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**EPA ACTIVITIES RELATED TO SOURCES OF
GROUND-WATER CONTAMINATION**

Office of Ground-Water Protection
U.S. Environmental Protection Agency
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I. EXECUTIVE SUMMARY

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One of the major elements discussed in the 1984 EPA Ground-Water Protection Strategy was the need to more effectively coordinate internal EPA ground-water protection activities. Building upon earlier efforts, the Office of Ground-Water Protection (OGWP) undertook a special project during the summer and fall of 1986 in which all Headquarters program offices and Regional offices were surveyed to determine the type, scope, and status of ground-water quality protection activities that were being conducted by the Agency. This information and contact names were placed in an automated data base so that it would be accessible to EPA staff for program coordination activities. Another major purpose of the OGWP survey was to computerize this activity information so that it would be useful to Agency staff in answering future Congressional and public inquiries. This report contains the results of the survey. It is intended to serve as a basis for internal discussion about the Agency's agenda for addressing ground-water issues.

The survey focused on Agency activities that address 33 sources of ground-water contamination listed in the 1984 Office of Technology Assessment (OTA) report Protecting The Nation's Groundwater From Contamination (OTA 1984). This list contains sources ranging from landfills to road salt applications. The OTA report had been requested by the Senate Committee on Environment and Public Works to increase members' knowledge about national activities to protect ground-water quality. Both the report and the 33 sources of contamination were highlighted in hearings of the Senate Subcommittee on Toxic Substances and Environmental Oversight on ground-water issues during 1985.

This report contains a listing of approximately 270 EPA programs and activities that address these 33 OTA-listed sources. Inventory information was obtained through a work group composed of liaisons appointed by each Assistant Administrator and representatives of each Regional Ground-Water Office. This group in turn developed a large network of EPA staff who supplied and reviewed the program and activity listings and summaries contained in sections IV and V of this report.

The inventory is not exhaustive, largely because EPA offices are continually initiating new activities. Rather, it provides the reader with a representative picture of the EPA's ground-water protection efforts as of the fall of 1986. The large number of offices involved in the survey and the

variability in their involvement with ground-water issues makes it difficult to get a definitive and even picture of the activities across the Agency. However, despite the variability of data obtained, some conclusions can be drawn about the Agency's ground-water activity.

The Agency is currently addressing 25 of the 33 sources listed in the OTA report. Not surprisingly, a significant distinction occurs in the level of Agency activity focused on sources that are clearly and directly regulated under EPA's statutory mandates and those that are not. An important exception appears to be fertilizer application, which is receiving focused attention in connection with the major strategic initiative to develop a strategy regarding agricultural chemicals in ground water.

Waste management is receiving the greatest amount of Agency attention among the ground-water problems that were listed by OTA. Seven individual waste management sources receive the most attention: abandoned waste sites, landfills, land application, injection wells, surface impoundments, underground storage tanks and waste piles. A substantial amount of the activity surrounding these seven sources falls under the Resource Conservation and Recovery Act (RCRA) implemented by the Office of Solid Waste, but there are also major efforts to address these sources through the Safe Drinking Water Act (SDWA), the Clean Water Act (CWA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Pesticide application is the only exclusively non-waste management source receiving extensive Agency attention. Major preventive activities are being put in place such as increased consideration of the leaching potential of pesticides during the registration process, encouragement of management practices by pesticide users to minimize pesticide leaching to ground water, and the development of an overall Agency strategy for addressing agricultural chemicals.

Non-waste sources with substantial reported activity are enhanced oil recovery and mining-related injection wells and underground storage tanks storing non-wastes such as petroleum products and raw chemicals. These sources are addressed in concert with waste management wells and tanks.

The eight OTA listed sources for which Agency program offices did not report ground-water activities were: material stock piles, graveyards, animal burial, animal feedlots, atmospheric deposition and percolation, natural leaching and other wells.

A small but important number of Agency activities demonstrate the Agency's increasing emphasis on preventive measures and comprehensive resource management. Activities in this area emphasize areawide and institutional issues as well as technical best management practices rather than the control of individual sources. Examples of efforts in this area include the grants to States to develop ground-water strategies and programs (CWA-106) and Region I's Cape Cod Aquifer Management Project.

A substantial number of the activities reported by program offices encompass a broad spectrum of policy and scientific support issues. These activities provide essential technical and institutional information that decisionmakers need to carry out source-specific and resource-based activities implemented by the Agency. Policy development, research efforts, standards development and data management fall under this category.

The information contained in this report reflects the status of EPA ground-water activities as of October 1986. New activities aimed at providing better information about the resource and protective measures as well as more effective regulation of contamination sources are initiated continually. Questions about the status of activities on any of the individual sources listed in the document should be addressed to either the program offices or individuals listed as contacts in section IV of this report.

II. INTRODUCTION

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Public concern for protecting the nation's ground water is one of the most pressing environmental issues of the 1980s. At a time when reliance on ground water as a source of water supplies is increasing, there is mounting evidence that the nation's ground water is already contaminated and is threatened by significant future pollution incidents. A wide variety of contaminants with adverse health, environment, economic and social impacts have been detected in ground water throughout the nation.

Recognition of this public concern prompted the Senate Committee on Environment and Public Works to ask the Office of Technology Assessment (OTA) to study the nation's knowledge about and experience in dealing with ground-water contamination problems. The result was a two-volume report on the status of nationwide efforts to protect the nation's vital ground-water resources.

This report, entitled Protecting the Nation's Groundwater From Contamination (October 1984), concludes that Federal, State and local efforts to protect the ground water remain inadequate. Impediments to an effective national program for ground-water protection include significant overlaps and gaps in existing statutes, a focus on detection and cleanup rather than prevention of contamination, coverage of a limited number of the actual and potential contaminants and their sources, and an emphasis on protection of public but not private drinking water supplies.

OTA's report contained a list of 33 sources of actual or potential ground-water contamination (see Exhibit II-1). This list served as a focal point for ground-water hearings held by the Senate Subcommittee on Toxic Substances and Environmental Oversight in 1985. The Office of Ground-Water Protection (OGWP) subsequently decided to compile an inventory of Agency-wide activities that address the sources on the OTA list, in order to respond to future Congressional inquiries and to facilitate intra-Agency coordination on ground-water activities.

Study Purpose

OGWP's objective in undertaking this inventory was to identify and analyze those Agency policies, programs and significant projects that address major sources of ground-water contamination. The inventory is not exhaustive, because of the continuous evolution of Agency activities, but is representa-

EXHIBIT II-1
Sources of Ground-Water Contamination

Category I—Sources designed to discharge substances	Open burning and detonation sites
Subsurface percolation (e.g., septic tanks and cesspools)	Radioactive disposal sites
Injection wells	Category III—Sources designed to retain substances during transport or transmission
Hazardous waste	Pipelines
Non-hazardous waste (e.g., brine disposal and drainage)	Hazardous waste
Non-waste (e.g., enhanced recovery, artificial recharge, solution mining, and in-situ mining)	Non-hazardous waste
Land application	Non-waste
Wastewater (e.g., spray irrigation)	Materials transport and transfer operations
Wastewater byproducts (e.g., sludge)	Hazardous waste
Hazardous waste	Non-hazardous waste
Non-hazardous waste	Non-waste
Category II—Sources designed to store, treat, and/or dispose of substances; discharge through unplanned release	Category IV—Sources discharging substances as consequence of other planned activities
Landfills	Irrigation practices (e.g., return flow)
Industrial hazardous waste	Pesticide applications
Industrial non-hazardous waste	Fertilizer applications
Municipal sanitary	Animal feeding operations
Open dumps, including illegal dumping (waste)	De-icing salts applications
Residential (or local) disposal (waste)	Urban runoff
Surface impoundments	Percolation of atmospheric pollutants
Hazardous waste	Mining and mine drainage
Non-hazardous waste	Surface mine-related
Waste tailings	Underground mine-related
Waste piles	Category V—Sources providing conduit or inducing discharge through altered flow patterns
Hazardous waste	Production wells
Non-hazardous waste	Oil (and gas) wells
Materials stockpiles (non-waste)	Geothermal and heat recovery wells
Graveyards	Water supply wells
Animal burial	Other wells (non-waste)
Aboveground storage tanks	Monitoring wells
Hazardous waste	Exploration wells
Non-hazardous waste	Construction excavation
Non-waste	Category VI—Naturally occurring sources whose discharge is created and/or exacerbated by human activity
Underground storage tanks	Groundwater—surface water interactions
Hazardous waste	Natural leaching
Non-hazardous waste	Salt-water intrusion/brackish water upconing (or intrusion of other poor-quality natural water)
Non-waste	
Containers	
Hazardous waste	
Non-hazardous waste	
Non-waste	

Source: Office of Technology Assessment, Protecting The Nation's Groundwater From Contamination, October 1984.

tive of the scope and depth of current ground-water protection efforts. The report is not meant to be an in-depth analysis of EPA's ground-water programs; rather it serves as a starting point for internal discussion and for establishment of a framework for an organized Agency agenda to address ground-water issues.

Study Methodology

The project was an Agency-wide cooperative effort, coordinated by the Office of Ground-Water Protection. Initially OGWP worked with staff liaisons designated by each Assistant Administrator and Regional Office. These staff liaisons, in turn, developed an extensive network which provided OGWP with information throughout the project. The information provided formed the basis for the automated inventory contained in Section IV of this report and the source summaries contained in Section V.

III. FINDINGS

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EPA program offices reported 270 ground-water related activities to OWGP. These efforts consist of source-specific, resource-based, and policy and scientific support activities. Source-specific activities include policies, regulations, guidance, studies or other activities that address a single type of contaminant source, such as underground storage tanks, pesticide application or injection wells. Included in this group are activities such as guidance for Superfund, that potentially address many sources on OTA's list but in any given situation typically apply to a single source category. Resource-based activities focus on area-wide institutional and technical issues associated with comprehensive management and protection of the ground-water resources rather than the control of individual sources. Activities in the policy and scientific support group encompass studies and projects that provide information Agency decisionmakers need to carry out source-specific and resource-oriented activities.

Within each of these three categories, activities are either regulatory or non-regulatory in nature. Regulatory activities are those designed to implement the mandates under the major environmental statutes EPA administers. These activities may consist of studies supporting regulatory developments, standard-setting for sources, promulgation of quality standards for environmental media, and the establishment and implementation of permit programs. Non-regulatory activities include technical assistance, training, research and special studies.

A. Source-Specific Activities

Most of the Agency's ground-water related activity is source-specific. EPA program offices report some level of activity for 25 of the 33 sources OTA identified, as well as for nuclear facilities and abandoned waste sites which were not included on the OTA list.

These 35 sources can be grouped into three general categories: waste management, commercial/production, and chemical application/other. Waste management sources generally refers to facilities where by-products of industrial, commercial and other human activities are treated, stored or disposed. The commercial/production category includes the use, storage, handling, transport or development (i.e., production) of materials, resources and finished products that can result in ground-water contamination. Chemical application/other consists of the application of specific chemicals or substances

to land for beneficial purposes (e.g., fertilizers, pesticides, de-icing salts) as well as a variety of miscellaneous sources. Some sources, such as underground storage tanks and injection wells, fit more than one category (see Exhibit III-1).

The Agency's emphasis clearly is on waste management. Twenty-three of the 35 OTA listed sources are related to waste management, and EPA is addressing 19 of them. This category cumulatively accounts for the largest amount of activity (See Exhibit III-2).

Within the waste management category, seven sources are receiving substantial attention in terms of the number and significance of activities. These sources are landfills, land application, waste piles, surface impoundments, underground storage tanks, injection wells and abandoned waste sites (which may encompass the previous six). All are regulated to some extent under the Resource Conservation and Recovery Act (RCRA), but some are regulated under other statutes, as well. Land application (of sewage sludge), for example, is also subject to the Clean Water Act (CWA), while the Safe Drinking Water Act (SDWA) regulates underground injection wells and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund) addresses abandoned waste sites not covered under RCRA. The activities EPA has undertaken to control these sources are primarily regulatory in nature. They include studies that support the development of specific standards and requirements, as well as guidance and permitting activities to implement the regulatory requirements. In addition, major activity is taking place under Superfund, including policies and guidance, as well as research and development to support efforts to assess the extent of contamination at abandoned waste sites and implement cleanup methods.

Moderate regulatory activity was reported for mining/mine drainage, and limited regulatory activities were reported for another eight waste management sources. Open dumps, waste tailings, aboveground storage tanks, containers, open burning, radioactive disposal sites, pipelines and nuclear facilities are regulated under a variety of Federal statutes. Some of these sources, such as containers and open dumps, are incorporated into large regulatory programs such as RCRA. Although the data may have underplayed the attention accorded these sources, the biggest distinction between these eight and the seven first-tier sources appears to be the number of reported guidance documents and studies. Verification of this distinction, though, would require a more extensive program analysis.

**EXHIBIT III-1
CONTAMINANT SOURCES BY CATEGORY**

SOURCE	WASTE MANAGEMENT	COMMERCIAL/ PRODUCTION	CHEMICAL APPLICATION	OTHER
1. Subsurface percolation	√			
2. Injection wells	√	√		
3. Land application	√			
4. Landfills	√			
5. Open dumps	√			
6. Residential disposal	√			
7. Surface impoundments	√			
8. Waste tailings	√			
9. Waste piles	√			
10. Materials stockpiles	√	√		
11. Graveyards	√			
12. Animal burial	√			
13. Aboveground storage tanks	√	√		
14. Underground storage tanks	√	√		
15. Containers	√	√		
16. Open burning/detonation	√			
17. Radioactive disposal sites	√			
18. Pipelines	√	√		
19. Materials transport		√		
20. Irrigation				√
21. Pesticide application			√	
22. Fertilizer application			√	
23. Animal feedlots	√			
24. De-icing			√	
25. Urban runoff	√			
26. Perc. of atmospheric pollutants				√
27. Mining/mine drainage	√	√		
28. Production wells		√		
29. Other wells (monitoring & explor.)		√		
30. Construction excavation	√			
31. Ground/surface water interaction				√
32. Natural leaching				√
33. Salt water intrusion				√
34. Abandoned waste sites	√			
35. Nuclear facilities	√			

EXHIBIT III-2
ACTIVITY LEVELS FOR WASTE MANAGEMENT SOURCES

SOURCE	REGULATORY			NON-REGULATORY		
	High	Medium	Low	High	Medium	Low
Subsurface percolation					√	
Injection wells	√					
Land application	√					
Landfills	√					
Open dumps			√			
Residential disposal			NOT ADDRESSED			
Surface impoundments	√					
Waste tailings			√			
Waste piles	√					
Graveyards			NOT ADDRESSED			
Animal burial			NOT ADDRESSED			
Aboveground storage tanks			√			
Underground storage tanks	√					
Containers			√			
Open burning/detonation			√			
Radioactive disposal sites			√			
Pipelines			√			
Animal feedlots						√
Urban runoff						√
Mining/mine drainage		√				
Construction excavation			NOT ADDRESSED			
Abandoned waste sites	√					
Nuclear facilities			√			

Program offices reported exclusively non-regulatory activities for three additional waste management sources--subsurface percolation (i.e., septic systems), animal feedlots and urban runoff. Septic systems are receiving moderate attention, in the form of various guidance manuals. Historically, this guidance has focused on system design, installation and operation technologies and has been linked to the construction grants program; but recent OGWP-sponsored guidance has emphasized institutional approaches for managing septic systems in order to protect the ground-water resource.

Outside the waste management category, three sources received extensive attention: injection wells, underground storage tanks and pesticide application. Of these three sources, pesticide application was the only source on the OTA list that had extensive reported activity. Most of the activity related to pesticide application was regulatory in nature under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and reflects the recent integration of ground-water concerns into the process of evaluating pesticides for registration and setting restrictions on their use. A number of other regulatory and non-regulatory efforts currently supplement this pesticide registration program under FIFRA. A major effort is the National Survey of Pesticides in Drinking Water Wells, which is designed to assess the current extent of ground-water contamination from pesticides and enable EPA and the States to project the likelihood of future contamination from the use of various pesticides under different conditions. Other activities include the development of health advisories and maximum contaminant levels (MCLs) for drinking water under the SDWA, CERCLA efforts to mitigate threats from improper pesticide disposal practices, pesticide applicator training under FIFRA, and efforts to develop practical measures the agricultural community can voluntarily adopt to prevent the leaching of pesticides to ground water. The extent of the Agency's activities to address pesticides is just beginning to emerge, but once the strategy for agricultural chemicals in ground water is completed, the Agency will have a clear-cut set of objectives and action items for the next 5-10 years.

