 sampling dates. Data in ACID include hydrology, acidity, water chemistry, limited lake and stream morphometry, and station information divided into 10 regions: Northeast, South, Maryland, Florida, North Carolina, Virginia, Pennsylvania, Midwest, Northwest, and West. See also the separate entry for the Acid Deposition Data Network (ADDNET).

AEROMETRIC INFORMATION RETRIEVAL SYSTEM

Acronym: AIRS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards
Contact Person: John Bosch, Chief, National Air Data Branch, U.S. EPA, MD-14, Research Triangle Park, NC 27711, (919) 541-5583

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

National Emissions Data System (NEDS)
Compliance Data System (CDS)
National Park Service Environmental Database Management System (NPSEDMS)
Air Quality Subsystem (AQS) of AIRS
Air Facility Subsystem (AFS) of AIRS
National Air Monitoring Stations (NAMS)
State and Local Air Monitoring Stations (SLAMS)

Description

AIRS is a national repository for data on airborne pollution in the United States. AIRS includes compliance data for airborne criteria pollutants—lead, CO, SO_2, NO_x, ozone, reactive volatile organic compounds (VOCs), and particulate matter (either total suspended particulates (TSP) or particulate matter less than 10 microns in size (PM_{10}))—for which National Ambient Air Quality Standards (NAAQS) have been set. In addition, AIRS contains information on air quality, point source emissions, and area/mobile source data on a wide variety of other pollutants. AIRS can be used to generate reports on air quality and emissions for various pollutants for specific time periods and geographic areas. Maps showing the monitoring sites can also be generated.

AIRS was established in 1987 and replaced the Storage and Retrieval of Aerometric Data (SAROAD), National Emissions Data System (NEDS), Compliance Data System (CDS), National Air Monitoring Stations (NAMS) Management Information Systems, Comprehensive Data Handling System (CDHS), Air Quality Data Handling System (AQDHS-II), and the Emission Inventory System/Point Source and Area Source (EIS/PS and EIS/AS). AIRS also contains summary data, but not raw data, from the National Park Service Environmental Database Management System (NPSEDMS) and from the Precision and Accuracy Reporting System (PARS), which includes data on instrumentation, measurements, and calibration. AIRS contains some, but not extensive, meteorological data from some air quality monitoring sites.

AIRS does not include information on toxic waste sites (CERCLIS), or information from the Toxic Release Inventory (TRI) or the National Air Toxics Information Clearinghouse (NATICH), among other data systems.

EPA uses AIRS data for regulatory, monitoring, and research purposes, such as assessing the nation's air quality, setting national ambient air quality regulations, identifying localities where improvements in air quality are needed, estimating national air emissions and trends, and preparing reports mandated by the Clean Air Act. States use AIRS information to develop State Implementation Plans. In addition, many states store a wide variety of data on other pollutants and variables in AIRS (e.g., through the State and Local Air Monitoring Stations (SLAMS) system). AIRS data have been used for exposure assessment and in the development of EPA Criteria Pollutant Documents.

DATA SOURCES

As of 1989, AIRS contained approximately 500 million air pollution measurements, primarily in heavily populated, urban areas. AIRS consists of four subsystems: air quality subsystem, facility subsystem, area/mobile source subsystem, and geo-common subsystem. The geo-common subsystem contains reference information on codes and code descriptions to identify places, pollutants, processes, geo-political entities, numerical values, etc. The other three systems contain data contributed by states under several federal regulations, as well as additional data that states may choose to store in this system.

Air Quality Subsystem

The Air Quality Subsystem (see database description in Part I of this Inventory) contains measurements of ambient concentrations of air pollutants and associated meteorological data. The data are reported by states under U.S. EPA regulations on a quarterly basis.

Air Facility Subsystem

The Air Facility Subsystem (see the description of this database in Part I of this Inventory) contains aerometric emissions and regulatory compliance data on air pollution point sources tracked by the U.S. EPA, state, and local air regulatory agencies. Data from states are reported on a yearly basis.

Area/Mobile Source Subsystem

The Area and Mobile Source Subsystem is scheduled for production in mid-1992. This subsystem will contain emission inventories from small stationary and mobile sources, forest fires, fugitive transport, and natural sources of air pollution. Data will be stored for all counties nationwide beginning with data from 1990; for nonattainment areas, data will be available on the county, city, or zone level.

DATA PRESENTATION

AIRS uses the Adaptable Database (ADABAS) database management system. NATURAL and VS-COBOL are used to update and access data from AIRS.

AIRS provides the user with a variety of standardized report formats. These include quarterly or yearly maximum values or averages for individual monitors by pollutant; the 10 highest values recorded at a monitor presented by quarter or year with time/date notation; all raw data values for a specific time period; box plots for individual monitors by pollutants; and monitor and monitor site characteristics. Data can be selected for analysis based on measurement frequency or other air quality parameters, such as maximum daily temperature. Data can be averaged over monitors (e.g., over geographic areas), and over time periods. The Pollutant Standards Index (PSI) can be presented for urban area trends.

In addition, the user can use NATURAL to write new formats for reports. Alternatively, work files can be created from AIRS that can then be accessed by other software packages (e.g., FORTRAN, COBOL, BMDP, IMSL, SAS, or DISPLAA), to generate new reports.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents; summary statistics are computed for calendar quarter and year for individual monitor parameters

Availability: Any requester can obtain data through the Freedom of Information Act (FOIA); some data are confidential, but most are public information; federal, state, or local governmental agencies may obtain data directly on-line; federal offices and contractors may receive data free of charge through interagency agreements and computer accounts or by calling the EPA National Air Data Branch (NADB); all others must submit FOIA requests in writing and pay search costs

Form: Hard copy -- Computer printouts; Agency reports; microfilm (some data)
Machine readable -- On-line tape, diskette (ASCII, EBCDIC)

Reports: Approximately 25 on-line routine reports available; -- users may select variables such as geographic region, measurement frequency, pollutant, industrial process, stack emissions, etc.; on-line users can generate their own reports using ADABAS (NATURAL), FORTRAN or COBOL, or analytical and/or graphics packages (e.g., BMDP, IMSL, SAS, DISPLAA).

AIRS reports present results of direct air pollution measurements at air monitoring sites nationwide or estimates for point source emissions but do not offer analyses of conclusions.

Reference Documents: Other reports are on-line only, and include: *AIRS Quick Look* (quarterly or yearly maximum values for individual monitors by pollutant; *AIRS Standards Report* (presents raw data values and flags values exceeding regulatory standards); *Emissions by SIC; Distribution of Emissions; Plant Emission Inventory*; *AIRS Ad Hoc* (can create custom reports)

Data/Reports Available From:

To retrieve AIRS data directly: Users must be registered to access the IBM 3090S computer system at the EPA National Computer Center; have an IBM 3270 computer terminal or equivalent and a PC with a serial port or at least a 1,200-baud modem (or preferably a 2,400- or 9,600-baud modem, a PC with an IRMA board, or a PC compatible with a 9,600-baud controller); must use CICS and ADABAS; onsite training available

Nondirect users may request AIRS data through FOIA from NADB staff

To register or for information, contact the appropriate AIRS administrator:

AIR Quality Subsystem: Jacob Summers (919) 541-5695
AIRS Facility Subsystem: Chuck Isbell (919) 541-5448
Area/Mobile Source Subsystem: Andrea Kelsey (919) 541-5549
Data Retrieval requests: Tom Link (919) 541-5456

COAL TECHNOLOGY DATA SYSTEM

Acronym: None
Sponsoring Agency: U.S. Department of Energy (DOE), Pittsburgh Energy Technology Center (PETC)
Contact Person: Richard DeSantis, U.S. DOE, PETC, Box 10940, Pittsburgh, PA 15236, (412) 892-4761

Description

PETC, which specializes in coal research, collects data from approximately 100 sources and includes it in the Coal Technology Data System, a data handling system on energy information from U.S. power plants. The Coal Technology Data System includes information on emissions sources; utilization of coal, with limited information on oil, gas, and nuclear energy; trace element toxicity; raw coal characteristics; coal shipment data; boiler characteristics (size, manufacturer, firing type, etc.); washability (potential for cleaning coals); and the relationship between certain emissions (e.g., oxides of nitrogen) and boiler characteristics. Data are organized into approximately 100 databases, four of which are available in the personal computer (PC) version; these four include: Reserves, Shipment, USGS, and Washability. Other databases in this system include: Advanced Combustion Technology, Alternative Fuels, Clean Coal Technology, Coal Preparation, Flue Gas Clean-up, Liquefaction, and a bibliographic database, which catalogues nearly 1000,000 DOE/PETC-sponsored research reports and items of historical significance in the field of coal utilization technology. Users of the system can calculate air emissions (oxides of nitrogen and sulfur, carbon monoxide, particulates, and trace elements) from given data on feed and burn stock and clean-up equipment, using models provided in the system. The Coal Technology Data System is used for a variety of purposes specific to individual needs, e.g., to determine engineering and administrative controls for the purpose of reducing pollution and energy costs.

DATA SOURCES

The Pittsburgh Energy Technology Center obtains, processes, and updates existing data from other sources for the Coal Technology Data System. Coal shipment data are obtained from the Federal Energy Regulatory Commission (FERC) Form 423: *Monthly Report of Cost and Quality of Fuels for Electric Plants* (data on monthly deliveries of fuels to plants and on fuel quality); other information on coal is obtained from the U.S. Geological Survey (USGS). Boiler characteristics are obtained from the Energy Information Agency (EIA) Form 767: *Steam-Electric Plant Operation and Design Report* (fuel consumption data for individual boilers) and from commercial sources. Data used to calculate emissions are also obtained from EIA Form 767. The relationship between oxides of nitrogen and boiler characteristics are obtained from research literature.

The Reserves Database includes the results of fifteen parameters measured in 1,431 samples of U.S. coal. The measured parameters include: percentages of moisture, dry volatile matter, fixed

dry carbon, dry ash, dry sulfur, dry hydrogen, dry carbon, dry nitrogen and dry oxygen; dry heating value; ash-softening temperature; free-swelling index; hardgrove grindability index; underground tons; and strip tons. These data were primarily obtained from state agencies which participated in a 1974 survey of U.S. coal mines.

The Shipment Database includes five parameters in yearly averages describing coal shipments from approximately 2,000 mines to 405 power plants. Parameters include: quantity shipped from mines or received by power plants; heating value (BTU/lb); percentages of sulfur and ash; and cost/million BTU. Megawatts are included for all types of power plants.

The USGS Database includes the results of 4,043 coal samples covering 92 parameters, including major, minor, and trace element analyses. These samples were collected by USGS from approximately 100 points in the United States, and results were forwarded to PETC. This information is occasionally updated. Also included is geological information on U.S. coal seams, including items such as coal seam thickness and depth.

The Washability Database, which describes the potential for cleaning coals, is determined by PETC. This database includes 312 parameters describing 975 samples of U.S. coals.

DATA PRESENTATION

PETC staff can manipulate each of these databases to present pertinent information in a variety of formats, e.g., a U.S. map of fixed carbon in coal or a sulfur dioxide emissions profile of pre-1980 electric utility boilers.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics (yearly averages) are available for data in the four PC version databases (Reserves, Shipment, USGS, Washability); individual data entries are available for all other databases

Availability: Any requester can obtain hard copy data; customized reports are obtained by sending a letter (see address below) listing the requester's name, affiliation, return address, the requested information, the intended use of the information, the desired completion date of the information request, and the requester's telephone number; on-line access of the four PC version databases is limited to authorized individuals only

Form: Hard copy -- Computer printouts
Machine-readable -- On-line (limited to authorized individuals)

Reports: PETC staff customizes databases on needs of the requester, e.g., *NOx Emissions; Mercury Concentrations in Coal*

Reference Documents: *Pittsburgh Energy Technology Center Technology Database: General Capabilities and Development Activities, Volume 1*

Data/Reports Available From: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; James Lacey, U.S. DOE, PETC, P.O. Box 10940, MS 58-M217, Pittsburgh, PA 15236, (412) 892-6144 (letters of request for customized data); Sun W. Chun, U.S. DOE, PETC, P.O. Box 10940, Building 58, Room 225, Pittsburgh, PA 15236, (412) 892-6122 (to request on-line access)

COMPREHENSIVE EPIDEMIOLOGIC DATA RESOURCE

Acronym: CEDR
Sponsoring Agency: U.S. Department of Energy (DOE), Office of Epidemiology and Health Surveillance (OEHS)
Contact Person: Barbara Brooks, U.S. DOE, OEHS, EH-42, Germantown (GTN), Washington DC 20585, (903) 353-5926

Description

CEDR is being developed as one of the components of the Department of Energy's (DOE) Epidemiology and Health Surveillance Program. The objective of CEDR is to collect and organize data arising from epidemiologic studies of DOE workers and other populations, such as those living in the vicinity of DOE facilities. These studies will include DOE-sponsored research as well as other data made available to DOE for inclusion in the data system. The purpose of this data system is to encourage research that evaluates health effects of exposure to low levels of radiation in these populations. The data will be organized so that a wide range of users will have access to the data for further analyses or meta-analyses. (During the development of the system, however, access to the data is limited.) Broad scientific use of these data and the associated diversity of analyses and conclusions should provide support to improve methods of data collection and analyses.

DATA SOURCES

CEDR is compiling data from existing studies, and is not designing these studies. The data that will be included are largely DOE-supported studies to assess the health and mortality experience of DOE contractor employees and to evaluate the health effects of exposure to low levels of radiation in these employees. Other types of data being considered for inclusion are ecologic and community studies.

Data elements included in the system include unique ID numbers, demographic and socio-economic information, employment and work history, exposure, and health data. Exposure data are based on both observational measurements, (e.g., personal monitors), and estimated exposures. The extent of information and method of exposure determination vary between studies.

The initial studies included over approximately 110,000 workers at various DOE sites, including Hanford, Oak Ridge, and Rocky Flats. The extent of studies included in CEDR may change as the system evolves. Other types of data, such as employment in non-energy-related occupations in which radiation exposure is possible, have also been discussed.

