United States Environmental Protection Agency

Office of Water
Ground Water Protection Division
(4602)

June 1994

Ground Water Information Systems Roadmap

A Directory of EPA Systems Containing Ground Water Data

Ground Water Information Systems Roadmap

Information Update Form

I. Information Reviewer *To be completed by person submitting information.*

Submitted by: _____ Date: _____

EPA Office/Division: _____

Address: _____ Phone No.: _____

II. Data System Information

Section of Report: _____

Page Number: _____ New Entry: _____

Data System Name/Information Relevant to Data System: Revision: _____

_____

_____

_____

Abstract (Or Attach Relevant Information):

_____

_____

_____

_____

III. Contact Information

Please provide information on the individual who will be listed in the Roadmap as the primary contact.

Name: _____

Phone Number: _____ EPA Office: _____

Mail Code: _____

For GWPD Use Only

Date Received: .....

Information Verified: .....

Initials: .....

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Executive Summary

EPA has issued its ground water policy, *Protecting the Nation's Ground Water: EPA's Strategy for the 1990's*, and is now implementing this policy.[1] The overall goal of the *Ground Water Strategy* is to "prevent adverse effects to human health and the environment, and to protect the environmental integrity of the nation's ground water resources." Through its implementation of the Ground Water Strategy, the Agency has identified a critical need to improve the management of ground water information.

The EPA Ground Water Regulatory Cluster Workgroup is responsible for creating a process for implementing the Agency's Ground Water Protection Principles as outlined in the *Ground Water Strategy*. The Workgroup is tasked with examining programs and identifying opportunities for improvement or coordination. This is achieved through the review of regulations, guidance, and policies. This Ground Water Information Systems Roadmap (Roadmap) was created to assist the Workgroup in achieving its goals and to assist EPA, other Federal agencies and States to identify sources of ground water data which will in turn support effective environmental decision-making.

In addition, EPA's Office of Ground Water and Drinking Water (OGWDW), in conjunction with numerous State and Federal officials, has developed two intertwined efforts: the Comprehensive State Ground Water Protection Program (CSGWPP)[2] and the Minimum Set of Data Elements for Ground Water Quality (MSDE).[3] Generally, CSGWPP coordinates and focuses ground water protection efforts across Federal, State, and local programs. The data management component of CSGWPPs stress *coordinating information collection and management to measure progress, re-evaluate priorities, and support all ground water-related programs*. The MSDE, a key information management component of CSGWPPs, is the "minimum number of data elements necessary to use ground water quality data. . . . across related programs." The MSDE supports CSGWPP aims of information collection and management and cross program coordination goals.

Therefore, the purpose of this Ground Water Information Systems Roadmap is to identify EPA ground water data and highlight MSDE use and potential cooperative opportunities to link data elements among different program systems. Specifically, EPA hopes that this document will:

- **Help EPA and States to increase ground water information sharing.** This Roadmap identifies data systems containing ground water data and discusses opportunities for

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[1] U.S. EPA, Office of the Administrator, *Protecting the Nation's Ground Water: EPA's Strategy for the 1990s*, 21Z-1020, July 1991.

[2] U.S. EPA, Office of The Administrator, *Final Comprehensive State Ground Water Protection Program Guidance*, EPA 100-R-93-001, December 1992.

[3] U.S. EPA, Office of Water, *EPA Policy Order - Minimum Set of Data Elements For Ground Water Quality, 7500.1A*, October 1992.

improved coordination, based on interviews with EPA Headquarters and Regional staff. In addition, by identifying the current usage of the MSDE, EPA hopes to further promote its use and foster coordination among programs implementing the MSDE.

- **Help States implement CSGWPP information management activities.** By identifying appropriate data sources and areas for program coordination, this Roadmap serves as a tool for programs to more effectively set priorities and develop consistent regulations, policies, and guidance to help implement CSGWPPs.

- **Promote more efficient access, use, and storage of information.** The Roadmap identifies information systems with ground water data and provides detailed information on the content of these systems and how they can be accessed and used.

Ultimately, this Roadmap will assist EPA, other Federal agencies, and the States in identifying, developing, improving and sharing ground water information.

1. INTRODUCTION

Various EPA programs collect ground water data to support their specific program objectives. This report describes these EPA information collection activities and the EPA Headquarters, Regional and Laboratory electronic data systems and hard copy filing systems that contain ground water data. It also identifies the types of ground water data contained within the systems and the extent to which they conform to EPA's Minimum Set of Data Elements for Ground Water Quality (MSDE) described below. It is important to keep in mind while reading this document that its primary purpose is to highlight opportunities for ground water information coordination, sharing, and exchange among EPA programs and systems. In addition, this document will help promote information exchange and coordination among other Federal agencies and the States by highlighting the key ground water components within each system.

1.1 Background

EPA has issued its ground water policy, *Protecting the Nation's Ground Water: EPA's Strategy for the 1990's* (hereafter referred to as the *Ground Water Strategy),* and is now implementing this policy.[4] Under the *Ground Water Strategy*, the "overall goal of EPA's Ground Water policy is to prevent adverse effects to human health and the environment, and to protect the environmental integrity of the nation's ground water resources." The *Ground Water Strategy* references an earlier report, *Data Management Subcommittee Report to the Ground Water Task Force: Ground Water Data Collection, Accessibility, and Utilization*, which recommends a comprehensive approach to managing ground water data.[5] Generally, the *Subcommittee Report* articulates the need for integrating and improving the management and use of ground water data across programs, and stresses the need for:

- Improving **data consistency** among the ground water data collected by EPA, States, and others through measures such as the MSDE and requiring or strongly suggesting consistent data collection and reporting formats;

- Ensuring consistent **data quality** through established data quality objectives and detailed technical procedures for quality assurance and quality control;

- Improving **accessibility** to data collected at a Federal, State, and local level through automation; and

- **Utilizing existing data** for broader purposes than implementing programs, such as establishing Agency goals, planning programs, and assessing overall environmental quality by using such tools as environmental indicators.

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[4] U.S. EPA, *Protecting the Nation's Ground Water: EPA's Strategy for the 1990s*, EPA/21Z-1020, July 1991.

[5] U.S. EPA, October 25, 1990.

The development of the MSDE, as discussed in the section below, represents a step in achieving the ground water protection goals and principles for data management outlined in the *Agency's Ground Water Strategy*.

1.1.1 The MSDE

By implementing the *Strategy*, the Agency has identified a critical need to improve the management of ground water information. The *Strategy* recommended standardizing the types and quality of ground water data collected, and improving the accessibility, accuracy, and consistency of these data. To facilitate this effort, EPA's Office of Ground Water and Drinking Water (OGWDW), in conjunction with other EPA Programs, other Federal agencies, and the States, developed the Minimum Set of Data Elements For Ground Water Quality (MSDE).

The MSDE is the "minimum number of data elements necessary to use ground water quality data . . . across related programs." It is a set of 21 ground water quality-related data elements that contain general, geographic, well, and sample descriptors. Exhibit 1 lists these 21 elements. Appendix A of this report defines these elements. EPA Order 7500.1A requires that all EPA staff and EPA contractors use the MSDE for all ground water data collection activities, including research and development and enforcement.[6] In addition, EPA strongly encourages all organizations that collect ground water quality data to use the MSDE.

Exhibit 1
MINIMUM SET OF DATA ELEMENTS FOR GROUND WATER QUALITY

General Descriptors

1. *Data Sources*

Geographic Descriptors

2. *Latitude*
3. *Longitude*
4. *Method Used to Determine Latitude and Longitude*
5. *Description of Entity*
6. *Accuracy of Latitude and Longitude Measurement*
7. *Altitude*
8. *Method Used to Determine Altitude*
9. *State FIPS Code*
10. *County FIPS Code*

Well Descriptors

11. *Well Identifier*
12. *Well Use*
13. *Type of Log*
14. *Depth of Well at Completion*
15. *Screened/Open Interval*

Sample Descriptors

16. *Sample Identifier*
17. *Depth to Water*
18. *Constituent or Parameter Measured*
19. *Concentration/Value*
20. *Analytical Results Qualifier*
21. *Quality Assurance Indicator*

The MSDE is a key component to EPA's Comprehensive State Ground Water Protection Programs (CSGWPPs). The goal of the CSGWPP approach is to coordinate and focus ground water protection efforts across all Federal, State, and local programs based on the State's understanding and decisions regarding the relative use, value, and vulnerability of its ground water resources, including the relative threat of all potential contaminant sources. One strategic activity under this approach is *coordinating information collection and management to measure*

[6] U.S. EPA, October 1992. See also *Definitions for the Minimum Set of Data Elements for Ground Water Quality*, U.S. EPA, EPA 813/B-92-002, July 1992.

progress, re-evaluate priorities, and support all ground water-related programs. The adequacy criteria for this strategic activity specify that States define a sufficient set of data elements to facilitate efficient data sharing and strongly encourage States to use the MSDE.[7] In addition, implementing the MSDE will help EPA and States to identify ground water priorities through more efficient tracking of information to characterize the ground water quality.

1.2 Methodology

Information for this report was compiled from interviews with over 76 individuals in program areas at EPA Headquarters, Regions, and research laboratories. A list of ground water-related program areas was developed based on suggestions from members of the Ground Water Regulatory Cluster Workgroup. Appropriate individuals from each program area (hereafter called Program Representatives) were identified at EPA Headquarters, Regions, and research laboratories. Exhibit 2 lists the program areas profiled in this report. In addition, several representatives, initially identified as contacts for potential sources of data, confirmed that their program office did not routinely collect or compile ground water data in an electronic data base or centralized hard copy file. Therefore, the following program areas were not included in this report: High-Level Radioactive Waste, Low-Level Radioactive Waste, National Pollutant Discharge Elimination System (NPDES) Program, Sewage Sludge, Stormwater, Underground Storage Tanks, Uranium Mill Tailings, and Wetlands. Using a standard protocol, contacts were interviewed to identify the following types of information about data systems used to maintain ground water data:

- Reporting requirements or data sources for the program area;

Exhibit 2
PROFILED PROGRAM AREAS

Office of Water

- *Biennial Water Quality Reports*
- *Nonpoint Source*
- *Public Water Systems*
- *Sole Source Aquifers*
- *Underground Injection Control*
- *Wellhead Protection*

Office of Prevention, Pesticides and Toxic Substances

- *Pesticides and Ground Water*
- *TSCA Product Controls*
- *TSCA PCB Wastes*
- *Toxic Release Inventory*

Office of Research and Development

- *Superfund Innovative Technology Evaluations*

Office of Solid Waste and Emergency Response

- *Hazardous Waste: Delisting*
- *Hazardous Waste: No Migration*
- *Hazardous Waste: TSDFs*
- *Special Wastes*
- *Superfund: Remedial Program*
- *Superfund: Removal Program*
- *Superfund: Reportable Releases*

[7] U.S. EPA, *Final Comprehensive State Ground Water Protection Program Guidance*, EPA 100-R-93-001, December 1992.

- Scope of the data in the system (e.g., geographic coverage, number of wells or sites, sampling data available);

- Quality of data (e.g., quality assurance/control procedures, frequency of updates); and

- System users and access procedures.

Program Representatives also were asked to identify barriers and opportunities for coordination among different program areas and data systems.

1.3 Purpose and Organization of Report

The Ground Water Cluster Workgroup is responsible for creating a process for implementing the Agency's Ground Water Protection Principles as mentioned in the *Ground Water Strategy*. The Workgroup is tasked with examining programs and identifying opportunities for improvement or coordination by reviewing regulations, guidance, and policies. This *Ground Water Information Systems Roadmap* was created to assist the Workgroup in achieving its goals and to assist EPA, other Federal agencies and States in identifing sources of ground water data to support effective environmental decision-making.

In addition to the Introduction, this report consists of three additional sections.

- **Section 2 - DATA ANALYSIS AND OPPORTUNITIES FOR COORDINATION** - discusses findings about the types of data collected and the potential opportunities for coordination and in information management among programs.

- **Section 3 - DATA SYSTEM SUMMARIES** - includes a system summary for each data system identified. For each system, the summary contains the following sections:

  - System Overview,
  - Reporting Requirements and Other Data Sources,
  - MSDE Coverage,
  - Data Limitations,
  - Procedures for System Use and Access, and
  - Key Background Documents.

- **Section 4 - MSDE MATRICES** - summarizes the coverage and format of the MSDE data elements in each data system.

This report also includes four appendices: Appendix A defines the MSDE, Appendix B contains an alphabetical index to program areas and data systems, Appendix C lists all EPA contacts interviewed for this project, and Appendix D defines all acronyms used in the document.

2. DATA ANALYSIS AND OPPORTUNITIES FOR COORDINATION

This section discusses general findings on data collections in various programs and identifies opportunities for coordination based on interviews with Program Representatives.

2.1 General Findings

Program Representatives in four offices at the Assistant Administrator level and related Regional programs were interviewed: Office of Water (OW), Office of Prevention, Pesticides and Toxic Substances (OPPTS), Office of Solid Waste and Emergency Response (OSWER), and Office of Research and Development (ORD) and associated laboratories. Program Representativess identified 25 data systems that contain varying degrees of ground water data.

Exhibit 3 summarizes the general findings. The exhibit and the remainder of this section are divided into the following categories:

- Scope of the systems,
- Extent to which the systems address the MSDE,
- Data sources,
- Type of ground water information in the systems, and
- Type of system.

Scope of Data Systems

All of these systems are national in scope, that is, they are administered or developed for national use and contain data for areas within the 50 States and territories. In many cases, EPA offices collect summary data for programs that are primarily administered by the States. For the most part, Regions did not collect ground water data, particularly for programs administered by States. Programs in OW and OSWER generally provide support to the States for Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Resource Conservation and Recovery Act (RCRA), and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) program oversight and policy development. The programs do not maintain detailed ground water information, which is most often collected and maintained by individual States. OPPTS tended to collect and maintain more detailed data concerning ground water contamination by chemical, because OPPTS, unlike OW and OSWER, is responsible for the implementation of two consumer product-oriented statutes, the Toxic Substances Control Act (TSCA) and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Most ORD programs indicated that they have project-specific data, but not comprehensive data sets. However, we have profiled one ORD system, Superfund Innovative Technology Evaluations (SITE), that demonstrates ground water remediation technologies at a broad range of sites.

Exhibit 3
SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Water, Office of Ground Water and Drinking Water										
Biennial State Water Quality Reports	State-specific data on water quality	2		States	✓	✓	✓			✓
Federal Reporting Data System (FRDS-II)	Compliance and enforcement data for all public water supplies	7	✓	Public water systems and States		✓		✓		
Sole Source Aquifer Files	Ground water quality and quantity data supporting sole source designation	21	✓	Applicants for sole source designation under SDWA	✓	✓	✓			✓
Well Activities Tracking, Evaluation, and Reporting System (WATERS)	Records of one-time sampling data required by Class II UIC permits	19		SDWA regulated wells		✓			✓	
State Wellhead Protection Delineation Component Data Base (WPD)	Wellhead protection area delineation approaches	NA		States	✓				✓	
State Wellhead Protection Program Summaries	Brief summaries of State program elements	NA		States	✓					✓

[1] MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

Exhibit 3 (continued)
SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Water, Office of Science and Technology										
Effluent Guidelines Studies (EGS)	Industry studies to support regulatory determination for wastewater discharges	2		Targeted industries		✓				✓
Environmental Monitoring Methods Index (EMMI)	Index of methods for monitoring specific chemicals in all media	NA		Federal, State, and private organizations		✓		✓	✓	
Office of Water, Office of Wetlands, Oceans, and Watersheds										
CWA Section 319 Grants Reporting and Tracking System	Nonpoint source grant project summaries and status reports	0		State grant recipients	✓			✓	✓	
STOrage and RETrieval of Water Quality Data (STORET)	Site-specific ground water monitoring data	19	✓	Federal, State, and private organizations	✓	✓		✓		
Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution and Toxics										
Graphical Exposure Modelling Systems (GEMS)	Model to predict environmental effects of contaminant exposure to all media	7		Federal, State, and private organizations		✓			✓	

[1] MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

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SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution and Toxics										
Title III Toxic Release Inventory (TRI)	Listing of toxic chemical releases to all media	4		Facilities regulated under SARA Title III		✓		✓	✓	✓
Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs										
Ground Water Monitoring Studies	Monitoring studies of effect of specific chemicals on ground water	5		Pesticide registrants, registration applicants	✓	✓	✓			✓
National Survey of Pesticides in Drinking Water (NPS)	National data on occurrence and frequency of pesticides in drinking water	10		EPA survey	✓	✓	✓	✓	✓	✓
Pesticide Information Network (PIN)	Qualitative and quantitative studies of pesticides in ground water	21	✓	Federal, State, and private organizations	✓	✓	✓	✓		✓
Pesticide State Management Plans (SMPs)	State reports for addressing potential for resource contamination by specific chemicals	21		States	✓	✓	✓			

[1] MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

Exhibit 3 (continued)
SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Research and Development, Office of Environmental Engineering and Technology Demonstrations										
Superfund Innovative Technology Evaluations (SITE)	New technologies for remediating ground water at Superfund sites	8		Regions, technology developers	✓	✓	✓			✓
Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response										
Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS)	Data on potential hazardous waste sites	2		Regions, Army Corps of Engineers		✓		✓	✓	
ROD Information Directory (RIDs)	Remedies implemented at Superfund sites	2		Record of decision documents for facilities on the NPL		✓			✓	

[1] MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

Exhibit 3 (continued)
SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Solid Waste and Emergency Response, Office of Solid Waste										
Ground Water Information Tracking System with Statistical Capability (GRITS-STAT)	Ground water monitoring specified in State-issued RCRA facility permits	21	✓	RCRA Subtitle C regulated facilities		✓			✓	
Hazardous Waste Delisting Petitions	Documentation to support delisting hazardous wastes	6		Petitioners for delisting	✓	✓	✓			✓
Hazardous Waste No Migration Petitions	Documentation to support variance from RCRA Subtitle C requirements	21		Petitioners for variances	✓	✓	✓			✓
Resource Conservation and Recovery Information System (RCRIS)	Notification, permit, compliance, and corrective action data on hazardous waste handlers	4		RCRA Subtitle C regulated facilities		✓		✓	✓	✓
Special Waste Reports to Congress	Industry studies to support regulatory determination for specific wastes	2		Targeted industries		✓				✓

[1] MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

Exhibit 3 (continued)
SUMMARY OF EPA SYSTEMS CONTAINING GROUND WATER DATA

Data System	Scope of System	MSDE Coverage[1]		Data Sources	Types of Ground Water Data			System Type		
		# of Elements	MSDE Format		Qualitative	Monitoring/ Sampling	Hydrogeologic	Online[2]	PC Software	Hard Copy
Office of Solid Waste and Emergency Response, Office of Waste Programs Enforcement										
3-DB Superfund Data Base	Superfund response action decision documents	2		Superfund response action decision documents		✓			✓	

MSDE format refers to the formats recommended for various elements in the MSDE; [2] Access available via the EPA mainframe or other online system.

Coverage of MSDE Elements

The data systems reviewed in this report incorporate the MSDE in varying degrees, with ranging from one to 21 data elements. The systems "potentially" contain these elements because, in many cases, information is voluntarily submitted and the EPA offices do not require a specific level of detail or format for submissions. As of August 1993, no EPA program with a data system *requires* States or the regulated community to report all of the MSDE or to use the formats recommended in the MSDE. Therefore, the inclusion of the elements and the format reported vary considerably, even within some systems. Four systems, however, have been designed or are currently undergoing revisions to explicitly include the entire MSDE: the Office of Water's Storage and Retrieval System (STORET), and the Office of Water's Safe Drinking Water Information System (SDWIS) which will be the modernized version of the current Federal Reporting Data System (FRDS-II), the Office of Pollution Prevention and Toxic's Pesticide Information Network (PIN), and the Office of Solid Waste and Emergency Response's Ground Water Information Tracking System with Statistical Analysis Capability (GRITS-STAT). The proposed rule for State Management Plans (SMP) encourage States to submit all of the MSDE or a similar data set.[8] In addition, the WATERS data base has data fields for 19 of the 21 MSDE. The Sole Source Aquifer program suggests a minimum set of data elements for ground water quality that contains 16 of the elements in the MSDE but applicants will likely submit all 21.

Overall, most of the data systems summarized in this report contain data for some of the MSDE.[9] Six systems potentially contain between five and 10 of the elements in the MSDE. The information usually addresses data sources, description of entity, location, well identifiers, sample identifiers, constituent measured, and concentration or value. All but four systems contain at least two of the data elements. The data elements most frequently found are "constituent or parameter measured" and "concentration/value." Systems containing summary data on permit compliance, enforcement, and releases to the environment usually include these data. The elements, however, are not always linked to a specific well or site. Coverage of specific data elements is discussed in detail in Sections 3 and 4.