The remainder of sources addressed are in the commercial/production or chemical application/other categories. Activity reported is limited to moderate, depending upon the sources (see Exhibits III-3 and III-4). Moderate activity is reported only for two sources: mining, for which EPA has regulatory authority, and fertilizer application, which is being addressed together with pesticides in the agricultural chemicals in ground-water strategy. Limited activity, consisting of special projects or regulations linked to larger programs, was reported for materials transport, pipelines, animal feedlots, production

EXHIBIT III-3
ACTIVITY LEVELS FOR COMMERCIAL/PRODUCTION SOURCES

SOURCE	REGULATORY			NON-REGULATORY		
	High	Medium	Low	High	Medium	Low
Injection wells		√				
Materials stockpiles				NOT ADDRESSED		
Aboveground storage tanks			√			
Containers			√			
Materials transport			√			
Pipelines			√			√
Mining		√				
Production wells			√			
Other wells				NOT ADDRESSED		

EXHIBIT III-4
ACTIVITY LEVELS FOR CHEMICAL APPLICATION/OTHER SOURCES

SOURCE	REGULATORY			NON-REGULATORY		
	High	Medium	Low	High	Medium	Low
Pesticide application	✓					
Irrigation				NOT ADDRESSED		
Fertilizer application					✓	
De-icing						✓
Percolation of atmospheric pollutants				NOT ADDRESSED		
Ground/surface water interaction						✓
Natural leaching			✓			
Saltwater intrusion						✓

wells, irrigation, de-icing, urban runoff, atmospheric deposition and percolation, and natural leaching and salt water intrusion.

Nine sources had no reported ground-water protection related activity: material stock-piles, graveyards, animal burial, animal feeding, percolation of atmospheric pollutants, other wells, ground-water/surface water interaction, construction excavation and residential disposal. Residential disposal is defined as the indiscriminate, unsupervised discarding of wastes into drains and sewers. It does not include disposal of domestic wastes in landfills, septic systems or other regulated facilities.

B. Resource-Based Activities

Much of EPA's effort focuses on overall ground-water resource protection rather than on the control of individual types of contaminant sources. Activity in this area is usually non-regulatory in nature and aims to integrate technical and institutional aspects of ground-water protection in a given locale. Activities in this category consist of many program development and special projects. Programmatic activities, such as the new Wellhead Protection and Sole Source Aquifer Demonstration Programs as well as the near coastal initiative, estuary, and non-point source programs fall into this category. Special projects, such as the Cape Cod aquifer demonstration program, not only have an area-wide or Regional perspective but often represent substantial cooperation between EPA and either State and local authorities or other Federal agencies such as the U.S. Geological Survey and the Department of Agriculture. Examples of other activities in this category are the Federal Facilities Program which fosters Federal agency compliance with ground-water policies and regulations and the grants under sections 106 and 205(j) of the Clean Water Act. These grants are used to assist States in developing their ground-water protection programs and strategies.

C. Policy And Scientific Support Activities

A significant number of reported activities provide EPA decisionmakers with policy and technical information they need to carry out the source-specific and resource-based activities described above. These activities cover four areas: policy, research and special studies, standards development and data management.

Policy

In August, 1984, EPA issued a Ground-Water Protection Strategy to guide the Agency's efforts to protect the nation's ground-water resources. This strategy established a policy of differential protection for each of three classes of ground water based on the value to society, use and vulnerability of ground-water resources. Guidelines for ground-water classification currently are under development and define the key classification terms and concepts and describe the procedures and information needs for classifying ground water. To the extent possible, these guidelines will be incorporated into all Agency program operations.

Research and Special Studies

An extensive research program provides support to EPA program offices as they make regulatory decisions. The emphasis of the ground-water research has been on improving EPA's ability to detect, monitor and predict contamination. Reported activities include surveys of ground-water contamination and contaminant sources, studies to improve sampling plans and monitoring techniques, and projects to improve or develop new models that predict contaminant transport rates, transformation and fate.

Standards Development

EPA has promulgated or is developing sets of health-based regulations that do not directly address any of the 35 sources examined in this study. These regulations, nevertheless, are a significant component of EPA's overall approach to ground-water protection. Health-based drinking water standards, for example, will serve as a basis for determining the extent of corrective action at RCRA facilities and cleanup at Superfund sites. These programmatic interdependencies will become increasingly significant as the Office of Drinking Water develops additional maximum contaminant levels.

Data Management

OGWP has a major effort underway to ascertain who needs ground-water data nationwide, what kind of data they need, how much of that data currently is available, what needs are remaining and how the data can best be organized.

IV. LIST OF SOURCE-RELATED ACTIVITIES
BY PROGRAM OFFICE

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The cornerstone of the project was the development of an automated list of the significant ground-water activities of each EPA office. Working with the staff liaisons designated by each Assistant Administrator and each Region, the Office of Ground-Water Protection identified 14 categories of significant activity (See Exhibit IV-1). The liaisons also identified the sources of contamination their offices address (See Exhibit IV-2) and provided or reviewed the following information for each ground-water activity within their offices: project title, contact, cooperating offices, source addressed, status and summary. Exhibit IV-3 provides a key to the automated data base, Exhibit IV-4 is a list of acronyms for EPA's program offices, and Exhibit IV-5 is an index to the data base.

EXHIBIT IV-1
CATEGORIES OF SIGNIFICANT ACTIVITY

ACTIVITY CATEGORY	DESCRIPTION
POLICY	A statement of EPA'S
STRATEGY	A framework for future action (e.g., Ground-Water Protection Strategy; Ground-Water Monitoring Strategy; Agricultural Chemicals in Ground Water Strategy; Nonpoint Source Strategy)
REGULATION	Formal rules/standards established by statutory authority in accordance with rulemaking procedures pursuant to the Administrative Procedures Act and EPA Operations
PERMIT	An approval to operate within specified limitations (e.g., emission limitation, operating procedures)
GUIDANCE	Any official document (e.g. memorandum; manual, handbook) setting forth administrative, operational, technical procedures and guidelines (e.g., Technical Enforcement Guidance Document for Ground-Water Monitoring; Ground-Water Classification Guidelines); includes design manuals, state-of-the-art handbooks
COMPLIANCE MONITORING	Activities such as surveillance, inspection, monitoring designed to 1) identify incidents of noncompliance contamination that violates statutory, regulatory and/or permit provisions and 2) promote actions to re-establish compliance
ENFORCEMENT	Responses to noncompliance such as notices of violation, civil and criminal case development, and administrative orders

EXHIBIT IV-1 (CONTINUED)
CATEGORIES OF SIGNIFICANT ACTIVITY

ACTIVITY CATEGORY	DESCRIPTION
FEDERAL FUNDING	Grants, cooperative agreements with States and localities or private institutions (e.g., universities) for program activities, special studies, demonstration projects
STUDIES	Projects to assemble and/or analyze technical, financial or institutional information about a ground-water issue; includes EPA surveys of contaminants in ground water, risk assessments, summaries of current State/local practices, analyses of regulatory costs
RESEARCH AND DEVELOPMENT	Activities to improve techniques and technologies for predicting extent of contamination and for preventing, abating, mitigating and cleaning up contamination (e.g., transport/fate studies)
RESPONSE	Prevention, mitigation, abatement or cleanup of actual or threatened contamination in response to an actual or potential release of a hazardous substance or of a contaminant or pollution that poses imminent and substantial danger (e.g., CERCLA emergency response, remedial action)
TRAINING	Various instructional activities to improve manpower skills for identifying and addressing (prevention, corrective action) sources of contamination
TECHNICAL ASSISTANCE	Technical advice and/or counsel to organizations within or outside EPA; may include technology transfer/information exchange through workshops, publications
INTERAGENCY COORDINATION	Technical support to program of another Federal agency (e.g., Rural Clean Water Program) or requests for participation by another Federal agency in EPA activities; includes EPA review of activities of other Federal agencies (e.g., NEPA, CWA 404).

SOURCE	OW				OSWER				OPTS				OPPE		OECM		OAR		ORD		REGIONS		
	OWRS	OWEP	OWPC	OWEP	ODW	OGWP	OSWER	OERR	OSW	OUST	OWPE	OPMO	OCM	OPP	OTS	OPA	OSR	OMSE	OECM	OEA	ORP	ORD	REGIONS
SOURCE SPECIFIC																							
1. Subsurface Percolation																							
2. Injection Wells																							
3. Land Application																							
4. Landfill																							
5. Open Dump																							
6. Residential Disposal																							
7. Surface Impoundments																							
8. Waste Tailings																							
9. Waste Pile																							
10. Materials Stockpiles																							
11. Sludge/Slurry																							
12. Animal Slaughter																							
13. Aboveground Storage Tanks																							
14. Underground Storage Tanks																							
15. Containment																							
16. Open Burning/Decontamination																							
17. Radioactive Disposal Sites																							
18. Pipelines																							
19. Materials Transport																							
20. Irrigation																							
21. Pesticide Application																							
22. Fertilizer Application																							
23. Animal Feeding																							
24. Drilling																							
25. Leachate Runoff																							
26. Perc. of Atmospheric Pollutants																							
27. Mining/Mine Drainage																							
28. Production Wells																							

EXHIBIT IV-3
Key To List Of Source-Related Activity

I. OFFICE CODES

See Exhibit IV-4

II. CONTACTS

Through extensive communication with all offices, OGWP attempted to identify the specific individual with lead responsibility for a listed activity. Where no individual was identified, the ground-water liaison was listed.

III. SOURCES

The sources include the 33 on OTA's list as well as abandoned waste sites and non-waste nuclear facilities. Non source-specific categories are listed as resource-based or policy and scientific support. Entries labelled "multiple" fall under the source-specific category in the body of the report. Although the activity could apply to multiple categories of sources, at any particular time it usually addresses a single source category. Program offices either supplied or reviewed all information on the sources each listed activity addresses.

IV. STATUS

In most cases, OGWP obtained either specific or approximate dates that activities were or will be completed. Where no information was available, the data base shows "N/A." The term "in progress" means that the project is underway, but information on an estimated completion date is unavailable.

For activities that are continuous in nature, such as permitting programs, the data base contains the phrase "ongoing".

V. SUMMARY

Program staff provided or reviewed a summary of each listed activity. OGWP subsequently edited the summaries in order to shorten them for inclusion in the automated data base.

EXHIBIT IV-4
Office Acronyms

OW – Office of Water

OWRS - Office of Water Regulation and Standards
OWPE - Office of Water Enforcement and Permits
OMPC - Office of Municipal Pollution Control
OMPE - Office of Marine and Estuarine Protection
ODW - Office of Drinking Water
OGWP - Office of Ground-Water Protection

OSWER – Office of Solid Waste and Emergency Response

OERR - Office of Emergency and Remedial Response
OSW - Office of Solid Waste
OUST - Office of Underground Storage Tanks
OWPE - Office of Waste Programs Enforcement

OPTS – Office of Pesticides and Toxic Substance

OPMO - Office of Program Management and Operations
OCM - Office of Compliance Monitoring
OPP - Office of Pesticide Programs
OTS - Office of Toxic Substances

OPPE – Office of Policy, Planning, and Evaluation

OPA - Office of Policy Analysis
OSR - Office of Standards and Regulations
OMSE - Office of Management Systems and Evaluation

OECM – Office of Enforcement and Compliance Monitoring

OEA – Office of External Affairs

OFA - Office of Federal Activities

OAR – Office of Air and Radiation

ORP - Office of Radiation Programs

ORD – Office of Research and Development

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* No reported activities

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* No reported activities

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SUBSURFACE PERCOLATION	OCMP- 8	SEPTIC SYSTEMS AND GROUND-WATER PROTECTION: A PROGRAM MANAGER'S GUIDE AND REFERENCE BOOK AND AN EXECUTIVE'S GUIDE	OCMP LEE BRAEM 382-7077	GUIDANCE	7/86	AIDS STATE AND LOCAL OFFICIALS IN DEVELOPING AND ADMINISTERING PROGRAMS TO PROTECT GROUND WATER FROM CONTAMINATION BY SEPTIC SYSTEMS. DESCRIBES SEPTIC SYSTEMS AND THE KEY ELEMENTS OF A SEPTIC SYSTEM MANAGEMENT PROGRAM, ANALYZES ISSUES, AND MAKES RECOMMENDATIONS.
SUBSURFACE PERCOLATION	OMPC- 1	CONSTRUCTION GRANTS PROGRAM FOR MUNICIPAL WASTEWATER TREATMENT WORKS	OMPC/PAO BILL KRAMER 382-7259	GUIDANCE	1985	CALLS FOR CONSIDERATION OF EXISTING WATER QUALITY, QUANTITY, AND USE OF SURFACE AND GROUND WATER IN PREPARING A FACILITY PLAN; PROVIDES GUIDELINES FOR SELECTING BEST PRACTICABLE WASTE TREATMENT TECHNOLOGIES FOR SLUDGE TREATMENT AND DISPOSAL.
SUBSURFACE PERCOLATION	OMPC- 2	ON-SITE WASTEWATER TREATMENT AND DISPOSAL SYSTEMS	OMPC/MFD MARIE PEREZ 382-7286	GUIDANCE	2/87	OUTLINES TECHNICAL INFORMATION ON ONSITE WASTEWATER TREATMENT AND DISPOSAL SYSTEMS FOR THOSE INVOLVED IN THE DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, AND REGULATION OF SUCH SYSTEMS.
SUBSURFACE PERCOLATION	OMPC-11	SEPTAGE TREATMENT AND DISPOSAL HANDBOOK	OMPC/MFD MARIE PEREZ 382-7286	GUIDANCE	10/84	PRESENTS UP-TO-DATE INFORMATION DESIGN, PERFORMANCE, OPERATION AND MAINTENANCE, COST, AND ENERGY NEEDS ASSOCIATED WITH SEPTAGE TREATMENT.
SUBSURFACE PERCOLATION	OSR- 3	INNOVATIVE RESPONSES TO NONPOINT SOURCES OF GROUND-WATER CONTAMINATION - PHASE I	OSR BRENDAN DOYLE 382-5604	STUDY	IN PROGRESS	EVALUATES SEVERAL MANAGEMENT APPROACHES TO PREVENT NONPOINT SOURCE GROUND-WATER CONTAMINATION. INVESTIGATED PESTICIDE APPLICATION, SALT WATER INTRUSION, IRRIGATION, AND DE-ICING. WILL RESULT IN A SERIES OF CASE STUDIES/DEMONSTRATION PROJECTS OVER THE NEXT SEVERAL YEARS.
SUBSURFACE PERCOLATION	OSR- 6	INNOVATIVE APPROACHES TO PREVENTION AND REDUCTION OF GROUND-WATER CONTAMINATION THROUGH IMPROVED LOCAL MANAGEMENT - PHASE II	OSR/RRS CHRIS PRINS 382-2717	STUDY	9/86	CASE STUDY OF LOCAL CONTRACTUAL AGREEMENTS USED IN IDAHO TO PROTECT A SOLE SOURCE AQUIFER FROM NITRATE CONTAMINATION.
SUBSURFACE PERCOLATION	OTS- 1	TSCA GROUND-WATER STRATEGY	OTS/EED KAREN HAMMERSTROM 382-3896	STRATEGY	1986	ADDRESSES CONTAMINATION OF GROUND WATER FROM SELECTED TOXIC SUBSTANCES; EXAMINES TSCA AUTHORITY TO COLLECT AND ASSESS DATA ON HEALTH AND ENVIRONMENTAL EFFECTS OF TOXIC SUBSTANCES THAT CONTAMINATE