DATA PRESENTATION

The CEDR data management system is being developed at Lawrence Berkeley Laboratories. The capabilities include storage, documentation, retrieval of descriptive information, and specially developed browsing capabilities. Using a specially developed X-windows-based browsing/query system, the browsing capabilities allow the user to examine and explore the contents of all databases in the system, mark desired data for selection, and extract that data into a new data set.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries

Availability: Any requester can obtain data after submitting confidentiality statements and completing procedures to establish an account at the Lawrence Berkeley Laboratory; the data may be accessed through various computer networks, such as Internet or TYMNET

Form: Machine readable -- Tape, diskette, on-line

Reports: Not yet available

Reference Documents: Not yet available

Data/Reports Available From: General information about CEDR is available from Barbara Brooks, U.S. DOE, OEHS, EH-42, GTN, Washington DC 20585, (903) 353-5926 or FAX # (301) 233-5926

ENVIRONMENTAL DISPLAY MANAGER

Acronym: EDM
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water
Contact Person: Thomas Pandolfi, U.S. EPA, Office of Water, Assessment and Watershed Protection Division, WH553, 401 M Street SW, Washington DC 20460, (202) 260-7030

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

Storage and Retrieval of Water Quality File (STORET)
Permit Compliance System (PCS)

Description

EDM ties together national on-line databases that contain spatial and attribute information on industrial and municipal dischargers, drinking water supplies, stream flow, water quality monitoring stations, discharge permit compliance reports, and hydrologic maps. EDM provides easy access to these data; automated environmental analyses, reports, and data; graphics; images; text; and documents that can be used by numerous output devices, software packages, and computers. EDM can be used to generate reports on multiple individual pollutant and water quality measurements at specific locations. With maps, the user can look at the rivers in any state, can zoom in on a small pond, and can overlay and identify particular features. Maps showing locations of discharge permitted facilities, surface water supplies (including utilities, intakes, and sources), and population centers can also be generated. Maps also display roads, rivers, and lakes. The detail of the map is flexible.

EPA uses EDM for regulatory, monitoring, and research purposes such as assessment of the nation's water quality, environmental planning, developing and promoting environmental laws, and environmental enforcement. Reports from EDM can be used for education and public awareness.

DATA SOURCES

The mapping component of EDM works with an electronic version of the 54,000 base maps of the U.S. Geological Survey, also known as the 7.5-minute quadrangle maps. These maps portray features at the 1:100,000 scale. The hydrologic data from these maps are stored separately as the River Reach file. This file includes over 100 million records containing the latitude and longitude coordinates of streams, lakes, reservoirs, estuaries, and shorelines in the United States. Also included in the mapping component of EDM are the latitude/longitude, stream reach cross references, and population of cities in the United States.

Information on water comes from two sources: the Storage and Retrieval of Water Quality File (STORET) and the Permit Compliance System (PCS). Detailed information about these data systems can be found in Part I of this Inventory.

STORET contains geographic and other descriptive data about the sites where water quality data have been collected. Data include physical characteristics and chemical constituents of the water, fish tissue, or sediment sampled. This file contains over 200 million water sampling observations. (Information about the flow in the stream is stored in the Stream Gage File.)

The PCS database is the national inventory for EPA permit issuance and compliance/enforcement data. The database consists of more than 5 million records on over 75,000 active water discharge permits. (Information about the facilities is stored in the Industrial Facilities Discharge File. This file does not contain measurements but does contain information as to indirect dischargers to sewage treatment plants, standard industrial classification codes, receiving stream, and categorization of industrial process.)

DATA PRESENTATION

EDM provides the user with a variety of report, graph, and map formats. EDM can access data for any geographic region in the continental United States. Data can be accessed either through EPA discharge permit numbers, latitude/longitude, water body, city, county or state name, river reach or water quality station, or pointing to states on a U.S. map and then successively narrowing down the regions. Report formats include data inventories for selected sampling sites; lists of facilities, cities, and water quality stations within a designated area; data summaries for specific parameters and time periods at selected sampling sites; and water supplies downstream of designated facilities (size of population served is also included). Graph formats include line graphs and histogram presentations of specific measurements or summary measurements of one or multiple parameters. Maps can be generated at a variety of levels of detail and the overlay information is user specified. Further, routing of the streams can be displayed.

EDM is available through the EPA National Computer Center and communications network. EDM uses IBM's Graphics and Data Management System and UNIRAS graphics. The user interface is interactive with the menu specifying the functions that can be selected at each step. Lists are also available for many of the more detailed and numerous data. For instance, if the user is unfamiliar with the 7.5-minute quadrangle maps in the area of interest, a list of maps for the area can be displayed.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents at specific sites; summary statistics are computed for time periods designated by the user

Availability: Any EPA National Computer Center user (EDM can be accessed through federal, state, academic, and private communications networks, including SNA Backbone, X.25 Backbone, and Tymnet)

Form: Depends on the graphical and data production capabilities of the user's facility

Reports: On-line users can generate own reports

Reference Documents: *The Environmental Display Manager* (presents overview of the data system)

Data/Reports Available From: To retrieve EDM data directly: Users must be registered to access the IBM 3090S computer system at the EPA National Computer Center, and have an IBM 3270 computer terminal or equivalent and a PC with a serial port or at least a 1,200-baud modem (or preferably a 2,400- or 9,600-baud modem, a PC with an IRMA board, or a PC compatible with a 9,600-baud controller)

To register or for information, contact Thomas Pandolfi, U.S. EPA, Office of Water, Assessment and Watershed Protection Division, WH553, 401 M Street SW, Washington DC 20460,(202) 260-7030

GRAPHICAL EXPOSURE MODELING SYSTEM

Acronym: GEMS
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Toxic Substances
Contact Person: Cathy Turner or Sondra Hollister, U.S. EPA, Office of Prevention and Toxic Substances, Mailstop TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3929 or (202) 260-3390

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

National Emissions Data System (NEDS)
Permit Compliance System (PCS)
Toxic Release Inventory (TRI)

Description

GEMS is an interactive information management system designed to allow the rapid analysis of environmental problems. The system allows the user to estimate chemical properties of pollutants, assess the fate of chemicals in theoretical and in geographically specific environments, model the resulting chemical concentrations, determine the number of people potentially exposed, and estimate the resultant human exposure and risk. GEMS has modeling capabilities for the atmosphere, surface water, unsaturated land (soil), saturated zones (ground water), and multimedia. GEMS contains a variety of models for each media.

GEMS contains a range of data sets that help the user determine the environmental characteristics of the specific area. These include data on the population (including demographic characteristics as well as location of cities), atmospheric, water, and soil characteristics (e.g., climatic, soil property, and stream flow data), ecosystem characteristics, and water supply information. GEMS also includes data sets that identify and characterize potential chemical release sites as well as monitoring stations. These data sets include information on publicly owned wastewater treatment works (POTWs), and industrial facilities, identified through the Permit Compliance System (PCS), the National Emissions Data System (NEDS), and the National Pollutant Discharge Elimination System (NPDES). In general, the user provides information on the pollutant discharged such as amount, concentration, or source. However, data are also directly accessible from the Toxic Release Inventory (TRI). Data sets are also available that provide information on chemicals and their properties.

GEMS was originally designed in 1981 for EPA scientists and modelers who needed a tool to provide comprehensive policy planning support to EPA administrators. The system facilitates both exposure and risk assessments. GEMS is now available to any requester through the EPA VAX cluster or by purchase of the PC version.

DATA SOURCES

GEMS has a flexible geodata handling system. The user may specify the location using the zip code, universal transverse mercator coordinates, latitude and longitude, or Federal Information Processing Standard (FIPS) codes for a state or county. Locations of water systems can be identified through hydrologic unit codes or river reach numbers. Then, using a cross-referencing program, the system can access any of the data sets through the geographic codes of the data set.

Information on potential chemical release sites comes from several sources. Sites include POTWs, industrial sites, and underground storage tanks.

POTWs are identified in the NEEDS86 file, the 1986 Needs Survey Report to Congress, Assessment of Needed Publicly Owned Wastewater Treatment Facilities in the United States. This provides information on the location, unit treatment process, influent and effluent descriptors, flow rates, and population served. The file does not contain measurements of pollutants in influent or effluent.

Industrial facilities are listed in the Industrial Facilities Discharge File. This file was assembled from three databases that contain information on direct and indirect dischargers (from the Permit Compliance System (PCS)). The PCS database is the national inventory for EPA permit issuance and compliance/enforcement data. GEMS includes information on over 28,000 permits for dischargers. Detailed information on PCS can be found in the first section of this Inventory. GEMS also includes information on over 12,000 industrial facilities that discharge waste through other facilities, usually POTWs. The Industrial Facilities Discharge File of GEMS does not include measurements, but it does contain Standard Industrial Classification (SIC) codes, categorization of the industrial process, receiving water systems, and other pipe-related data.

The Leaking Underground Storage Tank (LUST) survey is used to provide information on underground tanks. The file includes site location, climate, soil, ground water, and geologic data. No measurements are available on the amount and type of pollutant that might be leaking from the tanks.

Information on estimated industrial facilities discharges comes from the Toxic Release Inventory (TRI). TRI contains data on annual estimated releases of over 300 toxic chemicals to air, water, and land by manufacturing industries. Information includes amounts of chemicals stored on site, estimated quantities of chemicals released, onsite source reduction and recycling practices, and estimated amounts of chemicals transferred to treatment, recycling, or waste facilities. Detailed information about this data system can be found in the first section of this Inventory.

The amount of information available on potential polluters and environmental characteristics varies with geographic location. For instance, although TRI is available for all 3,078 counties in the United States, the soils data set is available for only 2,571 counties, the climatic data comes from 3,225 stations throughout the United States, and ground-water data come from 14 cities in the contiguous United States.

DATA PRESENTATION

GEMS provides the user with a variety of graphical displays. Statistical analyses on the numeric variables are generated using library routines from the International Mathematical and Statistical Library (IMSL) and the Statistical Analysis System (SAS). The results can be presented through line graphs, histograms, scattergrams, 3-dimensional isopleth graphs, and circular graphic representation (Rose procedure).

GEMS also has mapping capabilities that allow the user to specify the area to be mapped either by listing the block group (or census enumeration district), county or state, or hydrologic units, or by specifying the radium of a circle centered on a location identified by the user. Maps can be produced that display the location of important sites such as industrial sites or monitoring sites, that use dot-density to display geographic distribution of data, or that use shading to indicate various levels of estimated values.

GEMS is available through the EPA National Computer Center and the communications network. A PC version of GEMS (PCGEMS) is also available with air, surface water, and ground-water models and associated environmental and 1980 population data for most of the United States. The user interface is interactive with a question/response format. The User's Guide lists the modules available. Additional detailed information on the models used in the system is also available.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries are available on specific sites; summary statistics are computed for geographic areas designated by the user

Availability: Any EPA National Computer Center user (GEMS can be accessed through federal, state, academic, and private communications networks, including Tymnet); the PC version requires an IBM AT or compatible, math coprocessor, 640K RAM, 20 Mb dedicated disk space or bernoulli cartridge (available through General Sciences Corporation, John Thomas, (301) 953-2700)

Form: Depends on the graphical and data production capabilities of the user's facility

Reports: On-line users can generate own reports

Reference Documents: *Graphical Exposure Modeling System: GEMS User's Guide* presents overview and detailed instructions on the use of the system; separate reference documents containing details of the models used to calculate the fate of chemicals are available

Data/Reports Available From: To retrieve GEMS data directly: Users must be registered to access the VAX cluster at the EPA National Computer Center. To register or for information, contact Cathy Turner, U.S. EPA, Office of Prevention and Toxic Substances, Mailstop TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3929. For questions about modeling in specific media, contact Annett Nold, U.S. EPA, Office of Prevention and Toxic Substances, (202) 260-3930 (atmosphere, soil, groundwater), and Sondra Holister, U.S. EPA, Office of Prevention and Toxic Substances, (202) 260-3390 (surface water)

INDUSTRIAL FACILITIES DISCHARGE FILE

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water
Contact Person: Thomas Pandolfi, U.S. EPA, Office of Water, Assessment and Watershed Protection Division, 401 M Street SW, Washington, DC 20460, (202) 260-7030

Description

The Industrial Facilities Discharge File is assembled from files that contain information on permits to industrial facilities (e.g., the Permit Compliance System described in Part I of this Inventory). The file contains information on facilities' industrial processes and receiving water systems. It is only accessible as part of the Graphic Exposure Modeling System (GEMS) or the Reach Pollutant Assessment (see separate entries in Part II for details on these systems).

NATIONAL BIOMONITORING SPECIMEN BANK

Acronym: NBSB

Sponsoring Agencies: U.S. Department of Commerce, National Institute of Standards and Technology (NIST) and National Oceanic and Atmospheric Administration (NOAA); U.S. Department of the Interior, Minerals Management Service; U.S. Environmental Protection Agency (EPA), Office of Health Effects Research

Contact Person: Stephen A. Wise, U.S. Department of Commerce, NIST, Building 222, Room B-158, Gaithersburg, MD 20899, (301) 975-3112

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

National Environmental Specimen Bank
National Status and Trends for Marine Environmental Quality (NS&T)
The Alaskan Marine Mammal Tissue Archival Project
The National Marine Mammal Tissue Bank

Description

The National Institute of Standards and Technology began its specimen banking activities in 1979 as a pilot program to investigate the feasibility of long-term storage of environmental samples. Specimens are collected and archived to provide well preserved and documented samples for retrospective analysis as analytical techniques improve or as concerns about previously unidentified pollutants arise. Since storage space in a long-term archive is limited, tissues that tend to concentrate the analytes of interest are selected. Therefore, human liver specimens were selected as the first sample type to be included. Environmental specimen bank activities at NIST have expanded beyond the pilot program to include samples from the marine environment (sediments, oysters, mussels, and fish tissue) and marine mammal tissues. Each of these banking projects are supported by various government agencies in conjunction with NIST. Over 10 years of practical experience in specimen banking within the NBSB has demonstrated that the concept of long-term storage of environmental specimens is feasible. Although the total scientific value of the banked samples is not fully known at this time, the current uses of the banked samples and the implementation of the concept has already contributed to major monitoring programs in the U.S. and abroad. Even through the types of specimens and the number of samples collected are limited, the NBSB can serve as a valuable resource for the assessment of long-term trends of pollutants affecting human and environmental health.

DATA SOURCES

In conjunction with other government agencies, NIST maintains four specimen bank projects: the National Environmental Specimen Bank, the National Status and Trends Specimen Bank, the Alaskan Marine Mammal Tissue Archival Project, and the National Marine Mammal Tissue Bank.

The National Environmental Specimen Bank is supported by the Environmental Protection Agency (EPA) in conjunction with NIST. Human livers are archived in this bank at NIST of which approximately twenty percent are analyzed for selected organic and inorganic constituents. Approximately 600 liver specimens have been collected since 1980. Research related to specimen banking is also done. See the database description in Part I of this Inventory for a full description of the program.

The National Status and Trends (NS&T) for Marine Environmental Quality is a monitoring program sponsored by NOAA designed to determine the environmental quality of U.S. estuarine and coastal waters. In this program, sediment, fish tissues (muscle and liver), and bivalve molluscs (muscles and oysters) are collected from 50-150 U.S. coastal sites. In 1985, NOAA, in conjunction with NIST, incorporated specimen banking into their NS&T program. Approximately 10 percent of these marine samples are stored at NIST for specimen banking purposes. See the database description in Part I of this Inventory for a full description of the program.