Data Sources

Twelve of the data systems contain ground water information that States or the regulated community are required to report. As noted earlier, no program *requires* use of the MSDE in its reporting requirements. Reporting requirements that supply data for the systems include Biennial State Water Quality reports, monitoring information required in RCRA and UIC facility permits, Superfund compliance, or data from studies required in support of a petition for sole

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[8] EPA expects to promulgate the final SMP rule in Winter 1995.

[9] This report includes four systems with none of the MSDE: EMMI, GRTS, WPD, and State Wellhead Protection Program Summaries. EMMI does not contain site-specific ground water data but does identify numerous sampling and monitoring techniques. GRTS was included because it identifies State ground water projects. The two Wellhead Protection systems contain information on State resource protection programs and potential sources of ground water information.

source aquifers or pesticide registration. Petitions for variances from regulation, registration of a chemical, or classification as a sole source aquifer often include one-time studies or demonstration projects, rather than ongoing monitoring efforts. Other data sources include States, other Federal agencies, and private organizations (e.g., universities, trade organizations). These parties often voluntarily submit independent research results to EPA for inclusion in data systems where applicable.

Types of Ground Water Information

Ground water data maintained in the information collection (systems) described in this Roadmap generally cover a range of qualitative, sampling and monitoring, and hydrogeologic information. The data range from location and sampling data from approximately 335,000 sites conducting ground water monitoring (STORET) to compliance and permit-specific data available from three systems (FRDS-II, RCRIS, and WATERS). FRDS-II contains sampling data for over 200,000 public water systems. RCRIS contains notification, permit, compliance, and corrective action data for treatment, storage and disposal facilities. WATERS contains a sampling information data element for Class II underground injection wells.

Twenty-three of the 25 systems contain ground water sampling or monitoring data. OSWER programs generally require ground water monitoring to identify or remove a source of ground water contamination and prevent the introduction of hazardous constituents or petroleum products in ground water. With the exception of data contained in the Hazardous Waste Delisting and No Migration Petitions data bases, the OSWER systems contain sampling or monitoring reports, often in summary form (e.g., number of contaminations, constituents detected, and concentrations). Similarly, the ORD system, SITE, contains some sampling and hydrogeological data in support of technology demonstrations.

OPPTS maintains data systems that contain detailed qualitative, sampling and monitoring, and hydrogeologic information from comprehensive studies. For example, the National Survey of Pesticides in Drinking Water Wells (NPS) includes sampling and hydrogeologic information for over 1,300 wells; however, the NPS sampling survey was targeted to a specific set of pesticides and analytes. OPPTS data generally cover physical and chemical properties, chemical fate, chemical release into the environment, and ground water monitoring information.

The remainder of the systems contain varying degrees of qualitative ground water data and hydrogeologic information. Sole Source Aquifer files and Biennial State Water Quality Reports contain a general overview of ground water quality, supplemented by varying levels of detail for sampling, monitoring and reporting hydrogeological data. A hydrogeological reporting system was developed to support Sole Source Aquifer (SSA) Designation determinations and annual summary reporting of Post-Designation project reviews. Another report program contains water quality information regarding important aquifer areas within States and Territories. The Biennial State Water Quality Reports contain general water quality information regarding important aquifer areas within States and Territories.

System Types and Access

Thirteen systems are available electronically, either online (mainframe computers) or on diskette (for personal computer use). Twelve data systems consist of hard copy files or reports. Two of the 25 systems are available in both electronic and hard copy form. Section 3 contains access information for each system. Non-confidential business information in the systems is generally available to users through three sources:

(1) **The EPA Mainframe Computing System.** Access to EPA's mainframe computing resources is through the EPA National Computer Center (NCC). Prospective users must first obtain an EPA user identification. This ID can be obtained by submitting a request to the appropriate EPA Account Manager or ADP Coordinator. Upon approval of the request, EPA will send the user an ID, a password, and user information.

(2) **The National Technical Information Service (NTIS).** Many data systems and associated publications may be ordered from NTIS at 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4807. NTIS will also provide services in obtaining clearance from the data base managers, obtain an ID for users, and bill users for computer services provided by EPA's NCC.

(3) **Freedom of Information Act (FOIA) Request.** Users may submit written requests for data to: FOIA Officer, U.S. Environmental Protection Agency, A-101, 401 M Street, S.W., Washington, D.C. 20460, (202) 260-4048. EPA will charge users the direct cost of any searching, reviewing, and reproduction required to respond to the request.

2.2 Identified Barriers and Opportunities for Improved Coordination

While most persons interviewed for this report use a few Agency-wide systems, such as STORET and FRDS-II, they also cited existing barriers to information sharing and related coordination among programs. The following text summarizes the chief barriers and opportunities identified.

Barrier: *Identifying sources of information.* Many Program Representatives were not aware of readily available ground water data collected or maintained by other programs. In addition, they noted that some State programs were not aware of data collected or available within EPA or even within their own States.

Opportunity: Outreach or training efforts for EPA and State personnel could address available automated and hard copy information resources. For example, EPA could circulate lists of data systems and contacts internally and externally. This barrier points to one of the primary reasons for

developing this document. The Roadmap identifies valuable sources of ground water information within EPA. Moreover, this document is developed not only for use by EPA but as an information resource for other Federal Agencies, States, and local governments.

2.2.1 In addition, **other Agency information resources** available to locate ground water data include the following:

- **Office of Water Environmental and Program Information Systems Compendium.**[10] This compendium profiles 20 key Office of Water (OW) information systems (both electronic and hard copy). Also included are nearly 100 other OW environmental and program information systems and 35 water-related systems from other EPA programs as well as other Federal, State, and private agencies. The compendium contains information on systems for *all water resource areas* -- ground water, drinking water, coastal and marine water, rivers and streams, lakes, and wetlands. The scope of the document is considerably broader than this Information Systems Roadmap, although they contain similar information. For each of the 20 major systems profiled, the compendium describes the system, information in the system, data sources, and access procedures.

- **Facility Index System (FINDS).**[11] FINDS is an online or magnetic tape inventory of major information systems on facilities regulated and tracked by EPA programs. It references program systems that contain detailed data on each regulated facility. FINDS contains the following data elements for facilities: facility name, address, EPA Facility ID code, Standard Industrial Classification (SIC) code, Dun & Bradstreet (DUNS) number, applicable regulatory program, program system ID, Indian Land indicator, and Federal facility indicator. FINDS references the following systems, which contain ground water information: CERCLIS, RCRIS, and TRI.

- **Information Systems Inventory (ISI).**[12] ISI, available in both hard copy and diskette, is a data base with information on approximately 500 EPA automated systems. For each system, ISI contains the following: system name and acronym, organization responsible for maintenance,

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[10] U.S. EPA, Office of Water, 800-B92-001, April 1992.

[11] FINDS, U.S. EPA, Office of Information Resources Management. The system is updated continuously and may be accessed through the EPA mainframe or NTIS. For more information, contact Dan Parker, Office of Information Resources Management, (703) 557-2985.

[12] U.S. EPA, Office of Information and Resources Management, PB91-172940 (hard copy), PB91-507558 (diskette), PB91-172957 (Users Guide). This system is currently being updated. For more information, contact the ISI System Manager at (202) 260-8974.

contact address and phone number, legislative authority for information collected, purpose and source of data, system classification, user access, hardware and software used, and a system abstract and keywords. Users can search the system according to keywords to identify useful data bases.

- **Information Resources Directory.**[13] This directory identifies the major information resources (e.g., program contacts, data systems, newsletters) at EPA and some other organizations. For each system, the directory identifies computer hardware and software used, keywords identifying content of the system, contact and phone number for the individual responsible for the system, and a brief abstract describing the system's contents. The directory also identifies EPA contact persons for major program areas and information centers, among other entries.

- **Access EPA.**[14] *Access EPA* is a directory of EPA and other public sector environmental information resources. *Major EPA Environmental Data Bases* is a chapter of the document that identifies automated EPA data bases with national environmental program information. For each system, the document identifies the system purpose, types of data available, how to access the data, and user assistance.

Barrier: *Varied focus of data collection.* EPA programs operate under different regulations and statutory mandates, and each has a different focus. Therefore, the information for one program has been collected for specific purposes and has limited utility to other programs. In addition, facilities may be asked to provide different programs with essentially the same types of information, although in slightly different formats or contexts. For example, one contact noted that some information the program collects may be accessible under a major system, however, identifying the location and type of data can be more difficult than simply requesting it from the individual facility (the State, water facility, etc.).

Opportunity: Use of the MSDE provides an important opportunity to coordinate and focus ground water protection efforts across Federal, State, and local programs, a goal also promoted by the Comprehensive State Ground Water Protection Program (CSGWPP) approach. By collecting the same set of data elements that have established definitions, programs utilizing ground water data can easily share important ground water quality information. Such data consistency facilitates effective and efficient information exchange within and among Federal, State, and local programs. In addition, it could help avoid duplicate reporting for facilities.

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[13] *Information Resources Directory*, U.S. EPA, OPA 003-89, March 1989.

[14] *Access EPA*, U.S. EPA, Office of Information Resources Management, EPA/220-B-92-014, 1992.

Barrier: *Difficulty linking data in different systems.* Some systems contain similar information, however, matching these data is difficult because of a lack of common identifiers or naming conventions for locations, wells or other elements.

Opportunity: Incorporating the MSDE into data systems will help to link different sources of data. Several MSDE elements support this aim, particularly Data Sources, Latitude, Longitude, and all of the Well and Sample Identifiers. Data Sources for each of the elements can help verify data submitted in different contexts for a given well or location. Using the standardized Latitude and Longitude elements to geographically reference wells or other entities could eliminate confusion about exact location. Unique identifiers, assigned under the Data Source, for wells and samples taken, if consistently used, could facilitate linking sample information among systems.

Barrier: *Lack of specific location data.* Locational information is crucial to resource-protection planning, but is often unavailable. For example, one Region has delineated its important watersheds and public water supplies on maps, but has been unable to target likely sources of contamination (e.g., industrial facilities) because the major automated systems for industrial facilities (e.g., RCRIS) do not contain specific location coordinates.

Opportunity: EPA Order 7500.1A requires that all EPA staff and EPA contractors use the MSDE for all applicable ground water data collection activities. The MSDE requires location referencing (latitude, longitude and altitude) for any ground water information collected. States and the regulated community are encouraged to collect and incorporate this information in newly designed systems. Existing data systems can also accommodate this policy by creating fields for locational data elements in the specified format, and strongly encouraging voluntary submitters to include this information in the desired format.

In addition, EPA has issued a *Locational Data Policy* (LDP).[15] This policy establishes the principles for collecting and documenting latitude and longitude coordinates for facilities, other sites, and monitoring and observation points regulated or tracked under Federal environmental programs within EPA's jurisdiction. The policy directs that latitude and longitude (lat/long) coordinates be collected and documented with environment related data. The format for latitude and longitude specified by the MSDE policy is identical to that specified by the LDP. In

[15] *Information Resources Management Policy Manual-Locational Data*, U.S. EPA, Office of Information Resources Management, April 8, 1991.

addition, as required by the *Locational Data Policy*, the MSDE policy requires the reporting of the method used to determine the lat/long, the description of the entity, and the estimate of accuracy of the lat/long measurement. The intent of such "meta-data" is to help provide quality assurance, expand environmental analyses capability, and allow data to be integrated based upon location, thereby promoting the enhanced use of EPA's data resources for cross-media environmental analyses and management decisions.

Barrier: *Perception of system inaccessibility*. Some users perceive that some of the large, online systems are not "user friendly" because of complicated procedures for accessing the system and using the software, or high demand for time on the EPA mainframe.

Opportunity: This concern could be addressed in two ways. First, Regions suggested outreach to potential users to explain what information is available in the system, and to demonstrate how to use large systems such as STORET. STORET training is available to all EPA employees free of charge. STORET user support also provides training free of charge to the States upon receiving advance notice. Secondly, some systems may be more accessible if available on PC-based software. For example, the GRITS-STAT software "works very well because it is a set of diskettes - it is portable and easily accessed by users."

Barrier: *Difficulty in accessing hard copy systems*. Many of the data sources identified in this Roadmap are available only in hard copy. Often, valuable data are available in program files, yet they are difficult to access and/or manipulate. For example, the Sole Source Aquifer program maintains detailed information on aquifers in Regional files, however, accessing the information may require sorting through voluminous, hard copy files.

Opportunity: This barrier could be addressed by examining which systems could be made available electronically. Another option/opportunity might be an online catalog to identify information available in the program's hard copy files. In some cases, it might also be possible to modify an existing data base (such as RCRIS or CERCLIS) to incorporate program hard copy files, which contain more detailed information.

Conclusions

Those interviewed for this report identified a need for increased communication and coordination among and within programs. Addressing this need is consistent with the Agency's *Ground Water Strategy*, as well as the comprehensive ground water protection approach called for in Comprehensive State Ground Water Protection Programs. This document serves as another step in support of this goal.

3. DATA SYSTEM SUMMARIES

This section presents summaries of EPA systems that contain ground water data. The summaries are organized by EPA Headquarters organizational structure at the Assistant Administrator level (i.e., Office of Water [OW], Office Of Prevention, Pesticides, and Toxic Substances [OPPTS], etc.). Within these Offices, the summaries are organized by program offices (e.g, Office Of Ground Water and Drinking Water [OGWDW], within OW). An organizational chart for each Assistant Administrator's Office is included before each set of summaries for that Office. ***Only the Program Offices with systems included in this Roadmap are shown on the organizational charts. Therefore, the organizational charts do not reflect all the programs under each Assistant Administrator.*** In addition, Appendix B contains an index to all data systems and offices included in this document.

Each summary is organized into the following seven sections:

- **Contact Information:** lists general type of data collected, reporting requirements (regulations or statutes), geographic coverage of the system, system type, and contact name, office, and phone number.

- **System Overview:** describes the scope of the overall data system. It includes a general discussion of the type of ground water information available from the system.

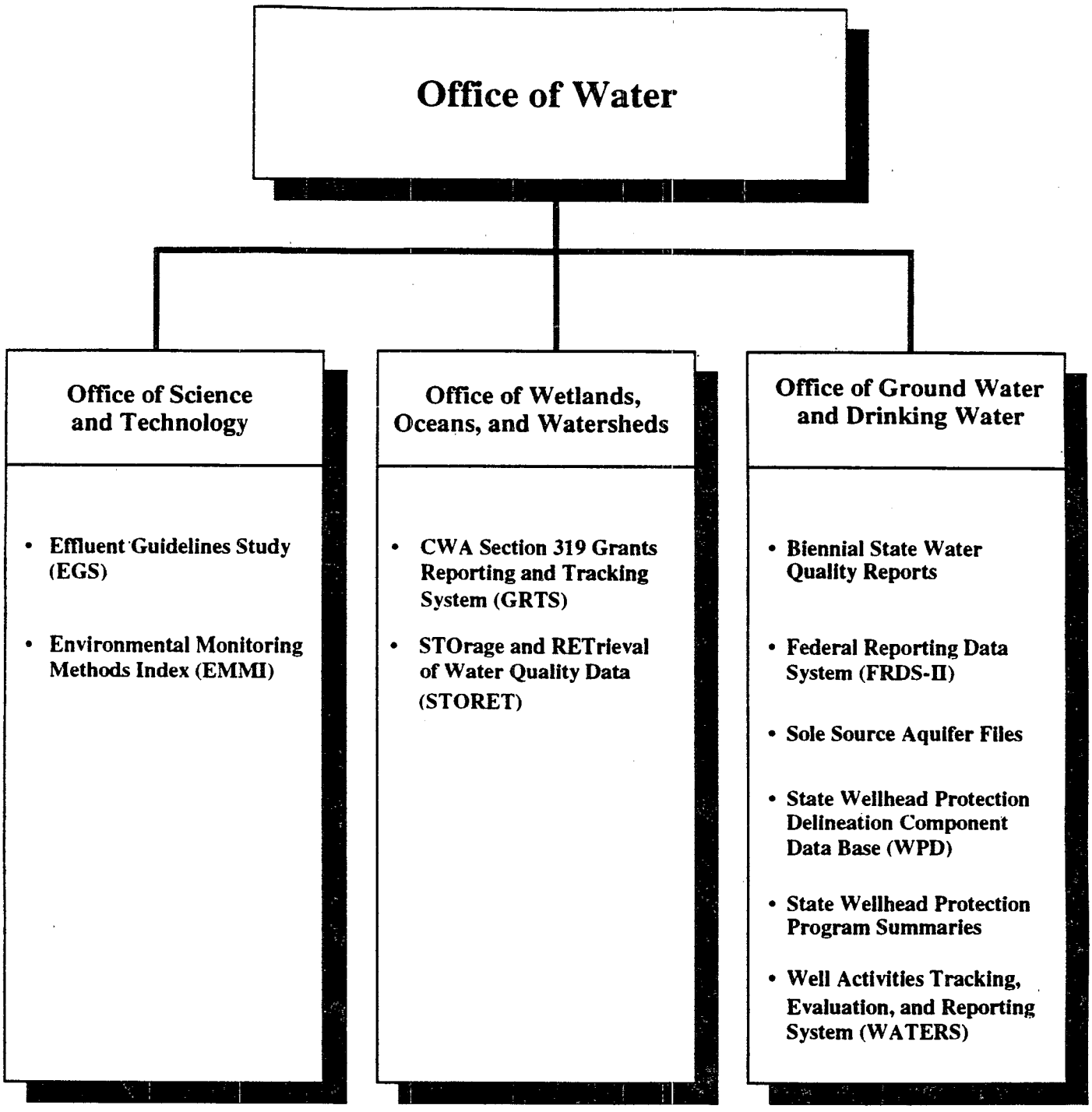
- **Reporting Requirements and Other Data Sources:** describes the program's ground water reporting requirements. If reporting is not required, it identifies who voluntarily submits data to the program and how often the data are received.

- **Minimum Set of Data Elements Coverage:** identifies which elements in the MSDE are included in the system. In addition, it compares the format of the included elements to the MSDE recommended format.

- **Data Limitations:** identifies significant limitations to use of the data and discusses the general quality of the data, when possible. It generally identifies limitations in scope, updating, and geographical coverage.

- **System Use and Access:** identifies system users, procedures to follow, and equipment required to access the system.

- **Key Background Documents:** lists relevant background documents, such as users manuals and programmatic guidance on reporting requirements.


Office of Water
Office of Science and Technology
• Effluent Guidelines Study (EGS)
• Environmental Monitoring Methods Index (EMMI)
Office of Wetlands, Oceans, and Watersheds
• CWA Section 319 Grants Reporting and Tracking System (GRTS)
• STOrage and RETrieval of Water Quality Data (STORET)
Office of Ground Water and Drinking Water
• Biennial State Water Quality Reports
• Federal Reporting Data System (FRDS-II)
• Sole Source Aquifer Files
• State Wellhead Protection Delineation Component Data Base (WPD)
• State Wellhead Protection Program Summaries
• Well Activities Tracking, Evaluation, and Reporting System (WATERS)

BIENNIAL STATE WATER QUALITY REPORTS

Data Collected:	Biennial State Water Quality Reports (Ground Water Quality Chapters)
Reporting Requirements:	Clean Water Act Section 305(b)
Geographic Coverage:	National
System Type:	Hard copy
Contact:	Roger Anzzolin, Office of Water, Office of Ground Water and Drinking Water, (202) 260-7282

SYSTEM OVERVIEW

The Ground Water Protection Division (GWPD) collects and maintains hard copies of the Biennial State Water Quality Reports required by CWA Section 305(b). The Biennial State Water Quality Report is a guidance that each State is required to answer and submit every two years to EPA. The GWPD summarizes submitted information in a comprehensive report, including a chapter on ground water quality.

States collect the required water quality assessment information covering one year by using various approaches including physical, chemical, qualitative and quantitative analysis. As example, some States survey fisheries biologists and analyzing land use data as a means of determining the quality of water in the State. They submit information on all aspects of ground water and surface water quality to EPA. In their reports, the States address ground water by describing ground water protection programs, the sources of ground water contamination identified in the State, the contaminants observed in the State's ground water, public well closures, public well restrictions, and general ground water information in their reports. The States also judge their ground water quality and rank the severity of the identified sources of ground water contamination. In addition, they report available data on salinity levels, bacteria concentrations, radioactivity levels, and heavy metal concentrations in ground water.