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SUBSURFACE PERCOLATION	R10- 1	SURVEY OF WOOD TREATMENT FACILITIES	REGION X/OSW BILL MULLEN FTS 398-1216	STUDY	10/86	GROUND WATER; AND PROVIDES INFORMATION TO OTHER EPA OFFICES TO CONTROL THE PRODUCTION, TRANSPORT, STORAGE, DISPOSAL AND USE OF TOXIC SUBSTANCES. SURVEYS PRESENT AND PAST FACILITIES ENGAGED IN WOOD TREATMENT WITH PENTACHLOROPHENYL; CONTAINS A LIST OF SITES WHERE GROUND-WATER CONTAMINATION IS LIKELY TO OCCUR.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
INJECTION WELLS	ODW- 4	RESTRICTIONS ON UNDERGROUND INJECTION OF WASTE	ODW/SPO THOMAS BELK 382-5508	REGULATION	6/87	INVESTIGATES DISPOSAL OF HAZARDOUS WASTE THROUGH UNDERGROUND INJECTION TO DETERMINE WHETHER SUCH PRACTICES ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT.
INJECTION WELLS	ODW- 5	REGULATIONS FOR THE UTC PROGRAM	ODW/SPO ROGER ANZZOLIN 382-5559	REGULATION	1984	ESTABLISHES TECHNICAL STANDARDS FOR THE CONSTRUCTION, TESTING AND OPERATIONS OF WELLS; SETS REQUIREMENTS FOR EPA AND STATE ADMINISTERED PROGRAMS; PURPOSE IS TO PROTECT GROUND WATER THAT SERVES AS A SOURCE OF DRINKING WATER.
INJECTION WELLS	ODW- 6	REVIEW AND ISSUANCE OF PERMITS FOR EXISTING WELLS	ODW/SPO ROGER ANZZOLIN 382-5559	PERMIT	ONGOING	ISSUES PERMITS TO OWNERS AND OPERATORS OF INJECTION WELLS IN NON-DELEGATED STATES TO PROTECT UNDERGROUND SOURCES OF DRINKING WATER.
INJECTION WELLS	ODW- 7	MECHANICAL INTEGRITY EVALUATION	ODW/SPO ROGER ANZZOLIN 382-5559	STUDY	1986	MONITORS AND REVIEWS MECHANICAL INTEGRITY OF WELLS AUTHORIZED BY RULE TO DETERMINE WELL COMPLIANCE AND ASSESS ADEQUACY OF CURRENT REGULATIONS.
INJECTION WELLS	ODW- 8	CLASS V ASSESSMENT	ODW/SPO LARRY GRAHAM 382-7593	STUDY	1986	DETERMINES THE POTENTIAL FOR CONTAMINATION OF GROUND WATER FROM CLASS V WELLS; INCLUDES A REPORT TO CONGRESS IN SEPTEMBER, 1987.
INJECTION WELLS	ODW- 9	REPORT TO CONGRESS ON INJECTION OF HAZARDOUS WASTE	ODW/SPO ROGER ANZZOLIN 382-5559	STUDY	5/85	CONSISTS OF AN INVENTORY OF ALL WELLS WHICH INJECT HAZARDOUS WASTE AS REQUIRED BY THE 1984 AMENDMENTS TO RCRA.
INJECTION WELLS	ODW-10	CLASS I WELL FAILURES	ODW/SPO ROGER ANZZOLIN 382-5559	STUDY	1986	ASSESSES THE CAUSES OF CONTAMINATION OF GROUND WATER FROM DEEP WELL INJECTION.
INJECTION WELLS	ODW-11	STATE GRANTS	ODW JENTAI YANG 382-5542	FEDERAL FUNDING	ONGOING	CONSISTS OF FORMULA GRANTS TO DELEGATED STATES TO CARRY OUT THEIR PROGRAMS TO PROTECT UNDERGROUND SOURCES OF DRINKING WATER.
INJECTION WELLS	DECM- 1	DEVELOPMENT AND MANAGEMENT OF UTC ENFORCEMENT CASES	DECM CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF THE SAFE DRINKING WATER ACT. INCLUDES PREPARING, NEGOTIATING, AND REFERRING CASES TO DOJ.
INJECTION	OPA- 2	INVESTIGATION OF IMPORTANT	OPA/ERAD	STUDY	FY86	IDENTIFIES FACTORS GOVERNING THE

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WELLS		PARAMETERS FOR WASTE MIGRATION FROM INJECTION WELL SITES	JOHN DAVIDSON 382-5604			MOVEMENT OF HAZARDOUS WASTES FROM INJECTION ZONES; DETERMINES UNDER WHAT CONDITIONS AND TO WHAT EXTENT WASTES MIGRATE FROM A PROPERLY DESIGNED AND OPERATED FACILITY.
INJECTION WELLS	OPA- 6	INVENTORY OF POTENTIAL GROUND-WATER CONTAMINATION SOURCES IN SOLE SOURCE AQUIFERS	OPA/ERAD BRENDAN DOYLE 382-5604	STUDY	10/85	IDENTIFIES THE CONTAMINATION SOURCES IN FOUR SOLE SOURCE AQUIFERS; COVERS EXISTING INFORMATION ON THE GEOLOGY, HYDROLOGY, WATER QUALITY, WATER QUANTITY, POTWS, INDUSTRIAL FACILITIES, RCRA SITES, SUPERFUND SITES, UIC FACILITIES, AND EXISTING CONTROLS.
INJECTION WELLS	ORD-22	GEOPHYSICAL SENSING OF FLUID MOVEMENT FROM INJECTION WELLS	ORD JIM BASILLIO 382-5747	STUDY	IN PROGRESS	MAPS THE MIGRATION OF WASTES FROM INJECTION WELLS AT DEPTHS OF 1000+ FEET AT SEVERAL FIELD SITES USING THE TIME-DOMAIN ELECTROMAGNETIC METHOD; INCLUDES A FEASIBILITY STUDY FOR USING AIRBORNE METHODS AND A MODELING STUDY TO COMPARE ONE-, TWO-, AND THREE-DIMENSIONAL MODELS.
INJECTION WELLS	ORD-23	LOCATING ABANDONED WELLS WITH GEOPHYSICAL AND REMOTE SENSING METHODS	ORD JIM BASILLIO 382-5747	STUDY	IN PROGRESS	TESTS A TECHNIQUE TO LOCATE ABANDONED OIL, GAS, AND WATER WELLS NATIONWIDE; PURPOSE IS TO PREVENT CROSS CONTAMINATION OF AQUIFERS; COMBINES HISTORICAL PHOTOGRAPHIC ANALYSIS WITH FIELD OBSERVATIONS, RECORD SEARCHES, AND GEOPHYSICAL MEASUREMENTS.
INJECTION WELLS	OSM-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSM/WMO PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUPPORT F.
INJECTION WELLS	OWEP- 1	DISPOSAL OF POLLUTANTS INTO WELLS, POTWS, OR BY LAND APPLICATION	OWEP JAMES GALLUP 475-8541	REGULATION	1978	PROVIDES VARIANCES FOR EFFLUENT LIMITATIONS AND STANDARDS WHEN A DISCHARGER'S PROCESS WASTEWATER IS DISPOSED INTO A POTW BY LAND APPLICATION OR INTO A WELL INSTEAD OF INTO NAVIGABLE WATERS.
INJECTION WELLS	OWRS- 8	ORGANIC CHEMICALS/PESTICIDES	OWRS/ITO WOODY FORSH 382-7190	STUDY	1983	SURVEYS THE INDUSTRY AND IDENTIFIES UNDERGROUND INJECTION AS A DISPOSAL METHOD USED IN INDUSTRY; ENABLES

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
INJECTION WELLS	RD3- 2	GAS/OIL FIELD BRINE DISPOSAL COMPLIANCE	ED STIGALL 382-7124	COMPLIANCE MONITORING	9/86	LOCATION AND CHARACTERIZATION OF WASTE DISPOSAL. USES EPIC AERIAL PHOTOGRAPHY TO IDENTIFY POTENTIAL DISCHARGERS TO SURFACE/ SURFICIAL AQUIFERS VIA GAS FIELD BRINE DISPOSAL INTO SHALLOW WELLS OR SEPTIC TANKS; SUBSEQUENT ACTION IS TAKEN TO COMPEL ALTERNATIVE BRINE DISPOSAL METHODS OR FURTHER ENFORCEMENT.
INJECTION WELLS	RD3- 4	RESOURCE EXTRACTION ACTIVITIES	REGION III/OSW TOM MERSKI FTS 597-2786	STRATEGY	N/A	INCREASES AWARENESS OF ACCEPTABLE MEASURES FOR BRINE DISPOSAL AND PROMOTES COMPLIANCE WITH SPILL PREVENTION CONTROL AND COUNTERMEASURES; PROTECTS BOTH SURFACE AND GROUND WATERS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LAND APPLICATION	DECM- 2	DEVELOPMENT AND MANAGEMENT OF RCRA AND CERCLA ENFORCEMENT CASES	DECM CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF RCRA AND CERCLA REGULATIONS, INCLUDING FAILURE TO ADEQUATELY MONITOR THE GROUND WATER. INCLUDES PREPARING AND NEGOTIATING CASES THROUGH REFERRAL TO THE DEPARTMENT OF JUSTICE.
LAND APPLICATION	OMPC- 1	CONSTRUCTION GRANTS PROGRAM FOR MUNICIPAL WASTEWATER TREATMENT WORKS	OMPC/PAD BILL KRAMER 382-7259	GUIDANCE	1985	CALLS FOR CONSIDERATION OF EXISTING WATER QUALITY, QUANTITY, AND USE OF SURFACE AND GROUND WATER IN PREPARING A FACILITY PLAN; PROVIDES GUIDELINES FOR SELECTING BEST PRACTICABLE WASTE TREATMENT TECHNOLOGIES FOR SLUDGE TREATMENT AND DISPOSAL.
LAND APPLICATION	OMPC- 3	ASSESSMENT OF AVAILABILITY OF GROUND-WATER MONITORING DATA FROM LAND TREATMENT AND LAGOON SYSTEMS	OMPC/MFD JAMES WHEELER 382-7389	TECH ASST	IN PROGRESS	IDENTIFIES THIRTY-SEVEN STATES THAT HAVE REQUIREMENTS FOR GROUND-WATER MONITORING AT LAND TREATMENT SYSTEMS AND DESCRIBES THESE REQUIREMENTS.
LAND APPLICATION	OMPC- 6	STATE SLUDGE PROGRAM REGULATIONS	OMPC/MFD CHARLES E. GROSS 382-2333	REGULATION	2/87	REQUIRES STATES TO DEVELOP SLUDGE MANAGEMENT PROGRAMS OR IMPROVE EXISTING ONES AND OBTAIN EPA APPROVAL; NPMH 2/4/86.
LAND APPLICATION	OMPC- 7	LAND APPLICATION OF MUNICIPAL SLUDGES	OMPC CHARLES E. GROSS 382-2333	GUIDANCE	10/83	CONTAINS RATIONAL PROCEDURE FOR DESIGN OF MUNICIPAL SLUDGE LAND APPLICATION SYSTEMS INCLUDING GROUND-WATER CONSTRAINTS.
LAND APPLICATION	OMPC- 9	LAND TREATMENT OF MUNICIPAL WASTEWATER	OMPC/MFD BOB BASTIAN 382-2333	GUIDANCE	10/81	CONTAINS A CHAPTER ON HEALTH AND ENVIRONMENTAL EFFECTS, INCLUDING GROUND WATER, IN A MANUAL COVERING STATE-OF-THE-ART PROCESS DESIGN FOR LAND TREATMENT SYSTEMS.
LAND APPLICATION	OMPC-10	LAND TREATMENT OF MUNICIPAL WASTEWATER: SUPPLEMENT ON RAPID INFILTRATION AND OVERLAND FLOW	OMPC/MFD JIM WHEELER 382-7389	GUIDANCE	10/84	DISCUSSES HOW SITE SELECTION AND STATE-OF-THE-ART DESIGN AFFECT HEALTH AND PROVIDE ENVIRONMENTAL PROTECTION.
LAND APPLICATION	OMPC-12	UTILIZATION OF MUNICIPAL WASTEWATER AND SLUDGE ON LAND	OMPC/MFD CHARLES E. GROSS BOB BASTIAN 382-2333	STUDY	1983	CONSISTS OF WORKSHOP PROCEEDINGS THAT GENERALLY DISCUSS HYDROLOGIC MANAGEMENT, NUTRIENT-TRACE METAL PATHOGENS, SPECIFIC ORGANIC COMPOUND METALS, AND AN OVERVIEW OF PUBLIC HEALTH EFFECTS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LAND APPLICATION	OWPC-13	SLUDGE TREATMENT AND DISPOSAL	OWPC/WFD CHARLES E. GROSS 382-2333	GUIDANCE	10/84	PRESENTS A CONTEMPORARY REVIEW OF SLUDGE PROCESSING TECHNOLOGY AND PROCEDURES FOR PROPER DESIGN, SITE SELECTION, AND FINAL DISPOSAL TECHNIQUES.
LAND APPLICATION	OPA- 5	INTERMEDIA IMPACT OF SLUDGE UTILIZATION AND DISPOSAL	OPA/ERAD BRENDAN DOYLE 382-5804	STUDY	7/86	DEVELOPS AND TESTS A METHODOLOGY FOR EVALUATING THE COST EFFECTIVENESS OF OPTIONS FOR RE-USE AND/OR DISPOSAL OF MUNICIPAL SEWAGE SLUDGE; MODELS GROUND-WATER CONTAMINATION FROM LANDFILLING AND LAND APPLICATIONS.
LAND APPLICATION	OSM- 3	LAND DISPOSAL RESTRICTION RULE	OSM/CAO STEVE WEIL 382-4770	REGULATION	5/28/86	SETS SCHEDULE FOR DETERMINING THE HAZARDOUS WASTES FOR WHICH TO SET LAND DISPOSAL BANS IN ACCORDANCE WITH THE 1984 RCRA AMENDMENTS; THE PURPOSE IS TO REDUCE GROUND-WATER CONTAMINATION.
LAND APPLICATION	OSM- 4	LAND DISPOSAL RESTRICTION FRAMEWORK/SOLVENTS AND DIOXINS	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/8/86	ESTABLISHES THE FRAMEWORK FOR THE RESTRICTION OF LAND ON DISPOSAL OF WASTES CONTAINING DIOXINS AND SOLVENTS; INCLUDES PRE-DISPOSAL TREATMENT STANDARDS, PROCEDURES FOR FILING FOR VARIANCES, CRITERIA FOR SETTING EFFECTIVE DATES FOR BANS, AND FOR CASE-BY-CASE EXEMPTIONS FROM THESE DATES.
LAND APPLICATION	OSM- 5	LAND DISPOSAL RESTRICTION OF CALIFORNIA WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	7/87	ESTABLISHES TREATMENT STANDARDS AND ASSOCIATED EFFECTIVE DATES FOR BANNING THE LAND DISPOSAL OF A GROUP OF HAZARDOUS WASTES KNOWN AS THE CALIFORNIA LIST.
LAND APPLICATION	OSM- 6	LAND DISPOSAL RESTRICTION OF LISTED WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/86	ESTABLISHES TREATMENT STANDARDS FOR THE RCRA LISTED HAZARDOUS WASTES AND EFFECTIVE DATES FOR RESTRICTIONS ON THE LAND DISPOSAL OF THESE WASTES.
LAND APPLICATION	OSM- 7	REVISION TO SMALL QUANTITY GENERATOR RULE	OSM/CAO BOB AXELRAD 382-4637	REGULATION	3/24/86	REQUIRES GENERATORS OF OVER 100KG PER MONTH OF HAZARDOUS WASTE TO COMPLY WITH RCRA REGULATIONS; REPLACES PREVIOUSLY HIGHER THRESHOLD OF 1000KG PER MONTH.
LAND APPLICATION	OSM- 8	SMALL QUANTITY GENERATOR STUDIES	OSM/CAO BOB AXELRAD 382-4637	STUDY	4/87	PRESENTS RESULTS OF A NATIONAL SURVEY (REQUIRED BY 1984 RCRA AMENDMENTS) OF GENERATORS OF HAZARDOUS WASTE WHO