The Alaskan Marine Mammal Tissue Archival Project was initiated in 1987 by NOAA; the U.S. Department of the Interior, Minerals Management Service; and NIST to establish a representative collection of tissues from Alaskan marine mammals for future contaminant analyses and documentation of long-term trends in environmental quality. See the database description in Part I of this Inventory for a full description of the program.

The National Marine Mammal Tissue Bank was initiated in 1990 by NOAA, in conjunction with NIST. This program is similar to the Alaskan Marine Mammal Tissue Archival Project except that it focuses on the 48 contiguous states of the U.S. See the database description in Part I of this Inventory for a full description of the program.

DATA PRESENTATION

Activities of the National Environmental Specimen Bank component of NBSB to date are described in four journal publications (see separate entry for National Environmental Specimen Bank; Reports section). Data presented include sampling and storage protocols developed by NIST for archived specimens, effects of various storage conditions, analytical procedures used to detect selected contaminants, and analytical results. Bar and line graphs are used to illustrate sampling, analytical, and storage parameters. Tables are used to present analytical results.

NS&T data are contained in over 200 publications, reports, presentations, and technical memoranda; at least one of which describes the NS&T specimen banking activities.

Analytical results of the Alaskan Marine Mammal Tissue Archival Project are included in two NIST protocol documents which are presently in press and will be included in *Science of the*

Total Environment. Tables and graphs are used to illustrate analytical results in these documents.

Specimen bank activities of the National Marine Mammal Tissue Bank are described in a publication which is presently in press and will be included in *Science of the Total Environment*.

DATA AVAILABILITY

See entries for the National Environmental Specimen Bank and the National Status and Trends for Marine Environmental Quality in Part I of this Inventory. For information on the data availability of the Alaskan Marine Mammal Tissue Archival Project and the National Marine Mammal Tissue Bank, contact Steven Wise.

NATIONAL ESTUARINE INVENTORY

Acronym: NEI

Sponsoring Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)

Contact Person: John Klein, NOAA, Office of Ocean Resources Conservation and Assessment (ORCA), Strategic Environmental Assessments (SEA) Division, Physical Environments Characterization Branch, 6001 Executive Blvd., Room 220, Rockville, MD 20852, (301) 443-8843

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

National Coastal Pollutant Discharge Inventory (NCPDI)
National Status and Trends for Marine Environmental Quality (NS&T)
National Shellfish Register of Classified Estuarine Waters (Register)

Description

The NEI was initiated in 1983 to develop a national estuarine database as part of NOAA's program of strategic assessments of the Nation's coastal and oceanic resources. A spatial framework was created for NEI so the database could be used in several related NOAA projects. The estuarine drainage area (EDA), defined by NOAA as that portion of a watershed that most directly affects an estuary and is delineated by U.S. Geological Survey (USGS) cataloging units and by the head of the tide, is the spatial unit used in all NEI projects. NOAA's NCPDI, NS&T, and Register programs use the NEI framework, as do other NOAA projects on eutrophication, marine organisms, and wetlands. Together, these data provide NOAA with a national estuarine assessment capability.

NEI includes physical and hydrologic characteristics (estuarine and fluvial drainage areas, water surface area, volume, tidal range, salinity regime, and freshwater inflow) and land use and population growth data for each EDA. The physical and hydrologic characteristics help define the ecological processes and habitats within an estuary and determine how human activities affect an estuary's overall condition. The type and extent of certain land uses and the pattern of population growth are partial indicators of the pollutants entering estuarine waters and the extent to which the environment of the surrounding drainage basin is altered.

The physical and hydrologic characteristics of each estuary were used by NOAA to develop a classification index to approximate the ability of an estuary to retain pollutants. The index has been used with estimates of nitrogen and phosphorus loadings from the NCPDI to identify estuaries that may be most sensitive to changes in nutrient inputs.

DATA SOURCES

In most cases, EDAs coincide with hydrologic cataloging units of the USGS. An EDA includes all or part of the cataloging unit containing the most upstream extent of tidal influence. Depending on the complexity of coastal drainage patterns, certain cataloging units were modified to eliminate the portion of the drainage area not draining directly to estuarine waters. Fluvial drainage areas (FDAs), the land and freshwater portions of watersheds upstream of EDAs, always coincide with hydrologic cataloging units of the USGS. Estuarine water surface area is approximated at mean tide level; this information is needed to estimate an estuary's volume, flushing rate, and pollutant susceptibility. The volume of an estuary and freshwater inflow help determine its ability to dilute pollutants. Freshwater inflow statistics were estimated for gaged and ungaged areas of an estuary's watershed. For gaged areas, data were compiled from USGS streamflow gage records and from records of significant flow diversions not accounted for in USGS data. For ungaged areas, NOAA precipitation data were used to estimate freshwater runoff and direct precipitation to an estuary. Population growth data was obtained from the USGS (USGS obtains population data from the U.S. Census Bureau). Land use data was primarily obtained from the Land Use Data Analysis (LUDA) program of the USGS (see entry for NCPDI), which compiles data for 40 different types of land use in the United States. Other sources, such as the National Resources Inventory of the U.S. Soil Conservation Service; the Bureau of the Census; the Census of Agriculture; and state, regional, and city planning agencies were also used. The result was a set of consistent land use estimates in acres that are used in NEI and other NOAA databases.

DATA PRESENTATION

The cornerstone of the NEI is the *National Estuarine Inventory Data Atlas, Volume 1*, which identifies 92 of the most important estuaries and subestuaries of the contiguous United States and presents the physical and hydrologic characteristics of each estuary through maps and tables. Volume 2 presents area estimates for seven categories and 24 subcategories of land use as well as 1970 and 1980 population estimates in tables. Land use data are compiled for three spatial units: the EDA, USGS hydrologic catalog units, and counties that intersect EDAs. Population estimates are compiled for EDAs only. Other volumes in the atlas series include information on wetlands and outdoor public recreation facilities in EDAs.

Numerous technical reports about the Nation's estuaries have been produced. These include a *Supplement Series*, which identify estuaries in addition to those in Volume I of the Atlas Series and indicate the methodology used to further refine salinity zones. Tables, graphs, and maps are used to present some of the data in these reports.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific estuaries; NEI data aggregation is consistent with other NOAA databases which use the NEI framework

Availability: Information not available at time of publication; contact John Klein for further information

Form: Hard copy -- Computer printouts
Machine readable -- Information not available at time of publication; contact John Klein for further information

Reports: *National Estuarine Inventory: Data Atlas, Volume 1: Physical and Hydrologic Characteristics; Volume 2: Land Use Characteristics; Volume 3: Coastal Wetlands-New England Region*; *Volume 4: Public Recreation Facilities in Coastal Areas*; numerous technical reports, e.g., *Estuaries of the United States, Vital Statistics of a National Resource Base*, and the *Supplement Series*

Reference Documents: None

Data/Reports Available From: John Klein, NOAA, ORCA, SEA Division, Physical Environments Characterization Branch, 6001 Executive Blvd., Room 220, Rockville, MD 20852, (301) 443-8843

REACH POLLUTANT ASSESSMENT

Acronym: RPA
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Water
Contact Person: Thomas Pandolfi, U.S. EPA, Office of Water, Assessment and Watershed Protection Division, 401 M Street SW, Washington DC 20460, (202) 260-7030

For descriptions of the data included in this data handling system, see also in Part I of this Inventory:

Permit Compliance System (PCS)
Storage and Retrieval of Water Quality Data (STORET)
Toxic Release Inventory (TRI)

Description

RPA software links the following national data files: the file of Section 304(l) short list information, the Toxic Release Inventory (TRI), the Storage and Retrieval of Water Quality Data (STORET), the River Reach File, and the Industrial Facilities Discharge File. RPA allows the user to readily access these multiple data systems and produce a variety of reports and listings comparing facility discharges, water quality stations, and regulatory criteria. No effort is made to calculate in-stream concentrations or to determine whether violations of state/EPA criteria have occurred. Listings allow the user to determine the geographic relationship of discharge facilities and water quality stations.

RPA is designed to address the requirements under Criteria 7 of Section 304(l) of the Clean Water Act: identification of the state's waters with likely presence of 307(a) priority toxic pollutants. This data system allows users to generate reports needed for the triennial review requirements associated with standards setting. RPA may help to establish a permanent link between the monitoring and standards programs and enable state toxics control programs to build upon new monitoring information and new EPA criteria recommendations as they become available.

DATA SOURCES

Information on the geographic relationship of the various components of RPA are based on an electronic version of the 54,000 base maps of the U.S. Geological Survey, also known as the 7.5-minute quadrangle maps. These maps portray features at the 1:100,000 scale. The hydrologic data from these maps are stored separately as the River Reach File. This file includes over 100 million records containing the latitude and longitude coordinates of streams, lakes, reservoirs, estuaries, and shorelines in the United States. The latitude/longitude, stream reach cross

references, and population of cities in the United States. are also included in the mapping component of RPA.

Information on water comes from two sources: the Storage and Retrieval of Water Quality File (STORET) and the Permit Compliance System (PCS). Detailed information about these data systems can be found in the first section of this Inventory.

STORET contains geographic and other descriptive data about the sites where water quality data have been collected. Data include physical characteristics and chemical constituents of the water, fish tissue, or sediment sampled. This file contains over 200 million water sampling observations. (Information about the flow in the stream is stored in the Stream Gage File.)

The PCS database is the national inventory for EPA permit issuance and compliance/ enforcement data. The database consists of more than 5 million records on over 75,000 active water discharge permits. Information about the facilities is stored in the Industrial Facilities Discharge File. This file does not contain measurements, but it does contain information on indirect dischargers to sewage treatment plants, standard industrial classification codes, receiving stream, and categorization of industrial process.

Information on estimated industrial facility discharges to water comes from the Toxic Release Inventory (TRI). TRI contains data on annual estimated releases of over 300 toxic chemicals to air, water, and land by the manufacturing industry. Information includes amounts of chemicals stored on site, estimated quantities of chemicals released, onsite source reduction and recycling practices, and estimated amounts of chemicals transferred to treatment, recycling, or waste facilities. Detailed information about this data system can be found in Part I of this Inventory.

DATA PRESENTATION

RPA provides the user with a variety of listings and reports. RPA can be used to identify the number of water quality stations, industrial facilities, and publicly owned treatment facilities in an area, as well as the probable chemicals of concern for this area based on the TRI estimated discharge data. Further, it can be noted whether the EPA and the state have existing criteria to cover the potential pollutants. Based on the TRI and on the National Pollutant Discharge Elimination System (NPDES) permits issued to facilities in the area, a list of predicted pollutants by river segment can be generated. No effort is made, however, to calculate in-stream concentrations or to determine whether violations of state/EPA criteria have occurred. Detailed reports of measurements by pollutant by water quality site for given periods of time, sediment analyses, and fish tissue samples can be generated.

RPA can also be used to produce a map of the locations of water quality stations, direct industrial dischargers, and municipal sewage treatment plants in a given area.

RPA is available through the EPA National Computer Center and communications network. The user interface is interactive with a question/response format. The User's Guide lists example programs used to generate a variety of output formats.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available on specific agents at specific sites or by specific facility; summary statistics are computed for time periods designated by the user

Availability: Any EPA National Computer Center user (RPA can be accessed through federal, state, academic, and private communications networks, including SNA Backbone, X.25 Backbone, and Tymnet)

Form: Depends on the graphical and data production capabilities of the user's facility

Reports: On-line users can generate their own reports

Reference Documents: *The Reach Pollutant Assessment User's Guide* (presents overview of the data system)

Data/Reports Available From: To retrieve RPA data directly: Users must be registered to access the IBM 3090S computer system at the EPA National Computer Center and have an IBM 3270 computer terminal or equivalent and a PC with a serial port or at least a 1,200-baud modem (or preferably a 2,400- or 9,600-baud modem, a PC with an IRMA board, or a PC compatible with a 9,600-baud controller)

To register or for information, contact Thomas Pandolfi, U.S. EPA, Office of Water, Assessment and Watershed Protection Division, 401 M Street SW, Washington DC 20460, (202) 260-7030

SOCIAL, ECONOMIC, ENVIRONMENTAL, DEMOGRAPHIC INFORMATION SYSTEM

Acronym: SEEDIS
Sponsoring Agency: U.S. Department of Energy (DOE) and U.S. Department of Labor (DOL)
Contact Person: Deane W. Merrill, Computer Science and Mathematics Department, Lawrence Berkeley Laboratory, University of California, Berkeley, CA 94720, (415) 486-5063

For descriptions of the data included in this data handling system, see also:

Aerometric Information Retrieval System (AIRS) (in Part II of this Inventory)
National Air Monitoring Stations (NAMS) (in Part I of this Inventory)

Description

SEEDIS is a research and development project at the Lawrence Berkeley Laboratory, supported by DOE, DOL, and others. Policy formulation, implementation, and management depend on accurate, timely information. The SEEDIS Project addresses these information needs by providing a unified framework for data management, information retrieval, statistical analysis, and graphic display of data from a collection of databases for various geographic levels and time periods, drawn from the U.S. Census Bureau, the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Health and Human Services. SEEDIS contains information on census, energy, environment, geography, health, population characteristics, and socio-economic status. SEEDIS allows the user to produce graphical and map presentations of analyses of combinations of these data for a variety of geographic levels and scope.

SEEDIS was initiated in 1972 by DOL as a demonstration project to link data from multiple sources. Since that time, the project has been expanded. DOL, DOE, EPA, and the Army Corps of Engineers have used the system for a variety of needs. SEEDIS is currently available through computer systems of DOL, DOE, and EPA.

DATA SOURCES

SEEDIS contains information from a wide range of data systems -- over 200 systems with over 7 billion data values. The amount of information differs between geographic levels due to the characteristics of the source data system. In general, data are available at the county level as well as state and national levels. Some data are available at the level of Census tracts and Standard Metropolitan Statistical Areas (SMSAs). The list that follows contains only some of the values available through SEEDIS. (The environmental exposure information is derived from air monitoring station data available through AIRS.)

CENSUS INFORMATION

SEEDIS includes data on population size by major racial and ethnic groupings for 1970 and 1980. These data are variously available at the national, state, county, city, and census tract level.

ENERGY INFORMATION

SEEDIS contains information on electrical generating capacity for 1960 through 1995. These data are available at the national, county, and standardized metropolitan statistical area (SMSA) level. The data system also contains 1970 residential housing data, and heating energy requirements in 1970, and biomass resources for 1976 and 2025 at the county geographic level.