The data are reported in a table shell format, although an electronic reporting format may become available by 1996. Presently, several portions of the reports are entered into Mac Excell spreadsheets for EPA use producing the "The National Water Quality Inventory." The files and the spreadsheets containing data from the State submissions are not available to the public.

Reporting Requirements and Other Data Sources

Section 106(e) of the Clean Water Act requires each State, Territory, and Interstate Commission to develop a program to monitor the quality of its ground water resources and report its status to Congress every two years in the State Section 305(b) reports. The State agency responsible for the development or implementation of the State's ground water protection strategy prepares the ground water portion of the report. States are directed to use guidelines provided by EPA in the preparation of their 305(b) reports. With respect to ground water resources, the reports generally address:

- Major sources of ground water contamination;
- Major contaminants that threaten ground water resources; and
- Ground water quality based on information from public water supply wells.

The report also summarizes the State's ground water protection programs, including pending legislation, regulations, and standards, and initiatives such as ground water monitoring, classification, and mapping programs.

Minimum Set of Data Elements

Currently, the reports do not explicitly contain the MSDE. Many State reports, however, may contain general information about the following constituents for which testing or monitoring was conducted: nitrates, pesticides, and volatile organic compounds. Many States also report in summary form the number of ground water samples taken and contaminants detected at RCRA and CERCLA facilities. A few States submit information about maximum contaminant level violations with constituent-by-constituent summaries. Thus, the summaries may contain two of the 21 MSDE: (1) constituent or parameter measured, and (2) concentration or value. This information, however, may not be linked to a specific well or location in the State. Data reporting in accordance with MSDE guidelines will be incorporated into the 1996 Section 305(b) reports. States will be asked to report this information for public water supply wells where health-based limits have been exceeded for categories of ground water contaminants.

Data Limitations

Historically, the major limitations to using the Section 305(b) data set for ground water have been lack of data consistency and lack of access. EPA is working with States to improve aspects of reporting, such as format and data access. Forty-seven of the 57 States and territories that submitted Section 305(b) reports for 1990 completed the ground water section of the survey. Not all States have the same level of detail of data for all categories, making responses varied and comparisons difficult. For instance, some States

may have performed detailed regional ground water quality assessments and others have performed screening surveys only.

System Use and Access

Data are available only in summary form in the national biannually published report. For example, the *National Water Quality Inventory* of 1990 includes two chapters on ground water quality and protection. EPA is working with States to improve access to the detailed data.

Key Documents

National Water Quality Inventory: 1990 Report to Congress, U.S. EPA, Office of Water, April 1992. This document summarizes the Section 305(b) reports submitted by States in 1990.

Guidelines for Preparation of the 1994 State Water Quality Assessments (305 (b) Reports), U.S. EPA, Office of Water, EPA841-B-93-004, May 1993. This document recommends data elements to be included in 305(b) reports.

National Water Quality Inventory: 1992 Report to Congress, U.S. EPA, Office of Water, EPA 841-4-94-001, March 1994, approx. 375 pages. This document summarizes the Section 305(b) reports submitted by States in 1992.

The Quality of Our Nation's Water: 1992, U.S. EPA, Office of Water, EPA 841-S-94-002, March 1994, 43 pages. This document is the executive summary of the full 1992 report to Congress.

THE FEDERAL REPORTING DATA SYSTEM (FRDS-II)

Data Collected:	Violation and enforcement data for public water supplies
Reporting Requirements:	Safe Drinking Water Act; 40 CFR Parts 141-143
Geographic Coverage:	National
System Type:	Online system
Headquarters Contact:	Jeff Sexton, Office of Water, Office of Ground Water and Drinking Water, (202) 260-7276

SYSTEM OVERVIEW

FRDS-II is a centralized data base containing approximately 12 million records of information about the compliance of public water suppliers (PWSs) with monitoring requirements, maximum contaminant level (MCL) regulations, and other requirements of the Safe Drinking Water Act. All 10 EPA Regions use FRDS-II to track the compliance of PWSs.

The system contains information about approximately 200,000 PWSs with both surface water and ground water sources. The vast majority of PWSs (93 percent) are ground water systems. All PWSs are included in FRDS-II, although specific water quality data may not be available for all water sources. In general, ground water quality data are available only if a violation of an established MCL has been identified. It is important to note that nearly all sample data is from sampling conducted after treatment at the entry point to the distribution system. FRDS-II is currently attempting to include more information on source (i.e., ground water or surface water) and information on non-violation sampling levels (e.g., lead and copper monitoring). Regions or States update the system quarterly with new inventory information, violations, enforcement actions, and, on occasion, variances and exemptions.

An updated version of FRDS-II is under development, and is expected to be interactive with various EPA data systems, including FINDS, discussed in Section 2.2. The modernized system will be known as the Safe Drinking Water Information System (SDWIS). The new system is being designed to include more detailed analytical information so that it will be more useful to both EPA Headquarters and the States. For these reasons, the updated version may also be more useful to other EPA programs than the current version of FRDS-II.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

The States receive monitoring results from PWS system owners and operators and transmit this information to FRDS-II quarterly. In a few cases, the States collect and

analyze compliance samples for public water samples for public water systems. Many primacy States submit these data electronically directly to National Computing Center. The remaining primacy States submit information on disk to their respective Region, and the Regions upload this information to FRDS-II. For States that do not have primacy for the PWS program, the Region collects and reports the information.

The States are required to submit general inventory information on each system (e.g., ID number, type of system, system name, population served), as well as, information identifying at least one public water source within the system. All violations of the Safe Drinking Water Act must be reported using a violation number, the date of compliance period, and the contaminant code. Information on the value of the MCL and the value of the contaminant level may be reported, but are not required. The States are encouraged to enter information on enforcement actions taken, and most States are now providing this information. The States have the option to report a wide variety of information describing the water supply system including the schedules for variances and exemptions, the date and reason for site visits, the percent of sources within the system that are ground water, and location information for each water source. FRDS-II also contains a field for discretionary State data, which can be used to explain other data entries.

Minimum Set of Data Elements Coverage

Although the MSDE are not explicitly incorporated in this system, States are required to report general information on the system and at least one source within the system (i.e., ground water). This information typically includes location. Latitude and longitude is specified for the system and may be included for the source. A description of the entity may also be included. The system also identifies PWS according to FIPS county code. Information on violations of MCLs must be reported. The system also contains fields for the following sample information: sample ID and constituent or parameter. Thus, FRDS-II may contain seven of the 21 MSDE, although the reporting of the elements is not required. The modernized system, SDWIS, will contain all of the MSDE.

Data Limitations

The primacy States and EPA Regions for non-primacy States have primary responsibility for the quality of the data in FRDS-II. The Regions generally encourage the States to perform quality assurance procedures, especially Regions V and X. The use of FRDS-II for grant funding determinations and significant non-complier actions allows States to ensure the accuracy of their data.

The Regions perform lab certification and periodically perform extensive on-site audits. The Regions also often perform spot checks on incoming data, review summary reports from the FRDS-II system, and work with the States to resolve problems identified by FRDS-II edit and validity checks.

The data relating to violations and enforcement are generally reliable and accurate. The inventory information that is provided on a voluntary basis is generally less accurate. Most Regional audits have found data to be accurate.

In most cases, the ground water quality data in FRDS-II are limited to sources that have exceeded existing MCLs. In other words, compliance is tracked on a violation basis not a source basis. An exception is the collection of non-violation sampling data for 90th percentile values of lead and copper collected at consumer taps in medium to large systems.

System Use and Access

EPA Regions and Headquarters use the system to oversee State programs, make grant determinations, and target enforcement activities. Other users include the States and organizations interested in drinking water. FRDS-II is accessible via the EPA National Computer Center (NCC). Prospective users must first obtain an EPA user identification. The user ID can be obtained by submitting a request to the EPA contact listed above. Upon approval of the request, the user will be sent an ID, a password, and user information. Data requests for ASCII standard reports take approximately two days to process. Currently, there are no system fees, although processing fees may be charged for certain (e.g., large) jobs.

Approximately 220 Headquarters and Regional staff access FRDS-II on a regular basis (at least once a week), and about 50 users access the system daily. All Regions and several States have direct access to FRDS-II. States that do not have direct access submit information and request reports through the Regions. EPA and State staff in the Public Water Supply programs are the primary users of the system. While other individuals in the Regions or States may have account numbers which allow access to FRDS-II, their use of the system is limited. Their limited use may be caused by the complications involved in generating reports using other than routine reporting formats.

EPA Headquarters and Regions request the largest number of reports from FRDS-II. Regions primarily receive data requests from EPA program offices dealing with ground water, water quality, Superfund, and RCRA. The States infrequently request reports. The Regions indicated that most States maintain separate data systems with more detailed analytical information. Because States often have more detailed information, individuals requesting data are sometimes referred to the appropriate State office. Public or private agencies request information frequently. Many of these requestors use the Freedom of Information Act (FOIA) process to place these requests.

Key Background Documents

Federal Reporting Data System (FRDS-II) Data Element Dictionary, U.S. EPA, Office of Water, EPA 812-B-93-003, January 1993. This dictionary describes each data element in the system.

Federal Reporting Data System (FRDS-II) Data Entry Instructions, U.S. EPA, Office of Water, EPA 812-B-93-002, January 1993. This document provides instructions to Regions and States entering information into the FRDS-II data base.

Federal Reporting Data System (FRDS-II) Interactive Retrieval User's Guide, U.S. EPA, Office of Water, EPA 812-B-93-001, January 1993. This document provides background information on the FRDS-II system and instructions for online use.

SOLE SOURCE AQUIFER DESIGNATION AND POST-DESIGNATION FILES

Data Collected:	Hydrogeologic data for sole source aquifer designation determination and post-designation project reviews
Reporting Requirements:	Required under SDWA Section 1424(e)
Geographic Coverage:	National (selected areas)
System Type:	Hard copy
Contact:	Bill McCabe or Chuck Job, Office of Water, Office of Ground Water and Drinking Water, (202) 260-2305 or 7077

SYSTEM OVERVIEW

The Office of Ground Water and Drinking Water (OGWDW) collects and maintains a hard copy filing system of financial and project code data supporting Sole Source Aquifer (SSA) Designation and Post-Designation reviews. Regions collect and maintain project-specific data. The Sole Source Aquifer program, established under the Safe Drinking Water Act Section 1424(e), allows individuals and organizations to petition EPA to designate aquifers as the "sole or principal" source of drinking water for an area. No Federal financial assistance within a designated area will be granted to projects that EPA determines have the potential for contamination of the aquifer. EPA Regions conduct both designation and post-designation reviews. The files for these reviews may contain detailed hydrogeological information on the designated aquifers, which includes ground water quality data and periodic testing results. In addition, these reviews contain information on project design, siting criteria utilized, and potential impacts to ground water quality.

As of July 1993, EPA had designated 60 SSAs nation-wide and was evaluating 12 petitions. EPA Region VII (Kansas City, KS) is the only Region that does not contain a designated or pending SSA. Twenty-five States or territories contain designated aquifers: Arizona, California, Connecticut, Florida, Guam, Hawaii, Idaho, Indiana, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, and Washington. Seven States contain aquifers that are pending SSA reviews: Hawaii, Idaho, Maine, North Dakota, Pennsylvania, Virginia, and Washington.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Headquarters receives and files summary information of the reviews, including maps, consultants' hydrogeological reports, and various supporting memoranda, as well as

quarterly status reports prepared by Regions on Federally-assisted projects within the aquifer areas. The Regional files contain records of all petitions and detailed documentation. The quarterly status reports generally contain summary information on the numbers of projects reviewed and general information on potential threats to ground water in those cases where modifications in projects have been required. Petitioners generally must submit three types of data in support of SSA designations:

(1) **Narrative description of aquifer**, including general ground water quality information, such as known incidents of contamination and detected constituents.

(2) **Data demonstrating that aquifer is a sole or principal source**, including a map of the aquifer service area and the locations and descriptions of drinking and public water sources within area.

(3) **Designated aquifer boundary information**, including hydrogeological data on the aquifer and its location, its recharge area, the proposed designated area, and the project review area. Ground water data elements include use of ground water, descriptions and diagrams of the hydrology and hydrogeology, and descriptions of discharge or ground water withdrawal from the aquifer (e.g., wells, springs, streams).

Regions file half-yearly reports with Headquarters, which give post-designation review results, including project type, actions required, Federal funds affected, review issues and aquifer location.

Minimum Set of Data Elements Coverage

Headquarters does not maintain detailed SSA information. The Regions maintain all hard copy files of petitions and supporting documentation. The summary information at Headquarters usually contains general descriptors and geographic descriptors, although not necessarily in the formats specified by the MSDE. For example, the maps specify location to the county level and contain latitude and longitude for the aquifer area (rather than well specific locations). Because a SSA may be a large geographical area, data conforming to the MSDE is not generally available to describe its boundaries or location. Often, discrete data contained in a petition is usually not generated solely for petition purposes. However, the 1989 revised *Petitioner Guidance* recommends that petitioners submit a minimum set of 22 data elements as part of any application. This minimum set corresponds closely to the MSDE, although it does not recommend the following numbered elements in the MSDE: (5) description of the entity (this is however, necessarily included in the application), (6) accuracy of latitude and longitude, (8) method used to determine altitude, (20) analytical results qualifier, and (21) quality assurance indicator. The 12 pending applications would likely contain these data, although the data included for the 60 previously designated aquifers likely vary in detail.

Data Limitations

The SSA program collects ground water data for a targeted subset, only 72 aquifers. As necessary and available, Regions obtain supplemental information (e.g., from USGS maps, historical information) to verify the accuracy of a petitioner's submittal. Regions perform all reviews and maintain detailed files on each petitioned aquifer, while Headquarters maintains summary information only.

System Use and Access

The data are used primarily by EPA offices for summary reports on the program. Other parties use SSA summary information for a variety of purposes (e.g., Resolution Trust Corporation real estate auction, actions regarding ground water quality questions, construction evaluations). Parties outside of EPA rarely use the data, although information would be accessible via a Freedom of Information Act (FOIA) request. Regions may conduct reviews in coordination with Federal, State, and local agencies, as well as design engineers and consultants. SSA designation information and post-designation information, such as SSA maps, program fact sheets, and other technical support documents are available from Regional offices upon request.

Key Background Documents

Designated Sole Source Aquifers Nationally, Fact Sheet with Designated Aquifers and Pending Petitions, U.S. EPA, Office of Ground Water and Drinking Water, Quarterly. This fact sheet summarizes the program and lists designated aquifers and pending designation petitions.

Sole Source Aquifer Designation Decision Process: Petition Review Guidance, U.S. EPA, Office of Ground Water and Drinking Water, February 1987. This document contains instructions for Regions conducting designation petition reviews.

Sole Source Aquifer Designation: Petitioner Guidance, U.S. EPA, Office of Ground Water and Drinking Water, February 1989. This document contains instructions and information requirements for parties wishing to petition for sole source aquifer status.

Sole Source Aquifer Post-Designation Manual: Guidelines for Regional Offices Ground Water Review of Proposed Projects Receiving Federal Assistance within Designated SSA Areas, U.S. EPA, Office of Ground Water and Drinking Water, December 1989. This document details step-by-step instructions for Regions conducting post-designation project reviews.

WELL ACTIVITIES TRACKING, EVALUATION, AND REPORTING SYSTEM (WATERS)

Data Collected:	Underground Injection Control (UIC) well permitting and compliance data
Reporting Requirements:	40 CFR Parts 144 and 146
Geographic Coverage:	National
System Type:	Electronic data base
Contact:	Roger Anzzolin, Office of Water, Office of Ground Water and Drinking Water, (202) 260-7282

SYSTEM OVERVIEW

The Well Activities Tracking, Evaluation, and Reporting System (WATERS) is a user friendly, PC-based information management system designed by EPA's Underground Injection Control (UIC) Branch for use in tracking injection well data. WATERS is a voluntary tracking and program management system available to any State or Region responsible for managing a UIC program. WATERS consists of six major system folders, containing information on permits, inventory, inspections, mechanical integrity tests, enforcement actions and compliance status, and operational characteristics. In addition, WATERS can be used to generate various reports, including Federal reporting forms. WATERS was initially developed to track class II (oil and gas activity) wells, but can be adapted to include all classes of UIC wells and non-UIC wells.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

The UIC program as a regulatory permit program, may require the owner or operator of a well to collect and analyze ground water information. Sampling and monitoring of wells may also be a permit-specific requirement. For example, if accurate information on the total dissolved solids (TDS) level is not available, the State or Region would require the owner or operator applying for the UIC permit to sample the ground water.

MINIMUM SET OF DATA ELEMENTS COVERAGE

WATERS has fields for all but two of the MSDE. For example, the data sources are both the owner or operator of the permitted well and the permitting agency. If the permit requires sampling, the permitting agency requires a sampling analysis plan, which contains MSDE 16 through 21, although not necessarily in the required format.

Data Limitations

The UIC program relies on permit requirements to prevent the contamination of source water supplies. Since the MSDE was designed for ground water monitoring, the MSDE definitions apply to potential sources of drinking water while the UIC definitions and data elements apply to terminology as it applies to a waste disposal system. WATERS incorporates various internal validity and data checks to improve the quality assurance/quality control (QA/QC) of WATERS. WATERS also contains hydrological and geological data elements that are not included in the MSDE.

System Use and Access

WATERS' facilities can be modified by the user to add data elements. It also has a GIS function which includes overlays for geographical analysis of source water protection programs. WATERS runs on a 286 IBM or compatible PC, with 1 MB of free hard disk space, 640K RAM with 500K free, extended keyboard, color monitor, DOS version 3.30 or better, and an HP Laser Jet II or compatible printer. WATERS software is available to any State or Regional office that implements a UIC program. WATERS is network compatible.

Key Background Documents

WATERS Users Guide, U.S. EPA, Office of Water, October 1993. This manual explains the purpose of WATERS, discusses its features and capabilities, and provides guidance on using the system.

STATE WELLHEAD PROTECTION DELINEATION COMPONENT DATABASE (WPD)

Data Collected:	State wellhead protection area delineation components
Reporting Requirements:	Voluntary
Geographic Coverage:	National, includes States or Tribes with EPA approved wellhead protection programs
System Type:	PC software
Contact:	Jane Marshall, Office of Water, Office of Ground Water and Drinking Water, (202) 260-8897

SYSTEM DESCRIPTION

The Office of Ground Water and Drinking Water (OGWDW), Ground Water Protection Division (GWPD), maintains the State Wellhead Protection Delineation Component Database (WPD) to support the States and Tribes that do not have EPA approved wellhead protection (WHP) programs. This electronic data base presents the approaches employed by approved WHP programs to delineate wellhead protection areas (WHPAs). States and Tribes that do not have approved plans are excluded from the data base.

The approaches to delineating WHP areas have the following components:

- Aquifer type (confined, unconfined, fractured, etc.);
- Delineation criteria (distance, drawdown, time of travel (TOT), flow boundary, etc.);
- Delineation thresholds (microbial, chemical, other) expressed in distance, temporal, parameter, concentrations, or geographic units;
- Delineation methods (arbitrary/calculated fixed radius, analytical models, EPA WHPA model, and numerical models); and
- Whether a hydrogeologic boundary defines the wellhead protection area.

The data base includes approaches and associated components for both existing wells and new wells. In addition, the system provides information about legal incorporation of the WHPA, case studies, and primary delineation agencies.

Reporting Requirements and Other Data Sources

There are no reporting requirements underlying this data base. EPA obtains the information from the State wellhead protection program submissions. As new State wellhead protection program submissions are approved or existing programs are modified, Headquarters personnel update the data base.

Minimum Set of Data Elements Coverage

The system does not contain site-specific technical ground water information or any of the 21 elements of the Minimum Set of Data Elements and was not intended to do so. Instead, the WPD compiles delineation criteria, thresholds, and methods for given hydrogeologic conditions within States.

Data Limitations

The information is limited to delineation methods, thresholds, and criteria used under given hydrogeologic conditions. For example, the data entry for New York State identifies a variety of methods, thresholds, and criteria used under three different aquifer types and two specific aquifers. The entry for New Mexico, on the other hand, lists one set of methods, thresholds, and criteria for a "generic" aquifer type.

System Use and Access

The WPD system is IBM PC and IBM PC LAN compatible using DBASE III with Clipper Compiler as the software platform. The program is provided on high-density diskettes and requires DOS version 2.1 or higher, 480K RAM memory and approximately 1000K space on a hard drive. It is menu-driven and capable of generating printed reports.