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
						PRODUCE LESS THAN 1,000KG PER MONTH; A STUDY OF THE MANIFEST SYSTEM AS IT APPLIES TO SMALL QUANTITY GENERATORS; A STUDY OF LICENSING OF TRANSPORTERS; AND A STUDY OF HAZARDOUS WASTES MANAGEMENT BY EDUCATIONAL INSTITUTIONS.
LAND APPLICATION	OSW-12	HAZARDOUS WASTE PERMIT PROGRAM	OSW/PSPO BRUCE WEDDLE 382-4746	REGULATION	ONGOING	SETS TECHNICAL STANDARDS AND OPERATING REQUIREMENTS THROUGH PERMITS FOR EACH HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITY.
LAND APPLICATION	OSW-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMO PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.
LAND APPLICATION	OSW-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSW/WMO MIKE FLYNN 382-4488	REGULATION	3/88	ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.
LAND APPLICATION	OSW-16	GUIDELINES FOR LAND DISPOSAL OF SOLID WASTE [40 CFR 241]	OSW/WMO MIKE FLYNN 382-4488	GUIDANCE	9/23/79	IMPOSES REQUIREMENTS AND RECOMMENDS PROCEDURES, MANDATORY FOR FEDERAL AGENCIES AND SUGGESTED FOR STATE AND LOCAL GOVERNMENT AGENCIES, FOR ENVIRONMENTALLY ACCEPTABLE DISPOSAL OF SOLID WASTE; SPECIFIES GROUND-WATER PROTECTION REQUIREMENTS.
LAND APPLICATION	OSW-17	SUBTITLE D STUDY	OSW/WMO MIKE FLYNN 382-4488	STUDY	11/87	CONSISTS OF MULTIPLE STUDIES WHICH ASSESS ADEQUACY OF EXISTING SUBTITLE D CRITERIA [40 CFR 257] TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AND WILL SUPPORT CRITERIA CHANGES MANDATED BY CONGRESS IN 1984 AMENDMENTS. PROTECTION OF GROUND WATER IS A PRIMARY FOCUS OF THE CRITERIA REVISION.
LAND APPLICATION	OSW-18	LOCATION STANDARDS FOR HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMO GLEN GALEN 382-4678	REGULATION	9/88	SPECIFIES CRITERIA FOR DETERMINING SUITABLE LOCATIONS FOR FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LAND APPLICATION	OSW-24	USE OF APPENDIX VIII FOR GROUND-WATER MONITORING	OSW/WMD JERRY GARMAN 475-7415	GUIDANCE	6/86	WASTE. REVISES LIST OF HAZARDOUS CONSTITUENTS FOR WHICH RCRA FACILITIES MUST MONITOR GROUND WATER; INCLUDES GUIDANCE FOR GROUND-WATER MONITORING REQUIREMENTS.
LAND APPLICATION	OSW-26	REVISION OF STATISTICAL TEST USED TO IDENTIFY GROUND-WATER CONTAMINATION	OSW/WMD VERNON MYERS 382-4485	REGULATION	7/86	SUGGESTS REVISION IN ORDER TO IMPROVE ACCURACY OF STUDENTS' T-TEST FOR DETERMINING WHETHER A RELEASE FROM A HAZARDOUS WASTE FACILITY TO GROUND WATER HAS OCCURRED.
LAND APPLICATION	OSW-27	AQL GUIDELINES	OSW/WMD VERNON MYERS 382-4485	GUIDANCE	1/87	ESTABLISHES PROCEDURES FOR SETTING SITE-SPECIFIC AQLS FOR USE IN GROUND-WATER MONITORING AT HAZARDOUS WASTE LAND DISPOSAL FACILITIES.
LAND APPLICATION	OSW-29	INTEGRATED OSW GROUND-WATER STRATEGY	OSW/WMD ART DAY 382-4680	STRATEGY	10/86	INTEGRATES ALL EXISTING AND PLANNED OSW REGULATIONS OR GUIDANCE RELATING TO GROUND-WATER PROTECTION AND WILL OUTLINE EPA'S POLICY FOR MAKING GROUND-WATER RELATED PERMITTING AND VARIANCE DECISIONS UNDER RCRA.
LAND APPLICATION	OSWER- 2	NATIONAL DIOXIN STRATEGY	OSWER JIM DUMMINGS 382-4686	STRATEGY	3/86	PROMOTES PROPER DISPOSAL/TREATMENT OF DIOXINS, PREVENTING LEACHING TO SOIL AND GROUND WATER AND PROTECTING HUMAN HEALTH.
LAND APPLICATION	OSWER- 6	EVALUATION OF THE RCRA SUBPART F GROUND-WATER MONITORING PROGRAM	OSWER JOAN LAROCK 382-4617	STUDY	1/86	IDENTIFIES IMPEDIMENTS TO IMPLEMENTATION OF MONITORING AND RECOMMENDS GUIDANCE, TRAINING, REGULATIONS, TECHNOLOGY, AND ADMINISTRATIVE PROCEDURES TO OVERCOME THESE OBSTACLES.
LAND APPLICATION	OWEP- 1	DISPOSAL OF POLLUTANTS INTO WELLS, POTWS, OR BY LAND APPLICATION	OWEP JAMES GALLUP 475-9541	REGULATION	1978	PROVIDES VARIANCES FOR EFFLUENT LIMITATIONS AND STANDARDS WHEN A DISCHARGER'S PROCESS WASTEWATER IS DISPOSED INTO A POTW BY LAND APPLICATION OR INTO A WELL INSTEAD OF INTO NAVIGABLE WATERS.
LAND APPLICATION	OWPE- 1	RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT	OWPE/RED KENNETH JENNINGS 475-9374	GUIDANCE	9/86	PROVIDES GUIDANCE ON EVALUATING THE ADEQUACY OF HYDROGEOLOGIC ASSESSMENT PERFORMED BY OWNERS/OPERATORS OF RCRA LANDFILLS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LAND APPLICATION	OWPE- 2	COMPLIANCE ORDER GUIDANCE DOCUMENT	OWPE/RED LLOYD GUERCI 382-4808	GUIDANCE	8/85	PROVIDES GUIDANCE FOR THE REGIONS IN DEVELOPING ADMINISTRATIVE ORDERS FOR VIOLATORS OF THE RCRA GROUND-WATER MONITORING REQUIREMENTS.
LAND APPLICATION	OWPE- 4	INSPECTIONS OF RCRA FACILITIES	CALL REGIONS/ RCRA BRANCH	COMPLIANCE MONITORING	ONGOING	INSPECTS RCRA-REGULATED FACILITIES TO DETERMINE THEIR COMPLIANCE WITH VARIOUS RCRA REQUIREMENTS AND DETERMINE WHETHER HAZARDOUS CONSTITUENTS HAVE BEEN RELEASED INTO THE ENVIRONMENT.
LAND APPLICATION	OWPE- 5	ENFORCEMENT ACTION FOR GROUND-WATER VIOLATIONS	CALL REGIONS/RCRA BRANCH	ENFORCEMENT	ONGOING	ENCOMPASSES ENFORCEMENT ACTIONS AGAINST FACILITIES THAT HAVE VIOLATED RCRA GROUND-WATER MONITORING REQUIREMENTS AND HAVE RELEASED HAZARDOUS CONSTITUENTS TO ANY MEDIA, INCLUDING GROUND WATER.
LAND APPLICATION	OWPE- 7	CORRECTIVE ACTION PLAN	OWPE/RED VIRGINIA STEINER 475-8328	GUIDANCE	11/86	ESTABLISHES PROCEDURES FOR INVESTIGATING AND CLEANING UP CONTAMINANTS FROM RCRA FACILITIES THAT THREATEN GROUND WATER.
LAND APPLICATION	OWRS- 8	ORGANIC CHEMICALS, PLASTICS AND SYNTHETIC FIBERS INDUSTRY, AND PESTICIDE CHEMICALS INDUSTRY EFFLUENT GUIDELINE REGULATIONS	OWRS/ITD WOODY FORSHT TOM FIELDING 382-7124	REGULATION	1978	INCLUDES A DATABASE OF WASTEWATER TREATMENT PRACTICES USED AT EXISTING PLANTS (INCLUDING LAND APPLICATION AND DEEP WELL INJECTION) ASSEMBLED DURING REGULATORY DEVELOPMENT. BPT WAS PUBLISHED IN 1978. BAT IS UNDER DEVELOPMENT.
LAND APPLICATION	OWRS-12	PROPOSED REGULATIONS UNDER SECTION 405(d) CLEAN WATER ACT CREATING CRITERIA FOR THE USE AND DISPOSAL OF SEWAGE SLUDGE	OWRS/CSO AL RUBIN 245-3038	REGULATION	8/87	ESTABLISHES ENFORCEABLE CRITERIA FOR SEWAGE SLUDGE DISPOSED OF IN A MONOFILL LANDFILL OR RECYCLED AS A RESOURCE THROUGH SEVERAL LAND APPLICATION TECHNIQUES.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LANDFILLS	DECM- 2	DEVELOPMENT AND MANAGEMENT OF RCRA AND CERCLA ENFORCEMENT CASES	DECM CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF RCRA AND CERCLA REGULATIONS, INCLUDING FAILURE TO ADEQUATELY MONITOR THE GROUND WATER. INCLUDES PREPARING AND NEGOTIATING CASES THROUGH REFERRAL TO THE DEPARTMENT OF JUSTICE.
LANDFILLS	OPA- 1	CHOOSING A GROUND-WATER MONITORING PERIOD	OPA/ERAD JOHN CHAMBERLIN 382-2762	STUDY	FY84	ANALYZES ENGINEERING, ECONOMIC AND RISK/COST CRITERIA FOR CHOOSING A GROUND-WATER MONITORING PERIOD FOR HAZARDOUS WASTE SITES.
LANDFILLS	OPA- 6	INVENTORY OF POTENTIAL GROUND-WATER CONTAMINATION SOURCES IN SOLE SOURCE AQUIFERS	OPA/ERAD BRENDAN DOYLE 382-5604	STUDY	10/85	IDENTIFIES THE CONTAMINATION SOURCES IN FOUR SOLE SOURCE AQUIFERS; COVERS EXISTING INFORMATION ON THE GEOLOGY, HYDROLOGY, WATER QUALITY, WATER QUANTITY, POTWS, INDUSTRIAL FACILITIES, RCRA SITES, SUPERFUND SITES, UIC FACILITIES, AND EXISTING CONTROLS.
LANDFILLS	ORD- 1	HAZARDOUS WASTE SURFACE IMPOUNDMENTS	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	ASSESSES AND DEVELOPS IMPROVED DESIGN, OPERATION, AND CLOSURE PROCEDURES FOR LANDFILLS, SURFACE IMPOUNDMENTS, AND WASTE PILES USED FOR HAZARDOUS WASTE MANAGEMENT.
LANDFILLS	ORD- 2	HAZARDOUS WASTE TECHNICAL RESOURCE DOCUMENTS	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	UPDATES TECHNICAL MANUALS ON DESIGN, CONSTRUCTION, OPERATION AND MONITORING OF LANDFILLS AND SURFACE IMPOUNDMENTS THAT RECEIVE HAZARDOUS WASTES.
LANDFILLS	ORD- 3	SUPPORT FOR LAND DISPOSAL PROGRAM	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	DEVELOPS DESIGN, OPERATION, MAINTENANCE AND CLOSURE PROCEDURES FOR LANDFILLS; INCLUDES A DISCUSSION OF LINERS AND LEACHATE COLLECTION AND TREATMENT EFFICIENCY.
LANDFILLS	OSW- 3	LAND DISPOSAL RESTRICTION RULE	OSW/CAO STEVE WEIL 382-4770	REGULATION	5/28/86	SETS SCHEDULE FOR DETERMINING THE HAZARDOUS WASTES FOR WHICH TO SET LAND DISPOSAL BANS IN ACCORDANCE WITH THE 1984 RCRA AMENDMENTS; THE PURPOSE IS TO REDUCE GROUND-WATER CONTAMINATION.
LANDFILLS	OSW- 4	LAND DISPOSAL RESTRICTION FRAMEWORK/SOLVENTS AND DIOXINS	OSW/CAO STEVE WEIL 382-4770	REGULATION	11/8/86	ESTABLISHES THE FRAMEWORK FOR THE RESTRICTION OF LAND ON DISPOSAL OF WASTES CONTAINING DIOXINS AND SOLVENTS;

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LANDFILLS	OSW- 5	LAND DISPOSAL RESTRICTION OF CALIFORNIA WASTES	OSW/CAO STEVE WEIL 382-4770	REGULATION	7/87	INCLUDES PRE-DISPOSAL TREATMENT STANDARDS, PROCEDURES FOR FILING FOR VARIANCES, CRITERIA FOR SETTING EFFECTIVE DATES FOR BANS, AND FOR CASE-BY-CASE EXEMPTIONS FROM THESE DATES.
LANDFILLS	OSW- 6	LAND DISPOSAL RESTRICTION OF LISTED WASTES	OSW/CAO STEVE WEIL 382-4770	REGULATION	11/86	ESTABLISHES TREATMENT STANDARDS AND ASSOCIATED EFFECTIVE DATES FOR BANNING THE LAND DISPOSAL OF A GROUP OF HAZARDOUS WASTES KNOWN AS THE CALIFORNIA LIST.
LANDFILLS	OSW- 7	REVISION TO SMALL QUANTITY GENERATOR RULE	OSW/CAO BOB AXELRAD 382-4637	REGULATION	3/24/86	ESTABLISHES TREATMENT STANDARDS FOR THE RCRA LISTED HAZARDOUS WASTES AND EFFECTIVE DATES FOR RESTRICTIONS ON THE LAND DISPOSAL OF THESE WASTES.
LANDFILLS	OSW- 8	SMALL QUANTITY GENERATOR STUDIES	OSW/CAO BOB AXELRAD 382-4637	STUDY	4/87	REQUIRES GENERATORS OF OVER 100KG PER MONTH OF HAZARDOUS WASTE TO COMPLY WITH RCRA REGULATIONS; REPLACES PREVIOUSLY HIGHER THRESHOLD OF 1000KG PER MONTH.
LANDFILLS	OSW- 12	HAZARDOUS WASTE PERMIT PROGRAM	OSW/PSPO BRUCE WEDDLE 382-4746	REGULATION	ONGOING	PRESENTS RESULTS OF A NATIONAL SURVEY (REQUIRED BY 1984 RCRA AMENDMENTS) OF GENERATORS OF HAZARDOUS WASTE WHO PRODUCE LESS THAN 1,000KG PER MONTH; A STUDY OF THE MANIFEST SYSTEM AS IT APPLIES TO SMALL QUANTITY GENERATORS; A STUDY OF LICENSING OF TRANSPORTERS; AND A STUDY OF HAZARDOUS WASTES MANAGEMENT BY EDUCATIONAL INSTITUTIONS.
LANDFILLS	OSW-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMO PAT FOX 382-4453	REGULATION	ONGOING	SETS TECHNICAL STANDARDS AND OPERATING REQUIREMENTS THROUGH PERMITS FOR EACH HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITY.
LANDFILLS	OSW-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSW/WMO MIKE FLYNN 382-4489	REGULATION	3/88	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.
						ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
LANDFILLS	OSW-16	GUIDELINES FOR LAND DISPOSAL OF SOLID WASTE (40 CFR 241)	OSW/WMD MIKE FLYNN 382-4489	GUIDANCE	9/23/79	WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.
LANDFILLS	OSW-17	SUBTITLE D STUDY	OSW/WMD MIKE FLYNN 382-4489	STUDY	11/87	IMPOSES REQUIREMENTS AND RECOMMENDS PROCEDURES, MANDATORY FOR FEDERAL AGENCIES AND SUGGESTED FOR STATE AND LOCAL GOVERNMENT AGENCIES, FOR ENVIRONMENTALLY ACCEPTABLE DISPOSAL OF SOLID WASTE; SPECIFIES GROUND-WATER PROTECTION REQUIREMENTS.
LANDFILLS	OSW-18	LOCATION STANDARDS FOR HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMD GLEN GALEN 382-4676	REGULATION	9/88	CONSISTS OF MULTIPLE STUDIES WHICH ASSESS ADEQUACY OF EXISTING SUBTITLE D CRITERIA (40 CFR 257) TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AND WILL SUPPORT CRITERIA CHANGES MANDATED BY CONGRESS IN 1984 AMENDMENTS. PROTECTION OF GROUND WATER IS A PRIMARY FOCUS OF THE CRITERIA REVISION.
LANDFILLS	OSW-19	PERMIT WRITERS' GUIDANCE MANUAL FOR LOCATION OF HAZARDOUS WASTE LAND TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMD ART DAY 382-4680	GUIDANCE	2/85	SPECIFIES CRITERIA FOR DETERMINING SUITABLE LOCATIONS FOR FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE.
LANDFILLS	OSW-20	PERMIT WRITERS' GUIDANCE MANUAL TO IDENTIFY AREAS OF VULNERABLE HYDROGEOLOGY	OSW/WMD ART DAY 382-4680	GUIDANCE	7/31/86	PROVIDES GUIDANCE TO PERMIT WRITERS REGARDING FIVE GENERAL LOCATION CRITERIA, FOUR OF WHICH ARE IMPLICIT IN THE 1984 RCRA AMENDMENTS. THE FIFTH IS DEFINED IN ANOTHER OSW GUIDANCE MANUAL (SEE OSW-20).
LANDFILLS	OSW-21	CONTAINERIZED LIQUIDS IN LANDFILLS	OSW/WMD PAUL CASSIDY 382-4682	REGULATION	6/86	PROVIDES GUIDANCE TO PERMIT WRITERS ON HOW TO DEFINE VULNERABLE HYDROGEOLOGY AS REQUIRED BY THE 1984 RCRA AMENDMENTS.
LANDFILLS	OSW-23	LAND DISPOSAL LINER AND LEACHATE COLLECTION SYSTEMS	OSW/WMD KEN SKAHM	REGULATION	9/87	ESTABLISHES REQUIREMENTS TO MINIMIZE THE PLACEMENT OF CONTAINERS IN LANDFILLS, MINIMIZE FREE LIQUIDS IN CONTAINERS, AND PROHIBIT THE USE OF ABSORBENTS THAT BIODEGRADE AND RELEASE LIQUIDS WHEN COMPRESSED.
						REQUIRES DOUBLE LINERS, LEAK DETECTION, AND LEACHATE COLLECTION SYSTEMS FOR