ENVIRONMENTAL INFORMATION

Data on air quality measurements for criteria pollutants are available for 1974 through 1976 at the census tract level. The data are derived from the AIRS data system (formerly SAROAD). Assessments include total suspended particulates (TSP), sulfur and nitrogen dioxides, photochemical oxidants, ozone, carbon monoxide, sulfates, and total and nonmethane hydrocarbons. For each pollutant, county estimates of pollutant concentration (at the position of the county population centroid) were calculated as the weighted geometric means of measurements from nearby stations, including stations in nearby counties. The location of the air quality monitoring stations is also available from the National Air Monitoring Stations (NAMS) data system.

GEOGRAPHIC INFORMATION

Data on the centroids of the 1970 household populations are available for a variety of geographic levels. The areas, centroids, and boundaries of census tracts and counties are also included.

HEALTH INFORMATION

Data on age-, sex-, and race-specific total mortality are available for geographic levels as small as counties for the years 1969 through 1984. In addition, total annual leukemia mortality is available. Cancer incidence for 1973 through 1981 from the Surveillance, Epidemiologic, and End Results (SEER) registers is included for the states that participate in the program.

POPULATION INFORMATION

Age-, race-, and sex-specific population counts (from the 1980 Census) and estimates for the years 1950 to 1987 are available for varying geographic levels. Estimates are available from a variety of sources.

SOCIO-ECONOMIC INFORMATION

Labor force, employment by industry, income, education, fertility, and the Census of Agriculture are a few of the many county- and state-specific data available through SEEDIS.

DATA PRESENTATION

SEEDIS is available through several computer systems at DOE, DOL, and EPA. It uses an interactive, user-friendly format to guide the user through selecting geographic level and scope, extracting or transforming data, and displaying the results. Users can extract data and export these data to other computers, or load data from external sources.

Numerous mapping and other display options are available. Maps can display one or two variables and be generated at all geographic levels. In addition, special symbol maps can be generated where symbols of varying size indicate the information specific to given locations. Charts include bar, pie, and line charts. Some special charts available include fuzzy bar charts (that use fuzzy set theory to combine several imprecisely specified parameters), overlaid line charts, two-dimensional bar charts, and tables with variable sized symbols to impart relative value information. The ability to print these displays depends on the equipment available at the user's computer facility.

DATA AVAILABILITY

Level of Data Aggregation: Individual data entries and summary statistics are available

Availability: Data are available to individuals and institutions upon request; also available through several data networks (call for general information, listed below)

Form: Hard copy -- Specialized data extraction services at cost
Machine readable -- Tape copies of selected data files (DEC VAX compatible)

Reference Documents: *SEEDIS: The Socio-Economic-Environmental Demographic Information System*

Data/Reports Available From: (for reports and computer files) National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4650; (for computer files) National Energy Software Center, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL 60439 (312) 972-7250; (for specialized reports) Data Librarian, SDP/SRC, 2538 Channing Way, University of California, Berkeley, CA 94720 (415) 642-6571; (for general information) SEEDIS Project, Computer Science and Mathematics Department, Building 50B, Room 3288, Lawrence Berkeley Laboratory, University of California, Berkeley, CA 94720 (415) 486-5181

APPENDIX A

Listing of Data Systems by Name and Acronym

DATABASES AND THEIR ACRONYMS

DATABASE	ACRONYM
Acid Deposition Data Network	ADDNET
Acid Deposition System	ADS
Acidification Chemistry Information Data Base	ACID
Aerometric Information Retrieval System	AIRS
Agricultural Chemical Usage	
Air Facility Subsystem (AFS) of the Aerometric Information Retrieval Subsystem	AIRS
Air Quality Subsystem of the (AQS) of the Aerometric Information Retrieval Subsystem	AIRS
Alaskan Marine Mammal Tissue Archival Project	
Alkalinity, Lake Area, and Deposition for New England States	
Ambient Ozone Concentrations	
Anticipated Residues in Food	OPPE Pesticide Food Residue
Aquatic Toxicity Information Retrieval	AQUIRE
Biennial Reporting System	
Carbon Monoxide Total Exposure Assessment Methodology (TEAM) Study	CO TEAM
Chemical Screening Branch (CSB) Existing Chemicals Assessment Tracking System	CECATS
Coal Technology Data System	
Community Health Air Monitoring Program	CHAMP
Compliance Data System	CDS
Comprehensive Epidemiologic Data Resource	CEDR
Distribution Register of Organic Pollutants in Water	
Eastern Lake Survey	ELS
Emergency Response Notification System	ERNS
Effects of Sulfur Dioxide and Respirable Particles on Human Health	Six Cities Study
Emissions Certification Database	
Environmental Display Manager	EDM
Environmental Monitoring and Assessment Program	EMAP
Environmental Radiation Ambient Monitoring System	ERAMS
Federal Reporting Database System	FRDS
Fish Information Network	FIN
Fluoridation Census	
Global Environmental Monitoring System	GEMS
Graphical Exposure Modeling System	GEMS
Great Lakes Fish Monitoring Program	
Hazardous Substance Release/Health Effects Database	HAZDAT
Hispanic Health and Nutrition Examination Survey	HHANES
Industrial Facilities Discharge File	IFD
Integrated Data Base	IDB

DATABASES AND THEIR ACRONYMS

DATABASE	ACRONYM
Interagency Monitoring of Protected Visual Environments	IMPROVE
Internal Radiation Dosimetry System	OHSP
Lake Analysis Management System	LAMS
Lockheed-EPA, EMSL-LV	LESC-EPA, EMSL-LV
Long-term Monitoring Program	LTM
Marine Pollution Retrieval System	MPRS
Microbiology and Residue Computer Information System	MARCIS
Month and State Current Emissions Trends	MSCET
Monthly Emissions Inventory for Sulfur Dioxide	
National Acid Precipitation Assessment Program	NAPAP
National Air Monitoring Stations	NAMS
National Air Toxics Information Clearinghouse	NATICH
National Biomonitoring Specimens Bank	NBSB
National Coastal Pollutant Discharge Inventory	NCPDI
National Contaminant Biomonitoring Program	NCBP
National Emissions Data System	NEDS
National Environmental Specimen Bank	
National Estuarine Inventory	NEI
National Health and Nutrition Examination Survey	NHANES
National Herbicide Use Database	
National Human Adipose Tissue Survey	NHATS
National Human Milk Monitoring Program	
National Marine Mammal Tissue Bank	
National Park Service Environmental Database Management System	NPSEDMS
National Pesticide Survey	NPS
National Residential Radon Survey	NRRS
National Shellfish Register of Classified Estuarine Waters	Register
National Status and Trends for Marine Environmental Quality	NS&T
National Stream Survey	NSS
National Uranium Resource Evaluation	NURE
National VOC Data Base	
National Water Information System	
National Water Quality Networks Program	
Nonoccupational Pesticide Exposure Study	NOPES
Northeast Regional Oxidant Study	NEROS
Ocean Data Evaluation System	ODES
Particle Total Exposure Assessment Methodology (TEAM) Study	PTEAM
Permit Compliance System	PCS
Pesticide Information Network	PIN
Radioactive Materials Released from Nuclear Power Plants	
Reach Pollutant Assessment	RPA

DATABASES AND THEIR ACRONYMS

DATABASE	ACRONYM
Recall Database	
Records of Decisions	RODs
Regional Air Pollution Study	RAPS
Resource Conservation Recovery Information System	RCRIS
Six Cities Study (See Effects of Sulfur Dioxide and Respirable Particles on Human Health)	
Sample Tracking and Data Management System	STDMS
Social, Economic, Environmental, Demographic Information System	SEEDIS
State and Local Air Monitoring Stations	SLAMS
State/EPA Residential Radon Survey	
Storage and Retrieval of Water Quality Data	STORET
Synthetic Organic Chemicals, U.S. Production and Sales Report	Annual SOC
Total Diet Study	TDS
Toxic Release Inventory	TRI
Toxic Substances Control Act Test Submissions	TSCATS
Volatile Organic Compound Total Exposure Assessment Methodology (TEAM) Study	TEAM VOC
Water Data Storage and Retrieval System	WATSTORE
Western Lake Survey	WLS
Wisconsin Fisheries	FISH.WIS

ACRONYMS AND THEIR DATABASES

ACRONYM	DATABASE
ACID	Acidification Chemistry Information Data Base
ADDNET	Acid Deposition Data Network
ADS	Acid Deposition System
AIRS	Aerometric Information Retrieval System
AFS	Air Facility Subsystem (AFS) of the Aerometric Information Retrieval Subsystem
AQS	Air Quality Subsystem (AQS) of the Aerometric Information Retrieval Subsystem
Annual SOC	Synthetic Organic Chemicals, U.S. Production and Sales Report
AQUIRE	Aquatic Toxicity Information Retrieval
CDS	Compliance Data System
CECATS	Chemical Screening Branch (CSB) Existing Chemicals Assessment Tracking System
CEDR	Comprehensive Epidemiologic Data Resource
CHAMP	Community Health Air Monitoring Program
CO TEAM	Carbon Monoxide Total Exposure Assessment Methodology (TEAM) Study
EDM	Environmental Display Manager
ELS	Eastern Lake Survey
EMAP	Environmental Monitoring and Assessment Program
ERAMS	Environmental Radiation Ambient Monitoring System
ERNS	Emergency Response Notification System
FIN	Fish Information Network
FISH.WIS	Wisconsin Fisheries
FRDS	Federal Reporting Database System
GEMS	Global Environmental Monitoring System
GEMS	Graphical Exposure Modeling System
HAZDAT	Hazardous Substance Release/Health Effects Database
HHANES	Hispanic Health and Nutrition Examination Survey
IDB	Integrated Data Base
IFD	Industrial Facilities Discharge File
IMPROVE	Interagency Monitoring of Protected Visual Environments
LAMS	Lake Analysis Management System
LESC-EPA, EMSL-LV	Lockheed-EPA, EMSL-LV
LTM	Long-term Monitoring Program
MARCIS	Microbiology and Residue Computer Information System
MPRS	Marine Pollution Retrieval System
MSCET	Month and State Current Emissions Trends
NAMS	National Air Monitoring Stations
NAPAP	National Acid Precipitation Assessment Program
NATICH	National Air Toxics Information Clearinghouse
NBSB	National Biomonitoring Specimens Bank
NCBP	National Contaminant Biomonitoring Program

ACRONYMS AND THEIR DATABASES

ACRONYM	DATABASE
NCPDI	National Coastal Pollutant Discharge Inventory
NEDS	National Emissions Data System
NEI	National Estuarine Inventory
NEROS	Northeast Regional Oxidant Study
NHANES	National Health and Nutrition Examination Survey
NHATS	National Human Adipose Tissue Survey
NOPES	Nonoccupational Pesticide Exposure Study
NPS	National Pesticide Survey
NPSEDMS	National Park Service Environmental Database Management System
NRRS	National Residential Radon Survey
NS&T	National Status and Trends for Marine Environmental Quality
NSS	National Stream Survey
NURE	National Uranium Resource Evaluation
ODES	Ocean Data Evaluation System
OHSP	Internal Radiation Dosimetry System
OPPE Pesticide Food Residue	Anticipated Residues in Food
PCS	Permit Compliance System
PIN	Pesticide Information Network
PTEAM	Particle Total Exposure Assessment Methodology (TEAM) Study
RAPS	Regional Air Pollution Study
RCRIS	Resource Conservation Recovery Information System
Register	National Shellfish Register of Classified Estuarine Waters
RODs	Records of Decisions
RPA	Reach Pollutant Assessment
SEEDIS	Social, Economic, Environmental, Demographic Information System
SLAMS	State and Local Air Monitoring Stations
STDMS	Sample Tracking and Data Management System
STORET	Storage and Retrieval of Water Quality Data
TDS	Total Diet Study
TEAM	See CO TEAM, NOPES, PTEAM, and VOC TEAM
TRI	Toxic Release Inventory
TSCATS	Toxic Substances Control Act Test Submissions
VOC TEAM	Volatile Organic Compound Total Exposure Assessment Methodology (TEAM) Study
WATSTORE	Water Data Storage and Retrieval System
WLS	Western Lake Survey

The remaining databases do not have acronyms:

Agricultural Chemical Usage
Alaskan Marine Mammal Tissue Archival Project

ACRONYMS AND THEIR DATABASES

ACRONYM	DATABASE
	Alkalinity, Lake Area, and Deposition for New England States
	Ambient Ozone Concentrations
	Biennial Reporting System
	Coal Technology Data System
	Distribution Register of Organic Pollutants in Water
	Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)
	Emissions Certification Database
	Fluoridation Census
	Great Lakes Fish Monitoring Program
	Monthly Emissions Inventory for Sulfur Dioxide
	National Environmental Specimen Bank
	National Herbicide Use Database
	National Human Milk Monitoring Program
	National Marine Mammal Tissue Bank
	National VOC Data Base
	National Water Information System
	National Water Quality Networks Program
	Radioactive Materials Released from Nuclear Power Plants
	Recall Database
	Six Cities Study (See Effects of Sulfur Dioxide and Respirable Particles on Human Health)
	State/EPA Residential Radon Survey

APPENDIX B

Listing of Data Systems by Department or Agency

APPENDIX B

Listing of Data Systems by Sponsoring Departments and/or Agencies

California Air Resources Board

- Particle Total Exposure Assessment Methodology Study
- Volatile Organic Compound Total Exposure Assessment Methodology Study

Department of Agriculture

- Agricultural Chemical Usage
- Microbiology and Residue Computer Information System
- National Herbicide Use Database

Department of Commerce

National Oceanic and Atmospheric Administration

- Alaskan Marine Mammal Tissue Archival Project
- National Biomonitoring Specimen Bank
- National Coastal Pollutant Discharge Inventory
- National Estuarine Inventory
- National Herbicide Use Database
- National Marine Mammal Tissue Bank
- National Shellfish Register of Classified Estuarine Waters
- National Status and Trends for Marine Environmental Quality

National Institute of Standards and Technology

- Alaskan Marine Mammal Tissue Archival Project
- National Environmental Specimen Bank
- National Marine Mammal Tissue Bank
- National Biomonitoring Specimen Bank

Department of Defense

- Marine Pollution Retrieval System
- Month and State Current Emission Trends

Department of Energy

- Acid Deposition Data Network
- Acidification Chemistry Information Data Base
- Alkalinity, Lake Area, and Deposition for New England States
- Ambient Ozone Concentrations
- Coal Technology Data System
- Comprehensive Epidemiologic Data Resource
- Integrated Data Base
- Internal Radiation Dosimetry System
- Month and State Current Emission Trends

Department of Energy (cont.)
- Monthly Emissions Inventory for Sulfur Dioxide
- National Uranium Resource Evaluation
- Social, Economic, Environmental, Demographic Information System

Department of Health and Human Services/Public Health Service

Agency for Toxic Substances and Disease Registry (ATSDR)
- Hazardous Substance Release/Health Effects Database

National Center for Prevention Services, Centers for Disease Control
- Fluoridation Census

National Center for Health Statistics, Centers for Disease Control
- Hispanic Health and Nutrition Examination Survey
- National Health and Nutrition Examination Survey