The data system is available to each EPA Regional office. Regional WHP programs could make hard copy printouts available to State and Tribal WHP programs that are in the development stage. The WPD has four levels of access when installed:

(0) No access (presumably for those who do not have the user passwords);

(1) Able to browse, query, print, and re-index;

(2) Able to perform all functions except for removing deleted records and changing the list of users/passwords; and

(3) Access to all functions.

Copies of the diskette are available from Headquarters and the Regions.

Note: As a result of foreign country, State, Tribal, and local interest in use of the data base, another version of WPD has been developed and is available for input of delineation approaches. This second version is available for local use, and does not contain information about delineation approaches from State WHPPs.

KEY BACKGROUND DOCUMENTS

Guidelines For Delineation Of Wellhead Protection Areas, U.S. EPA, Office of Ground-Water Protection, June 22, 1987. This document contains the technical and administrative information necessary for States to develop wellhead protection programs and identify wellhead protection areas.

Guidance For Applicants For State Wellhead Protection Program Assistance Funds Under The Safe Drinking Water Act, U.S. EPA, Office of Ground-Water Protection, June 1987, EPA 440/6-87-011. This manual instructs potential applicants on developing State WHP programs and explains EPA's policies and procedures for implementing the assistance program.

STATE WELLHEAD PROTECTION PROGRAM SUMMARIES

Data Collected:	Description of State WHP Programs
Reporting Requirements:	Voluntary
Geographic Coverage:	National
System Type:	Hard copy
Contact:	Kevin McCormack, Office of Water, Office of Ground Water and Drinking Water, (202) 260-7772

SYSTEM DESCRIPTION

The information repository is an eight section notebook summarizing the State wellhead protection program submissions. Currently, 28 States have EPA-approved programs and therefore are included in the notebook. As new States are approved, EPA adds them to the notebook. The notebook resides in the Ground Water Protection Division (GWPD) and consists of eight sections containing one to two page narratives of each WHP program element for each approved State. The eight essential elements of a State's WHP are

- Program Summary and Purpose;
- Roles and Duties of State Agencies: identifying roles, assigning duties, and coordinating activities;
- Wellhead Protection Area (WHPA) Delineation: choosing institutional processes, choosing delineation criteria, and identifying phasing schedule;
- Inventory of Source Contaminants with WHPAs: listing source categories, developing source inventory, and modifying inventory;
- Differential Management within WHPAs: management programs, identifying uncontrolled sources, and specifying phasing criteria;
- Contingency Planning for Drinking Water Supplies: defining "major" water suppliers, contingency plan elements, and implementation;

- Siting of new wells: expanding/delineating new WHPA, siting new wells, and managing sources; and

- Public Participation.

Reporting Requirements and Other Data Sources

The notebook is based on State submissions, which are required to include and address the essential elements in their wellhead protection program. There are no other reporting requirements underlying the notebook.

Minimum Set of Data Elements Coverage

The notebook does not contain information on any of the MSDE, as the MSDE are not required for WHP program approval. However, the notebook will allow the reader to identify States with wellhead protection programs and potential sources of ground water information.

Data Limitations

No ground water data are included.

System Use and Access

The notebook is designed to assist State and local ground water managers directly involved with or responsible for developing WHP programs to develop or refine individual essential elements of a WHP Program. The notebook system is accessible to any interested party in hard copy by contacting OGWDW.

Key Background Documents

Guidance For Applicants For State Wellhead Protection Program Assistance Funds Under The Safe Drinking Water Act, U.S. EPA, Office of Ground-Water Protection, June 1987, EPA 440/6-87-011. This manual provides instructions to potential applicants on developing State WHP programs and explains EPA's policies and procedures for implementing the assistance program.

EFFLUENT GUIDELINES STUDIES (EGS)

Data Collected:	Industry specific wastewater and treatment data
Reporting Requirements:	None
Geographic Coverage:	National for targeted industries
System Type:	Hard copy
Contact:	Marion Thompson, Office of Water, Office of Science and Technology, (202) 260-7117

SYSTEM OVERVIEW

The Effluent Guidelines Studies (EGS) are a hard copy collection of studies compiled to support the development of technology-based effluent guidelines required under Title III of the CWA. The Office of Science and Technology (OST) designed the guidelines to control discharges into waterways resulting from industrial processes. The Office sets regulations for both direct and indirect dischargers based on a determination of which pollutants can be removed through treatment technologies. Ground water monitoring or testing results and ground water quality data are sometimes included in survey information collected in the development of the guidelines, particularly when treatment technologies have the potential to effect ground water (e.g., underground injection control). Since 1974, OST has developed regulations for 51 industries and is currently developing regulations for an additional 9 industries.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

There are no reporting requirements involved in the EGS. EPA collects data on a one-time basis to support the development of a particular set of guidelines. EPA collects information through questionnaires covering engineering and economic information on individual facilities. Firms are required to respond to these survey requests. OW may supplement questionnaire data by conducting sampling and analyses from wastewater discharge points and collecting engineering and economic information. An EPA sample control center manages all sample and analysis information, checking the information for accuracy and consistency.

Ground water information is collected only when a site is using a waste treatment technology that could directly affect ground water. Survey information generally includes site manufacturing processes, water flow information, waste water generated, and treatment technologies.

Minimum Set of Data Elements Coverage

The EGS do not explicitly contain the MSDE. If ground water has been tested at an industrial site, a facility should report summary testing information on the survey response form. This information generally includes analytical data and methods used to test. It may contain constituents detected and concentration, although not necessarily in the format specified by the MSDE. Thus, the EGS may contain two of the 21 data elements in the MSDE.

Data Limitations

The EGS were conducted in support of a specific goal, effluent discharge regulation development. Therefore, the data are not periodically updated and may be out of date. Although the surveys contain some ground water information, their primary focus is on waste water and its treatment on a site-specific basis. In addition, the surveys have been conducted for a limited number of industries.

System Use and Access

These reports and the survey information collected to write them are available in hard copy to EPA personnel cleared for confidential business information. Some questionnaire information and sample and analysis information is maintained in data sets on the EPA mainframe. Access to EPA's mainframe computing resources is through the EPA National Computer Center (NCC). Prospective users must first obtain an EPA user identification. The user ID can be obtained by submitting a request to the contact above. Upon approval of the request, the user will be sent an ID, a password, and user information.

Key Background Documents

None.

ENVIRONMENTAL MONITORING METHODS INDEX (EMMI)

Data Collected:	Monitoring methods for compliance with statutes
Reporting Requirements:	None
Geographic Coverage:	Not applicable
System Type:	Mainframe or diskettes
Contact:	Marion Thompson, Office of Water, Office of Science and Technology, (202) 260-7117

SYSTEM OVERVIEW

The Office of Science and Technology (OST) maintains EMMI, a computerized catalog of information on environmentally significant chemical substances and analytes monitored by EPA, methods for their analysis, and the regulatory and office-based lists on which the chemicals and analytes appear. This system does not contain actual ground water data, but does contain methods for ground water monitoring. EMMI, previously called the List of Lists, was first developed in 1985 and was updated as of 1992. The system is a PC-based, menu-driven system that features rapid text search and concurrent display of key data elements. EMMI is indexed on eight key fields, and users may select from a variety of search parameters to locate a specific group of analytes. The information is used by EPA for the development of regulations or standards for compliance, enforcement proceedings, and general research.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

The data have been submitted to OST by various EPA offices and other Federal, State, and local agencies. The system contains approximately 900 analytical methods and information on more than 2400 unique analytes that are identified on 40 lists of chemical substances and analytes of concern under various environmental statutes or EPA programs. These lists include substances regulated under all CWA, CAA, RCRA, SDWA, and CERCLA regulatory programs.

Information tracked for each analyte includes its Chemical Abstracts Service (CAS) number, names and synonyms, the regulatory and office-based lists the analyte appears on, regulatory limits, and the analytical methods used to identify the substance. EMMI specifies method detection limits by analyte. The EMMI data base associates each detection limit value with the appropriate acronym and provides a detailed description of each detection limit acronym.

Information tracked for each method includes the source submitting it, the instrumentation needed, the organization submitting the method, and the detection limit, as well as a short summary of the method.

Information tracked for each list includes name of list, chemicals on the list, office responsible, related laws, and the purpose of the list.

Minimum Set of Data Elements Coverage

This system does not contain the MSDE because it is simply a catalog of analytes, methods, and regulatory or office-based lists of chemicals. This information includes ground water related monitoring methods.

Data Limitations

This system does not contain ground water data. Rather, it describes methods to monitor for constituents in ground water.

System Use and Access

EMMI can be accessed in two ways: (1) through the EPA Mainframe Computing System, and (2) through the National Technical Information Service (NTIS). Access to EPA's mainframe computing resources is through the EPA National Computer Center (NCC). Prospective users must first obtain an EPA user identification. The user ID can be obtained by submitting a request to the contact above. Upon approval of the request, the user will be sent an ID, a password, and user information. NTIS sells a diskette containing EMMI as well as appropriate documentation. In addition, NTIS can arrange for online access to NCC. NTIS will provide services in obtaining clearance from the data base manager, obtain identification for users, and bill users for computer services provided by NCC.

Key Background Documents

Environmental Monitoring Methods Index, U.S. EPA, PB92-503-093, December 1991. This report contains system documentation and is available along with system diskettes from NTIS.

GRANTS REPORTING AND TRACKING SYSTEM (GRTS)

Data Collected:	Nonpoint source grant tracking data
Reporting Requirements:	Grants under Clean Water Act Section 319(h)
Geographic Coverage:	National
System Type:	Online system
Contact:	Don Kunkoski, Office of Water, Office of Wetlands, Oceans, and Watersheds, (202) 260-7103

SYSTEM OVERVIEW

Nonpoint source pollution can occur in lakes, rivers, streams, wetlands, estuaries, other coastal waters, and *ground water*. Under Section 319 of the CWA, States address nonpoint source pollution by developing nonpoint source assessment reports, adopting management programs to control nonpoint source pollution, and implementing the management programs. Under Section 319(h), EPA awards grants to States to assist them in implementing EPA approved management programs.

The GRTS data system is designed to track and report on a variety of Section 319 program and grant related information. The system does not contain detailed ground water data. It does, however, contain project information that identifies ground water projects funded through this program. The system contains three basic levels of information for each grant:

(1) Planned State nonpoint source activities;
(2) Project cost information and descriptions; and
(3) Project milestone data.

A number of ground water activities (e.g., general assessment of ground water location or quality) are eligible for Section 319(h) funding. In addition, the grant guidance specifies that at least 10 percent of each State's overall work program should be devoted to addressing priority ground water nonpoint source activities. Other activities that may be funded under the nonpoint source grants include non-regulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects (including monitoring to assess project success).

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Two types of Section 319(h) grants are awarded by the Regions to the States: (1) base awards to establish a program and (2) competitive awards based on creative approaches

to nonpoint source pollution programs. Once a grant has been awarded, States must report the following information to Regions annually.

- Program status (e.g., progress made in reducing nonpoint source pollution, achieving grant milestones); and
- Basic grant reports per 40 CFR Parts 31 and 35 (e.g., financial and performance reports).

The program status information indicates whether a project is a ground water project. The GRTS system, however, does not contain specific ground water data for these projects.

Some ground water projects funded by Section 319(h) grants include the collection of ground water sampling or monitoring data. The specific ground water information collected for each grant project is negotiated in the grant workplan. In Region II at least two Section 319(h) grant projects include ground water sampling. In Region I and IX, between seven and eight Section 319(h) projects collect ground water information, while in Regions V, VIII, and X Section 319(h) funding is being used for between 10 and 30 projects that include collection of ground water sampling information. Currently no Section 319(h) projects in Region IV involve collection of analytical ground water data.

Most Section 319(h) grant projects involving ground water data are expected to contain detailed analytical information in the final project reports that will cover most of the MSDE. In addition, many States report information from these projects directly to the national STORET system; however, the decision to submit data to STORET is up to each State.

Minimum Set of Data Elements Coverage

The MSDE are not addressed in this system.

Data Limitations

GRTS contains only summary grant information. It is useful for identifying ground water projects funded in States under the Section 319(h) grant program; however, not all ground water projects funded through the Section 319(h) grant program collect ground water data.

System Use and Access

GRTS can be accessed through the EPA mainframe. Access to EPA's mainframe computing resources is through the EPA National Computer Center (NCC). Prospective users must first obtain an EPA user identification. The user ID can be obtained by submitting a request to the EPA contact listed above. Upon approval of the request, the user will be sent an ID, a password, and user information.

GRTS is used only for the internal purposes of the Nonpoint Source Program. The Regions indicated that information about the type of projects funded by Section 319(h) grants should be obtained through the appropriate Regional office.

KEY BACKGROUND DOCUMENTS

Grants Information and Control System Nonpoint Source Subsystem Users Manual, U.S. EPA, Office of Water, 1993. This guidance describes how to access and use the GRTS system, and the data elements in the system.

Guidance on the Award and Management of Nonpoint Source Program Implementation Grants under Section 319(h) of the Clean Water Act for Fiscal Year 1994 and Future, U.S. EPA, Office of Water, June 11, 1993. This document contains guidance for States addressing grant application and reporting requirements under the Section 319(h) program.

STORAGE AND RETRIEVAL OF WATER QUALITY DATA (STORET)

Data Collected:	Chemical and physical water quality monitoring information
Reporting Requirements:	None, voluntary
Geographic Coverage:	National
System Type:	Online data base
Headquarters Contact:	Louis H. Hoelman, Office of Water, Office of Wetlands, Oceans, and Watersheds, (202) 260-7050

SYSTEM OVERVIEW

STORET is an online data base that contains two basic types of information: (1) the sites (or stations) where ground water monitoring information is collected and (2) the water quality samples collected at these sites. STORET provides a capability to store, retrieve, and analyze ground water quality information. STORET contains reliable data on the quality, use, and environmental significance of ground water resources for policy and programmatic purposes. Water quality sample information includes where, when, and how samples were collected, the parameter(s) tested for, and the testing results. STORET requires the identification of the station and date of monitoring for each entry. STORET contains measurements of the physical characteristics and chemical composition of water or sediment sampled.

Information dates from 1899 to the present; however, the majority of the data in STORET have been collected since 1975. STORET contains information for approximately 335,000 wells and 11,000 springs throughout the United States.

All 10 EPA Regions have access to the STORET data system. The ground water data in STORET are submitted directly from a wide range of sources. The data submissions to STORET are generally voluntary, however, Regional grants may specify that data collected under the grant must be reported to STORET. In Region IV, the State of Florida has encouraged several municipalities to regularly report their ground water data to STORET.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Data submittals to STORET are not mandated under any reporting requirements. EPA, however, strongly encourages States to submit ground water data by allowing them to use STORET at no charge if they have submitted their available ground water data. Information is collected and submitted by, not only States, but also EPA, particularly the

Superfund program, U.S. Geological Survey (USGS), Corps of Engineers, Tennessee Valley Authority, Interstate Basin Commissions, and other Federal agencies with monitoring programs, as well as contractors, universities, and individuals. USGS submits more data than any other contributor. USGS submits monitoring data monthly. EPA updates STORET data files weekly with the transactions that have been submitted throughout the week. All data are submitted in electronic form. Although STORET software edits incoming data for errors and inconsistencies, the submitter of the data has the primary quality assurance/quality control (QA/QC) responsibility.

The Regions provided the following estimates of the extent to which States, EPA, and other Federal agencies in their Regions store ground water data in STORET.

- Regions I, II, IV, VI, and X store very little ground water data in STORET, largely because they have similar data systems.
- Region V stores ground water data on approximately 25,000 wells in STORET. The ground water data are primarily submitted by States.
- States in Region III, VII, and VIII store a significant amount of ground water data in STORET.
- Region IX stores ground water data on approximately 80,000 wells in STORET. Data on approximately 60,000 of those wells are supplied by the State of California.

Minimum Set of Data Elements Coverage

Currently, STORET has fields for 19 of the 21 MSDE. The missing MSDE fields are for the method used to determine altitude and quality assurance. The updated version of STORET will contain fields for all 21 MSDE. The current STORET has been adjusted to allow information for the MSDE to be entered in narrative fields as text descriptions.

The Regions were unable to estimate the extent to which the MSDE fields currently in STORET are used. Most Regions have not developed their own guidance on incorporating the MSDE into STORET. MSDE use is inhibited by the difficulties of educating the disparate groups that use STORET.

Data Limitations

Because the needs of STORET users vary greatly, the quality and types of data may vary according to the source and purpose of the data collection effort. In addition, the quality of the data is uncertain because the persons who submit data are responsible for most QA/QC, and the QA/QC procedures are not reported in the data system. Submitters who

choose to expend resources on collection and entry of data are sometimes more likely to also maintain quality data. Nevertheless, because the purpose for collecting the data, the QA/QC procedures, and the analytical techniques are not reported in STORET, the quality of the data is often suspect. The new STORET will require QA/QC information to be attached to the data.

System Use and Access

The STORET data base resides on an IBM ES-9000 mainframe computer system located at EPA's National Computer Center (NCC) in Research Triangle Park, North Carolina. STORET is accessed by a variety of State and Federal programs that use monitoring data for regulatory or analysis purposes, such as the Office of Solid Waste, Office of Pesticide Programs, Office of Emergency and Remedial Response, and State programs dealing with hazardous waste management or industrial and domestic waste waters.

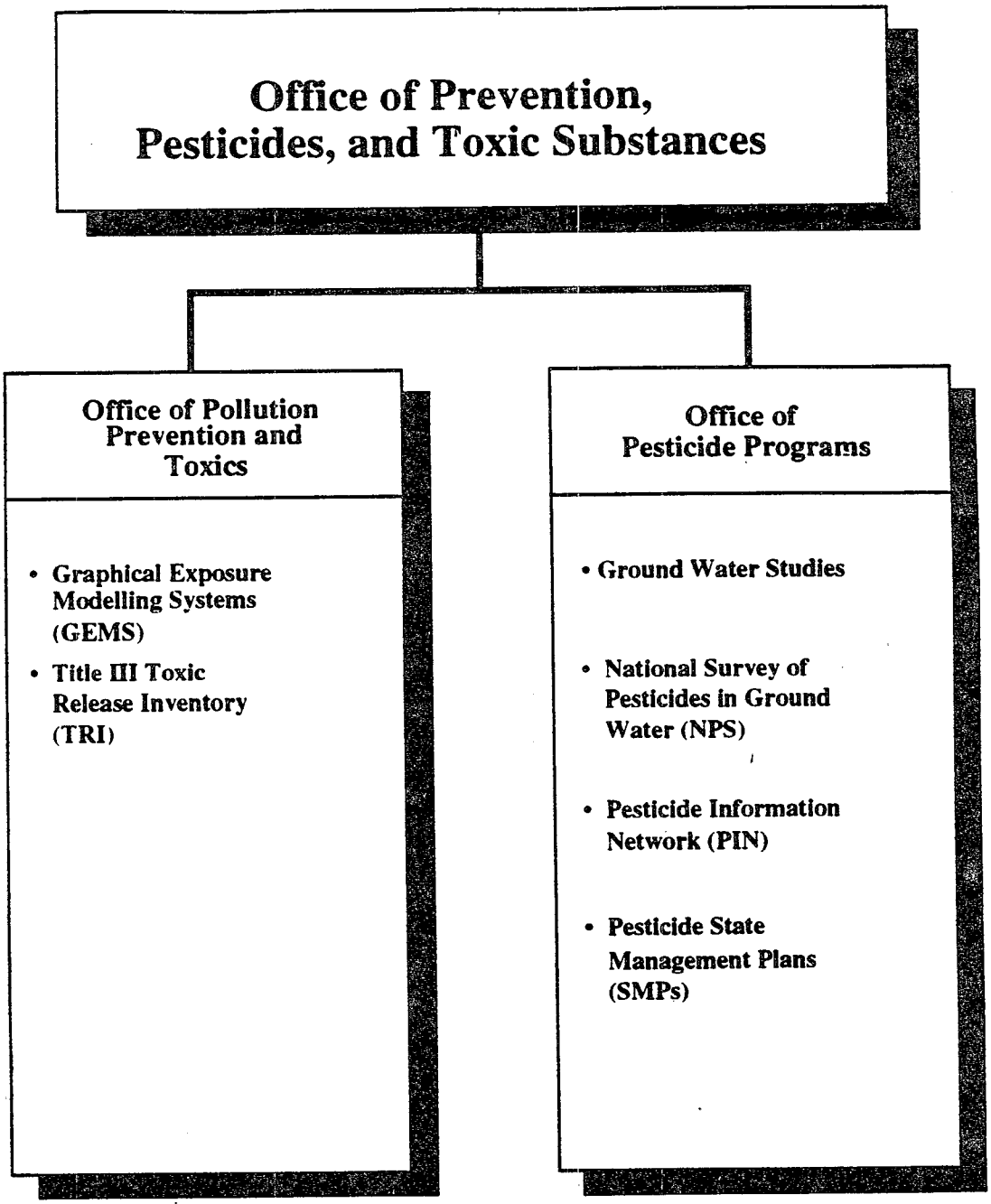
A STORET user ID may be acquired by contacting STORET user assistance at (800) 424-9067 to ascertain whether the intended user's organization is already using STORET and to develop a funding agreement for use of the system. Any EPA employee can obtain direct access to STORET by obtaining a user ID. Currently, approximately 500 user IDs have been issued for STORET. There are 35,000 to 45,000 information retrievals per year.