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	IO/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
			382-4684			CERTAIN LAND DISPOSAL UNITS AS MANDATED BY THE 1984 AMENDMENTS TO RCRA.
LANDFILLS	OSM-24	USE OF APPENDIX VIII FOR GROUND-WATER MONITORING	OSM/WMD JERRY GARMAN 475-7415	GUIDANCE	6/86	REVISES LIST OF HAZARDOUS CONSTITUENTS FOR WHICH RCRA FACILITIES MUST MONITOR GROUND WATER; INCLUDES GUIDANCE FOR GROUND-WATER MONITORING REQUIREMENTS.
LANDFILLS	OSM-26	REVISION OF STATISTICAL TEST USED TO IDENTIFY GROUND-WATER CONTAMINATION	OSM/WMD VERNON MYERS 382-4495	REGULATION	7/86	SUGGESTS REVISION IN ORDER TO IMPROVE ACCURACY OF STUDENTS' T-TEST FOR DETERMINING WHETHER A RELEASE FROM A HAZARDOUS WASTE FACILITY TO GROUND WATER HAS OCCURRED.
LANDFILLS	OSM-27	AQL GUIDELINES	OSM/WMD VERNON MYERS 382-4495	GUIDANCE	1/87	ESTABLISHES PROCEDURES FOR SETTING SITE-SPECIFIC AQLS FOR USE IN GROUND-WATER MONITORING AT HAZARDOUS WASTE LAND DISPOSAL FACILITIES.
LANDFILLS	OSM-29	INTEGRATED OSM GROUND-WATER STRATEGY	OSM/WMD ART DAY 382-4880	STRATEGY	10/86	INTEGRATES ALL EXISTING AND PLANNED OSM REGULATIONS OR GUIDANCE RELATING TO GROUND-WATER PROTECTION AND WILL OUTLINE EPA'S POLICY FOR MAKING GROUND-WATER RELATED PERMITTING AND VARIANCE DECISIONS UNDER RCRA.
LANDFILLS	OSM-31	CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS AT RCRA-PERMITTED SUBTITLE C FACILITIES	OSM/ DAVE FAGAN 382-4497	REGULATION	NPRM 11/87	INCORPORATES CONTROL OF SOLID WASTE MANAGEMENT UNITS AT PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITIES INTO THE PERMITS FOR THOSE FACILITIES.
LANDFILLS	OSMER- 3	GROUND-WATER MONITORING TASK FORCE	OSMER TONY MONTRONE 382-7812	STUDY	IN PROGRESS	EVALUATES STATUS OF GROUND-WATER MONITORING AT 58 EXISTING COMMERCIAL HAZARDOUS WASTE LAND DISPOSAL FACILITIES; DETERMINES COMPLIANCE AND EXTENT OF GROUND-WATER CONTAMINATION.
LANDFILLS	OSMER- 4	COMPILATION OF GROUND-WATER MONITORING CRITERIA	OSMER/OSM VERNON MYERS 382-4885	STUDY	7/85	SUMMARIZES GROUND-WATER MONITORING STANDARDS AND CRITERIA CONTAINED IN EPA DOCUMENTS; DISCUSSES RCRA GROUND-WATER MONITORING ISSUES.
LANDFILLS	OSMER- 5	EVALUATION OF AVAILABLE GROUND-WATER MONITORING COURSES	OSMER JIM CRUICKSHANK 382-4431	TRAINING	8/85	IDENTIFIES CURRENT GROUND-WATER RELATED COURSES AVAILABLE TO EPA AND STATE PERSONNEL AND EVALUATES THE EXTENT TO WHICH THESE COURSES ARE ADEQUATE.
LANDFILLS	OSMER- 6	EVALUATION OF THE RCRA SUBPART F	OSMER	STUDY	1/86	IDENTIFIES IMPEDIMENTS TO IMPLEMENTATION

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
		GROUND-WATER MONITORING PROGRAM	JOAN LAROCK 382-4617			OF MONITORING AND RECOMMENDS GUIDANCE, TRAINING, REGULATIONS, TECHNOLOGY, AND ADMINISTRATIVE PROCEDURES TO OVERCOME THESE OBSTACLES.
LANDFILLS	DMPE- 1	RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT	DMPE/RED KENNETH JENNINGS 475-9374	GUIDANCE	9/86	PROVIDES GUIDANCE ON EVALUATING THE ADEQUACY OF HYDROGEOLOGIC ASSESSMENT PERFORMED BY OWNERS/OPERATORS OF RCRA LANDFILLS.
LANDFILLS	DMPE- 2	COMPLIANCE ORDER GUIDANCE DOCUMENT	DMPE/RED LLOYD GUERCI 382-4808	GUIDANCE	8/85	PROVIDES GUIDANCE FOR THE REGIONS IN DEVELOPING ADMINISTRATIVE ORDERS FOR VIOLATORS OF THE RCRA GROUND-WATER MONITORING REQUIREMENTS.
LANDFILLS	DMPE- 4	INSPECTIONS OF RCRA FACILITIES	CALL REGIONS/ RCRA BRANCH	COMPLIANCE MONITORING	ONGOING	INSPECTS RCRA-REGULATED FACILITIES TO DETERMINE THEIR COMPLIANCE WITH VARIOUS RCRA REQUIREMENTS AND DETERMINE WHETHER HAZARDOUS CONSTITUENTS HAVE BEEN RELEASED INTO THE ENVIRONMENT.
LANDFILLS	DMPE- 5	ENFORCEMENT ACTION FOR GROUND-WATER VIOLATIONS	CALL REGIONS/RCRA BRANCH	ENFORCEMENT	ONGOING	ENCOMPASSES ENFORCEMENT ACTIONS AGAINST FACILITIES THAT HAVE VIOLATED RCRA GROUND-WATER MONITORING REQUIREMENTS AND HAVE RELEASED HAZARDOUS CONSTITUENTS TO ANY MEDIA, INCLUDING GROUND WATER.
LANDFILLS	DMPE- 7	CORRECTIVE ACTION PLAN	DMPE/RED VIRGINIA STEINER 475-9329	GUIDANCE	11/86	ESTABLISHES PROCEDURES FOR INVESTIGATING AND CLEANING UP CONTAMINANTS FROM RCRA FACILITIES THAT THREATEN GROUND WATER.
LANDFILLS	DMRS- 5	HAZARDOUS WASTE TREATERS AND LEACHATES	DMRS/ITD DON ANDERSON 382-7188	STUDY	7/87	CHARACTERIZES THESE SOURCES OF WASTEWATER, AVAILABLE CONTROL TECHNOLOGIES AND THE APPROPRIATENESS OF GUIDANCE VERSUS REGULATION; IDENTIFIES POTENTIAL SOURCES OF GROUND-WATER CONTAMINATION.
LANDFILLS	DMRS-12	PROPOSED REGULATIONS UNDER SECTION 405(d) CLEAN WATER ACT CREATING CRITERIA FOR THE USE AND DISPOSAL OF SEWAGE SLUDGE	DMRS/CSD AL RUBIN 245-3036	REGULATION	9/87	ESTABLISHES ENFORCEABLE CRITERIA FOR SEWAGE SLUDGE DISPOSED OF IN A LANDFILL OR RECYCLED AS A RESOURCE THROUGH SEVERAL LAND APPLICATION TECHNIQUES.
LANDFILLS	RD1- 2	MUNICIPAL LANDFILL GROUND-WATER IMPACT STUDY	REGION 1/OGW BRUCE RUSINOFF FTS 835-3601	STUDY	7/87	MONITORS GROUND-WATER QUALITY FOR VOLATILE ORGANICS, METALS, AND NITRATES DOWNGRADEMENT OF 5 MUNICIPAL LANDFILLS ON

SOURCE	GROUND-WATER ACTIVITIES SURVEY				SUMMARY
	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	
					CAPE COD TO DETERMINE THE POTENTIAL FOR PUBLIC HEALTH IMPACTS.

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
OPEN DUMPS	OSW-13	INVENTORY OF OPEN DUMPS	OSW/PSPO MARTY MADISON 382-2229	STUDY	ONGOING
					LISTS SOLID WASTE FACILITIES THAT THE STATES HAVE DETERMINED ARE OPEN DUMPS AND PROBABLY POSE ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT, INCLUDING GROUND WATER. UPDATED ANNUALLY.
OPEN DUMPS	OSW-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSW/WHO MIKE FLYNN 382-4489	REGULATION	3/88
					ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SURFACE IMPOUNDMENTS	ODM- 3	SURFACE IMPOUNDMENT ASSESSMENT	ODM FRANCIS BRASIER 382-5508	STUDY	1983	IDENTIFIES THE NUMBER AND TYPES OF IMPOUNDMENTS NATIONWIDE, THE VOLUMES OF WATER AND THEIR POTENTIAL TO CONTAMINATE GROUND WATER.
SURFACE IMPOUNDMENTS	OCM- 2	DEVELOPMENT AND MANAGEMENT OF RCRA AND CERCLA ENFORCEMENT CASES	OCM CHERYL WASERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF RCRA AND CERCLA REGULATIONS, INCLUDING FAILURE TO ADEQUATELY MONITOR THE GROUND WATER. INCLUDES PREPARING AND NEGOTIATING CASES THROUGH REFERRAL TO THE DEPARTMENT OF JUSTICE.
SURFACE IMPOUNDMENTS	OCRR-19	GUIDANCE DOCUMENT FOR CLEANUP OF SURFACE IMPOUNDMENTS	OCRR/HSCD ED BARTH 382-7998	GUIDANCE	8/86	PROVIDES APPROACH TO CONDUCTING LIMITED REMEDIAL INVESTIGATIONS FOR SURFACE IMPOUNDMENTS.
SURFACE IMPOUNDMENTS	OMPC- 5	ASSESSMENT OF GROUND-WATER MONITORING FOR LAND TREATMENT AND LAGOON SYSTEMS AT EPA CONSTRUCTION GRANT PROJECTS	OMPC/MFO LAW LIM 382-7371	STUDY	3/85	IDENTIFIES EIGHT STATES WITH REQUIREMENTS FOR GROUND-WATER MONITORING AT LAGOONS; MOST OF THESE STATES LIMIT SEEPAGE TO PROTECT GROUND WATER NEAR LAGOONS.
SURFACE IMPOUNDMENTS	OMPC- 8	MUNICIPAL WASTEWATER STABILIZATION PONDS	OMPC/MFO LAW LIM 382-7371	GUIDANCE	10/83	STRESSES PROPER DESIGN AND SITING FOR ENVIRONMENTAL PROTECTION.
SURFACE IMPOUNDMENTS	OMPC-15	MUNICIPAL LAGOON STUDY	OMPC	STUDY	9/87	TO ASSESS GROUND-WATER IMPACTS OVER MUNICIPAL LAGOONS.
SURFACE IMPOUNDMENTS	ORD- 1	HAZARDOUS WASTE SURFACE IMPOUNDMENTS	ORD JIM BASILICO 382-6747	STUDY	IN PROGRESS	ASSESSES AND DEVELOPS IMPROVED DESIGN, OPERATION, AND CLOSURE PROCEDURES FOR LANDFILLS, SURFACE IMPOUNDMENTS, AND WASTE PILES USED FOR HAZARDOUS WASTE MANAGEMENT.
SURFACE IMPOUNDMENTS	ORD- 2	HAZARDOUS WASTE TECHNICAL RESOURCE DOCUMENTS	ORD JIM BASILICO 382-6747	STUDY	IN PROGRESS	UPDATES TECHNICAL MANUALS ON DESIGN, CONSTRUCTION, OPERATION AND MONITORING OF LANDFILLS AND SURFACE IMPOUNDMENTS THAT RECEIVE HAZARDOUS WASTES.
SURFACE IMPOUNDMENTS	OSM- 3	LAND DISPOSAL RESTRICTION RULE	OSM/CAO STEVE WEIL 382-4770	REGULATION	5/28/86	SETS SCHEDULE FOR DETERMINING THE HAZARDOUS WASTES FOR WHICH TO SET LAND DISPOSAL BANS IN ACCORDANCE WITH THE 1984 RCRA AMENDMENTS; THE PURPOSE IS TO REDUCE GROUND-WATER CONTAMINATION.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SURFACE IMPOUNDMENTS	OSM- 4	LAND DISPOSAL RESTRICTION FRAMEWORK/SOLVENTS AND DIOXINS	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/8/86	ESTABLISHES THE FRAMEWORK FOR THE RESTRICTION OF LAND ON DISPOSAL OF WASTES CONTAINING DIOXINS AND SOLVENTS; INCLUDES PRE-DISPOSAL TREATMENT STANDARDS, PROCEDURES FOR FILING FOR VARIANCES, CRITERIA FOR SETTING EFFECTIVE DATES FOR BANS, AND FOR CASE-BY-CASE EXEMPTIONS FROM THESE DATES.
SURFACE IMPOUNDMENTS	OSM- 5	LAND DISPOSAL RESTRICTION OF CALIFORNIA WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	7/87	ESTABLISHES TREATMENT STANDARDS AND ASSOCIATED EFFECTIVE DATES FOR BANNING THE LAND DISPOSAL OF A GROUP OF HAZARDOUS WASTES KNOWN AS THE CALIFORNIA LIST.
SURFACE IMPOUNDMENTS	OSM- 6	LAND DISPOSAL RESTRICTION OF LISTED WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/86	ESTABLISHES TREATMENT STANDARDS FOR THE RCRA LISTED HAZARDOUS WASTES AND EFFECTIVE DATES FOR RESTRICTIONS ON THE LAND DISPOSAL OF THESE WASTES.
SURFACE IMPOUNDMENTS	OSM- 7	REVISION TO SMALL QUANTITY GENERATOR RULE	OSM/CAO BOB AXELRAD 382-4637	REGULATION	3/24/86	REQUIRES GENERATORS OF OVER 100KG PER MONTH OF HAZARDOUS WASTE TO COMPLY WITH RCRA REGULATIONS; REPLACES PREVIOUSLY HIGHER THRESHOLD OF 1000KG PER MONTH.
SURFACE IMPOUNDMENTS	OSM- 8	SMALL QUANTITY GENERATOR STUDIES	OSM/CAO BOB AXELRAD 382-4637	STUDY	4/87	PRESENTS RESULTS OF A NATIONAL SURVEY (REQUIRED BY 1984 RCRA AMENDMENTS) OF GENERATORS OF HAZARDOUS WASTE WHO PRODUCE LESS THAN 1,000KG PER MONTH; A STUDY OF THE MANIFEST SYSTEM AS IT APPLIES TO SMALL QUANTITY GENERATORS; A STUDY OF LICENSING OF TRANSPORTERS; AND A STUDY OF HAZARDOUS WASTES MANAGEMENT BY EDUCATIONAL INSTITUTIONS.
SURFACE IMPOUNDMENTS	OSM-12	HAZARDOUS WASTE PERMIT PROGRAM	OSM/PSPO BRUCE WEDDLE 382-4746	REGULATION	ONGOING	SETS TECHNICAL STANDARDS AND OPERATING REQUIREMENTS THROUGH PERMITS FOR EACH HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITY.
SURFACE IMPOUNDMENTS	OSM-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSM/WMO PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SURFACE IMPOUNDMENTS	OSW-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSW/WHO MIKE FLYNN 382-4489	REGULATION	3/88	ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.
SURFACE IMPOUNDMENTS	OSW-16	GUIDELINES FOR LAND DISPOSAL OF SOLID WASTE [40 CFR 241]	OSW/WHO MIKE FLYNN 382-4489	GUIDANCE	9/23/79	IMPOSES REQUIREMENTS AND RECOMMENDS PROCEDURES, MANDATORY FOR FEDERAL AGENCIES AND SUGGESTED FOR STATE AND LOCAL GOVERNMENT AGENCIES, FOR ENVIRONMENTALLY ACCEPTABLE DISPOSAL OF SOLID WASTE; SPECIFIES GROUND-WATER PROTECTION REQUIREMENTS.
SURFACE IMPOUNDMENTS	OSW-17	SUBTITLE D STUDY	OSW/WHO MIKE FLYNN 382-4489	STUDY	11/87	CONSISTS OF MULTIPLE STUDIES WHICH ASSESS ADEQUACY OF EXISTING SUBTITLE D CRITERIA [40 CFR 257] TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AND WILL SUPPORT CRITERIA CHANGES MANDATED BY CONGRESS IN 1984 AMENDMENTS. PROTECTION OF GROUND WATER IS A PRIMARY FOCUS OF THE CRITERIA REVISION.
SURFACE IMPOUNDMENTS	OSW-18	LOCATION STANDARDS FOR HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WHO GLEN GALEN 382-4678	REGULATION	9/88	SPECIFIES CRITERIA FOR DETERMINING SUITABLE LOCATIONS FOR FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE.
SURFACE IMPOUNDMENTS	OSW-19	PERMIT WRITERS' GUIDANCE MANUAL FOR LOCATION OF HAZARDOUS WASTE LAND TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WHO ART DAY 382-4680	GUIDANCE	2/85	PROVIDES GUIDANCE TO PERMIT WRITERS REGARDING FIVE GENERAL LOCATION CRITERIA, FOUR OF WHICH ARE IMPLICIT IN THE 1984 RCRA AMENDMENTS. THE FIFTH IS DEFINED IN ANOTHER OSW GUIDANCE MANUAL (SEE OSW-20).
SURFACE IMPOUNDMENTS	OSW-20	PERMIT WRITERS' GUIDANCE MANUAL TO IDENTIFY AREAS OF VULNERABLE HYDROGEOLOGY	OSW/WHO ART DAY 382-4680	GUIDANCE	7/31/86	PROVIDES GUIDANCE TO PERMIT WRITERS ON HOW TO DEFINE VULNERABLE HYDROGEOLOGY AS REQUIRED BY THE 1984 RCRA AMENDMENTS.
SURFACE IMPOUNDMENTS	OSW-22	RETROFITTING INTERIM STATUS SURFACE IMPOUNDMENTS	OSW/WHO PAUL CASSIDY 382-4682	GUIDANCE	7/86	PROVIDES GUIDANCE FOR OBTAINING A VARIANCE FROM SURFACE IMPOUNDMENT RETROFITTING REQUIREMENTS OF THE 1984 AMENDMENTS TO RCRA.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SURFACE IMPOUNDMENTS	OSW-23	LAND DISPOSAL LINER AND LEACHATE COLLECTION SYSTEMS	OSW/WMD KEN SKAHM 382-4684	REGULATION	9/87	REQUIRES DOUBLE LINERS, LEAK DETECTION, AND LEACHATE COLLECTION SYSTEMS FOR CERTAIN LAND DISPOSAL UNITS AS MANDATED BY THE 1984 AMENDMENTS TO RCRA.
SURFACE IMPOUNDMENTS	OSW-24	USE OF APPENDIX VIII FOR GROUND-WATER MONITORING	OSW/WMD JERRY GARMAN 475-7415	GUIDANCE	6/86	REVISES LIST OF HAZARDOUS CONSTITUENTS FOR WHICH RCRA FACILITIES MUST MONITOR GROUND WATER; INCLUDES GUIDANCE FOR GROUND-WATER MONITORING REQUIREMENTS.
SURFACE IMPOUNDMENTS	OSW-26	REVISION OF STATISTICAL TEST USED TO IDENTIFY GROUND-WATER CONTAMINATION	OSW/WMD VERNON MYERS 382-4495	REGULATION	7/86	SUGGESTS REVISION IN ORDER TO IMPROVE ACCURACY OF STUDENTS' T-TEST FOR DETERMINING WHETHER A RELEASE FROM A HAZARDOUS WASTE FACILITY TO GROUND WATER HAS OCCURRED.
SURFACE IMPOUNDMENTS	OSW-27	AQL GUIDELINES	OSW/WMD VERNON MYERS 382-4495	GUIDANCE	1/87	ESTABLISHES PROCEDURES FOR SETTING SITE-SPECIFIC AQLS FOR USE IN GROUND-WATER MONITORING AT HAZARDOUS WASTE LAND DISPOSAL FACILITIES.
SURFACE IMPOUNDMENTS	OSW-29	INTEGRATED OSW GROUND-WATER STRATEGY	OSW/WMD ART DAY 382-4680	STRATEGY	10/86	INTEGRATES ALL EXISTING AND PLANNED OSM REGULATIONS OR GUIDANCE RELATING TO GROUND-WATER PROTECTION AND WILL OUTLINE EPA'S POLICY FOR MAKING GROUND-WATER RELATED PERMITTING AND VARIANCE DECISIONS UNDER RCRA.
SURFACE IMPOUNDMENTS	OSWER- 6	EVALUATION OF THE RCRA SUBPART F GROUND-WATER MONITORING PROGRAM	OSWER JOAN LAROCK 382-4617	STUDY	1/86	IDENTIFIES IMPEDIMENTS TO IMPLEMENTATION OF MONITORING AND RECOMMENDS GUIDANCE, TRAINING, REGULATIONS, TECHNOLOGY, AND ADMINISTRATIVE PROCEDURES TO OVERCOME THESE OBSTACLES.
SURFACE IMPOUNDMENTS	OWPE- 1	RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT	OWPE/RED KENNETH JENNINGS 475-9374	GUIDANCE	9/86	PROVIDES GUIDANCE ON EVALUATING THE ADEQUACY OF HYDROGEOLOGIC ASSESSMENT PERFORMED BY OWNERS/OPERATORS OF RCRA LANDFILLS.
SURFACE IMPOUNDMENTS	OWPE- 2	COMPLIANCE ORDER GUIDANCE DOCUMENT	OWPE/RED LLOYD GUFRCI 382-4808	GUIDANCE	8/85	PROVIDES GUIDANCE FOR THE REGIONS IN DEVELOPING ADMINISTRATIVE ORDERS FOR VIOLATORS OF THE RCRA GROUND-WATER MONITORING REQUIREMENTS.
SURFACE IMPOUNDMENTS	OWPE- 4	INSPECTIONS OF RCRA FACILITIES	CALL REGIONS/ RCRA BRANCH	COMPLIANCE MONITORING	ONGOING	INSPECTS RCRA-REGULATED FACILITIES TO DETERMINE THEIR COMPLIANCE WITH VARIOUS RCRA REQUIREMENTS AND DETERMINE WHETHER