Food and Drug Administration
- Total Diet Study

Department of the Interior

U.S. Fish and Wildlife Services
- National Contaminant Biomonitoring Program
- National Shellfish Register of Classified Estuarine Waters

National Park Service
- Interagency Monitoring of Protected Visual Environments
- National Park Service Environmental Database Management System

U.S. Geological Survey
- Water Data Storage and Retrieval System
- National Water Information System II
- National Water Quality Networks Program
- National Uranium Resource Evaluation

Minerals Management Service
- Alaskan Marine Mammal Tissue Archival Project
- National Biomonitoring Specimen Bank

Department of Labor
- Social, Economic, Environmental, Demographic Information System

Department of Transportation
- Emergency Response Notification System
- Marine Pollution Retrieval System

Environmental Protection Agency

- Acid Deposition Data Network
- Acid Deposition System
- Aerometric Information Retrieval System (AIRS)
- Air Facility Subsystem (AFS) of the Aerometric Information Retrieval System
- Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System
- Ambient Ozone Concentrations
- Anticipated Residues in Food
- Aquatic Toxicity Information Retrieval
- Biennial Reporting System
- Carbon Monoxide Total Exposure Assessment Methodology Study
- Chemical Screening Branch (CSB) Existing Chemicals Assessment Tracking System
- Community Health Air Monitoring Program
- Compliance Data System
- Distribution Registry of Organic Pollutants in Water
- Eastern Lake Survey
- Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)
- Emergency Response Notification System
- Emissions Certification Database
- Environmental Display Manager
- Environmental Monitoring and Assessment Program
- Environmental Radiation Ambient Monitoring System
- Federal Reporting Database System
- Fish Information Network
- Graphical Exposure Modeling System
- Great Lakes Fish Monitoring Program
- Industrial Facilities Discharge File
- Interagency Monitoring of Protected Visual Environments
- Internal Radiation Dosimetry System
- Lake Analysis Management System
- Lockheed - EPA, EMSL-LV
- Long-Term Monitoring Project
- National Acid Precipitation Assessment Program
- National Air Monitoring Stations
- National Air Toxics Information Clearinghouse
- National Biomonitoring Specimen Bank
- National Emissions Data System
- National Environmental Specimen Bank
- National Herbicide Use Database
- National Human Adipose Tissue Survey
- National Human Milk Monitoring Program
- National Pesticide Survey
- National Residential Radon Survey
- National Shellfish Register of Classified Estuarine Waters
- National Stream Survey

Environmental Protection Agency (cont.)
- National VOC Data Base
- Nonoccupational Pesticide Exposure Study
- Northeast Regional Oxidant Study
- Ocean Data Evaluation System
- Particle Total Exposure Assessment Methodology Study
- Permit Compliance System
- Pesticide Information Network
- Reach Pollutant Assessment
- Recall Database
- Records of Decision System
- Regional Air Pollution Study
- Resource Conservation Recovery Information System
- Sample Tracking and Data Management System
- State and Local Air Monitoring Stations
- State/EPA Residential Radon Survey
- Storage and Retrieval of Water Quality Data
- Toxic Release Inventory
- Toxic Substances Control Act Test Submissions
- Volatile Organic Compound Total Exposure Assessment Methodology Study
- Western Lake Survey
- Wisconsin Fisheries Database

Food and Agriculture Organization of the United Nations
- Global Environment Monitoring System

Food and Drug Administration
- National Shellfish Register of Classified Estuarine Waters

International Trade Commission
- Synthetic Organic Chemicals, United States Production and Sales

National Acid Precipitation Assessment Program
- Acid Deposition Data Network
- Eastern Lake Survey
- National Stream Survey
- Western Lake Survey

National Institute of Environmental Health Sciences
- Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)

Nuclear Regulatory Commission
- Radioactive Materials Released from Nuclear Power Plants

Oak Ridge National Laboratory
Alkalinity, Lake Area, and Deposition for New England States

United Nations Environment Programme
Global Environment Monitoring System

World Health Organization
Global Environmental Monitoring System

APPENDIX C

Questionnaire

Section I: Identification of Exposure Databases

Please fill in the answers to the following questions. Use a separate questionnaire for each database. This questionnaire may be photocopied. Thank you.

I-1. Name of exposure database:

A. Complete name _____

B. Acronym or unique ID's _____

I-2. Lead sponsoring agency and office:

A. Agency and office name: _____

B. Address: _____

C. Contact person (i.e., database administrator or manager):

_____

D. Phone: _____

E. Governmental association (please mark the most relevant organization):

☐ (1) State
☐ (2) County
☐ (3) City or Municipality
☐ (4) Federal
☐ (5) Other (specify)

I-3. Other sponsoring organization, if any:

A. Organization name: _____

B. Address: _____

C. Contact person: _____

D. Phone: _____

E. Governmental association (please mark the most relevant organization):

☐ (1) State
☐ (2) County
☐ (3) City or Municipality
☐ (4) Federal
☐ (5) Other (specify)_____

Please attach pages if there are additional sponsoring organizations.

Section II: Description of Exposure Databases

Please fill in answers and mark the appropriate box or boxes. Please attach any information that clarifies a response or write in the text boxes provided.

II-1. What are current objectives of the exposure database? Mark all that apply and describe your answer in the text box below.

	Primary Objective	Secondary Objective	Being Met Yes	Being Met No
A. Regulatory	☐	☐	☐	☐
B. Legally required but not for regulatory purposes	☐	☐	☐	☐
C. Monitoring	☐	☐	☐	☐
D. Research	☐	☐	☐	☐
E. Other (specify)	☐	☐	☐	☐

Please describe or attach a copy of the objectives of the exposure database and identify it as the answer to question II-1. Please number each objective.

II-2. What geographic area does this database cover? Mark the first box that applies.

- ☐ A. National
- ☐ B. Regional (see box)
- ☐ C. State (see box)
- ☐ D. Region of State (see box)
- ☐ E. County (see box)
- ☐ F. City or Municipality (see box)
- ☐ G. Other (see box)

Please describe the geographic area:

_____

_____

_____

_____

II-3. Please describe the sampling strategy or plan initially implemented (e.g., site selection based upon possible compliance violation, probability versus non-probability sampling, geographic representativeness) and any changes in the strategy or plan that may have occurred over time. If a description of the sampling strategy is available, please attach it and identify it as the answer to question II-3.

_____

_____

_____

_____

_____

_____

_____

_____

II-4. Is the present sampling strategy subject to change based on analytical results? For example, if the concentration of a substance is above a specified level, does this finding cause changes in the sampling protocol? Mark one box only.

☐ A. No

☐ B. Yes If yes, please describe conditions that would cause the sampling strategy to change.

_____

_____

_____

_____

_____

_____

II-5. If the database includes data that were <u>not</u> collected at the source of the pollutant, is there information that can be used to relate the data to sources?

☐ A. Not Applicable - all data collected at the source.

☐ B. No.

☐ C. Yes If yes, please describe below.

_____

_____

_____

_____

II-6. If the database includes data that were collected at the source of the pollutant, is there information that can describe the spread of the pollutant away from the source?

☐ A. Not Applicable - no data collected at the source.

☐ B. No

☐ C. Yes If yes, please describe below.

_____

_____

_____

_____

II-7. What location (geographic) identifiers are used in the database? Mark all appropriate boxes.

Yes	No		
☐	☐	A.	Latitude/Longitude. If yes, please indicate identifier:
☐	☐		(1) Zip code (i.e., zip code centroid)
☐	☐		(2) City (i.e., city centroid)
☐	☐		(3) County (i.e., county centroid)
☐	☐		(4) Point source
☐	☐		(5) Monitor site
☐	☐	B.	Universal transmercator coordinates. If yes, please indicate identifier:
☐	☐		(1) Zip code (i.e., zip code centroid)
☐	☐		(2) City (i.e., city centroid)
☐	☐		(3) County (i.e., county centroid)
☐	☐		(4) Point source
☐	☐		(5) Monitor site
☐	☐	C.	Street address
☐	☐	D.	Zip codes
☐	☐	E.	Census tract
☐	☐	F.	City, municipality, or township
☐	☐	G.	County/Parish
☐	☐	H.	Metropolitan Statistical Areas (MSA). If yes, please indicate identifier:
☐	☐		(1) MSA
☐	☐		(2) PMSA (Primary MSA)
☐	☐		(3) CMSA (Consolidated MSA)
☐	☐		(4) SMSA (Standard MSA)
☐	☐	I.	State
☐	☐	J.	Hydrologic unit codes
☐	☐	K.	River reach number (i.e., stream number)
☐	☐	L.	Congressional district
☐	☐	M.	Other (specify) _____

II-8. What conventions are used in the database to identify agents (i.e., chemicals)? Mark all appropriate boxes.

Yes	No	
☐	☐	A. Chemical Abstracts Service Registry Number (CASRN)
☐	☐	B. Chemical name or mixture (e.g., CAS Collective Index Name, Synonym, Generic, Trade)
☐	☐	C. Database-specific codes or identifiers, or other codes. If yes, describe in box.

Please describe specific codes or identifiers:

_____

_____

_____

_____

_____

II-9. Was the database designed to specifically assess exposure in the following? Mark appropriate boxes.

Yes	No	
☐	☐	A. Urban area
☐	☐	B. Suburban area
☐	☐	C. Rural area
☐	☐	D. Populations at special risk
☐	☐	(1) Minority Populations
☐	☐	(2) Low-income populations
☐	☐	(3) Other populations (i.e., special age or sex subpopulations) If yes, please describe_____
☐	☐	E. Discharge sources
☐	☐	F. Other (specify)_____

II-10. What time period does the database cover?

A. Year data collection started: 19 ☐☐

B. Are data still being collected?

☐ (1) Yes
☐ (2) No If no, what year did data collection end? 19 ☐☐

II-11. What is the frequency of sample collection? Mark one box only.

☐ A. Yearly
☐ B. Quarterly
☐ C. Monthly
☐ D. Weekly
☐ E. Daily
☐ F. Irregular (describe in text box below)
☐ G. Mixed frequency, varies by chemical (describe in text box below)
☐ H. Mixed frequency, varies by facility (i.e., source) (describe in text box below)
☐ I. Other (describe in text box below)

Please describe irregular or mixed sample collection frequency here.

_____

_____

_____

_____

II-12. Are samples collected at the same time in each sampling period (e.g., beginning, middle, or end)? For example, if samples are collected on a monthly basis, are they always collected on the same day of the month.

☐ A. Yes
☐ B. No If no, please describe the degree and reason for interval variability of sampling.

_____

_____

_____

II-13. On average, how long is the time between sample collection and sample analysis?

_____

II-14. Are samples pooled before analysis? If so, please describe pooling.

☐ A. No

☐ B. Yes If yes, please describe the pooling procedure.

_____

_____

_____

_____

_____

_____

II-15. Do you follow any recommended standard procedures for collecting, storing, preserving, or analyzing collected samples for pollutants or toxicants?

☐ A. No

☐ B. Yes If yes, please **name** and provide source of method(s) used for specific media (e.g., NIOSH Physical and Chemical Analytical Method numbers(s) for air and biological samples; EPA Test Methods for Evaluating Solid Waste, SW 846; 40 CFR 136.3 for water; IARC-, CDC-, or FDA-recommended methodology; standard state procedures)

_____

_____

_____

_____

_____

_____

_____

_____

_____

II-16. On average, how long is the time from sample analysis to data entry into the database?

_____

II-17. Are individual sample results entered into the database or are they grouped in some way prior to being entered into the database? If they are grouped, please describe.

☐ A. Yes

☐ B. No If no, please describe the level of aggregation of sample results in the database.

_____

_____

_____

_____

_____

II-18. A. Please indicate the Quality Assurance/Quality Control procedures used in the database. Mark the appropriate boxes.

Yes	No		
☐	☐	A.	Laboratory blanks
☐	☐	B.	Field blanks
☐	☐	C.	Duplicates
☐	☐	D.	Spikes
☐	☐	E.	External laboratory analysis
☐	☐	F.	Data entry audits
☐	☐	G.	Other (please describe)

_____

_____

_____

B. Please describe how and by whom QA/QC procedures are monitored.

_____

_____

_____

II-19. In what form, or level of aggregation, are data from the database available? Mark the appropriate boxes.

Yes	No		
☐	☐	A.	Individual data entries on specific agents.
☐	☐	B.	Summary statistics on specific agents. If yes, decribe in box below.
☐	☐	C.	Other. If yes, describe in box below.

Describe specific summary statistics and whether the statistics describe a single monitoring location at a single point in time, or whether the statistics describe multiple monitoring locations over a period of time.

_____

_____

_____

_____

II-20. To whom are individual data or summary statistics in the database available? Mark all that apply.

Yes	No		
☐	☐	A.	Any requestor can obtain data
☐	☐	B.	Requestor must be approved
☐	☐	C.	Federal, state, or local governmental agencies may obtain data
☐	☐	D.	Restricted to data collection agency
☐	☐	E.	Other (specify)

_____

_____

II-21. In what form are data available? Mark all that apply.

A. Hard copy		B. Machine readable form	
☐	(1) Computer printouts	☐	(1) Tape
☐	(2) Files or log books	☐	(2) Diskette
☐	(3) Agency reports	☐	(3) Bulletin board
☐	(4) Journal publications	☐	(4) On-line
☐	(5) Microfilm	☐	(5) CD-ROM
☐	(6) Not available	☐	(6) Not available
☐	(7) Other (specify)	☐	(7) Other (specify)
	_____		_____

II-22. If data are available in machine readable form, what is the data format? Mark the appropriate boxes.

Yes	No		
☐	☐	A.	ASCII
☐	☐	B.	Other (specify) _____

II-23. Are reports generated from the database? Mark the appropriate box.

☐ A. No If no, skip to question II-25.
☐ B. Yes

II-24. If reports on pollutants or toxicants are generated,

A. How often are reports routinely available? Mark the appropriate box.

- ☐ 1. Yearly
- ☐ 2. Quarterly
- ☐ 3. Monthly
- ☐ 4. Weekly
- ☐ 5. Daily
- ☐ 6. Ad-hoc request
- ☐ 7. Irregularly (specify) _____
- ☐ 8. Mixed frequency, varies by agent (specify) _____
  _____
- ☐ 9. Other (specify) _____
  _____

B. To which of the following are reports distributed? Mark the appropriate boxes.

- ☐ 1. National Technical Information Service (NTIS). Please attach a list of publications.
- ☐ 2. State Offices (specify) _____
  _____
- ☐ 3. Federal Offices (specify) _____
  _____
- ☐ 4. Regional Libraries of the National Libraries of Medicine (specify)
  _____
- ☐ 5. Schools of Public Health (specify) _____
  _____
- ☐ 6. Other (specify) _____
  _____

C. Please provide the name and phone number of someone in your organization who can provide information on reports.

_____
_____

II-25. Has this database been utilized in the study of human health problems?