STORET data can be retrieved in several ways. Data may be downloaded directly to a computer, or EPA will perform a search and send data to requestors. Data retrieval requests are usually entered at computer terminals. STORET can be accessed by any person with access to the EPA National Computer Center IBM mainframe computer. In addition, STORET can be accessed with a personal computer. The EPA National Computer Center (NCC) distributes two PC communications software packages, KERMIT and ARBITER, for accessing the EPA Mainframe computer. These packages will be sent on request to users of the NCC.

The National Water Data Exchange (NAWDEX), an office of the U.S. Geological Survey (USGS), will also perform STORET data extractions on request on a cost-plus basis. Information may also be extracted from a USGS terminal and paid for directly through a private account. The National Technical Information Service (NTIS) will also extract data from STORET for a fee or grant direct access to EPA's NCC mainframe also for a fee.

Key Background Documents

Ground Water Data Management with STORET, U.S. EPA, Office of Ground Water Protection, EPA-440/6-87-005, May 1987. This manual contains instructions for users of the STORET data base.


Office of Prevention, Pesticides, and Toxic Substances
Office of Pollution Prevention and Toxics
• Graphical Exposure Modelling Systems (GEMS)
• Title III Toxic Release Inventory (TRI)
Office of Pesticide Programs
• Ground Water Studies
• National Survey of Pesticides in Ground Water (NPS)
• Pesticide Information Network (PIN)
• Pesticide State Management Plans (SMPs)

GRAPHICAL EXPOSURE MODELING SYSTEMS (GEMS)

Data Collected:	Information necessary for general population exposure modeling
Reporting Requirements:	None
Geographic Coverage:	Continental United States
System Type:	Two versions: one runs on EPA VAX, the other on PCs
Contact:	Cathy Turner, Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution Prevention and Toxics, (202) 260-3929

SYSTEM OVERVIEW

The Office of Pollution Prevention and Toxics (OPPT) maintains the electronic model and data base for the Graphical Exposure Modeling Systems (GEMS). GEMS is an exposure system designed to perform general population exposure modeling in several environmental media. The system includes the modeling programs and associated data sets for estimating exposure (e.g., population, climatological information, geographic boundaries, stream characteristics, and chemical properties). GEMS contains some general information on ground water, such as depth to ground water, but it does not contain specific data on quality, such as reported contamination. OPPT designed GEMS to help evaluate the exposures and risks presented by releases of chemical substances. OPPT uses this information in carrying out the mandates described in the Toxic Substances Control Act Sections 4 through 6. In addition, the system is available to State and local environmental agencies for their use in evaluating the chemical release information made available under the Emergency Planning and Community Right-to-Know Act of 1986. EPA Headquarters updates GEMS and distributes it to the EPA Regions.

EPA maintains two versions of GEMS: an online mainframe version (GEMS) and a PC version (PCGEMS). The two versions are similar but not identical. Because of the smaller memory capacity of a personal computer, PCGEMS cannot handle some the larger data sets or some of the more memory-intensive models, such as the TRIAIR Atmospheric Modeling Subsystem. GEMS uses the Analytical Transient 1-2-3 Dimensional Model (AT123D) to predict the spread of a contaminant plume through ground water (saturated zone) and to estimate the chemical concentration within groundwater at positions on a user-specified three-dimensional grid. The user inputs various parameters such as aquifer size, soil and waste properties, and release rates to model the fate of the contaminant. Contamination via unsaturated soil zones can be modeled using either SESOIL (Seasonal Solid Compartment Model) or PRZM (Pesticides Root Zone Model). There are several GEMS data sets which contain aquifer data, and

which can be used as a source of information and input for this model. For example, the DRASTIC dataset contains data including hydraulic conductivity ranges for each county in the U.S. The CLIMATE data set contains rainfall data for over 3,000 U.S. locations. The SOILS and MUUF (Map Unit Use Files) data sets contain soil data for counties throughout the U.S.

Reporting Requirements and Other Data Sources

Collection of the information contained in GEMS is not mandated by statute. Chemical data contained in the system are obtained from other EPA programs. Climatic data are obtained from the National Oceanic and Atmospheric Administration (NOAA). Soils data are obtained from the U.S. Department of Agriculture. Preliminary draft datasets of groundwater well locations for municipalities have been created using data reporting from the Ground Water Protection Division have not yet been verified. The data in the system cover the continental United States. Data are updated, but not on a set schedule.

Minimum Set of Data Elements Coverage

GEMS contains information on the seven following elements: latitude, longitude, method for determining latitude and longitude, description of entity, State FIPS codes, County FIPS codes, and depth to ground water. GEMS also contains a small amount of nonpoint source ground water information, such as the average depth to the aquifer for most counties in the United States. Information from the various data sets (e.g. population and climatic information) can be retrieved by including latitudinal and longitudinal coordinates.

Data Limitations

Because collection of ground water data is not the primary purpose of GEMS, it has no information on actual ground water samples or contamination. GEMS is designed to model chemical releases. Although it can be used to model releases to ground water, it is not intended to store information on actual ground water contamination. It contains only general characteristics of ground water necessary to model contamination.

System Use and Access

GEMS resides on the EPA mainframe in the VAX Cluster of computers, which are maintained by the EPA, NCC at Research Triangle Park, North Carolina. To use GEMS, one must have an account on the VAX Cluster and access to a computer terminal with a modem. Access to GEMS can be obtained by establishing a GEMS account with the National Technical Information Service (NTIS) for a fee.

EPA also created a version that could run on IBM compatible personal computers, PCGEMS. PCGEMS can also work interactively with GEMS. The PCGEMS software is distributed by General Sciences Corporation for a fee.

There are a total of approximately 300 users of the mainframe version of GEMS, who are mostly Federal, State, and local agencies and their contractors.

KEY BACKGROUND DOCUMENTS

GEMS User's Guide, U.S. EPA, Office of Prevention, Pesticides, and Toxic Substances, Economics, Exposure and Technology Division, March, 1989.

Harrigan, Patricia and Annette Nold, *Training Materials for GEMS and PCGEMS: Estimating Chemical Concentrations in Unsaturated Soil and Groundwater,* January 1989.

PCGEMS User's Guide, Release 1.0, U.S. EPA, Office of Prevention, Pesticides, and Toxic Substances, Economics Exposure and Technology Division, November 1989. The guide contains the necessary information to install, operate, and manage the PCGEMS software.

Yeh, G.T. *AT123D: Analytical Transient One-, Two-, and Three-Dimensional Simulation of Waste Transport in the Aquifer System,* Oak Ridge National Laboratory, March 1981.

TOXIC RELEASE INVENTORY (TRI)

Data Collected:	Toxic chemical release reports
Reporting Requirements:	Emergency Planning and Community Right-to-Know Act of 1986 Section 313
Geographic Coverage:	National
System Type:	Online system
Contact:	Gerry Brown, Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution Prevention and Toxics, (202) 260-7248 or 0568

SYSTEM OVERVIEW

The Office of Pollution Prevention and Toxics (OPPT) maintains the Toxic Release Inventory (TRI), a series of online data bases. The data bases contain information on the estimated annual releases of certain toxic chemicals to the environment. OPPT collects, enters, and continually updates the TRI.

TRI covers the release of over 300 toxic chemicals to air, water, or land or by underground injection. Ground water elements other than latitude and longitude of reporting facilities detailed in the MSDE are not directly addressed. The data bases, however, describe releases to receiving streams or water bodies, underground injection, soil, landfills, land treatment units, surface impoundments, and other disposal facilities. Location of release, affected media, quantities released by chemical are some of the data types found in TRI.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

TRI was established by Title III of the Superfund Amendments and Reauthorization Act. A facility must report annually to EPA if it: (1) conducts manufacturing operations under Standard Industrial Classification codes 20 through 39; (2) has 10 or more full-time employees; and (3) manufactures, imports, or processes more than 25,000 pounds or otherwise uses over 10,000 pounds per toxic chemical in a calendar year. Approximately 22,000 facilities in the United States and its protectorates report each year. Facilities submit their reports using Form R, a table-format document designed to simplify reporting. Corrections to prior year data are made continuously at the EPA level and biannually for the public data bases Toxicology Data Network (TOXNET) and the Right-to-Know Network (RTKNET). The content of the TRI online data bases can be supplemented, altered, or updated only by the facilities that report the data and the EPA staff who enter the data.

Minimum Set of Data Elements Coverage

TRI does not purposefully incorporate the MSDE for ground water quality. Facility latitude and longitude are the only MSDE elements required. The guidance document for Form R includes detailed instructions on how to report an exact latitude and longitude. The latitude and longitude reported by the facility are expected to be correct because of the detailed methodology provided to the facility in the guidance. The system also contains information on releases to ground water, thus it would contain data on constituents and values. Therefore, TRI contains four of the 21 MSDE elements.

Data Limitations

No detailed ground water information exists in this data base. TRI can be used to research relevant information such as locations of underground injection wells and publicly owned treatment works, surface water bodies, and associated releases of specific chemicals to the environment.

System Use and Access

TRI data bases operate on the National Library of Medicine's TOXNET system, RTKNET administered by the Unison Institute and OMB Watch, and the EPA mainframe computer. Researchers include EPA Headquarters, Regions, States, universities, trade associations, and private citizens. EPA staff access data through EPA's mainframe computers through the EPA National Computer Center. Prospective users of EPA's mainframe must first obtain an EPA user identification. The user ID can be obtained by submitting a request to the contact listed above. Upon approval of the request, the user will be sent an ID, a password, and user information. An IBM compatible computer and a modem are the only hardware needed. Approximately 2,000 requests for access or data searches are logged in each year.

Key Background Documents

Toxic Chemical Release Inventory: Form R and Instructions for 1992, U.S. EPA, Office of Pollution Prevention and Toxics, January 1993. This manual contains instructions for completing and submitting Form R.

U.S. Environmental Protection Agency Toxics Release Inventory on the National Library of Medicine's Toxicology Data Network (TOXNET) System, U.S. Department of Health and Human Services, July 1991. This document describes the TRI data bases and how to access them through TOXNET.

GROUND WATER MONITORING STUDIES

Data Collected:	Ground water monitoring data for specific pesticides
Reporting Requirements:	Federal Insecticide, Fungicide, and Rodenticide Act Sections 3(c)(1)(D), 3(c)(7), and 3(c)(2)(B)
Geographic Coverage:	National
System Type:	Hard copy
Contact:	Elizabeth Behl, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs, (703) 305-6128

SYSTEM OVERVIEW

EPA's Office of Pesticide Programs (OPP) maintains a collection of hard copy ground water studies that contain data on the effects of pesticide use on ground water. The studies, which support pesticide registrations, generally contain ground water monitoring data that demonstrate (1) the potential for a pesticide to leach to ground water from a specific use in a specific hydrogeological environment, and/or (2) whether a currently registered pesticide has affected ground water. Studies may contain data from one-time demonstration of chemical application projects or attempt to evaluate the impact of past pesticide use in specific areas. Since the mid 1980s, approximately 100 such studies have been conducted. OPP hopes to incorporate data from these files into the updated PIN (see page 69), although the Office has not set a date for completing this task.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

EPA may require pesticide registrants to submit data from ground water monitoring studies to support the registration of pesticide products under FIFRA Section 3(c)(1)(D) and (c)(7). Under FIFRA Section 3(c)(2)(B), the Agency may require the submission of these data to support continued registration. Ground water monitoring studies are required when residues of a pesticide that an applicant is seeking to register have been detected in ground water or when EPA suspects that the pesticide will leach into the ground water, based on a review of environmental fate data. OPP recommends that ground water studies contain information on soil (e.g., permeability, density, water holding capacity), hydrogeology (e.g., water table elevation, ground water flow and velocity, type of aquifer, hydraulic conductivity), and climate (e.g., rainfall averages, irrigation) for the tested area.

Minimum Set of Data Elements Coverage

Ground water studies may contain some of the MSDE. For example, OPP suggests sample collection records include the following elements, which correspond to MSDE:

- Location by supply system and number;
- Location of sample site;
- Depth to water;
- Sample identification number and date (time is rarely included); and
- Quality assurance procedures.

Thus, the studies may contain five of the 21 data elements in the MSDE, although not necessarily in the specified format.

Data Limitations

The ground water studies are limited to monitoring for the impacts on ground water of specific pesticides. They are used for a specific purpose -- evaluating a registrant's application for registration or continued registration. The studies may be updated when further ground water monitoring data are requested to support the continued registration of a pesticide. The scope of the studies varies with each pesticide. Some studies may contain extensive monitoring information for a number of locations and over a number of years, where others may test the behavior of a pesticide in one particular location for a short period of time. The quality of the data should conform with OPP suggested general quality assurance procedures for registrants conducting ground water monitoring studies.

System Use and Access

The studies are used by EPA staff to evaluate a registrant's application for registration of a pesticide and for regulatory determinations. There are seven regular EPA users and approximately 30 occasional EPA users of the information.

Studies are available to parties outside of EPA through a written Freedom of Information Request. Requested information is available in hard copy only, charged on a per-page basis, and requests typically would take four weeks to process. The address is included in the introduction to this document under "System Types and Access."

Key Background Documents

Guidance for Ground Water Monitoring Studies (draft), U.S. EPA, 1988. This guidance for pesticide registrants addresses conducting ground water monitoring studies, data collection, and data reporting. OPP hopes to issue a revised guidance in late 1994.

System Overview

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS

Data Collected:	Frequency and concentration of pesticides and nitrate in drinking water wells
Reporting Requirements:	None
Geographic Coverage:	National
System Type:	Hard copy and magnetic tape
Contact:	Elizabeth Behl, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs, (703) 305-6128

The National Survey of Pesticides in Drinking Water Wells (NPS) was a comprehensive national study of pesticides and nitrate in drinking water conducted by EPA's Office of Ground Water and Drinking Water (OGWDW) and Office of Pesticide Programs (OPP). The NPS data base is comprised of a set of disks that contain files pertaining to the implementation of the Survey, data collected from questionnaires administered to drinking water well owners and operators, data concerning the analysis of water samples, and records of the analyses conducted to identify and evaluate factors potentially affecting pesticide and nitrate occurrence in drinking water wells.

The NPS data base contains information in three categories:

(1) Survey implementation records (e.g., sampling schedules, laboratory records),

(2) Survey questionnaire results (e.g., data on pesticide use, spills, and disposal; agricultural activities; well age, depth, and construction; topography; and surface water characteristics near the well); and

(3) Analytic data bases (e.g., county-level and sub-county level DRASTIC measures of ground water vulnerability, pesticide use data, agricultural activities data, rainfall and drought data, and chi-square analyses).

This information is also presented in the Phase I and II reports listed below. OPP is currently importing the results from the survey into the Pesticides in Ground Water Data Base, which will be contained in the updated Pesticides Information Network (see page 69).

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Between 1988 and 1990, EPA sampled more than 1,300 community and rural domestic wells nationwide for 101 pesticides, 25 pesticide degradates, and nitrate (127 analytes). The wells were chosen using a stratified sampling technique on the basis of county or

sub-county measures of ground water vulnerability and county or sub-county measures of cropping.

Minimum Set of Data Elements Coverage

NPS contains 9 of the 21 elements in the MSDE. For each well sampled, the data base contains:

- Data sources
- FIPS code (State and county)
- Well use
- Sample identifier and date sampled
- Constituent measured (i.e., analyte)
- Concentration of analyte detected
- Analytical results qualifier (lab records)
- Quality assurance indicator (lab records)

For each well, the system also contains the FRDS ID number, water system address, sampling method, and method used to detect analyte.

Data Limitations

EPA designed the Survey to yield information on both the frequency and levels of pesticide contamination, pesticide degradates, and nitrate in rural domestic (private) and community (public) drinking water wells on a nationwide basis. The Survey focused on the quality of *drinking water in wells*, rather than on the quality of ground water, surface water, or drinking water at the tap. This Survey does not assess pesticide contamination in drinking water wells at the local, county, or State level. The sampling took place over a two-year period. In addition, the identification of all rural domestic water systems is confidential.

System Use and Access

The National Technical Information Service (NTIS) sells magnetic tapes containing the NPS as well as appropriate documentation. In addition, NTIS can arrange for online access to EPA's National Computer Center (NCC). NTIS will also obtain clearance from the data base manager, obtain identification for users, and bill users for computer services provided by NCC.

Key Background Documents

National Survey of Pesticides in Drinking Water Wells: Data Base Documentation, Revision 1.0, U.S. EPA, Office of Water and Office of Prevention, Pesticides, and Toxic Substances, February 1993. This report contains data elements in the NPS, State summary data, and DRASTIC ground water vulnerability maps of each State.

National Survey of Pesticides in Drinking Water Wells: Phase I Report, U.S. EPA, Office of Water and Office of Prevention, Pesticides, and Toxic Substances, EPA 570/9-90-015, November 1990. This report contains information on Survey design and implementation, text of questionnaires, and tables presenting national estimates and confidence intervals for well characteristics derived from survey data.

Another Look: National Survey of Pesticides in Drinking Water Wells: Phase II Report, U.S. EPA, Office of Water and Office of Prevention, Pesticides, and Toxic Substances, EPA 570/9-91-020, January 1992. This report describes the data sources used in the Phase II analyses.

NPS Summary Results of Phase II; NPS Phase I Final Results Press Package, U.S. EPA, Office of Water and Office of Prevention, Pesticides, and Toxic Substances, EPA 570/9-91-021, September 1991. Available through the Safe Drinking Water Hotline, 1-800-426-4791.

PESTICIDE INFORMATION NETWORK (PIN) / PESTICIDES IN GROUND WATER DATABASE (PGWDB)

Data Collected:	Pesticide monitoring data
Reporting Requirements:	None, voluntary
Geographic Coverage:	National
System Type:	PC-bulletin board and hard copy
Contact:	Connie A. Haaser, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs, (703) 305-7499

SYSTEM OVERVIEW

The Pesticide Information Network (PIN) is a free computerized information service offered by the Office of Pesticide Programs (OPP). The PIN is an interactive, online collection of datasets containing current scientific and regulatory information concerning pesticides. The PIN is being expanded to accept multiple users and other datasets that include the following information: ground water monitoring data; physical/chemical characteristics of pesticides; environmental fate, mammalian, avian, and aquatic toxicological end points; expanded regulatory status information; and a certification and training bibliography. One of the datasets being added to the expanded PIN is the computerized portion of the Pesticides in Ground Water Database (PGWD).

PGWD was created by OPP to provide a more complete picture of ground water monitoring for pesticides in the United States. It is a collection of ground water monitoring studies conducted by Federal, State and local governments, the pesticide industry and private institutions. It consists of monitoring data and auxiliary information in both computerized and hard copy form. The ground water monitoring information in the PGWD is currently available as a set of hard copy summary documents: *Pesticides in Ground Water Database -- A Compilation of Monitoring Studies: 1971 - 1991 (1992 PGWD Report)*. This set of documents consists of 11 volumes: a National Summary and ten EPA regional summaries. Each volume provides a detailed description of the computerized PGWD and a guide to reading and interpreting the data. Data and auxiliary information from 45 States and approximately 68,000 wells are presented in various formats including text descriptions, maps, graphs and tables. The *1992 PGWD Report* contains well sampling data for 302 pesticide related compounds, of which 258 were parent compounds and 45 were degradates. OPP also identified authors, study directors or other points of contact for each study.

Reporting Requirements and Other Data Sources

PGWD includes some studies that pesticide registrants are required to submit to OPP to support the registration of their pesticide. The majority of studies in the system, however, were submitted by Federal and State agencies and private institutions such as universities. These studies are submitted voluntarily and study directors wish to include their work in the PGWD because it offers the opportunity to share data and expertise.