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
					SUMMARY
					HAZARDOUS CONSTITUENTS HAVE BEEN RELEASED INTO THE ENVIRONMENT.
SURFACE IMPOUNDMENTS	OMPE- 5	ENFORCEMENT ACTION FOR GROUND-WATER VIOLATIONS	CALL REGIONS/RCRA BRANCH	ENFORCEMENT	ONGOING
					ENCOMPASSES ENFORCEMENT ACTIONS AGAINST FACILITIES THAT HAVE VIOLATED RCRA GROUND-WATER MONITORING REQUIREMENTS AND HAVE RELEASED HAZARDOUS CONSTITUENTS TO ANY MEDIA, INCLUDING GROUND WATER.
SURFACE IMPOUNDMENTS	OMPE- 7	CORRECTIVE ACTION PLAN	OMPE/RED VIRGINIA STEINER 475-8329	GUIDANCE	11/86
					ESTABLISHES PROCEDURES FOR INVESTIGATING AND CLEANING UP CONTAMINANTS FROM RCRA FACILITIES THAT THREATEN GROUND WATER.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WASTE TAILINGS	QAR- 6	URANIUM MILL TAILINGS---SAMPLE MONITORING PLAN	ORP/LV WAYNE BLISS FTS 545-2476	GUIDANCE	IN PROGRESS	ASSISTS IN EVALUATION OF REGULATORY COMPLIANCE FOR ACTIVE URANIUM MILLS AND PROVIDES AN INFORMATION BASE TO DETERMINE ADEQUACY OF EXISTING STANDARDS.
WASTE TAILINGS	QAR-10	GROUND-WATER PROTECTION STANDARDS FOR INACTIVE URANIUM TAILING SITES	QAR/CSD KURT FELDMAN 475-9820	REGULATION	12/89	SETS GROUND-WATER PROTECTION STANDARDS FOR REMEDIAL ACTIONS AT INACTIVE URANIUM PROCESSING SITES.
WASTE TAILINGS	QAR-11	ENVIRONMENTAL STANDARDS FOR URANIUM AND THORIUM MILL TAILINGS AT LICENSED COMMERCIAL PROCESSING SITES	QAR/CSD JOHN RUSSELL 475-9820	REGULATION	10/83	PROMULGATES HEALTH AND ENVIRONMENTAL STANDARDS TO GOVERN STABILIZATION AND CONTROL OF BY-PRODUCT MATERIALS AT LICENSED SITES.
WASTE TAILINGS	ROB- 3	REGION VIII NINE WASTE TEAM ACTION PLAN	REGION VIII/WHO ROB WALLINE FTS 584-1598	POLICY	9/86	PROMOTES REDUCTION OF ENVIRONMENTAL DEGRADATION AND PUBLIC EXPOSURE TO HEALTH-THREATENING CONTAMINANTS FROM MINING WASTE RELEASES AT CERCLA OR OTHER SITES.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WASTE PILES	OCM- 2	DEVELOPMENT AND MANAGEMENT OF RCRA AND CERCLA ENFORCEMENT CASES	OCM CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF RCRA AND CERCLA REGULATIONS, INCLUDING FAILURE TO ADEQUATELY MONITOR THE GROUND WATER. INCLUDES PREPARING AND NEGOTIATING CASES THROUGH REFERRAL TO THE DEPARTMENT OF JUSTICE.
WASTE PILES	ORD- 1	HAZARDOUS WASTE SURFACE IMPOUNDMENTS	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	ASSESSES AND DEVELOPS IMPROVED DESIGN, OPERATION, AND CLOSURE PROCEDURES FOR LANDFILLS, SURFACE IMPOUNDMENTS, AND WASTE PILES USED FOR HAZARDOUS WASTE MANAGEMENT.
WASTE PILES	OSM- 3	LAND DISPOSAL RESTRICTION RULE	OSM/CAO STEVE WEIL 382-4770	REGULATION	5/28/86	SETS SCHEDULE FOR DETERMINING THE HAZARDOUS WASTES FOR WHICH TO SET LAND DISPOSAL BANS IN ACCORDANCE WITH THE 1984 RCRA AMENDMENTS; THE PURPOSE IS TO REDUCE GROUND-WATER CONTAMINATION.
WASTE PILES	OSM- 4	LAND DISPOSAL RESTRICTION FRAMEWORK/SOLVENTS AND DIOXINS	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/8/86	ESTABLISHES THE FRAMEWORK FOR THE RESTRICTION OF LAND ON DISPOSAL OF WASTES CONTAINING DIOXINS AND SOLVENTS; INCLUDES PRE-DISPOSAL TREATMENT STANDARDS, PROCEDURES FOR FILING FOR VARIANCES, CRITERIA FOR SETTING EFFECTIVE DATES FOR BANS, AND FOR CASE-BY-CASE EXEMPTIONS FROM THESE DATES.
WASTE PILES	OSM- 5	LAND DISPOSAL RESTRICTION OF CALIFORNIA WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	7/87	ESTABLISHES TREATMENT STANDARDS AND ASSOCIATED EFFECTIVE DATES FOR BANNING THE LAND DISPOSAL OF A GROUP OF HAZARDOUS WASTES KNOWN AS THE CALIFORNIA LIST.
WASTE PILES	OSM- 6	LAND DISPOSAL RESTRICTION OF LISTED WASTES	OSM/CAO STEVE WEIL 382-4770	REGULATION	11/86	ESTABLISHES TREATMENT STANDARDS FOR THE RCRA LISTED HAZARDOUS WASTES AND EFFECTIVE DATES FOR RESTRICTIONS ON THE LAND DISPOSAL OF THESE WASTES.
WASTE PILES	OSM- 7	REVISION TO SMALL QUANTITY GENERATOR RULE	OSM/CAO BOB AXELRAD 382-4637	REGULATION	3/24/86	REQUIRES GENERATORS OF OVER 100KG PER MONTH OF HAZARDOUS WASTE TO COMPLY WITH RCRA REGULATIONS; REPLACES PREVIOUSLY HIGHER THRESHOLD OF 1000KG PER MONTH.
WASTE PILES	OSM- 8	SMALL QUANTITY GENERATOR STUDIES	OSM/CAO	STUDY	4/87	PRESENTS RESULTS OF A NATIONAL SURVEY

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
			BOB AXELRAD 382-4637			(REQUIRED BY 1984 RCRA AMENDMENTS) OF GENERATORS OF HAZARDOUS WASTE WHO PRODUCE LESS THAN 1,000KG PER MONTH; A STUDY OF THE MANIFEST SYSTEM AS IT APPLIES TO SMALL QUANTITY GENERATORS; A STUDY OF LICENSING OF TRANSPORTERS; AND A STUDY OF HAZARDOUS WASTES MANAGEMENT BY EDUCATIONAL INSTITUTIONS.
WASTE PILES	OSW-12	HAZARDOUS WASTE PERMIT PROGRAM	OSW/PSPD BRUCE WEDDLE 382-4746	REGULATION	ONGOING	SETS TECHNICAL STANDARDS AND OPERATING REQUIREMENTS THROUGH PERMITS FOR EACH HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITY.
WASTE PILES	OSW-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/MMD PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.
WASTE PILES	OSW-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSW/MMD MIKE FLYNN 382-4489	REGULATION	3/88	ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.
WASTE PILES	OSW-16	GUIDELINES FOR LAND DISPOSAL OF SOLID WASTE [40 CFR 241]	OSW/MMD MIKE FLYNN 382-4489	GUIDANCE	9/23/79	IMPOSES REQUIREMENTS AND RECOMMENDS PROCEDURES, MANDATORY FOR FEDERAL AGENCIES AND SUGGESTED FOR STATE AND LOCAL GOVERNMENT AGENCIES, FOR ENVIRONMENTALLY ACCEPTABLE DISPOSAL OF SOLID WASTE; SPECIFIES GROUND-WATER PROTECTION REQUIREMENTS.
WASTE PILES	OSW-17	SUBTITLE D STUDY	OSW/MMD MIKE FLYNN 382-4489	STUDY	11/87	CONSISTS OF MULTIPLE STUDIES WHICH ASSESS ADEQUACY OF EXISTING SUBTITLE D CRITERIA [40 CFR 257] TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AND WILL SUPPORT CRITERIA CHANGES MANDATED BY CONGRESS IN 1984 AMENDMENTS. PROTECTION OF GROUND WATER IS A PRIMARY FOCUS OF THE CRITERIA REVISION.
WASTE PILES	OSW-18	LOCATION STANDARDS FOR HAZARDOUS	OSW/MMD	REGULATION	9/88	SPECIFIES CRITERIA FOR DETERMINING