- ☐ A. Yes — If yes, please attach a list of some of the relevant publications or provide in the box below, the name and phone number of a person who can provide such information.
- ☐ B. No — If no, please state reasons in box below.
- ☐ C. Don't know.

II-26. Does the database contain any estimated information derived from environmental media sample results?

- ☐ A. No
- ☐ B. Yes — If yes, please attach the variables used and identify as the answer to question II-26.

II-27. What environmental media are covered by the exposure database? Mark the appropriate boxes.

Yes	No		
☐	☐	A.	Water
☐	☐	B.	Soil or sediment
☐	☐	C.	Air
☐	☐	D.	Human food sources (e.g., PCBs in fish)
☐	☐	E.	Human samples
☐	☐	F.	Bulk (i.e., pure) chemicals
☐	☐	G.	Other _____

The remaining five questions collect information on these media as follows:

Question 28 **Water**

Question 29 **Soil**

Question 30 **Air**

Question 31 **Food sources and human samples**

Question 32 **Bulk chemicals**

Please answer the questions applicable to the media covered by the exposure database.

WATER DATABASES

II-28. If the exposure database contains environmental measurements on water, please mark each box in the matrix below for which information is available. Please attach a list of the specific agents and if applicable, their Chemical Abstracts Service Registry Number (CASRN). Identify the list as relevant to Question II-28. If needed, please specify other categories that better describe your particular database in the text box on the following page.

		Surface	Ground water	Leachate	Municipal	Private	Other
A.	Aesthetic*	☐	☐	☐	☐	☐	☐
B.	Fluoride	☐	☐	☐	☐	☐	☐
C	Inorganic Compounds*	☐	☐	☐	☐	☐	☐
D.	Organic Metals	☐	☐	☐	☐	☐	☐
E.	VOCs*	☐	☐	☐	☐	☐	☐
F.	Trihalomethanes	☐	☐	☐	☐	☐	☐
G.	Semi-VOCs*	☐	☐	☐	☐	☐	☐
H.	Pesticides*	☐	☐	☐	☐	☐	☐
I.	PCBs*	☐	☐	☐	☐	☐	☐
J.	Dioxins/Furans	☐	☐	☐	☐	☐	☐
K.	Radionuclides*	☐	☐	☐	☐	☐	☐
L.	Asbestos	☐	☐	☐	☐	☐	☐
M.	Microorganisms	☐	☐	☐	☐	☐	☐
N.	Other (describe in box on the following page)	☐	☐	☐	☐	☐	☐

*See Appendix A for examples

Text box for Question II-28, page 15.
Please describe or attach descriptive material for other categories or characteristics that describe your water data, or use this space to further clarify any responses.

SOIL DATABASES

II-29. If the exposure database contains environmental measurements on soil, please mark each box in the matrix below for which information is available. Please attach a list of the specific agents and if applicable, their Chemical Abstracts Service Registry Number (CASRN). Specify the list as relevant to Question II-29. If needed please specify other categories that better describe your particular database in the text box below.

		Residential	Industrial	Sediment	Superfund Site	Dust	Other
A.	Inorganic Compounds*	☐	☐	☐	☐	☐	☐
B.	Organic Metals	☐	☐	☐	☐	☐	☐
C.	VOCs*	☐	☐	☐	☐	☐	☐
D.	Semi-VOCs*	☐	☐	☐	☐	☐	☐
E.	Pesticides*	☐	☐	☐	☐	☐	☐
F.	PCBs*	☐	☐	☐	☐	☐	☐
G.	Dioxins/Furans	☐	☐	☐	☐	☐	☐
H.	Radionuclides*	☐	☐	☐	☐	☐	☐
I.	Asbestos	☐	☐	☐	☐	☐	☐
J.	Microorganisms	☐	☐	☐	☐	☐	☐
K.	Other (describe in box below)	☐	☐	☐	☐	☐	☐

*See Appendix A for examples

Please describe or attach descriptive material for other categories or characteristics that describe your soil data, or use this space to further clarify any responses.

AIR DATABASES

II-30. If the exposure database contains environmental measurements on air, please mark each box in the matrix below for which information is available. Please attach a list of the specific agents and if applicable, their Chemical Abstracts Service Registry Number (CASRN). Specify the list as relevant to Question II-30. If needed, specify other categories that better describe your particular database in the text box on the following page.

		Indoor Homes	Indoor Public	Outdoor Urban	Outdoor Rural	Emissions	Personal Monitor	Other
A.	Particulates	☐	☐	☐	☐	☐	☐	☐
B.	Criteria Pollutants (NO_2, SO_2, CO, O_3)	☐	☐	☐	☐	☐	☐	☐
C.	Cigarette Smoke	☐	☐	☐	☐	☐	☐	☐
D.	Inorganic Compounds*	☐	☐	☐	☐	☐	☐	☐
E.	Organic Metals	☐	☐	☐	☐	☐	☐	☐
F.	VOCs*	☐	☐	☐	☐	☐	☐	☐
G.	Semi-VOCs*	☐	☐	☐	☐	☐	☐	☐
H.	Pesticides*	☐	☐	☐	☐	☐	☐	☐
I.	PCBs*	☐	☐	☐	☐	☐	☐	☐
J.	Dioxins/Furans	☐	☐	☐	☐	☐	☐	☐
K.	Radionuclides*	☐	☐	☐	☐	☐	☐	☐
L.	Asbestos	☐	☐	☐	☐	☐	☐	☐
M.	Microorganisms	☐	☐	☐	☐	☐	☐	☐
N.	Acids/Acid Aerosols	☐	☐	☐	☐	☐	☐	☐
O.	Aeroallergens	☐	☐	☐	☐	☐	☐	☐
P.	Other box on the following page)	☐	☐	☐	☐	☐	☐	☐

*See Appendix A for examples. Additional examples include the hazardous air pollutants from the Clean Air Act Amendments of 1990.

Text box for Question II-30, page 18.
Please describe or attach descriptive material for other categories or characteristics that describe your air data, or use this space to further clarify any responses.

FOOD SOURCES AND HUMAN SAMPLES DATABASES

II-31. If the exposure database contains environmental measurements on food or human samples, please mark each box in the matrix below for which information is available. Please attach a list of the specific agents and if applicable, their Chemical Abstracts Service Registry Number (CASRN). Specify the list as relevant to Question II-31. If needed, please specify other categories that better describe your particular database in the text box below.

		Gamebirds		Mammals (non-human)					
		Non-Domesticated	Domesticated	Non-Domesticated	Domesticated	Plants	Fish/ Shell-Fish	Human Samples	Other
A.	Inorganic Compounds*	☐	☐	☐	☐	☐	☐	☐	☐
B.	Organic Metals	☐	☐	☐	☐	☐	☐	☐	☐
C.	VOCs*	☐	☐	☐	☐	☐	☐	☐	☐
D.	Semi-VOCs*	☐	☐	☐	☐	☐	☐	☐	☐
E.	Pesticides*	☐	☐	☐	☐	☐	☐	☐	☐
F.	PCBs*	☐	☐	☐	☐	☐	☐	☐	☐
G.	Dioxins/ Furans	☐	☐	☐	☐	☐	☐	☐	☐
H.	Radionuclides*	☐	☐	☐	☐	☐	☐	☐	☐
I.	Asbestos	☐	☐	☐	☐	☐	☐	☐	☐
J.	Other (describe in box below)	☐	☐	☐	☐	☐	☐	☐	☐

*See Appendix A for examples.

Please describe or attach descriptive material for other categories or characteristics that describe your food or human sample data. If the database contains data on human samples, please list the type of samples (e.g., blood, urine, etc.). You may also use this space to further clarify any response.

BULK CHEMICAL DATABASES

II-32. If the exposure database contains environmental measurements on bulk chemicals, please mark each box in the matrix below for which information is available. Please attach a list of the specific agents and if applicable, their Chemical Abstracts Service Registry Number (CASRN). Specify the list as relevant to Question II-32. If needed, please specify other categories that better describe your particular database in the text box below.

	Bulk Chemical	Other
A. Inorganic Compounds*	☐	☐
B. Organic Metals	☐	☐
C. VOCs*	☐	☐
D. Semi-VOCs*	☐	☐
E. Pesticides*	☐	☐
F. PCBs*	☐	☐
G. Dioxins/Furans	☐	☐
H. Radionuclides*	☐	☐
I. Asbestos	☐	☐
J. Acids	☐	☐
K. Bases	☐	☐
L. Other (describe in box below)	☐	☐

*See Appendix A for examples.

Please describe or attach descriptive material for other categories or characteristics that describe your bulk chemical data, or use this space to further clarify any responses:

APPENDIX A

The following compounds are examples of chemicals or agents that are found in the specific category listed. This list is provided to help you classify agents; it is not intended to limit your responses to these chemicals. If you have questions about categorizing a chemical that is not listed here, please call Leslie Beyer at 617-641-5327.

EXAMPLES OF VOLATILE COMPOUNDS

Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
2-Chloroethyl Vinyl Ether
Chloromethane
Dibromochloromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene (Dichloroethylene)
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethyl Benzene
Formaldehyde
Fluoride
2-Hexanone
Methylene Chloride
2-Methyl-2-pentanone
Pentachlorobenzene
Styrene
Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethene (Tetrachloroethylene)
Toluene
trans-1,2-Dichloroethene
Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorotrifluoromethane
Trihalomethanes
Trichloroethene
Total Xylenes
Vinyl Acetate
Vinyl Chloride

EXAMPLES OF SEMI-VOLATILE COMPOUNDS

Acenaphthene
Acenaphythylene
Anthracene
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzoic Acid
Benzyl Alcohol
bis(2-Chloroethoxy)methane
bis(2-Chloroisopropyl)ether
bis(2-ethylhexyl)phthalate
4-Bromophenyl Phenyl Ether
Butyl Benzyl Phthalate
4-Chloro-3-methylphenol
4-Chloraniline
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl Phenyl Ether
Chrysene
Dibenzo(a,h)anthracene
Dibenzofuran
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzidene
3,3'-Dichlorobenzidene
2,4-Dichlorophenol
Diethylphthalate
2,4-Dimethylphenol
Dimethylphthalate
Di-n-butylphthalate
4,6-Dinitro-2-methylphenol
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocylopentadiene
Hexachloroethane
Indeno(1,2,3-c,d)pyrene
Isophorone
2-Methylnaphthalene
2-Methylphenol
4-Methylphenol
Naphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
Nitrosodiphenylamine
N-Nitrosodipropylamine
Pentachlorophenol
Phenanthrene
Phenol
Pyrene
1,2,4-Trichlorobenzene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol

PCBs

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

INORGANIC COMPOUNDS

Arsenic
Barium
Cadmium
Chromium
Copper
Cyanides
Lead
Mercury
Nickel
Nitrates/Nitrites
Selenium
Silver
Sulfur

PESTICIDES

Bipyridyl Compounds
Carbamates
Chlorophenoxy Compounds
Dinitrophenols
Inorganics
Organochlorines
Organophosphates
Pyrethrum
Substituted Ureas
Triazines

RADIONUCLIDES

Barium
Cadmium
Carbon
Cerium
Cesium
Chromium
Copper
Iodine
Phosphorus
Plutonium
Radium
Radon
Radon Daughters
Strontium
Sulfur
Tritium
Uranium
Zinc

AESTHETIC WATER QUALITY

Chloride
Color
Hardness
pH
Total Dissolved Solids
Sulfate
Turbidity
Dissolved Oxygen (BOD)
Temperature
Total Organic Carbon
Total Organic Chlorine
Total Organic Sulfur
Total Organic Phosphorus
Foaming Agents
Corrosivity

APPENDIX D

Related Data Systems

APPENDIX D

Related Data Systems that Support and Quantify Environmental Exposure Assessment

In the course of identifying databases that contain measurements of toxicants in the environment, several data systems were identified in which information not directly based on analytical measurements of toxicant concentrations is provided to assist the user in further assessing exposure. Examples of such information include fate and transport models, emission factors, and surveys of consumer use of products or consumption of food. For example, emission factors based on source categories such as those provided in the Crosswalk/Air Toxics Emissions Factor Database Management System can be used to estimate ambient levels of pollutants in the vicinity of a known industrial point source. Similarly, information from the Nationwide Food Consumption Survey can be coupled with the analytical information in the Total Diet Survey (described in Part I of this Inventory) to estimate exposure to food contaminants. In some instances, the data in these systems are derived from measured observations; in other instances, the data are derived from models. This Appendix lists these data systems and summarizes the information provided by the data system managers. (This Appendix, however, is not a comprehensive or systematic survey of this type of data system.)

The following databases are included in this Appendix on the pages shown:

AIR CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS

Acronym: Air CHIEF
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)
Contact Person: Anne A. Pope, U.S. EPA, OAQPS, MD-14, Research Triangle Park, NC 27711, (919) 541-5373

Description:

The Air CHIEF CD (Compact Disk version with Read Only Memory) provides information on estimating air emissions of criteria and toxic pollutants from selected sources. The system is designed for easy access and retrieval of emission estimation data by pollutant or source description. The CD is designed to facilitate the rapid identification and cross-referencing of air pollutants and emission source categories and to provide corresponding emission factors for these associations as available. Air CHIEF provides information on air emissions and emission factors collated from the VOC/PM Speciation Data Base (SPECIATE) (see description in this Appendix) and the Crosswalk/Air Toxic Emission Factor Data Base (XATEF) (see description in this Appendix). Air CHIEF also contains information from over 25 reports in the *Locating and Estimating* series and in AP-42, a compilation of air pollutant emission factors and inventories.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: Criteria pollutants, inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, radionuclides, asbestos, particulates, acids/acid aerosols

Relevant variables: Emission factors by pollutant or by source

Database Availability:

Availability: Any requestor can purchase the CD (with User's Manual) from the Government Printing Office; non-profit agencies should contact OAQPS

Form: CD-ROM, requires an IBM (TM) compatible PC with EGA or VGA monitor, MS-DOS memory, a CD-ROM drive, interface card, and Microsoft DOS CD-ROM Extensions (MSCDEX); the CD is regularly updated

Reports: *Air CHIEF CD-ROM Version 1.0 Beta User's Manual*

ADL MIGRATION ESTIMATION MODEL

Acronym: AMEM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Christina Cinalli, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3913

Description:

AMEM is used to estimate the weight fraction of a chemical that will migrate from a polymeric material. The chemical may be an additive (e.g., a plasticizer) or unreacted monomer (e.g., styrene). The program estimates the migration of chemicals based on mathematical equations derived using diffusion and mass transfer theories.