Minimum Set of Data Elements Coverage

PGWD contains only ground water monitoring data concerning pesticides. The updated PIN will contain fields for each of the MSDE. Since the data are voluntarily submitted, studies rarely contain information for all elements. Typically, data submitted include a well identifier, location, number and type of pesticides tested for, date of monitoring, analytical results, detection limit, and type of well. Elements such as altitude and well depth are rarely submitted. Data for each study are organized in three files that contain different portions of the MSDE: study file (contains general descriptors), well file (geographic and well descriptors), and a sample file (sample descriptors).

Data Limitations

The ground water monitoring data in the PGWD derive from a number of sources, that are investigating the potential for ground water contamination by pesticides. In general, the PGWD provides a relatively comprehensive overview of the ground water monitoring efforts for pesticides in the United States, the pesticides that are found in the nation's ground water, and the areas of the country that appear to be the most vulnerable to pesticide contamination. The data in the PGWD can provide an indication of where ground water has been sampled, where additional sampling might be necessary and where contamination occurs in relationship to the intensity of sampling. Differences in study design, laboratory procedures/equipment, sampling practices, or well use and construction can affect results. Other limitations governing the interpretation of the data include the fact that the PGWD is not a complete data set of all ground water monitoring for pesticides in the United States; monitoring for pesticides in ground water has not been performed in a uniform manner throughout the United States; and limits of detection have changed over time and vary from laboratory to laboratory.

System Use and Access

The *1992 PGWD Report* is currently being used on a national level to support OPP's ongoing regulatory activities, such as ground water label advisories, monitoring studies required for pesticide re-registration and special review activities. In addition, combining the information in the PGWD with other environmental fate data and usage data will assist OPP, at an early stage in the regulatory process, in refining criteria used to identify pesticides that tend to leach to ground water. On the Regional, State or local level, the *1992 PGWD Report* is used as a reference so that data can be shared.

The computerized portion of the PGWD will become available on the PIN toward the end of 1993. PIN access is free except for any long distance telephone charged incurred by the user. The PIN functions much like a PC-PC bulletin board and can be accessed by anyone with a computer, a modem and communications software set to the following parameters: phone: (702) 305-5919, Baud 1200 or 2400, Databits - 7, Parity - even, Stopbits - 1, Duplex - full. PIN user support is available at (703) 305-7499.

KEY BACKGROUND DOCUMENTS

Pesticides in Ground Water Database -- A Compilation of Monitoring Studies: 1971 - 1991, National Summary, U.S. EPA, Office of Prevention, Pesticides and Toxic Substances September 1992. This document provides an overview of the PGWD, a discussion of the data included in the report and the data summarized in tables, charts and maps on a State by State basis.

Pesticides in Ground Water Database -- A Compilation of Monitoring Studies: 1971 - 1991, Regions 1-10, U.S. EPA, Office of Prevention, Pesticides and Toxic Substances September 1992. Each of these 10 documents describes the monitoring being performed in the States in that U.S. EPA Region. Each monitoring study is described and the data is presented in tables, charts and maps by State on a county by county basis.

PESTICIDE STATE MANAGEMENT PLANS (SMPS)

Data Collected:	Results and analyses from state ground water sampling and monitoring
Reporting Requirements:	Biennial reports under FIFRA Section 3 or 6 proposed
Geographic Coverage:	National
System Type:	Hard copy
Contact:	Linda Strauss, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs, (703) 305-5561

SYSTEM OVERVIEW

Through a chemical-specific regulatory action under FIFRA Section 3 or 6, EPA plans to require States to prepare Pesticide State Management Plans (SMPs) for specific pesticides that pose a significant threat to ground water resources. EPA will invoke the SMP approach for a specific chemical if: 1) the Agency concludes from the evidence of a chemical's contamination potential that the pesticide "may cause unreasonable adverse effects on the environment" in the absence of effective local management measures; and 2) the Agency determines that, although labelling and restricted use classification measures are insufficient to ensure adequate protection of ground water resources, national cancellation would not be necessary if States assume the management of the pesticide in sensitive areas to address effectively the contamination risk. If EPA invokes the SMP approach for a specific chemical, its legal sale and use would be confined to States with an EPA-approved Pesticide SMP. The final Pesticide SMP Rule is currently under development and is scheduled to be promulgated in January 1995.

Under the draft guidance for SMPs, States are required to address the following 12 components:

(1) State's ground water protection goals
(2) Roles and responsibilities of State agencies
(3) Legal authority
(4) Resources
(5) Basis for assessment and planning
(6) Monitoring
(7) Prevention actions
(8) Response to detections of pesticides
(9) Enforcement mechanisms
(10) Public awareness and participation
(11) Information dissemination
(12) Records and reporting

Reporting Requirements and Other Data Sources

Under the proposed rule, EPA plans to require States to prepare biennial reports for each Pesticide SMP. EPA Headquarters and Regional personnel will use these reports to evaluate a State's effectiveness in protecting its ground water resources from pesticide contamination. The programmatic component will describe how a State is implementing the 12 SMP components. The environmental component should demonstrate that a Pesticide SMP is preventing the leaching of pesticides into the ground water. This component of the report would include:

- Results and analyses from ground water sampling and monitoring as well as a summary of significant finds which would prompt a State to increase its degree of oversight of use of the pesticide or modify its SMP;
- An assessment of pesticides usage and whether use of the specific pesticide has increased, decreased, or remained essentially the same during the reporting period; and
- A description of response actions taken for detections of the specific pesticide in ground water.

EPA strongly encourages, but does not require, States to submit a final or interim report of their monitoring data to EPA Headquarter's *Pesticides in Ground Water Database (PGWD)* included in the Pesticide Information Network (PIN) referred to in this report on pages 69-71.

Minimum Set of Data Elements Coverage

The sampling design and monitoring techniques that States use in developing and implementing a Pesticide SMP will be evaluated by EPA for their adequacy. EPA encourages use of the MSDE, but if States choose not to use the EPA set, they should at least have their own set of data elements that are consistently collected at each sampling site.

Data Limitations

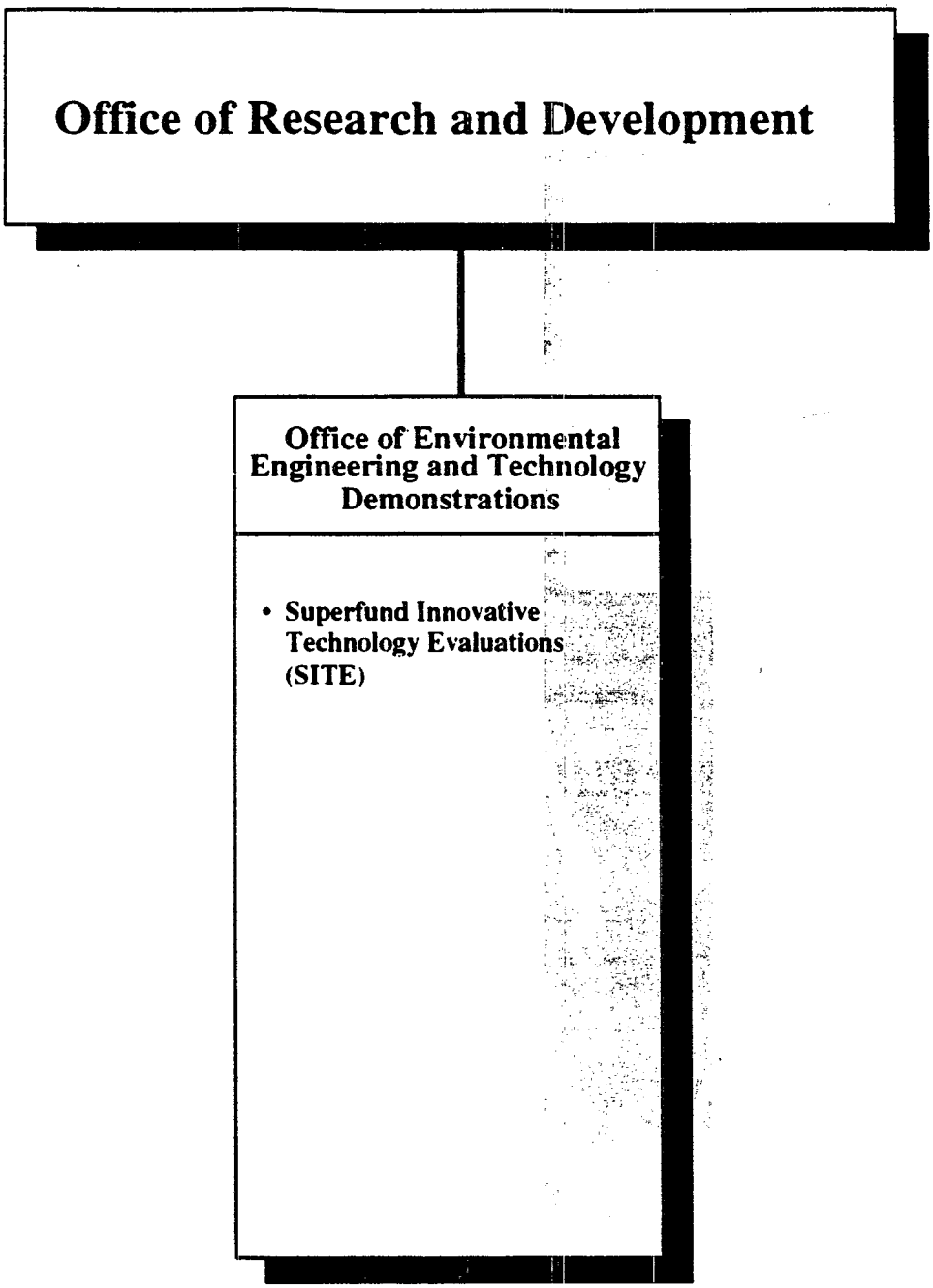
This system does not contain raw ground water data. It contains the results and analyses of State ground water sampling and monitoring activities. Since EPA only encourages, but does not require, a State to submit their ground water data to the PGWD, the database may not contain SMP sampling and monitoring data for each State.

System Use and Access

EPA Regional offices will receive and maintain State biennial reports. Actual ground water sampling and monitoring data may be found in the PGWD if submitted by the State.

KEY BACKGROUND DOCUMENTS

Pesticides State Management Plan Guidance for Ground Water Protection, U.S. EPA, Office of Pesticide Programs, expected late Fall 1993. This document establishes the components of SMPs and identifies approaches and methods that States may use to develop and implement SMPs. *Appendix A: Review, Approval, and Evaluation of State Management Plans* describes the process and timeframe for EPA's review, approval or concurrence, and oversight of SMPs. *Appendix B: Assessment, Prevention, Monitoring, and Response Components of Pesticides State Management Plans* provides States with technical guidance to assist in the development of assessment, prevention, monitoring, and response measures.


Office of Research and Development
Office of Environmental Engineering and Technology Demonstrations
• Superfund Innovative Technology Evaluations (SITE)

SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION (SITE)

Data Collected:	Alternative cleanup methods for Superfund sites
Reporting Requirements:	None
Geographic Coverage:	National
System Type:	Hard copy and online clearinghouses
Contacts:	John Martin, Office of Research and Development, Risk Reduction Engineering Laboratory, (513) 569-7696

SYSTEM OVERVIEW

The Superfund Innovative Technology Evaluation (SITE) program evaluates new and promising technologies for remediating Superfund sites. The program has three components: (1) Demonstration, (2) Emerging Technology, and (3) Monitoring and Measurement Technologies. Superfund remediation technologies often address ground water. As of October 1991, the SITE program had identified 47 demonstrated or emerging technologies for remediating ground water.

The SITE program publishes *Technology Profiles*, an inventory of technologies under each of the components, and for many technologies, *Applications Analysis*, a report on the performance of demonstrated technologies. Each technology profile contains (1) a technology developer and process name, (2) a technology description, (3) a schematic diagram or photograph of the process, (4) a discussion of wastes for which the technology is applicable, (5) a project status report, and (6) the name of the EPA Project Manager and a technology developer contact. The *Technology Profiles* report also includes a table identifying the media (e.g., ground water, soil, sediment) for which the technology is used. The *Applications Analysis* reports contain more detailed information on each of the six categories listed above, as well as results of demonstrations.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Under the SITE program, EPA enters cooperative agreements with technology developers. The developers refine technologies at bench- or pilot-scale and may demonstrate them with support from EPA at Superfund sites. Under the cooperative agreement, the technology developer submits information on technologies to EPA's Office of Research and Development (ORD). The data are usually results of a demonstration of the treatment technology and encompass the time period of the demonstration. Thus, data are not updated on a regular basis after the demonstration has ended.

Minimum Set of Data Elements Coverage

The technology reports do not purposely include the MSDE. The project reports or project files, however, will identify the following: data sources (although elements such as altitude, latitude and longitude are not included), map delineation of sites (latitude and longitude of a site, but not a well may be inferred), a developer's own sample identifier, depth to water, constituent or parameter measured, concentration value, analytical results qualifier, and quality assurance indicators. Consequently the SITE reports contain eight of the MSDE, although not necessarily in the recommended format.

Data Limitations

The reports are prepared solely to demonstrate a remediation technology. They do not usually contain site-specific information that can be linked to other data systems. All laboratory analyses must comply with rigorous and documented quality assurance/quality control (QA/QC) procedures.

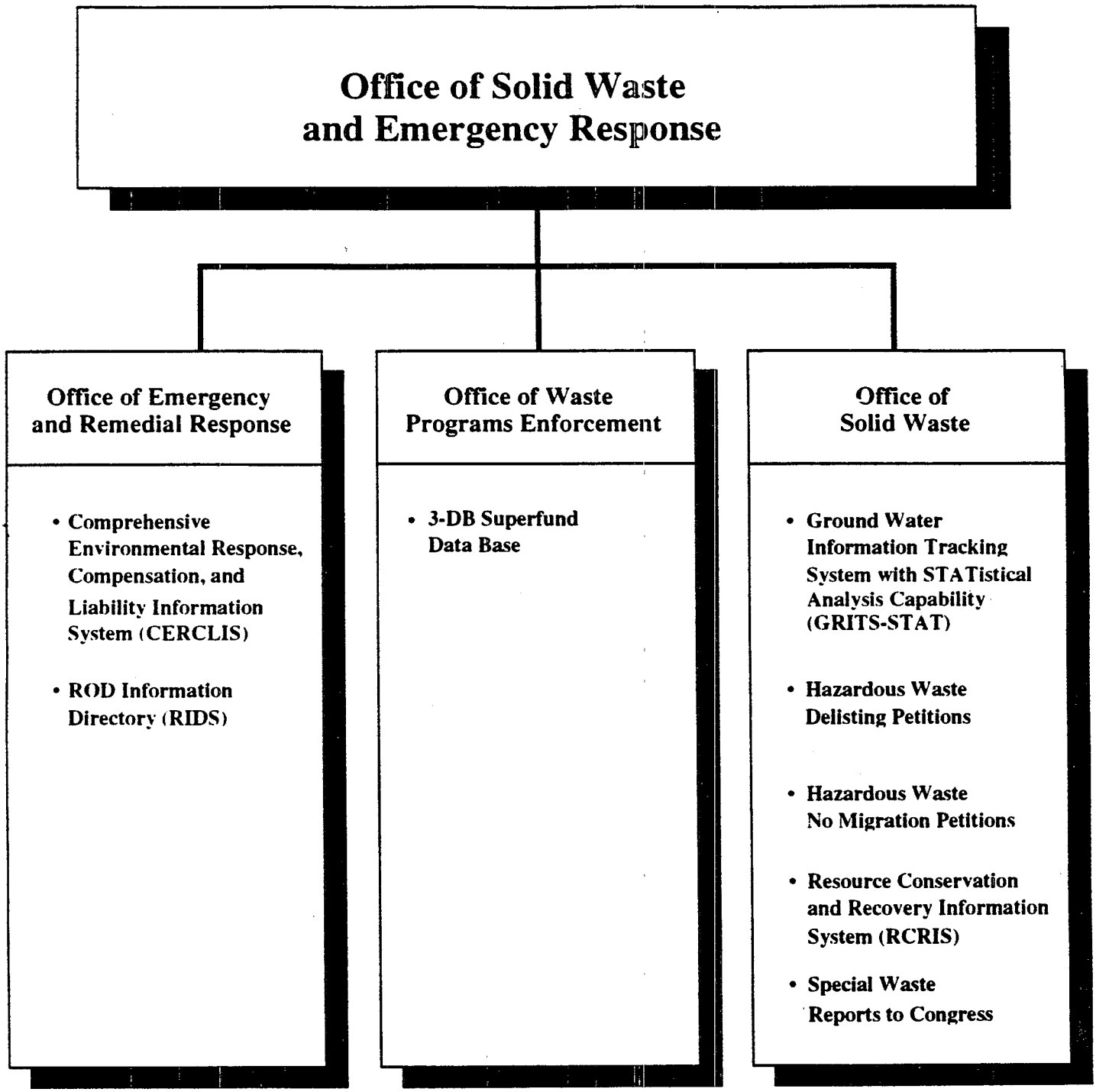
System Use and Access

SITE information is available through the following online information clearinghouses: Alternative Treatment Technology Information Center (ATTIC), System Operator, (301) 670-6294, and Vendor Information System for Innovative Treatment Technologies (VISITT), Hotline (800) 245-4505. Technical reports, including the technology profiles and technology-specific reports are available through ORD Publications, 26 West Martin Luther King Drive (G72), Cincinnati, OH 45268, (513) 569-7562. Files may be available for specific projects via the project's EPA Work Assignment Manager.

The SITE program currently has a mailing list of approximately 6500 people, including Federal, State, and local regulators, engineers, developers, and consultants. SITE information is used for a variety of purposes ranging from regulation development to remediation technology selection.

Key Background Documents

The Superfund Innovative Technology Evaluation Program: Technology Profiles, Fifth Edition, U.S. EPA, Office of Solid Waste and Emergency Response and Office of Research and Development, EPA-540-R-92-077, November 1992. This document contains two-page profiles of demonstrated and emerging technologies and references contacts for further information.


Office of Solid Waste and Emergency Response
Office of Emergency and Remedial Response
• Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
• ROD Information Directory (RIDS)
Office of Waste Programs Enforcement
• 3-DB Superfund Data Base
Office of Solid Waste
• Ground Water Information Tracking System with STATistical Analysis Capability (GRITS-STAT)
• Hazardous Waste Delisting Petitions
• Hazardous Waste No Migration Petitions
• Resource Conservation and Recovery Information System (RCRIS)
• Special Waste Reports to Congress

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY INFORMATION SYSTEM (CERCLIS)

Data Collected:	Contains information on all aspects of potential hazardous waste sites from initial discovery to listing on the National Priorities List
Reporting Requirements:	None
Geographic Coverage:	System is used by Headquarters and Regions
System Type:	Online
Contacts:	Jalania Ellis, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response, (703) 603-8884

SYSTEM OVERVIEW

EPA's Office of Solid Waste and Emergency Response (OSWER), Office of Emergency and Remedial Response maintains CERCLIS, a national computerized program management and inventory system for sites reported to Superfund. CERCLIS includes information on potential hazardous waste sites, including an inventory of sites, planned and actual site activities, and financial information. CERCLIS contains specific ground water information only for facilities where ground water has been remediated. In such cases, CERCLIS identifies contaminants detected and subsequent corrective action activities taken or proposed. Although the level of ground water data are minimal, CERCLIS is a major EPA system that contains information that indirectly relates to ground water quality.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Regional program offices (through a Regional Information Management Coordinator), and to a limited extent, the U.S. Corps of Engineers enter new facility reporting data directly into the system and update old data periodically. The data come from site-specific files in the Regional Superfund docket. These documents include, Records of Decision (RODs), site investigation reports, and enforcement action reports. The system consists of four primary data groups:

- Site Name(s);
- EPA Identification Number;
- Geographic locators (e.g., street address, city, State, county, ZIP code, latitude/longitude, congressional district, U.S. Geological Survey [USGS] hydrologic unit identifier); and
- Actions taken or proposed under the Superfund program.

CERCLIS also contains a site incident field that reports a one character code indicating the overall physical classification of the site or incident. For instance, if the site is known to have highly contaminated ground water the site incident field would contain the letter G. In addition, the system provides data for activities that have been undertaken at the site. This description may contain information on surface impoundments, underground injection control, or other waste management technologies with the potential to affect ground water.

Minimum Set of Data Elements Coverage

CERCLIS does not explicitly incorporate the MSDE for ground water quality. The system contains site facility latitude and longitude (but not latitude and longitude for a well or spring).

Data Limitations

No detailed ground water information exists in this data base. CERCLIS, however, can be used to research information such as locations of sites. As mentioned previously, ground water data included are minimal and may include simply a flag indicating that a ground water release has been reported.