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
		WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	GLEN GALEN 382-4678			SUITABLE LOCATIONS FOR FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE.
WASTE PILES	OSM-19	PERMIT WRITERS' GUIDANCE MANUAL FOR LOCATION OF HAZARDOUS WASTE LAND TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSM/WMD ART DAY 382-4680	GUIDANCE	2/85	PROVIDES GUIDANCE TO PERMIT WRITERS REGARDING FIVE GENERAL LOCATION CRITERIA, FOUR OF WHICH ARE IMPLICIT IN THE 1984 RCRA AMENDMENTS. THE FIFTH IS DEFINED IN ANOTHER OSM GUIDANCE MANUAL (SEE OSM-20).
WASTE PILES	OSM-20	PERMIT WRITERS' GUIDANCE MANUAL TO IDENTIFY AREAS OF VULNERABLE HYDROGEOLOGY	OSM/WMD ART DAY 382-4680	GUIDANCE	7/31/86	PROVIDES GUIDANCE TO PERMIT WRITERS ON HOW TO DEFINE VULNERABLE HYDROGEOLOGY AS REQUIRED BY THE 1984 RCRA AMENDMENTS.
WASTE PILES	OSM-23	LAND DISPOSAL LINER AND LEACHATE COLLECTION SYSTEMS	OSM/WMD KEN SKAHN 382-4684	REGULATION	9/87	REQUIRES DOUBLE LINERS, LEAK DETECTION, AND LEACHATE COLLECTION SYSTEMS FOR CERTAIN LAND DISPOSAL UNITS AS MANDATED BY THE 1984 AMENDMENTS TO RCRA.
WASTE PILES	OSM-24	USE OF APPENDIX VIII FOR GROUND-WATER MONITORING	OSM/WMD JERRY GARMAN 475-7415	GUIDANCE	6/86	REVISES LIST OF HAZARDOUS CONSTITUENTS FOR WHICH RCRA FACILITIES MUST MONITOR GROUND-WATER; INCLUDES GUIDANCE FOR GROUND-WATER MONITORING REQUIREMENTS.
WASTE PILES	OSM-26	REVISION OF STATISTICAL TEST USED TO IDENTIFY GROUND-WATER CONTAMINATION	OSM/WMD VERNON MYERS 382-4495	REGULATION	7/86	SUGGESTS REVISION IN ORDER TO IMPROVE ACCURACY OF STUDENTS' T-TEST FOR DETERMINING WHETHER A RELEASE FROM A HAZARDOUS WASTE FACILITY TO GROUND WATER HAS OCCURRED.
WASTE PILES	OSM-27	ACL GUIDELINES	OSM/WMD VERNON MYERS 382-4495	GUIDANCE	1/87	ESTABLISHES PROCEDURES FOR SETTING SITE-SPECIFIC ACLS FOR USE IN GROUND-WATER MONITORING AT HAZARDOUS WASTE LAND DISPOSAL FACILITIES.
WASTE PILES	OSM-29	INTEGRATED OSM GROUND-WATER STRATEGY	OSM/WMD ART DAY 382-4680	STRATEGY	10/86	INTEGRATES ALL EXISTING AND PLANNED OSM REGULATIONS OR GUIDANCE RELATING TO GROUND-WATER PROTECTION AND WILL OUTLINE EPA'S POLICY FOR MAKING GROUND-WATER RELATED PERMITTING AND VARIANCE DECISIONS UNDER RCRA.
WASTE PILES	OSMER- 6	EVALUATION OF THE RCRA SUBPART F GROUND-WATER MONITORING PROGRAM	OSMER JOAN LAROCK 382-4617	STUDY	1/86	IDENTIFIES IMPEDIMENTS TO IMPLEMENTATION OF MONITORING AND RECOMMENDS GUIDANCE, TRAINING, REGULATIONS, TECHNOLOGY, AND ADMINISTRATIVE PROCEDURES TO OVERCOME THESE OBSTACLES.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WASTE PILES	OWPE- 1	RCRA GROUND-WATER MONITORING TECHNICAL ENFORCEMENT GUIDANCE DOCUMENT	OWPE/RED KENNETH JENNINGS 475-8374	GUIDANCE	9/86	PROVIDES GUIDANCE ON EVALUATING THE ADEQUACY OF HYDROGEOLOGIC ASSESSMENT PERFORMED BY OWNERS/OPERATORS OF RCRA LANDFILLS.
WASTE PILES	OWPE- 2	COMPLIANCE ORDER GUIDANCE DOCUMENT	OWPE/RED LLOYD GUERCI 382-4808	GUIDANCE	8/85	PROVIDES GUIDANCE FOR THE REGIONS IN DEVELOPING ADMINISTRATIVE ORDERS FOR VIOLATORS OF THE RCRA GROUND-WATER MONITORING REQUIREMENTS.
WASTE PILES	OWPE- 4	INSPECTIONS OF RCRA FACILITIES	CALL REGIONS/ RCRA BRANCH	COMPLIANCE MONITORING	ONGOING	INSPECTS RCRA-REGULATED FACILITIES TO DETERMINE THEIR COMPLIANCE WITH VARIOUS RCRA REQUIREMENTS AND DETERMINE WHETHER HAZARDOUS CONSTITUENTS HAVE BEEN RELEASED INTO THE ENVIRONMENT.
WASTE PILES	OWPE- 5	ENFORCEMENT ACTION FOR GROUND-WATER VIOLATIONS	CALL REGIONS/RCRA BRANCH	ENFORCEMENT	ONGOING	ENCOMPASSES ENFORCEMENT ACTIONS AGAINST FACILITIES THAT HAVE VIOLATED RCRA GROUND-WATER MONITORING REQUIREMENTS AND HAVE RELEASED HAZARDOUS CONSTITUENTS TO ANY MEDIA, INCLUDING GROUND WATER.
WASTE PILES	OWPE- 7	CORRECTIVE ACTION PLAN	OWPE/RED VIRGINIA STEINER 475-8328	GUIDANCE	11/86	ESTABLISHES PROCEDURES FOR INVESTIGATING AND CLEANING UP CONTAMINANTS FROM RCRA FACILITIES THAT THREATEN GROUND WATER.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
ABOVEGROUND STORAGE TANKS	OSM-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSM/WMD PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.
ABOVEGROUND STORAGE TANKS	OSM-25	STANDARDS FOR STORAGE OR TREATMENT OF HAZARDOUS WASTE IN TANK SYSTEMS	OSM/WMD BILL KLINE 382-4623	REGULATION	6/30/86	EXPANDS COMPREHENSIVENESS OF EXISTING TANK STANDARDS IN ORDER TO PROTECT GROUND WATER.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
UNDERGROUND STORAGE TANKS	OPA- 4	GROUND-WATER CASE STUDY: SANTA CLARA VALLEY, CA - PHASE I AND II	OPA/RID KEITH HUNMAN 454-8587	STUDY	I 5/86 II 7/87	COMPARES HUMAN HEALTH RISKS ATTRIBUTABLE TO DIFFERENT SOURCES OF GROUND-WATER CONTAMINATION TO RISKS FROM AIRBORNE AND SURFACE WATERBORNE TOXICS; ASSESSES THE COST-EFFECTIVENESS OF VARIOUS CONTROL STRATEGIES AND THE IMPACTS OF MONITORING STRATEGIES. PHASE II EXAMINES AND COMPARES CONTROL STRATEGIES IDENTIFIED IN PHASE I.
UNDERGROUND STORAGE TANKS	OPA-13	UNDERGROUND STORAGE TANKS IN BALTIMORE	OPA/RID HOPE PILLSBURY 382-2690	STUDY	6/87	DEVELOPS AN APPROACH WHICH HELPS MARYLAND DETERMINE WHERE TO CONCENTRATE INSPECTION, ENFORCEMENT, AND REMEDIAL ACTIVITIES.
UNDERGROUND STORAGE TANKS	OTS- 3	TESTING OF SELECTED TANKS FOR LEAK DETERMINATION	OTS KAREN HAMMERSTROM 382-3822	MONITORING	7/86	SURVEYS 1100 FACILITIES STORING MOTOR FUELS AND COLLECTS STATISTICAL INFORMATION.
UNDERGROUND STORAGE TANKS	OUST- 1	ASSESSMENT OF FATE AND TRANSPORT OF REGULATED SUBSTANCES FROM UST	OUST PAM HARRIS 382-4614	REG	3/86	APPRAISES MECHANISMS THAT INFLUENCE FATE AND TRANSPORT OF AND HUMAN EXPOSURE TO PETROLEUM PRODUCTS AND HAZARDOUS SUBSTANCES FROM LEAKING UNDERGROUND STORAGE TANKS.
UNDERGROUND STORAGE TANKS	OUST- 2	INTERIM PROHIBITION GUIDANCE	OUST DAVE O'BRIEN 382-7815	GUIDANCE	8/86	GUIDES STATES AND TANK OWNERS ON INTERIM TANK CONTROLS AND PROHIBITS INSTALLATION OF CORRODABLE TANKS.
UNDERGROUND STORAGE TANKS	OUST- 3	NOTIFICATION PROGRAM	OUST VIRGINIA CUMMINGS 382-7825	REGULATION	10/85	REQUIRES OWNERS OF TANKS TO NOTIFY STATE AUTHORITIES; ESTABLISHES GUIDANCE FOR STATES ON HOW TO OBTAIN NOTICES FROM OWNERS AND HOW TO ORGANIZE AND MANAGE THE RESULTING DATA; PROVIDES GRANTS TO STATES FOR THESE NOTIFICATION ACTIVITIES.
UNDERGROUND STORAGE TANKS	OUST- 4	NOTIFICATION DATA MANAGEMENT SYSTEM	OUST VIRGINIA CUMMINGS 382-7825	TRAINING	ONGOING	DEVELOPS DATA MANAGEMENT SYSTEM TO HANDLE NOTIFICATION DATA FROM TANK OWNERS; INCLUDES TRAINING FOR STATES.
UNDERGROUND STORAGE TANKS	OUST- 5	SURVEY OF STATE-REPORTED LEAKING UST INCIDENTS	OUST STEVE GOLDB 382-5866	STUDY	8/86	COMPILES AND ANALYZES DATA ON 12,500 INCIDENTS AND CREATES AN AUTOMATED DATA BASE.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
UNDERGROUND STORAGE TANKS	QUST- 6	FINANCIAL RESPONSIBILITY FOR UST RELEASES	QUST SAMMY NG 382-7803	STUDY	1986	EVALUATES THE COST AND FINANCIAL IMPACTS FROM UST RELEASES, INCLUDING ABILITY OF LIABLE PARTIES TO PAY FOR REMEDIAL MEASURES.
UNDERGROUND STORAGE TANKS	QUST- 7	FOREIGN TECHNOLOGY AND PROGRAMS CONCERNING USTS	QUST VIRGINIA CUMMINGS 382-7825	STUDY	10/86	ANALYZE PROGRAMS IN THE TECHNICAL PRACTICES AND GOVERNMENTS OF NINE EUROPEAN COUNTRIES AND JAPAN.
UNDERGROUND STORAGE TANKS	QUST- 9	EVALUATION OF TANK TESTING METHODS	ORD JIM BASILICO 382-6747	R&D	IN PROGRESS	EVALUATES TANK TESTING TECHNIQUES; DETERMINES SIZE OF LEAK THAT CAN BE DETECTED.
UNDERGROUND STORAGE TANKS	QUST-10	ANALYSIS OF COSTS, IMPACTS, INDUSTRY FINANCIAL STATUS AND COST EFFECTIVENESS OF UST TECHNOLOGIES	QUST SAMMY NG 382-7803	STUDY	10/88	SIMULATES TANK SYSTEM FAILURE; ANALYZES IMPACTS; COLLECTS AND EVALUATES SYSTEM COSTS; AND ANALYZES ECONOMIC IMPACTS FOR VARIOUS REGULATORY OPTIONS.
UNDERGROUND STORAGE TANKS	QUST-11	REPAIR, RETROFITTING, PROTECTION, CLOSURE, AND SPILLS CONTROLS FOR TANK SYSTEMS	QUST STEVE GOLDB 382-6888	STUDY	10/86	COLLECTS AND EVALUATES INFORMATION ON VARIOUS TECHNICAL AND MANAGEMENT TECHNIQUES FOR LEAK PREVENTION.
UNDERGROUND STORAGE TANKS	QUST-12	SURVEY OF LOCAL UST DATA FILES AND REPORTS ON UST INCIDENTS	QUST VIRGINIA CUMMINGS 382-7825	STUDY	1988	COMPILES AND ANALYZES LOCAL GOVERNMENT DATA ON LEAKS AND CREATES AN AUTOMATED DATA BASE.
UNDERGROUND STORAGE TANKS	QUST-13	STUDY AND EVALUATION OF LEAK DETECTION METHODS/EFFECTIVENESS AT THE LOCAL LEVEL	QUST MIKE KALINOSKI 382-7888	STUDY MONITORING	1987	COLLECTS AND EVALUATES DATA ON LEAK DETECTION METHODS USED BY LOCAL GOVERNMENTS.
UNDERGROUND STORAGE TANKS	QUST-14	EVALUATION OF STATE-OF-THE-ART UST LEAK DETECTION	ORD JIM BASILICO 382-6747	R&D	10/85	USES INFORMATION FROM LEAK DETECTION VENDORS TO EVALUATE CHARACTERISTICS OF VARIOUS LEAK DETECTION TECHNIQUES.
UNDERGROUND STORAGE TANKS	QUST-15	EVALUATION OF STATE-OF-THE-ART UST CORRECTIVE ACTION TECHNOLOGIES (PETROLEUM)	ORD JIM BASILICO 382-6747	R&D	1988	USES INFORMATION FROM THE CLEANUP SERVICE INDUSTRY TO EVALUATE VARIOUS CORRECTIVE ACTION TECHNOLOGIES.
UNDERGROUND STORAGE TANKS	QUST-16	EVALUATION OF COST AND EFFECTIVENESS OF SELECTED UST CORRECTIVE ACTION TECHNOLOGIES (PETROLEUM)	QUST DICK VALENTINETTI 382-4758	STUDY	12/86	EVALUATES EFFECTIVENESS AND COSTS ASSOCIATED WITH SPECIFIC UNDERGROUND STORAGE TANK CORRECTIVE ACTION TECHNOLOGIES.
UNDERGROUND STORAGE TANKS	QUST-17	SITE SPECIFIC RISK ASSESSMENT PROCEDURES FOR PETROLEUM USTS	QUST DICK	STUDY	12/86	IDENTIFIES PROCEDURES FOR ASSESSING PUBLIC HEALTH IMPACTS OF LEAKING

SOURCE	ID/LEAD OFFICE	TITLE	GROUND-WATER ACTIVITIES SURVEY		
			CONTACT	TYPE OF ACTIVITY	SUMMARY
			VALENTINETTI 382-4758		UNDERGROUND STORAGE TANKS IN ORDER TO DETERMINE APPROPRIATE CLEANUP LEVELS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
CONTAINERS	OSW-12	HAZARDOUS WASTE PERMIT PROGRAM	OSW/PSPD BRUCE WEDDLE 382-4746	REGULATION	ONGOING	SETS TECHNICAL STANDARDS AND OPERATING REQUIREMENTS THROUGH PERMITS FOR EACH HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITY.
CONTAINERS	OSW-14	STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	OSW/WMD PAT FOX 382-4453	REGULATION	ONGOING	IMPOSES MANAGEMENT, DESIGN, AND OPERATING STANDARDS ON ALL FACILITIES THAT TREAT, STORE, OR DISPOSE OF HAZARDOUS WASTE; SPECIFIES GROUND-WATER MONITORING AND PROTECTION REQUIREMENTS IN SUBPART F.
CONTAINERS	OSW-21	CONTAINERIZED LIQUIDS IN LANDFILLS	OSW/WMD PAUL CASSIDY 382-4882	REGULATION	6/86	ESTABLISHES REQUIREMENTS TO MINIMIZE THE PLACEMENT OF CONTAINERS IN LANDFILLS, MINIMIZE FREE LIQUIDS IN CONTAINERS, AND PROHIBIT THE USE OF ABSORBENTS THAT BIODEGRADE AND RELEASE LIQUIDS WHEN COMPRESSED.