The user provides chemical-specific data such as molecular weight and vapor pressure. The user may enter the diffusion coefficient for the polymer or may use one of the default values provided for six generic types of polymers with a wide range of diffusion coefficients.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: Polymeric material

Relevant variables: Weight fraction that migrates from material

Process evaluated: Volatilization of chemical from polymer

Database Availability:

Availability: Any requestor can obtain database, report, and user's guide from OPPT

Form: Diskette for IBM compatible PC

Reports: *Methods for Assessing Exposure to Chemical Substances, Volume 11-Methodology for Estimating the Migration of Additives and Impurities from Polymeric Materials*

COMPUTER-AIDED MANAGEMENT OF EMERGENCY OPERATIONS

Acronym: CAMEO

Sponsoring Agencies: U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA); U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response (OSWER)

Contact Person: National Safety Council, CAMEO Order Department, 444 N. Michigan Avenue, Chicago, IL 60611, (800) 621-7619 extension 6900; or Kathleen Bishop, U.S. EPA, OSWER, 401 M Street SW, Washington, DC 20460, (202) 382-7912

Description:

The CAMEO program is designed to provide state and local emergency responders and planners with a tool to manage information about hazardous substances in or near their communities and to help plan for the safe handling of chemical accidents. CAMEO contains a chemical identification file (Codebreaker) which includes information on over 3,000 common chemicals indexed by over 50,000 synonyms and tradenames; the Chemical Response Information Database file (also referred to as the RIDS file), which includes information on the management of chemical releases; information from the Toxic Release Inventory (TRI) (described in Part I of this Inventory), which identifies the location of industrial facilities and provides estimates of yearly chemical releases; information on weather; the locations of populations (including special populations such as school or nursing homes); and information on shippers and the transport of chemicals.

CAMEO has mapping features that allow the user to input detailed local or facility maps in addition to the maps provided by the data system. CAMEO's air dispersion model, known as ALOHA, provides estimates of chemical cloud concentrations downwind from a release. ALOHA has a database of over 700 chemicals that can create scenarios for over 300 U.S. locations.

Summary of Environmental-related Information:

Media: Air, bulk chemicals

Classes of compounds: Over 3,000 chemicals

Relevant variables: Location of chemicals and population, estimates of ambient concentrations

Process evaluated: Dispersion in air

Database Availability:

Availability: Any requestor can obtain database

Form: Diskettes available for either Macintosh Plus (System 6.0.5 or later, 14 MB free hard drive space, 1 MB RAM, Hypercard 2.0 or later) or IBM-AT compatible (MS-DOS 3.3 or later, 30 MB free hard drive space, 640 KB RAM, EGA or VGA display monitor)

CONTINUING SURVEY OF FOOD INTAKES BY INDIVIDUALS

Acronym: CSFII

Sponsoring Agency: U.S. Department of Agriculture (USDA), Human Nutrition Information Service (HNIS)

Contact Person: Ellen Harris, USDA, HNIS, 6505 Belcrest Road, Hyattsville, MD 20782, (301) 436-7725

Description:

The CSFII is conducted to provide timely information on U.S. diets and the diets of population groups of concern. Another purpose is to provide the basis for assessment of "usual" diets as measured through collection of dietary intake data for several days spread out over a year and to study how diets vary over time for individuals and groups of individuals. The Survey is conducted between the larger Nationwide Food Consumption Surveys (NFCS, also described in this Appendix), which are conducted every 10 years.

The CSFII obtains information on food intake from six 24-hour recall periods collected by an interviewer at approximately 2-month intervals during the year. Persons are selected based on a multistage stratified area probability sample to represent the sex and age distribution of persons residing in private households in the 48 contiguous United States. An additional sample is selected to provide data representative of persons in private households with incomes at or below 130 percent of the poverty guidelines. Special surveys have been conducted that focus on women of reproductive age, children, and adult men.

Summary of Environmental-related Information:

Media: Human food

Relevant variables: Food consumption by type of food

Process evaluated: Consumption

Database Availability:

Availability: Any requestor can obtain reports from HNIS and tapes from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Form: Tape (ASCII)

Reports: *Nutrition Monitoring in the United States-A Progress Report from the Joint Nutrition Monitoring Evaluation Committee* (PHS 86-1255); a series of reports focusing on specific subpopulations have also been produced; reports are available from HNIS

CROSSWALK/AIR TOXICS EMISSIONS FACTOR DATABASE MANAGEMENT SYSTEM

Acronym: XATEF

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)

Contact Person: Anne A. Pope, U.S. EPA, OAQPS, MD-14, Research Triangle Park, NC 27711, (919) 541-5373

Description:

The XATEF Database Management System, written by Radian Corporation for the Emissions Inventory Branch of the EPA, allows users to estimate the magnitude of potential air toxic emissions from source categories. The system is designed to facilitate the rapid identification and cross-referencing of toxic air pollutants and emission source categories and to provide corresponding emission factors for these associations as available. Approximately 7,600 emission factors for 400 compounds and 450 source categories, as well as a listing of approximately 15,000 pollutant/source associations, are included in XATEF to date.

Emissions factor information in XATEF is based on the literature and expands the air toxic emission factor collection found in *Toxic Air Pollutant Emission Factors--A Compilation for Selected Air Toxic Compounds and Sources, Second Edition*. Pollutant/source category associations or "crosswalk data" are based on the Standard Industrial Classification (SIC)/Source Category Code (SCC)/pollutant cross-references found in the above mentioned report. Source category information is obtained from the Toxic Release Inventory (TRI) (described in Part I of this Inventory) and the National Air Toxics Information Clearinghouse (NATICH) (described in the Overview section of this Inventory). Data in XATEF are updated annually.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: (Emissions) particulates, inorganic compounds, VOCs, semi-VOCs, pesticides, PCBs, dioxin/furans, radionuclides, asbestos, acids/acid aerosols, criteria pollutants

Relevant variables: Emission factors by source and by pollutant

Database Availability:

Availability: Any requestor can obtain data by purchasing the diskette from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; nonprofit agencies may obtain the diskette from OAQPS; use of the XATEF Database Management System requires an IBM AT PC or compatible machine that runs MS-DOS or PC-DOS version 3.0 or later, and that has at least 640 K of free RAM, a fixed disk with at least 20 MB of storage, and a high density 5.25" external disk drive; also available through OAQPS Technology Transfer Network (CHIEF)

Form: Diskette (compiled set of menu driven dBase files; however, the system does not require dBase to operate; reports may be output to disk as an ASCII, dBase, or Lotus file); CHIEF bulletin boards; CD-ROM

Reports: *Crosswalk/Air Toxic Emission Factor Database Management System User's Manual*; *Toxic Air Pollutant/Source Crosswalk-A Screening Tool for Locating Possible Sources Emitting Toxic Air Substances, Second Edition* (EPA-450/2-89-017); *Toxic Air Pollutant Emission Factors--A Compilation for Selected Air Toxic Compounds and Sources, Second Edition*. (EPA 450/2-90-011)

DERMAL EXPOSURE MODEL

Acronym: DERMAL

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Pat Jennings, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-5588

Description:

The DERMAL Exposure Model was developed to assist the Exposure Evaluation Division of the Office of Pollution Prevention and Toxics in performing screening-level assessments of potential dose rates from dermal contact with 14 consumer products. An additional option allows users to develop their own scenarios for estimating potential dose rates from deposition of a film or liquid onto skin and from contact with solid surfaces. The model does not include estimation based on absorption. The user provides the weight-fraction of the chemical of interest in the consumer product and the program calculates potential dose rate. The data system also provides default values for chemicals in common consumer products.

Summary of Environmental-related Information:

Media: Water, soil

Classes of compounds: User provides weight-fraction of the chemical in the product

Relevant variables: Concentration of chemical in liquid or solid

Process evaluated: Dermal contact with consumer products

Database Availability:

Availability: Any requestor can obtain diskettes and user guides

Form: The software was designed to be user friendly and to require a minimum number of user inputs so that screening-level estimates of potential dose rates from dermal contact can be generated rapidly. DERMAL is programmed in Turbo C++ and is designed to run on a personal computer using a PC-DOS/MS-DOS version 3.0 or later equipped with 80 K of available system memory.

DIETARY RISK EVALUATION SYSTEM

Acronym: DRES

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs (OPP)

Contact Person: James Kariya, U.S. EPA, OPP, Dietary Exposure Section, H7509C, 401 M Street SW, Washington, DC 20460, (703) 305-6028

Description:

DRES is a tool for estimating dietary exposure to a pesticide and comparing that estimate to a previously determined Reference Dose. The exposure estimates are derived from food consumption of "raw agricultural commodities." These estimates are made by translating information from the Nationwide Food Consumption Survey (NFCS) conducted by the U.S. Department of Agriculture (see description in this Appendix). The translation is performed using "recipes." The program can multiply the exposure by an estimate of the upper bound of carcinogenic potency to provide an estimate of upper bound carcinogenic risk over a lifetime.

DRES is composed of three major files containing information on food consumption estimates, toxicology summaries for each chemical, and residue concentrations for each chemical in specific foods.

DRES is routinely used to estimate dietary exposure for the U.S. population and for 22 subgroups of the population. Dietary exposure is expressed as mg/kg body weight/day and as a percentage of the Reference Dose, where applicable.

Summary of Environmental-related Information

Media: Human food

Classes of compounds: Pesticides

Relevant Variables: Dose and percent of Reference Dose

Process evaluated: Consumption of foods

Database Availability:

Availability: Any requestor can obtain the PC database, which provides the user with estimates of chronic exposure, from James Kariya, U.S. EPA, OPP. Data tapes containing consumption information are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Form: Diskettes (IBM-compatible, dBase III), Magnetic tapes (SAS data sets)

ENDANGERED SPECIES DATABASE/REACHSCAN LINK

Acronym: ESDB

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Sidney Abel, U.S. EPA, OPPT, Exposure Evaluation Division, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3917

Description:

The ESDB contains an all-inclusive listing developed by the U.S. Fish and Wildlife Service of the threatened and endangered species in the U.S. The database identifies the location of a species at the county level, the date listed, and the scientific name, in addition to other information related to the listing criteria. This file has been linked to the ReachScan database, which identifies the location of industrial discharges to surface water. The link allows an assessor to identify endangered species in the same county as the industry discharging to a water body. At present, the database will not verify the presence of a species in contact with a specific aquatic environment such as a river or lake.

Summary of Environmental-related Information:

Media: Water (through link with ReachScan)

Relevant Variables: Presence of animal populations

Database Availability:

Availability: Any requestor can obtain the database

Form: Diskette (IBM-compatible, DOS 2.2 or later version, Turbo Pascal)

ENVIRONMENTAL FATE DATABASE

Acronym: EFDB

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Nestor F. Tirado, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3919; or Philip H. Howard, Syracuse Research Corporation, Merrill Lane, Syracuse, NY 13210-4080, (315) 426-3350

Description:

The EFDB contains files of physical/chemical properties and data on the environmental fate of chemicals, including data on biodegradation. The EFDB allows rapid access to all available fate data on a given chemical without having to search the primary literature. The database provides data for constructing structure-activity correlations for degradability and transport of chemicals in the environment. These correlations help identify persistent chemical classes as well as physical or chemical properties that may correlate to particular behavior in the environment.

Information is ordered by Chemical Abstract Services Registry Number (CASRN). Approximately 17,000 references were used as the source for the information in the database. (Full citations are given in the XREF file, a bibliographical listing of references.) The database consists of four major files: DATALOG, CHEMFATE, BIOLOG, and BIODEG.

DATALOG contains approximately 160,000 records on approximately 12,000 chemicals. The file indicates where environmental fate and exposure data can be found, using 18 different indexing terms (e.g., water solubility, Henry's Law constant, and ambient monitoring).

CHEMFATE contains actual physical property values, rate constants, and monitoring concentrations for approximately 900 commercially significant chemicals. Recommended physical property values were collected for the SARA Section 313 Toxic Release Inventory chemicals and the chemicals included in the Superfund Health Evaluation Manual.

BIOLOG indicates sources of microbial toxicity and biodegradation data on approximately 6,000 chemicals. Indexing and searching are allowed on toxicity or biodegradation data; aerobic or anaerobic conditions; pure enzyme, cell free extract, pure culture, or mixed culture conditions; source of microorganisms (e.g., soil, sewage, etc.); and whether the metabolism pathway has been studied.

BIODEG contains experimental results on biodegradation studies for approximately 600 chemicals. Experimental details, such as chemical concentration and rate of degradation, are included.

Summary of Environmental Factors:

Media: Air, soil, water, human food, human samples

Classes of compounds: Organic metals, VOCs, semi-VOCs, pesticides, PCBs, dioxins/furans, acids/acid aerosols

Relevant variables: Environmental transport and degradation of chemicals, physical property values, rate constants

Process evaluated: Transport and degradation of chemicals

Database Availability:

Availability: Any requestor can receive the database

Form: Diskettes (IBM-compatible version) or access to VAX mainframe version at Syracuse Research Corporation (Contact Philip H. Howard, Syracuse Research Corporation, Merrill Lane, Syracuse, NY 13210-4080, (315) 426-3350 regarding user accounts)

FLUSH

Acronym: FLUSH

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Pat Jennings, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-5588

Description:

FLUSH is a software program developed for estimating surface water concentrations of chemicals that come from consumer products which were disposed of in household wastewater. This household wastewater is assumed to undergo treatment at a local wastewater treatment facility that subsequently discharges its treated effluent into surface waters. FLUSH also provides estimates of potential dose rates for humans from ingestion of drinking water and for fish that may become contaminated by these household wastewater releases. The model does not use absorption parameters for the estimation. The results of the model can be compared with concentrations of concern for aquatic organisms so that the potential effects of household wastewater releases on aquatic life can be predicted.

Summary of Environmental Factors:

Media: Water

Classes of compounds: Program requires weight-fraction of chemical in product; default values are provided for a number of chemicals

Relevant variables: Concentration of chemical in water

Process evaluated: Discharge of chemicals into water system and into drinking water from household usage

Database Availability:

Availability: Any requestor can obtain diskette and user guide

Form: The software was designed to be user friendly and to require a minimum number of user inputs. FLUSH is programmed in Turbo C++ and is designed to run on a PC using PC-DOS/MS-DOS 3.0 or later version equipped with 80 D or available system memory

HOUSEHOLD SOLVENT PRODUCTS: NATIONAL USAGE SURVEY

Acronym: None
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)
Contact Person: Patrick Kennedy, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3916

Description:

The purpose of this one-time survey was to provide information that would be useful for estimating the magnitude of exposure to chemicals in 32 different product categories ranging from paint strippers to automotive cleaners. The Survey was a nationwide consumer survey to determine pertinent characteristics of consumer use of these products. The Survey was conducted in 1985 and 1986.