System Use and Access

CERCLIS operates on the EPA mainframe computer. Users of the system include EPA Headquarters and Regional offices and several other government agencies, including the U.S. Army Corps of Engineers, and the Center for Disease Control's Agency for Toxic Substances and Disease Registry. CERCLIS use is restricted to EPA and other government agencies. CERCLIS reports and tapes containing the site inventory and site assessment activity information are available from NTIS.

Key Background Documents

Access EPA, U.S. EPA, Office of Administration and Resource Management, 1992. This document briefly summarizes CERCLIS and other EPA data bases.

CERCLIS Site Location Extract, National Technical Information Service, Quarterly. This document contains data on potentially hazardous sites that have been reported to EPA.

User's Guide to CERCLIS, Chemical Information Systems, Inc., September 1990. This system documentation lists the primary data elements included in the system.

GROUND WATER INFORMATION TRACKING SYSTEM WITH STATISTICAL ANALYSIS CAPABILITY (GRITS-STAT)

Data Collected:	Ground water monitoring data
Reporting Requirements:	Specified in operating permits and records
Geographic Coverage:	System is used on a Regional and State basis
System Type:	PC software
Contacts:	Jim Brown, Office of Solid Waste and Emergency Response, Office of Solid Waste, (703) 308-8656; Tom Matheson, Region V (Chicago), (312) 886-7449; Mary Bitney, Region VII (Kansas City), (913) 551-7696; Jack Teuschler, Center for Environmental Research Information (CERI), (515) 569-7314; GRITS-STAT Hotline Support (913) 551-7074

SYSTEM OVERVIEW

EPA's Office of Solid Waste (OSW), in cooperation with the Office of Research and Development, Center for Environmental Research Information (ORD-CERI), EPA Region V and EPA Region VII, developed GRITS-STAT, a PC-based software system designed to store, analyze, and report data generated during ground water monitoring programs at RCRA, CERCLA, and other regulated facilities and sites. OSW encourages RCRA Subtitle C and D facility owners and operators to use the software to submit required annual facility reports containing monitoring data to the permitting authority (authorized States or Regions). GRITS-STAT assists users in complying with the ground water monitoring data analysis requirements of RCRA Subtitles C and D.

Currently States in Regions II, IV, V, and VII are using the software to electronically manage and evaluate ground water monitoring data submitted by facilities in the State. In most cases, the RCRA programs are administered by the States, with Regions and Headquarters performing program oversight. Therefore, neither the Regions or Headquarters maintains these ground water data. Region VII, however, is able to access the States' "data bases", which consist of a set of disks containing the data submitted by facilities.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Land-based permitted hazardous waste (Subtitle C) treatment, storage and disposal facility owners and operators are required by 40 CFR Part 264, Subpart F to conduct ground water monitoring and submit data at least annually (some reporting requirements

are more frequent, depending on the permit conditions). Region V requires that facilities use the GRITS-STAT software as part of their permit conditions.

Subpart F outlines a three-phased ground water monitoring program for regulated units: detection monitoring, compliance monitoring, and corrective action monitoring. Minimal data collection requirements involve semi-annual monitoring of parameters and/or constituents that indicate the presence of hazardous constituents in ground water (detection monitoring) as well as water level measurements, results of statistical tests to determine patterns of contamination, quantities of hazardous wastes managed, methods of treatment, storage, and disposal, and general facility-specific information. Compliance monitoring is required when indicator parameters exceed background concentrations, in ground water, and if contamination levels exceed permitted levels, the facility must conduct corrective action and perform associated monitoring.

In addition, as of October 1993, Subtitle D facilities must comply with 40 CFR Part 258 Subpart E, Ground Water Monitoring and Corrective Action and 40 CFR Part 258, Subpart F, Closure and Post-Closure Care. The statistical requirements for Subtitle D monitoring are similar to those described above for Subtitle C.

Minimum Set of Data Elements Coverage

All of the MSDE are included in the GRITS-STAT data base. The system was designed to include each element in the format specified, and facilities generally include each element in their monitoring reporting.

Data Limitations

The GRITS-STAT software system is designed for use by Regions, States, and facility owners and operators. Headquarters does not currently maintain facility specific data, instead the regulated community stores their own data and reports it to States or Regions. Regional systems may contain submitted data. The GRITS-STAT software contains quality assurance and quality control codes. For example, when entering sample information, the software allows the user to enter quality assurance information on replicate and duplicate samples, analytical method used, and detection limits.

System Use and Access

There are over 1,500 users of the GRITS-STAT system, including permitting authorities, industry, consultants, and facility owners and operators. The GRITS-STAT software is available from the EPA Center for Environmental Research Information, (513)569-7562. Upon request, Region VII will provide a set of disks containing data for all facilities in their Region. Users can submit requests to the Region VII contact listed above. Generally, users request information for a specific facility. Although other Regions increasingly use GRITS-STAT, GRITS-STAT data are not readily available from the Regions. The data are maintained in hard copy at the State level.

The system must be maintained on a standard desktop microcomputer with at least a 286 microprocessor, DOS 3.3 or higher, 640 kbytes memory with at least 570 kbytes available, a high density floppy disk drive, 9 megabytes on the hard drive, and an EGA (or better) color graphics card and monitor. The data may be imported from Lotus spreadsheets into Harvard Graphics or d-Base. An export facility within the system allows the user to customize the transfer of ASCII information between GRITS/STAT and other ground water systems.

KEY BACKGROUND DOCUMENTS

Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities: Interim Final Guidance, U.S. EPA, Office of Solid Waste, April 1989 (EPA/530-SW-89-026). This report contains guidance for facilities that must comply with the ground water statistical analysis requirements of RCRA Subtitle C. It is available through the National Technical Information Service (NTIS) by calling 703-487-4650. The NTIS document number is PB 89-151-047.

Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities: Addendum to the Interim Final Guidance (EPA/530-R-93-003), July, 1992. This report updates the interim final guidance and makes further recommendations on tests for normality, equal variance, non-detects, and retesting strategies. This document is available through the RCRA docket by calling 202-260-9327..

RCRA Ground Water Monitoring: Draft Technical Guidance, U.S. EPA, Office of Solid Waste, November 1992 (EPA/530-R-93-001). This report contains guidance for facilities complying with RCRA Subtitle C ground water monitoring requirements for regulated units and related permitting standards. This document is available from NTIS at 703-487-4650. The document number is PB-93-139-350.

RCRA Ground Water Technical Enforcement Guidance Document, U.S. EPA, Office of Solid Waste, OSWER-9950.1, 1986. This enforcement guidance for States and Regions addresses their responsibility for implementing RCRA Subtitle C ground water monitoring requirements for regulated units contained and related permitting standards.

User Documentation: A Ground Water Information Tracking System with Statistical Analysis, GRITS-STAT c4.2, U.S. EPA, Office of Research and Development and Office of Solid Waste, EPA/625/11-91/002, November 1992. This report documents the GRITS-STAT system and lists all data elements included in the system. It is available by calling CERI at 513-569-7562.

HAZARDOUS WASTE DELISTING PETITIONS

Data Collected:	Delisting Petitions
Reporting Requirements:	40 CFR Part 260.20 and 260.22 specify delisting criteria
Geographic Coverage:	National
System Type:	Hard copy and limited data base
Contact:	Bob Kayser, Office of Solid Waste and Emergency Response, Office of Solid Waste, (202) 260-2224

SYSTEM OVERVIEW

The Office of Solid Waste (OSW) collects hazardous waste delisting petitions from hazardous waste generators, hazardous waste management facilities, and other parties that hope to delist their wastes. Delisting allows a listed hazardous waste from a specific source to be excluded from regulation under RCRA Subtitle C. Petitioners must demonstrate to EPA that the wastes are not hazardous because of facility-specific factors such as raw material inputs, and processes. Authorized States and EPA review delisting petitions.

Delisting petitions may contain data on local hydrogeology, locations of ground water monitoring wells, well logs, and sampling results, including constituents and concentration data for all well systems and wells (including non-RCRA wells) that monitor each hazardous waste management unit in which the petitioned waste is, or ever was, managed. EPA publishes a notice of intent to grant or deny delisting petitions in the *Federal Register*, and accepts public comments before issuing a final decision. The EPA RCRA Docket maintains a microfiche record for all published decisions. The Delisting Petition Data Base stores data on waste characteristics, waste management methods, and volume data. Ground water data are not entered into the data base, although the data base can be used to identify petitions containing ground water data. OSW maintains the Delisting Petition Data Base.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

Parties that hope to delist their wastes voluntarily complete and submit delisting petitions. Petitions are frequently revised or corrected prior to final approval or denial. Information submitted in the petition must follow general guidelines found in 40 CFR 260.20 and 260.22. No standard forms are used to submit data to EPA. The delisting guidance manual, which is cited below, contains a mock petition, however. Petitions routinely include waste generating process data, waste analysis data, and waste disposal data. Information submitted also depends upon case specific considerations. If wastes are disposed of on-site or in off-site dedicated land-based units, ground water data from

the facility's ground water monitoring system must be included in the petition. Petitions include data collected pursuant to 40 CFR Part 264 or 265, or an equivalent State regulation, additional data requested by EPA, and any other documentation that characterizes the petitioned waste's impact on ground water quality. If EPA determines that the ground water monitoring data are insufficient to determine whether the petitioned waste has adversely affected ground water, EPA can require further sampling. Delisting petitions and accompanying documents are not updated or changed after the final decision is made.

Minimum Set of Data Elements Coverage

The delisting petition files do not directly address the MSDE. Facilities submit their petitions voluntarily and often include reports and data originally collected for other purposes, such as permitting. No regulated format exists for the type of data reported; however, the following ground water data are generally submitted: descriptions of site-specific geology and hydrology; a description of the ground water monitoring system; well logs and well construction diagrams; a map of monitoring well locations; a description of well development procedures; analytical results from a minimum of four rounds of ground water monitoring; a discussion of ground water sampling and analysis protocols; any additional information required to fully characterize the impact of the petitioned waste on ground water quality; and an interpretation of the ground water analytical data based on understanding of site hydrogeology and hydrogeochemistry and any seasonal variations. The information submitted by a petitioner therefore could include any or all of the MSDE.

Data Limitations

Only a small fraction of delisting petitions contain ground water data, such data are not entered into the Delisting Petition data base.

System Use and Access

Data contained in the delisting petitions may be accessed in two ways: (1) files may be viewed on microfiche at the RCRA docket located at EPA Headquarters and (2) the electronic dBase files of the Delisting Petition Data base can be accessed to identify petitions with ground water data.

Key Background Documents

Petitions to Delist Hazardous Wastes: A Guidance Manual, U.S. EPA, Office of Solid Waste, EPA/530-R-93-007, PB93-169365, March 1993. This document presents information regarding hazardous waste regulations and guidelines for submitting hazardous waste delisting petitions.

HAZARDOUS WASTE NO MIGRATION PETITIONS

Data Collected:	No Migration Variance Petitions
Reporting Requirements:	40 CFR 268.6 (authorizes no migration variances)
Geographic Coverage:	National
System Type:	Hard copy
Contact:	Chris Rhyne, Office of Solid Waste and Emergency Response, Office of Solid Waste, (202) 308-8658

SYSTEM DESCRIPTION

The Office of Solid Waste (OSW) receives No Migration Variance Petitions from hazardous waste generators or hazardous waste management facilities that seek a No Migration Variance to the hazardous waste land disposal restrictions (LDRs). A No Migration Variance is a formal EPA decision to allow the land disposal of specific, restricted wastes not meeting the applicable LDR treatment standards at a particular land disposal unit. All petitions must demonstrate to EPA that hazardous constituents will not exceed EPA-approved human health-based or environmentally protective levels for ground water, surface water, soil, and air beyond the boundary of the disposal unit. Petitions are not standardized. They vary depending on the characteristics of the waste and the facility seeking a variance. Petitions should contain a comprehensive description of regional, local, and site ground water hydrology and ground water monitoring activities and results. Ground water monitoring data include indicator constituents and/or all constituents on the modified Skinner List for petroleum constituents. Ground water monitoring data are reported quarterly, semi-annually, or annually depending on a facility's RCRA Part B permit requirements.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

RCRA regulations (40 CFR 268.6(c) and (d)) require that petitions contain site-specific analyses of air, soil, and water quality. These regulations do not specify a standard format for reporting these data. Data related to ground water that should be included in a petition are (1) characterization of all aquifers underlying the unit, including thickness, porosity, permeability, hydraulic conductivity and storage; (2) description of ground water elevations and seasonal variations; (3) location of local municipal and private wells surface water intakes and surface water discharges in the surrounding area; and (4) description of the ground water monitoring plan. If EPA determines that additional information is needed, EPA sends a letter to the petitioner requesting the additional information. In addition, EPA may also request information on the facility from the State.

Minimum Set of Data Elements Coverage

The No Migration Petitions do not directly address the MSDE. Nevertheless, the petitions contain detailed ground water monitoring data, and therefore may contain several if not all categories of the MSDE. Facilities submit their petitions voluntarily and often include reports and data originally collected for other purposes, such as permitting. No format encompassing the MSDE exists for the data reported.

Data Limitations

Ground water data found in the petitions are generally detailed. No specific format exists for collecting and reporting ground water data so that the range of data found in the petition is not uniform. The petitioner must address the accuracy of the data submitted, including data representation issues, accuracy, precision, and completeness. No Migration Petitions and accompanying documents are not updated or changed after the final decision is made.

System Use and Access

Data contained in the No Migration Petitions may be accessed by the public. The petitions are available at the RCRA Docket at EPA Headquarters. EPA staff use the petitions in order to determine if migration is likely to occur. EPA publishes its intention to either accept or deny a petition in the *Federal Register*, accepts public comments during a comment period, and publishes its final decision in the *Federal Register*.

Key Background Documents

"No Migration" Variances to the Hazardous Waste Land Disposal Prohibitions: A Guidance Manual for Petitioners, Draft," U.S. EPA, Office of Solid Waste, July 1992, NTIS PB92-207695. This document presents information regarding hazardous waste regulation and guidelines relevant to submitting No Migration Petitions.

RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM (RCRIS)

Data Collected:	Notification, permit, compliance, and corrective action data on hazardous waste handlers
Reporting Requirements:	None
Geographic Coverage:	System is used on a Regional and State basis
System Type:	Online
Contacts:	Liza Hearns, Office of Solid Waste and Emergency Response, Office of Solid Waste, (202) 260-3393

SYSTEM DESCRIPTION

EPA's Office of Solid Waste (OSW) maintains RCRIS, as the national program management and inventory system of the Resource Conservation and Recovery Act (RCRA) hazardous waste handlers. Handlers can be characterized as fitting one or more of the following categories: treatment, storage and disposal facilities (TSDF) and large quantity generators (LGQ), small quantity generators (SQG) and transporters. RCRIS capture identification, and location data for all handlers, as well as compliance and enforcement information if actions have taken place there. In addition, for TSDF's, RCRIS tracks permitting / closure / post-closure program activities, as well as corrective action assessments and remediation. At the national level, RCRIS contains few groundwater elements per se. The system does provide some tracking capabilities at the State and/or Regional level to track some additional groundwater related information but it is not mandatory and is not reflected in any national reports.

Reporting Requirements and Other Data Sources

RCRA Subtitle C regulations typically require facilities to submit a notification of regulated activity to the State or Region depending upon which has responsibility for program implementation. In addition, TSDF's who are applying for a permit must submit Part A and Part B forms which identify in greater detail the nature of their activities. Beyond the data obtained from these forms, the majority of information in RCRIS is provided by State and Regional program offices, and is obtained through such activities as on-site inspections.

The main components of RCRIS are the modules corresponding to the primary areas of program activity: Handler Identification; Permitting/Closure/Post-Closure; Compliance Monitoring and Enforcement; and Corrective Action. Some groundwater related information may be found in the Compliance module. In addition, new elements are being added to the Corrective Action module to

indicate areas where releases to groundwater have been controlled through remediation. Other groundwater related data elements are available to Regional and State program implementers. However, these additional elements are for the optional user of Regions and States. They do not form part of the national reporting structure and should not be included in assumptions about the specific groundwater information available from RCRIS on a national level.

In the enforcement area, data values are available which indicate groundwater monitoring related violations. However, these may or may not involve actual releases. The assumption should not be made that a groundwater monitoring violation necessarily identifies instances of releases to groundwater.

Minimum Set of Data Elements Coverage

RCRIS does not explicitly incorporate the MSDE for ground water quality. The system does contain facility latitude and longitude (but not latitude and longitude for a well or spring).

Data Limitations

RCRIS does not contain detailed information concerning groundwater releases on a national level. RCRIS can be used to research such information as facility location, waste management activity (e.g. land disposal, incineration, tank storage). In the near future, the range of groundwater related information available from RCRIS will expand as States and Regions begin making use of the new Corrective Action groundwater release environmental indicator data element.

System Use and Access

RCRIS is accessible through the EPA mainframe for EPA and State program personnel. Due to the presence of enforcement sensitive records, public access is supported via data extracts that eliminate these records. Copies of the tapes containing these extracts may be obtained through the National Technical Information Service (NTIS).

Key Background Documents

RCRA Hazardous Waste Information Management Executive Summary, U.S. EPA, Office of Solid Waste and Emergency Response, EPA530-S-92-001, January 1992. This document is a brief summary of RCRIS and another EPA database, the Biennial Reporting System which contains information on hazardous waste generation and management.

ROD Information Directory (RIDs)

Data Collected:	Record of Decisions data
Reporting Requirements:	40 CFR 300.430
Geographic Coverage:	National
System Type:	Electronic data base
Contact:	Hazardous Site Control Division, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response, (703) 603-8860

System Description

EPA's Office of Solid Waste and Emergency Response (OSWER), Office of Emergency and Remedial Response's Hazardous Site Control Division maintains RIDs. RIDs is an electronic data base that manages selected information from the Records of Decision (RODs) documents that are written for facilities on the Superfund National Priorities List (NPL). The primary function of RIDs is to record the types of remedies that are implemented at Superfund sites. It is used as an in-house program evaluation tool for the Hazardous Site Control Division. RIDs is not designed for public distribution or access. RIDs contains specific ground water information only for NPL sites where ground water has been contaminated. In such cases, RIDs lists contaminants of concern and identifies the remedy selected in the RODs. Detailed ground water data, other than contaminant name and category (i.e., volatile organic, base neutral, PCB, or metals) are not included.

Reporting Requirements and Other Data Sources

All data in RIDs are excerpted from RODs. RODs document the decision process use to detect an NPL site based on its site-specific needs. Regional Project Managers submit RODs for each site. Selected data are entered into RIDs once per year. The system includes site identifier fields such as site name, EPA identification number, EPA Region, and date that the ROD was signed. Remedy fields included in RIDs are remedy selection code, cost, technology used for source control, technology used for remediation, applicable regulatory standards that apply, and the remedial program enforcement lead. However, some fields, such as cost, do not have data reported.

Ground water data in RIDs can be found in the remedy section of the data base. RIDs lists the contaminant names, contaminant category, and affected media at the site. The remedy selection code field displays an abbreviated term that corresponds to the remedy described in the ROD. The remedy selection may describe surface impoundments,

underground injection control, or other waste management technologies with the potential to affect ground water.

Minimum Set of Data Elements Coverage

The ground water section was not designed to encompass the MSDE. For example, the system does not contain data such as latitude and longitude for wells, nor does it track constituent and concentration data by well at sites with ground water contamination. It does, however, contain contaminants and values. Therefore, the system encompasses 2 of the 21 MSDE elements.

Data Limitations

The scope of the data base is limited to NPL sites with RODs. No detailed ground water data such as types or number of wells, depth to ground water, or well monitoring data are entered into the RIDs data base. Only selected ROD data provided by the Regions are in the data base. For example, older RODs tend to have less data included in RIDs.

System Use and Access

RIDs is an internal EPA system used primarily by the Hazardous Site Control Division for reports and studies. Requests are processed by the Hazardous Site Control Division. Data requests are answered either verbally or by memo. Most requests take from several days to a week to process. The telephone number is (703) 603-8800. RIDs is not available to the public.

RIDs data will be merged with the 3-DB data base, currently being developed by the Office of Waste Programs Enforcement. Refer to the 3-DB data base summary for more information on this new system.

Key Background Documents

No background documents are available.

SPECIAL WASTE MANAGEMENT REPORTS TO CONGRESS

Data Collected:	Ground water monitoring and other facility-specific data
Reporting Requirements:	One-time surveys
Geographic Coverage:	National for specific industries
System Type:	Hard copy
Contact:	Bob Tonetti, Office of Solid Waste and Emergency Response, Office of Solid Waste, (703) 308-8432

SYSTEM DESCRIPTION

As directed by the Resource Conservation and Recovery Act (RCRA) statute, EPA's Office of Solid Waste (OSW) periodically prepares Reports to Congress on the adverse effects that a certain industry's processes and wastes may have on the environment. OSW has prepared reports on the large volume wastes generated by the following industries: mineral extraction and beneficiation, mineral processing, oil and gas field production, and coal combustion. Currently, the Office is preparing a report on cement kiln dust. These reports, which are available only in hard copy, generally are prepared in support of a determination about whether the industry's wastes should be regulated as RCRA hazardous wastes. EPA surveys a targeted industry to determine its waste generation volumes, waste characteristics, and management practices. Ground water information obtained from the surveys may include sampling results and other site-specific data, although generally little ground water information for all special wastes. However, States are now beginning to collect ground water data at facilities generating special waste. Survey information may contain confidential business information (CBI) and is not available to parties outside of OSW.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

There are no reporting requirements for these reports. Facility owners and operators, however, can be required to respond to survey requests under RCRA. Information is collected through written questionnaires covering operational and waste management information for individual plants. EPA may conduct sampling and analyses at individual sites to identify and characterize potential contamination. Typical survey questions concerning ground water address monitoring frequency, person responsible for monitoring, sampling methods, contaminants sampled for and detected, and any permit violations. Because OSW does not request specifics on analytical methods and results, a surveyed plant generally reports summary ground water information (e.g., monitoring frequency or contaminants detected).

Minimum Set of Data Elements Coverage

The Reports to Congress and the survey information do not explicitly contain the MSDE. Surveys, however, may contain general information about the number of ground water samples taken and contaminations detected at facilities and constituents for which monitoring or testing was conducted. Thus, the surveys may contain two of the 21 MSDE: (1) constituent or parameter measured, and (2) concentration or value.

Data Limitations

The Special Waste Reports to Congress respond to Congressional mandates to support regulatory initiatives. Although the surveys contain some ground water information, their primary focus is to document waste generation and management for the purpose of regulatory determinations. Very limited monitoring information is provided, because most of these plants have been exempted from Subtitle C regulation, and hence, are not required to monitor ground water quality. Thus, ground water information, if included, is brief. In addition, the surveys have been conducted for a very limited number of industries and are not periodically updated. Finally, the reports are available in hard copy only.

System Use and Access

The Reports to Congress are publicly available, although some of the survey information collected to write them contains confidential business information and is not publicly available. Surveys information for reports can be accessed by contacting the RCRA docket at EPA Headquarters, (202) 260-9327. Reports to Congress may be ordered through the National Technical Information Service (NTIS).

Key Background Documents

Report to Congress on Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium Mining and Oil Shale, U.S. EPA, Office of Solid Waste and Emergency Response, Office of Solid Waste, PB88-162-631, December 31, 1985.

Report to Congress on Wastes from Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy, U.S. EPA, Office of Solid Waste and Emergency Response, EPA/530-SW-88-003, PB88-146-21, December 15, 1987.

Report to Congress on Wastes from the Combustion of Coal by Electric Utility Power Plants, U.S. EPA, Office of Solid Waste and Emergency Response, EPA/530-SW-88-002, PB88-177-977, PB88-177-095, February 15, 1988.

Report to Congress on Special Wastes from Mineral, U.S. EPA, Office of Solid Waste and Emergency Response, Office of Solid Waste, PB90-258-492, July 1990.

3-DB (UNDER DEVELOPMENT)

Data Collected:	Water quality data from Superfund decision documents
Reporting Requirements:	None
Geographic Coverage:	National
System Type:	Data base under development
Contact:	Hans Waetjen, Office of Solid Waste and Emergency Response, Office of Waste Programs Enforcement, (703) 603-8945

SYSTEM OVERVIEW

The Office of Waste Programs Enforcement is developing an electronic data base called the Decision Document Data Base (3-DB). 3-DB will manage data for all Superfund sites and RCRA facilities that have decision documents, such as Records of Decision (RODs), RCRA Statements of Basis, and engineering evaluations on file at EPA. 3-DB is intended to be used as a research and managerial tool that will provide EPA with an overview of the regulated universe. For example, 3-DB will be able to provide the cancer risks and toxicity hazard of a constituent by environmental pathway. Ground water quality data will be entered into 3-DB if ground water quality is addressed in the decision documents used as sources. The types of ground water elements in the data base will include the hazardous constituents found in ground water, their concentrations, and remedial actions involving ground water. The system will generate reports that will assist Superfund and RCRA Site Managers, Headquarters, and Regions to make remedy decisions and compare remedy decisions across sites.

REPORTING REQUIREMENTS AND OTHER DATA SOURCES

There are no statutory or regulatory reporting requirements underlying 3-DB. It is intended for use as a tool for internal EPA analysis. Regional Superfund and RCRA Site Managers will submit copies of decision documents from Regional dockets to the data base managers (OWPE). All data in 3-DB will be from documents available to the public. OWPE staff will review, enter, QA/QC, and update the data in 3-DB as necessary. Revisions will probably be made quarterly.

MINIMUM SET OF DATA ELEMENTS COVERAGE

3-DB is under development and the MSDE has not been incorporated. In general, the data base will contain over 200 data fields organized into two data modules. Logistical data will contain information such as the site's EPA identification number, street address, city, State, county, and latitude and longitude. The system contains facility latitude and

longitude (but not latitude and longitude for a well or spring). The contamination section will incorporate constituent and concentration data for known releases to the environment and any past or planned remedial actions at the site. Fields will be organized so that data can be accessed using the facility name, operable unit name, or medium.

Data Limitations

3-DB is under development. 3-DB will not provide data on ground water contamination unless the release has been detailed in EPA decision documents. If ground water data are entered, 3-DB will not include detailed site information such as contaminants by individual wells. 3-DB may include a simple flag indicating whether ground water contamination is present if no other data are available in decision documents.

For quality assurance and control, ten percent of the data entered into 3-DB will be double entered. Users can report inconsistencies or errors to the system managers.

System Use and Access

3-DB is being developed in two stages. In the first stage, Superfund and RCRA Site managers at the Headquarters and Regional level will be able to submit data for entry into and use 3-DB. Superfund and RCRA staff at Headquarters and in the Regions will be able to access 3-DB online, through the EPA LAN system. In the second phase, the general public will be given access to 3-DB. States, universities, and research institutions are expected to use 3-DB. The public will probably access 3-DB on disk. 3-DB will generate standard printouts or process special data requests. Data requests will print to the screen or printers. Hans Waetjen, of OWPE, is the System Manager in charge of developing the 3-DB system.

Key Background Documents

Background documents are presently under development.

4. MINIMUM SET OF DATA ELEMENTS FOR GROUND WATER QUALITY MATRICES

This section contains matrices indicating the presence of the Minimum Set of Data Elements for Ground Water Quality (MSDE) and the format in which each element is presented in each data system. These matrices, like the system summaries, are organized at the EPA Headquarters Assistant Administrator level (i.e., Office of Water [OW], Office of Prevention, Pesticides, and Toxic Substances [OPPTS], Office of Research and Development [ORD], and Office of Solid Waste and Emergency Response [OSWER]). Within the Assistant Administrator Offices, the matrix entries are organized by program office (e.g, Office of Ground Water and Drinking Water within OW). Appendix B contains an index to all data systems and offices.

Key To Matrices - The key to the matrices indicates two types of information.

The *letter* in each box indicates whether the system contains the MSDE element. The key codes are:

(a) - **Always contains element.** The system *explicitly* includes this element. An electronic data system would contain a data field for this element. Reporting requirements for this program would require the element.

(b) - **Regularly contains element.** This element is not required for the submission of data to the system, however, it is *regularly* included. An electronic data system may or may not contain a data field explicitly for this element.

(c) - **Sometimes/may contain element.** This element is not required for submission of data to the system, however, it is *sometimes* included in information collected/submitted. An electronic data system may or may not contain a specific data field explicitly for this element. **NOTE:** This code can also indicate that the contact for the data system was not certain that every submission to the system contained this element, but was relatively confident that the system includes some of this type information.

(d) - **Does not contain the data element.**

The *number* in each box indicates whether the data element in the system is consistent with the recommended MSDE format. The key codes are:

(1) - **Format consistent with MSDE.** The recommended MSDE format is *required* by the data system for the element or the format for the element otherwise conforms to all conventions and subelements specified by the MSDE. For example, latitude is specified in the recommended +/-DDMMSS.SSSS format.

(2) - **Format differs from MSDE.** Format *does not conform* to all conventions and subelements specified by the MSDE. For example, latitude is specified in the system, but not in the recommended +/-DDMMSS.SSSS format.

Data System	Minimum Set of Data Elements																				
	1. Data Sources	2. Latitude	3. Longitude	4. Method	5. Entity	6. Accuracy	7. Altitude	8. Method	9. State FIPS	10. County FIPS	11. Well ID	12. Well Use	13. Type of Log	14. Well Depth	15. Interval	16. Sample ID	17. Depth	18. Constituent	19. Value	20. Qualifier	21. QA\QC
Office of Water, Office of Ground Water and Drinking Water																					
Biennial State Water Quality Reports	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	c,2	c,2	d
Federal Reporting Data System (FRDS-II)	d	a,2	a,2	d	d	d	d	d	d	a,2	d	d	d	d	d	a	d	a,2	a,2	d	d
Sole Source Aquifer Files	b,2	b,2	b,2	b,2	b,2	c,2	b,2	c,2	b,2	b,2	b,2	b,2	b,2	b,2	b,2	b,2	b,2	b,2	b,2	c,2	c, 2
Well Activities Tracking, Evaluation, and Reporting System (WATERS)	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	a,2	d	d
State Wellhead Protection Delineation Component Data Base (WPD)	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d

Key

[a] - Always contains element
[b] - Regularly contains element
[c] - Sometimes/may contain(s) element
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Data System	Minimum Set of Data Elements																				
	1. Data Sources	2. Latitude	3. Longitude	4. Method	5. Entity	6. Accuracy	7. Altitude	8. Method	9. State FIPS	10. County FIPS	11. Well ID	12. Well Use	13. Type of Log	14. Well Depth	15. Interval	16. Sample ID	17. Depth	18. Constituent	19. Value	20. Qualifier	21. QA\QC
Office of Water, Office of Ground Water and Drinking Water (continued)																					
State Wellhead Protection Program Summaries	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
Office of Water, Office of Science and Technology																					
Effluent Guidelines Studies (EGS)	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	c,2	c,2	d	d
Environmental Monitoring Methods Index (EMMI)	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
Office of Water, Office of Wetlands, Oceans, and Watersheds																					
Clean Water Act Section 319 Grants Reporting and Tracking System (GRTS)	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d

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Office of Water, Office of Wetlands, Oceans, and Watersheds (continued)																					
STOrage and RETrieval of Water Quality Data (STORET)	a,2	a,2	a,2	d	c,2	c,2	c,2	c,2	a,2	a,2	c,2	c,2	c,2	c,2	c,2	c,2	c,2	a,2	a,2	c,2	d
Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution Prevention and Toxics																					
Graphical Exposure Modelling Systems (GEMS)	d	c,2	c,2	c,2	c,2	d	d	d	c,2	c,2	d	d	d	d	d	d	c,2	d	d	d	d
Title III Toxic Release Inventory (TRI)	d	a,2	a,2	d	d	d	d	d	d	d	d	d	d	d	d	d	d	a,2	a,2	d	d
Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs																					
Ground Water Monitoring Studies	d	b,2	b,2	d	d	d	d	d	d	d	d	d	d	d	d	b,2	b,2	d	d	d	b, 2
National Survey of Pesticides in Drinking Water (NPS)	a,2	d	d	d	d	d	d	d	a,2	a,2	a,2	a,2	d	d	d	a,2	d	a,2	a,2	a,2	a, 2

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Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs (continued)																					
Pesticide Information Network (PIN)	b,2	b,2	b,2	c,2	c,2	c,2	c,2	c,2	c,2	c,2	b,2	b,2	c,2	c,2	c,2	c,2	c,2	b,2	b,2	c,2	c, 2
Pesticide State Management Plans (SMPs)	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c,1	c, 1
Office of Research and Development, Office of Environmental Engineering and Technology Demonstrations																					
Superfund Innovative Technology Evaluations (SITE)	b,2	b,2	b,2	d	d	d	d	d	d	d	d	d	d	d	d	d	b,2	b,2	b,2	b,2	b, 2
Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response																					
Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS)	d	b,2	b,2	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
ROD Information Directory (RIDs)	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	b,2	b,2	d	d

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Office of Solid Waste and Emergency Response, Office of Solid Waste																					
Ground Water Information Tracking System with STATistical Analysis Capability (GRITS-STAT)	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a,1	a, 1
Hazardous Waste Delisting Petitions	c,2	b,2	b,2	c,2	c,2	c,2	c,2	c,2	c,2	c,2	c,2	c,2	b,2	c,2	c,2	c,2	c,2	b,2	b,2	c,2	c, 2
Hazardous Waste No Migration Petitions	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c

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Office of Solid Waste and Emergency Response, Office of Solid Waste (continued)																					
Resource Conservation and Recovery Information System (RCRIS)	d	b,2	b,2	d	d	d	d	d	d	d	d	d	d	d	d	d	d	b,2	b,2	d	d
Special Waste Reports to Congress	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	c,2	c,2	d	d
Office of Solid Waste and Emergency Response, Office of Waste Program Enforcement																					
Superfund 3-DB	d	b,2	b,2	d	d	d	d	d	d	d	d	d	d	d	d	d	d	b,2	b,2	d	d

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Appendix A

Definitions for the Minimum Set of Data Elements for Ground Water Quality (MSDE)*

* For more comprehensive discussion on the MSDE, consult EPA Policy Order #7500.1A and the accompanying guidance document entitled *Definitions for the Minimum Set of Data Elements For Ground Water Quality (EPA 813/B-92-002, July 1992).* The guidance includes the elements, definitions, examples and additional discussion on application and use.

The Minimum Set of Data Elements for Ground Water Quality

The MSDE is comprised of 21 data elements that are divided into the following four categories or descriptors: (1) **The general descriptor** describes where the well information is maintained; (2) **the geographic descriptors** describe a well or spring in relation to the earth's surface; (3) **the well descriptors** describe various features of a well or spring; and (4) **the sample descriptors** describe different aspects of collecting, analyzing, and recording the results of a ground water sample.

<u>General Descriptor</u>

1. **Data Sources** — The names of the organizations to direct questions regarding the following data: (1) latitude and longitude coordinates, (2) altitude, (3) well log information, (4) sample collection, and (5) laboratory sample analyses.

<u>Geographic Descriptors</u>

2. **Latitude** — A coordinate representation that indicates a location on the surface of the earth using the earth's equator as the latitude origin, reported in degrees (D), minutes (M), seconds (S), and fractions of a second in decimal format (if fractions of a second are available). A "+" (plus) symbol represents latitudes north of the equator. A "-" (minus) symbol represents latitudes south of the equator.

3. **Longitude** — A coordinate representation that indicates a location on the surface of the earth using the prime meridian (Greenwich, England) as the longitude origin, reported in degrees (D), minutes (M), seconds (S), and fractions of a second in decimal format (if fractions of a second are available). A "+" (plus) symbol represents longitudes east of the prime meridian. A "-" (minus) symbol represents longitudes west of the prime meridian.

4. **Method Used to Determine Latitude and Longitude** — The procedure used to determine the latitude and longitude coordinates (Technology of Method Used), the standard used for three dimensional and horizontal positioning (Reference Datum), the method used for map interpolation (Scale of Map), and the date on which the coordinates were determined (Date). Latitude always precedes longitude.

5. **Description of Entity** — A textual description of the entity to which the latitude and longitude coordinate refers.

6. **Accuracy of Latitude and Longitude Measurement** — The quantitative measurement of the amount of deviation from true value present in a measurement (estimate of error). It describes the correctness of a measurement.

7. **Altitude** — The vertical distance from the National Reference Datum for Altitude to the land surface or other measuring point in feet or meters. If the measuring point is above the National Reference Datum for Altitude, a "+" (plus) sign shall precede the reported altitude value. If the measuring point is below the National Reference Datum for Altitude, a "-" (minus) sign shall precede the reported altitude value.

8. **Method Used to Determine Altitude** — The method used to determine the altitude value (Altitude Method), the National Reference Datum on which the altitude measurement is based (National Reference Datum for Altitude), and the date the measurement was taken (Altitude Date).

The Minimum Set of Data Elements for Ground Water Quality (continued)

Geographic Descriptors (continued)

9. **State FIPS Code** — A Federal Information Processing Standard (FIPS) alphabetic or numeric code to indicate the location of the State (or its equivalent such as territory or province) in which the well or spring is located.

10. **County FIPS Code** — A Federal Information Processing Standard (FIPS) numeric code to indicate the location of the county (or county equivalent) in which the well or spring is located.

Well Descriptors

11. **Well Identifier** — A unique well identifier assigned by the responsible organization (e.g,. regulator).

12. **Well Use** — The principal current use of the well or, if the well is not currently in use, the original or principal purpose for its construction.

13. **Type of Log** — The type of recordkeeping log(s) available for a well.

14. **Depth of Well at Completion** — The depth of the completed well below the land surface or other measuring point, in feet or meters.

15. **Screened/Open Interval** — The depth below the measuring point to the top and bottom of the open section in a well reported as an interval in feet of meters. The open section may be a well screen, perforated casing, or open hole.

Sample Descriptors

16. **Sample Identifier** — A unique number for each water quality sample collected at a well (Sample Control Number) which references the date (Sample Date), the depth at which each sample is taken reported in feet or meters (Sample Depth), and the time the sample is taken (Sample Time).

17. **Depth to Water** — The vertical distance between the measuring point and the water surface level at a well, corrected to land surface, where the measuring point is not the land surface. This distance should be reported in feet or meters (Measurement Depth), along with the date and time the measurement was taken (Measurement Date and Measurement Time).

18. **Constituent or Parameter Measured** — Measurement of a physical, chemical, or biological component. The physical, chemical, or biological components are referred to as constituents or parameters.

19. **Concentration/Value** — The analytical results value, the units of measure used (Analytical Concentration/Value), and the analytical method applied (Analytical Method) to the samples collected.

20. **Analytical Results Qualifier** — Qualifying information that will assist in the interpretation of the concentration/value, such as whether the value is below the detectable limit or if the constituents (parameters) of interest are present but cannot be quantified.

21. **Quality Assurance Indicator** — The quality assurance of the field protocol plan and laboratory quality assurance/quality control (QA/QC) procedures.

Appendix B

List of Data Systems and Program Offices

List of Data Systems and Program Offices

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Biennial State Water Quality Reports, Office of Water, Office of Ground Water and Drinking Water 23

Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS), Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response 83

Effluent Guidelines Studies (EGS), Office of Water, Office of Science and Technology 43

Environmental Monitoring Methods Index (EMMI), Office of Water, Office of Science and Technology 45

Federal Reporting Data System (FRDS-II), Office of Water, Office of Ground Water and Drinking Water 27

Grants Reporting and Tracking System (GRTS), Clean Water Act Section 319, Office of Water, Office of Wetlands, Oceans and Watersheds 47

Graphical Exposure Modelling Systems (GEMS), Office of Prevention, Pesticides, and Toxic Substances, Office of Pollution Prevention and Toxics 57

Ground Water Information Tracking System with STATistical Analysis Capability (GRITS-STAT), Office of Solid Waste and Emergency Response, Office of Solid Waste 85

Ground Water Monitoring Studies, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs 63

Hazardous Waste Delisting Petitions, Office of Solid Waste and Emergency Response, Office of Solid Waste 89

Hazardous Waste No Migration Petitions, Office of Solid Waste and Emergency Response, Office of Solid Waste 91

National Survey of Pesticides in Ground Water (NPS), Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs 65

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Office of Solid Waste and Emergency Response	81
Office of Waste Programs Enforcement	81
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Pesticide State Management Plans (SMPs), Office of Prevention, Pesticides and Toxic Substances, Office of Pesticide Programs	73
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Superfund Innovative Technology Evaluations (SITE), Office of Research and Development, Office of Engineering and Technology Demonstrations	79
Title III Toxic Release Inventory (TRI), Office of Prevention, Pesticides and Toxic Substances, Office of Pollution Prevention and Toxics	61
Well Activities Tracking, Evaluation, and Reporting System (WATERS), Office of Water, Office of Ground Water and Drinking Water	35
3-DB Superfund Data Base, Office of Solid Waste and Emergency Response, Office of Waste Programs Enforcement	99

Appendix C

Ground Water Information Systems Network

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Appendix D

List of Acronyms