Summary of Environmental-related Information:

Media: Bulk chemicals

Relevant variables: Quantity and use of chemicals by consumers

Database Availability:

Availability: Any requestor can purchase report from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Report: *Household Solvent Products: A National Survey*

MULTI-CHAMBER CONCENTRATION AND EXPOSURE MODEL

Acronym: MCCEM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Patrick Kennedy, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3916

Description:

MCCEM is an indoor air quality model that is designed to be flexible yet user friendly. It contains a database of house data that are needed to run an indoor air model, such as air exchange rates, interzonal air flows, and house and room volumes. Source emission rates of pollutants are entered into the model either as numbers or formulas. MCCEM accounts for chemical decay and changing outdoor concentrations over time. It is capable of performing sensitivity analyses and Monte Carlo analyses.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: User provides source emission rates and other characteristics

Relevant variables: Concentrations of pollutant in indoor air

Process evaluated: Transport in an indoor environment

Database Availability:

Availability: Any requestor can obtain diskettes, user guide, and model documentation

Form: Diskettes (IBM-compatible; program written in Quick Basic; input of source emission rates through Lotus spreadsheet)

NATIONWIDE FOOD CONSUMPTION SURVEY

Acronym: NFCS
Sponsoring Agency: U.S. Department of Agriculture (USDA), Human Nutrition Information Service (HNIS)
Contact Person: Ellen Harris, USDA, HNIS, 6505 Belcrest Road, Hyattsville, MD 20782, (301) 436-7725

Description:

The NCFS is conducted every 10 years to determine home food usage and food ingestion by household members both at and away from home. The Survey is conducted as a household survey using approximately 15,000 households identified from a complex multistage stratified sample to represent private households in the 48 contiguous United States. In addition, special surveys are targeted for populations in Alaska, Hawaii, and Puerto Rico; low-income households; and households with elderly persons.

The Survey uses a questionnaire format to obtain information on the home food supplies and food used from those supplies. A 3-day diary of consumption is requested of household members. The information from these questionnaires is compared to the Current Population Survey of the U.S. Census to determine the degree to which the respondents are representative of the national population.

Summary of Environmental-related Information:

Media: Human food

Relevant variables: Type and amount of food consumed

Process evaluated: Consumption

Database Availability:

Availability: Any requestor can obtain reports from HNIS and tapes from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Form: Tapes (ASCII)

Reports: *Nutrition Monitoring in the United States--A Progress Report from the Joint Nutrition Monitoring Evaluation Committee* (PHS 86-1255); a series of reports are produced by and available from HNIS

PROBABILISTIC DILUTION MODEL

Acronym: PDM

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Sidney Abel, U.S. EPA, OPPT, Exposure Evaluation Division, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-3917

Description:

PDM is an aquatic exposure assessment tool used to predict the number of days per year a chemical concentration of concern will be exceeded in a water body after the chemical has been discharged from an industrial facility. The user provides the program with the level of concern and the release amount of the chemical. The PDM then provides the user with two options. Option 1 performs an analysis of a specific river reach and Option 2 perform an analysis of receiving streams in an industrial category. Option 2 can be used for reasonable worst-case or average-case analyses.

Summary of Environmental-related Information:

Media: Water

Classes of compounds: User provides level of concern and release amount

Relevant variables: Number of days exceeding concern level for concentration of chemical in water

Process evaluated: Diffusion in water

Database Availability:

Availability: Any requestor can obtain the diskettes

Form: Diskette (IBM-compatible, DOS 2.2 or later version, Turbo Pascal)

SCREENING CONSUMER INHALATION EXPOSURE SOFTWARE

Acronym: SCIES

Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics (OPPT)

Contact Person: Pat Jennings, U.S. EPA, OPPT, TS-798, 401 M Street SW, Washington, DC 20460, (202) 260-5588

Description:

The SCIES model has been developed to assist the Exposure Evaluation Division of the Office of Pollution Prevention and Toxics in performing screening-level assessments of potential dose rates from inhalation of new and existing chemicals in consumer products. The model classifies consumer products in 10 categories and estimates potential average individual dose rates from inhaling each component of a consumer product based on the product category in which it has been placed. The model estimates potential dose rates for both the user of the product and passively exposed nonusers (i.e., individuals present in the residence who are not actively using the products). Default values are provided for each parameter required to run the model for each of the product categories. The assessor has the option of changing selected default values. An additional option allows assessors to create their own scenarios.

The SCIES model combines the results of a recently completed effort to measure ventilation flows within residences using a perfluorocarbon tracer (PFT) with a two-zone mass balance model to allow estimation of potential dose rates to both users and nonusers. Scenarios are provided that depict product uses expected to result in reasonable worst-case estimates of potential dose rates. These worst-case scenarios form the basis for the default values used.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: VOCs, semi-VOCs

Relevant variables: Concentration of chemical in air, potential dose rates

Process evaluated: Volatilization during consumer product use

Database Availability:

Availability: Any requestor can obtain diskette and user guide

Form: This model is programmed in Turbo Pascal and is designed to run on a personal computer using a PC-DOS/MS-DOS environment equipped with at least 54 K of memory and a color monitor

Reports: *Screening-Level Consumer Inhalation Exposure Software Background Document*

U.S. FOOD SUPPLY SERIES

Acronym: None
Sponsoring Agency: U.S. Department of Agriculture (USDA), Economic Research Service (ERS)
Contact Person: Judith Putnam, USDA, ERS, Room 1137, 1301 New York Ave. NW, Washington, DC 20005, (202) 219-0870

Description:

The Economic Research Service provides annual estimates of the amounts of approximately 350 foods that are available for civilian food consumption at or before the retail level of distribution. The estimates are derived from data on production, imports and exports, military use, and beginning and year-end inventories. This historical series began in 1909.

The data are generated for economic analyses purposes. The data include estimates of the quantities of food available for consumption per capita per year. Estimates of the per capita consumption are derived by dividing the weight of food (by type of food) available for use during the year by the population of the 50 states and the District of Columbia.

Summary of Environmental-related Information:

Media: Human food

Relevant variables: Type and amount of food consumed nationally

Process evaluated: Consumption

Database Availability:

Availability: Any requestor can obtain bulletins and diskette from ERS; reports are available from the U.S. Government Printing Office

Form: Diskettes (contain information in tabular form)

Reports: *Agricultural Statistics* (annual); *U.S. Food Consumption* (Statistical Bulletin No. 364, 1965, describes methods); reports can be obtained from the Superintendent of Documents of the Government Printing Office

VOC/PM SPECIATION DATA BASE MANAGEMENT SYSTEM

Acronym: SPECIATE
Sponsoring Agency: U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS)
Contact Person: Anne A. Pope, EPA, OAQPS, MD-14, Research Triangle Park, NC 27711, (919) 541-5373

Description:

SPECIATE contains 700 species profiles for both volatile organic compounds (VOCs) and particulate matter (PM). By applying the species profiles to either total VOC or PM emission estimates, the weight percentage of specific VOCs or the elemental composition of PM can be estimated for the source categories covered in the data system. SPECIATE presents data by compound and by source category. The system is designed for easy access and retrieval of emission estimation data by pollutant or source description.

Speciation profiles are searched by pollutant name (Chemical Abstract Services Registry Number (CASRN) or Source Classification Code (SCC)). Information is provided on the test and analytical methods, use of control equipment, and profile assignment. The information is updated annually.

Summary of Environmental-related Information:

Media: Air

Classes of compounds: Criteria pollutants, inorganic compounds, VOCs, particulates

Relevant variables: Weight percentage and elemental composition are given by source category

Process evaluated: Speciation of compounds in air

Database Availability:

Availability: Any requestor can purchase SPECIATE from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650; nonprofit agencies should contact OAQPS

Form: Diskettes (containing a compiled set of menu-driven dBase files) which require an IBM compatible PC with MS-DOS (TM) version 3.0 or higher, 640 KB free RAM, a fixed disk with at least 8 MB of storage, and a high density 5.25" external disk drive; available on CHIEF bulletin board system; CD-ROM

Reports: *Volatile Organic Compound (VOC)/Particulate Matter (PM) Speciation Data System User's Manual, Version 1.4*

APPENDIX E

Listing of Chemicals By Data Collection System and Media

APPENDIX E

Listing of Chemicals by Data Collection System and Media

This Appendix lists the chemicals for which information is available in the database collection systems described in Part I of this Inventory. For each chemical, the list indicates which database(s) contain information and for what media. It should be noted that the chemical names were entered as they were provided; they were not edited for consistency of nomenclature or format.

Lists were obtained for all but two of the data collection systems: Lake Analysis Management System (LAMS), and the Pesticide Information Network (PIN). In addition, it should be noted that the lists for both the Air Facility Subsystem (AFS) of the Aerometric Information Retrieval System (AIRS) and the Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System (AIRS) are both listed under the Aerometric Information Retrieval System (AIRS).

The media categories are air, water, soil, food, bulk chemicals, human samples, and other. As indicated in the questionnaire, these categories include the following subcategories:

- Air: indoor homes, indoor public, outdoor urban, outdoor rural, emissions, personal monitor, other;
- Water: surface, ground water, leachate, municipal, private, other;
- Soil: residential, industrial, sediment, Superfund Site, dust, other;
- Food sources: nondomesticated gamebirds and mammals, domesticated gamebirds and mammals, plants, and other;
- Bulk chemicals: bulk chemicals, other;
- Human samples: human samples (e.g., blood, urine).

Respondents used the "other" category to include such media as mixed hazardous waste, materials injected into underground wells, materials discharged to Publicly Owned Treatment

Works (POTWs), wastes at recycling and treatment facilities, and wildlife that does not constitute a food source for humans (e.g., starlings).

For the most part, the names of the data collection systems are provided in full in the chemical list. However, some of the database names were so long that including the entire name enlarged the size of the database unnecessarily. Therefore, for a select number of databases, the acronym was used instead of the full name. Table E-1 on the next page lists the data collection systems for which chemical names are listed and indicates which databases are listed by their acronym. The list itself is on a diskette accompanying this document.

Access to Chemical List: The enclosed diskette contains a dBASE III PLUS® file containing the chemical listing from Appendix E. The file contained on the diskette is compressed so that it can fit onto one diskette. To access the list **requires a hard disk with at least 10 megabytes of free space.** The data base can be installed on any drive and in any directory; however, the file will be loaded into the current directory in use once your activate the software enclosed. We recommend that it be installed on the your dBASE directory for ease of access from that software. The following procedure can be used to install this file within the dBASE directory and it assumes you are installing the database on the C drive.

1. Place the database disk in your computer's A drive.
2. At the C: prompt change your directory to that in which your dBASE III PLUS® software is contained.
3. At the dBASE prompt type **A:CHEMICAL** and press the **ENTER** key.
4. A dBase III PLUS® file (CHEMICAL.DBF) will be copied from the floppy disk to the hard disk.
5. Remove the floppy disk from the A drive.
6. Once the data file has been copied, the data base may be accessed using the dBase III PLUS® software program.

TABLE E-1

DATA COLLECTION SYSTEMS FOR WHICH CHEMICAL NAMES ARE LISTED

Acid Deposition System (ADS)

Agricultural Chemical Usage

Air Facility Subsystem (AFS) of the Aerometric Information Retrieval System (AIRS) (Listed under AIRS in this appendix)

Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System (AIRS) (Listed under AIRS in this appendix)

Anticipated Residues in Food (OPPE Pesticide Food Residue)

Aquatic Toxicity Information Retrieval (AQUIRE)

Biennial Reporting System

Carbon Monoxide Total Exposure Assessment Methodology Study (CO TEAM)

Chemical Screening Branch (CSB) Existing Chemicals Assessment Tracking System (CECATS) (Listed as CECATS in this appendix)

Community Health Air Monitoring Program (CHAMP)

Eastern Lake Survey (ELS)

Effects of Sulfur Dioxide and Respirable Particles on Human Health (Six Cities Study)

Emergency Response Notification System (ERNS)

Emissions Certification Database

Environmental Monitoring and Assessment Program (EMAP)

Environmental Radiation Ambient Monitoring System (ERAMS)

Federal Reporting Data System (FRDS)

Fluoridation Census

Global Environmental Monitoring System (GEMS)

Hazardous Substance Release/Health Effects Database (HAZDAT)

DATA COLLECTION SYSTEMS FOR WHICH CHEMICAL NAMES ARE LISTED (cont.)

Hispanic Health and Nutrition Examination Survey (HHANES)

Integrated Data Base (IDB)

Interagency Monitoring of Protected Visual Environments (IMPROVE)

Internal Radiation Dosimetry System (OHSP)

Lockheed-EPA, EMSL-LV

Long-Term Monitoring Program (LTM)

Marine Pollution Retrieval System (MPRS)

Microbiology and Residue Computer Information System (MARCIS)

Month and State Current Emissions Trends (MSCET)

National Acid Precipitation Assessment Program (NAPAP Version 2)

National Air Toxics Information Clearinghouse (NATICH)

National Coastal Pollutant Discharge Inventory (NCPDI)

National Contaminant Biomonitoring Program (NCBP)

National Environmental Specimen Bank

National Health and Nutrition Examination Survey (NHANES)

National Herbicide Use Database

National Human Adipose Tissue Survey (NHATS)

National Human Milk Monitoring Program

National Park Service Environmental Database Management System (NPSEDMS)

National Pesticide Survey (NPS)

National Residential Radon Survey (NRRS)

National Shellfish Register of Classified Estuarine Waters

DATA COLLECTION SYSTEMS FOR WHICH CHEMICAL NAMES ARE LISTED (cont.)

National Status and Trends (NS&T) for Marine Environmental Quality

National Stream Survey (NSS)

National VOC Data Base

National Water Quality Networks Program

Nonoccupational Pesticide Exposure Study (NOPES)

Northeast Regional Oxidant Study (NEROS)

Ocean Data Evaluation System (ODES)

Particle Total Exposure Assessment Methodology Study (PTEAM)

Permit Compliance System (PCS)

Radioactive Materials Released from Nuclear Power Plants

Recall Database

Regional Air Pollution Study (RAPS)

Resource Conservation Recovery Information System (RCRIS)
(Listed as RCRIS in this appendix)

State/EPA Residential Radon Survey

Storage and Retrieval of Water Quality Data (STORET)
(Listed as STORET in this appendix)

Synthetic Organic Chemicals (SOC), U.S. Productions and Sales (Annual SOC Reports)
(Listed as SOC in this appendix)

Total Diet Study (TDS)

Toxic Release Inventory (TRI)

Toxic Substances Control Act Test Submissions (TSCATS)

Volatile Organic Compound Total Exposure Assessment Methodology Study (VOC TEAM)

Water Data Storage and Retrieval System (WATSTORE)

DATA COLLECTION SYSTEMS FOR WHICH CHEMICAL NAMES ARE LISTED (cont.)

Western Lake Survey (WLS)

Wisconsin Fisheries (FISH.WIS)