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
OPEN BURNING	OSM-15	CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES	OSM/WFO MIKE FLYNN 382-4489	REGULATION	3/88
					ESTABLISHES GENERAL FEDERAL PERFORMANCE CRITERIA, ENFORCEABLE BY THE STATES AND THROUGH CITIZEN SUITS, FOR DETERMINING WHICH SOLID WASTE DISPOSAL FACILITIES AND PRACTICES POSE A REASONABLE PROBABILITY OF ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT; SPECIFIES GROUND-WATER PROTECTION CRITERIA.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
RADIOACTIVE DISPOSAL SITES	OAR- 1	RESIDUAL RADIOACTIVITY	OAR JOHN RUSSELL 475-9820	REGULATION	5/90	ESTABLISHES STANDARDS OR GUIDANCE ON HOW TO PROTECT THE PUBLIC FROM RESIDUAL RADIOACTIVITY FOUND IN DRINKING OR IRRIGATION WATER FOLLOWING CLEANUP OF CONTAMINATED SITES.
RADIOACTIVE DISPOSAL SITES	OAR- 2	ENVIRONMENTAL PROTECTION STANDARDS FOR LOW-LEVEL RADIOACTIVE WASTE	OAR JOHN RUSSELL 475-9820	REGULATION	1988	SETS STANDARDS FOR THE DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTES.
RADIOACTIVE DISPOSAL SITES	OAR- 3	TRANSURANIUM ELEMENTS	OAR JOHN RUSSELL 475-9820	GUIDANCE	6/86	ESTABLISHES DOSE RATE LIMITS FOR PEOPLE EXPOSED TO TRANSURANIUM ELEMENTS IN THE GENERAL ENVIRONMENT, ESPECIALLY GROUND WATER DRINKING SOURCES.
RADIOACTIVE DISPOSAL SITES	OAR-12	ENVIRONMENTAL STANDARDS FOR MANAGEMENT AND DISPOSAL OF SPENT NUCLEAR FUEL, HIGH-LEVEL, AND TRANSURANIC RADIOACTIVE WASTES	OAR JOHN RUSSELL 475-9820	REGULATION	8/85	ESTABLISHES RADIATION EXPOSURE LIMITS FROM CONTAMINATED GROUND WATER ASSOCIATED WITH MANAGEMENT AND DISPOSAL OF SPENT NUCLEAR FUEL, HIGH-LEVEL AND TRANSURANIC RADIOACTIVE WASTES GENERATED BY NUCLEAR REGULATORY COMMISSION LICENSEES.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
PIPELINES	DMPC-1A	SEWER EXFILTRATION STUDY	DMPC/MFD LAW LIN 382-7371	STUDY	9/89	ASSESSES THE EXTENT OF SEWER EXFILTRATION PROBLEMS, EVALUATES THE IMPACT OF EXFILTRATION ON GROUND-WATER QUALITY AND EVALUATES HEALTH RISK AND IMPACT ON MAJOR AQUIFERS.
PIPELINES	DMEP- 2	REGULATIONS TO IMPLEMENT DOMESTIC SEWAGE STUDY	DMEP/PO MARILYN GOODE 475-8521	REGULATION	7/87	ENSURES THAT HAZARDOUS WASTES DISCHARGED TO POTWS ARE ADEQUATELY CONTROLLED TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT; SUPPORTS DMA PRETREATMENT PROGRAM.
PIPELINES	DMRS- 4	DOMESTIC SEWAGE STUDY	DMRS/ITD TOM O'FARRELL 382-7120	STUDY	2/88	PROMOTES USE OF CLEAN WATER ACT PRETREATMENT PROGRAM FOR REGULATION OF AQUEOUS HAZARDOUS WASTE DISCHARGED TO SEWERS.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
MATERIALS TRANSPORT	OSM-10	STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE	OSM/ EILEEN CLAUSSEN 382-4637	REGULATION	COMPLETE	SETS STANDARDS FOR TRANSPORTERS OF HAZARDOUS WASTE; INCORPORATES DOT'S HAZARDOUS MATERIALS TRANSPORTATION REQUIREMENTS.
MATERIALS TRANSPORT	OSM-30	USED OIL REGULATIONS	OSM/WHD BOB APRIL 382-7836	REGULATION	IN PROGRESS	ESTABLISHES MANAGEMENT STANDARDS FOR USED OIL, IN ORDER TO PREVENT GROUND-WATER CONTAMINATION FROM STORAGE AND DISPOSAL AND AIR EMISSIONS FROM COMBUSTION.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
PESTICIDE APPLICATION	OCM- 1	COOPERATIVE AGREEMENTS	OCM/ DAVID HANNEMAN 382-7849	ENFORCEMENT	ONGOING	PROVIDES FUNDING FOR STATE ACTIVITIES TO ENFORCE FIFRA AND CONDUCT GROUND-WATER MONITORING ACTIVITIES.
PESTICIDE APPLICATION	OECH- 5	DEVELOPMENT OF FIFRA ENFORCEMENT CASES	OECH CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL OR ADMINISTRATIVE ENFORCEMENT CASES FOR PESTICIDE MISUSE VIOLATIONS.
PESTICIDE APPLICATION	OGMP- 7	PESTICIDES IN GROUND WATER; BACKGROUND DOCUMENT AND STATE PROGRAM BRIEFS	OGMP DONNA FLETCHER 382-7077	STUDY	5/86	INFORMS FEDERAL AND STATE POLICY MAKERS AND THE PUBLIC OF THE EXTENT, CAUSES, AND POTENTIAL IMPACTS OF PESTICIDE CONTAMINATION OF GROUND WATER.
PESTICIDE APPLICATION	OGMP-12	MITIGATION MEASURES FOR PESTICIDE LEACHING	OGMP DONNA FLETCHER 382-7077	STUDY	7/87	IDENTIFIES PRACTICAL MEASURES TO MITIGATE THE RISK OF PESTICIDE LEACHING FROM LAND APPLICATION; INCLUDED REVIEW OF PUBLISHED AND ONGOING RESEARCH.
PESTICIDE APPLICATION	OPA-10	INTERMEDIA IMPACT ANALYSIS OF PESTICIDE USAGE ON CROPLANDS	OPA BRENDAN DOYLE 382-5804	STUDY	COMPLETE	EXAMINES THE CROSS-MEDIA RISKS AND COSTS OF THE APPLICATION OF PESTICIDES AND HERBICIDES TO CROPLAND; SPECIFICALLY, LOOKS AT CROP RESIDUE AND APPLICATOR RISK; COVERS 18 PESTICIDES USED ON CORN AND SOYBEANS IN LAKE ERIE'S DRAINAGE BASIN.
PESTICIDE APPLICATION	OPP- 1	GROUND-WATER DATA CALL-IN	OPP/RD GERI WENDIG 557-7436	REGULATION	IN PROGRESS	REQUESTS ENVIRONMENTAL FATE DATA FROM REGISTRANTS ON APPROXIMATELY 90 PESTICIDES THAT MAY HAVE SOME POTENTIAL TO LEACH TO GROUND WATER.
PESTICIDE APPLICATION	OPP- 2	ENVIRONMENTAL FATE DATA REQUIREMENTS	OPP/RD JAN AUERBACH 557-7420	REGULATION	ONGOING	REQUIRES REGISTRANTS TO SUBMIT DATA ON THE FATE OF PESTICIDES IN THE ENVIRONMENT, HOW THEY MOVE, DEGRADE, OR ACCUMULATE IN AIR, WATER, AND SOIL.
PESTICIDE APPLICATION	OPP- 3	REPORTING REQUIREMENTS	OPP/OD CAROL PANASEWICH 557-7102	REGULATION	9/85	REQUIRES REGISTRANTS TO SUBMIT ANY INFORMATION IN THEIR POSSESSION ON THE UNREASONABLE ADVERSE EFFECTS OF PESTICIDES ON HEALTH AND THE ENVIRONMENT; INCLUDES A ROLE FOR USING DATA ON MOBILITY AND PERSISTENCE OF PESTICIDES IN GROUND WATER TO FOCUS ON POTENTIAL LEACHERS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
PESTICIDE APPLICATION	OPP- 4	REGISTRATION STANDARDS	OPP/RD FERIAL BISHOP 557-7700	REGULATION	ONGOING	ESTABLISHES EPA'S REGULATORY POSITION ON EXISTING CHEMICALS AND SPECIFIES REQUIREMENTS THAT REGISTRANTS MUST MEET TO REREGISTER PESTICIDE PRODUCTS.
PESTICIDE APPLICATION	OPP- 5	SPECIAL REVIEW PROCESS	OPP/RD JAN AUERBACH 557-7420	REGULATION	ONGOING	CONDUCTS DETAILED PESTICIDE RISK/BENEFIT ANALYSES; REVIEWS RELATED TO GROUND-WATER CONCERNS COVER ALDICARB, ALACHLOR, AND CYANAZINE.
PESTICIDE APPLICATION	OPP- 6	RE-REGISTRATION PROCESS	OPP/RD FERIAL BISHOP 557-7700	REGULATION	ONGOING	SETS REQUIREMENTS FOR REGISTERING PRODUCTS AND IMPOSES RESTRICTIONS ON PRODUCT USES IN ORDER TO PROTECT GROUND WATER.
PESTICIDE APPLICATION	OPP- 7	REGISTRATION OF NEW PRODUCTS/NEW USES	OPP/RD FERIAL BISHOP 557-7700	REGULATION	ONGOING	ESTABLISHES DATA SUBMISSION, USAGE, LABEL AND OTHER REQUIREMENTS REGISTRANTS MUST MEET TO REGISTER NEW PESTICIDE PRODUCTS WITH EPA.
PESTICIDE APPLICATION	OPP- 8	NATIONAL PESTICIDE MONITORING PLAN (NMP)	OPP/HED THOMAS DIXON 557-5455	STRATEGY	6/85	SETS OBJECTIVES FOR USING ENVIRONMENTAL MONITORING, INCLUDING GROUND-WATER MONITORING, IN ANALYZING ENVIRONMENTAL TRENDS AND CONTROLLING SPECIFIC PESTICIDES.
PESTICIDE APPLICATION	OPP- 9	FY 1988 MONITORING ACTION PLAN	OPP THOMAS DIXON 557-5455	PLAN	9/86	DESCRIBES ALL FY88 ACTIVITIES TO IMPLEMENT THE NATIONAL PESTICIDE MONITORING PLAN, INCLUDING MONITORING FOR PESTICIDES IN GROUND WATER.
PESTICIDE APPLICATION	OPP-10	GROUND-WATER MONITORING GUIDELINES	OPP/HED S. COHEN 557-5734	GUIDANCE	9/87	PROVIDES GUIDANCE TO REGISTRANTS AND STATES ON HOW TO DESIGN AND CONDUCT A STATISTICALLY AND SCIENTIFICALLY VALID GROUND-WATER MONITORING SURVEY.
PESTICIDE APPLICATION	OPP-11	PROJECT TO LINK AN UNSATURATED ZONE MODEL WITH A SATURATED ZONE MODEL	OPP/HED MATT LORBER 557-5734	STUDY	FY88	LINKS PESTICIDE ROOT ZONE MODEL WITH NUMERICAL SOLUTION SATURATED ZONE MODEL TO ENABLE SCIENTISTS TO ESTIMATE PESTICIDE CONCENTRATION IN GROUND WATER.
PESTICIDE APPLICATION	OPP-12	NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER	OPP J. KOTAS 382-5387	STUDY MONITORING	FY88	SAMPLES FIVE DOZEN PESTICIDES AND A NUMBER OF TRANSFORMATION PRODUCTS AT 1500 WELLS; ESTIMATES NATIONAL LEVEL AND DISTRIBUTION OF PESTICIDES IN WELLS; ASSESSES THE RELATIONSHIPS AMONG PESTICIDES IN WELL WATER, AGRICULTURAL

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
PESTICIDE APPLICATION	OPP-14	MULTIRESIDUE ANALYTIC TECHNIQUES	OPP/HED THERESE DOUGHERTY 557-6734	R&D	1980	LAND USE, AND HYDROGEOLOGICAL CHARACTERISTICS. DEVELOPS FIVE POWERFUL, BROAD-SPECTRUM, MULTIRESIDUE ANALYTICAL METHODS FOR DETECTING PESTICIDES IN DRINKING WATER; ENABLES DETECTION OF OVER 100 PESTICIDES AND METABOLITES AT LOW OR SUB-PPB LEVELS.
PESTICIDE APPLICATION	OPP-15	DOUGHERTY PLAINS MONITORING STUDY	OPP/HED STUART COHEN 557-3858	STUDY	FY88	MONITORS SOIL AND GROUND WATER FOR ALDICARB AND METOALCHLOR IN A PEANUT FIELD IN LEE COUNTY, GEORGIA; STUDIES LEACHING IN A CONTROLLED MANNER AND VALIDATES THE PESTICIDE ROOT ZONE MODEL (PRZM).
PESTICIDE APPLICATION	OPP-16	TRANSFER OF SCIENTIFIC DATA	OPP/HED BOB HOLST 557-6734	GUIDANCE	ONGOING	ESTABLISHES PROCEDURES FOR OPP TO SUPPLY SCIENTIFIC DATA TO ODM FOR USE IN SETTING STANDARDS.
PESTICIDE APPLICATION	OPP-17	GOLF COURSE STUDY IN CAPE COO	OPP STUART COHEN 557-3858	STUDY	12/87	DESCRIBES THE GROUND-WATER IMPACTS FROM USE OF TURF PESTICIDES AT SELECTED GOLF COURSES ON CAPE COO.
PESTICIDE APPLICATION	OPP-18	GROUND WATER RESTRICTED USE RULE	OPP/RD DAVID ALEXANDER 557-3842	REGULATION	NPRM SUMMER 87	RESTRICTS THE USE OF PESTICIDES THAT HAVE THE POTENTIAL TO CONTAMINATE THE GROUND WATER.
PESTICIDE APPLICATION	OPP-19	CHEMIGATION IMPROVEMENT LABEL PROGRAM	OPP THOMAS ELLWANGER 557-1860	POLICY	1/87	REQUIRES NEW LABEL INFORMATION FOR PESTICIDES USED IN CHEMIGATION IN ORDER TO DECREASE THE POTENTIAL FOR GROUND-WATER CONTAMINATION.
PESTICIDE APPLICATION	OPP-21	PILOT REGISTRANT MONITORING PROJECTS	OPP/HED STUART COHEN 557-3858	REGULATION	IN PROGRESS	CONSISTS OF FOUR PROJECTS THAT TEST DIFFERENT APPROACHES TO GROUND-WATER MONITORING; DETERMINES COST AND USEFULNESS OF EACH APPROACH; SUPPORTS INCORPORATION OF GROUND-WATER MONITORING INTO THE PESTICIDE REGISTRATION PROCESS.
PESTICIDE APPLICATION	OPP-22	COLLIER COUNTY (FLORIDA) PESTICIDE SURVEY	OPP/HED MATTHEW LORBER 557-7358	FEDERAL FUNDING	10/87	ANALYZES GROUND-WATER CONTAMINATION IN A SHALLOW AQUIFER FROM APPROXIMATELY TWENTY PESTICIDES.
PESTICIDE APPLICATION	OPP-23	MAPPING IN REGION X	OPP STUART COHEN 557-3858	STUDY	3/87	MAPS HIGHLY VULNERABLE HYDROGEOLOGICAL SETTINGS AND CORRELATES THAT INFORMATION WITH DATA ON PESTICIDE USAGE; PRODUCES A

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
PESTICIDE APPLICATION	OPP-24	NORTH IOWA GROUND-WATER STUDY	OPP/HED STUART COHEN 557-3858	FEDERAL FUNDING	FALL '88	COMPOSITE OVERLAY MAP. ESTIMATES THE EXTENT OF GROUND-WATER CONTAMINATION FROM PESTICIDES UNDER FARM FIELDS WHICH FALL WITHIN FOUR DIFFERENT HYDROGEOLOGIC SETTINGS.
PESTICIDE APPLICATION	OPP-25	USGS REGIONAL GROUND-WATER ASSESSMENTS	OPP/HED CATHERINE EIDEN 557-2243	FIELD PROJECTS	ONGOING	ASSESSES EFFECTS OF DIFFERENT LAND USES ON REGIONAL GROUND-WATER QUALITY.
PESTICIDE APPLICATION	OPP-26	INTEGRATED PEST MANAGEMENT OPTION FOR ALDICARB ON CITRUS	OPP/BUO DIANA MORSE 557-5017	STUDY	WINTER FY88	INCLUDES AN INTEGRATED PEST MANAGEMENT (IPM) OPTION IN THE SPECIAL REVIEW POSITION DOCUMENT FOR ALDICARB; INTENT IS TO MINIMIZE THE USE OF THE PESTICIDE ON FLORIDA CITRUS GROVES AND THUS PROTECT THE GROUND WATER.
PESTICIDE APPLICATION	OPTS- 2	GROUND-WATER TRAINING MODULE FOR APPLICATOR CERTIFICATION AND TRAINING PROGRAMS	PCTP/ MAURENE LYDON 382-3847	TRAINING	5/87	PROVIDES STATES WITH A CURRICULUM FOR GROUND-WATER PROTECTION VIA APPLICATOR CERTIFICATION AND TRAINING PROGRAMS; HELPS APPLICATORS USING CERTAIN RESTRICTED PESTICIDES TO HANDLE AND APPLY THEM IN A MANNER THAT MINIMIZES THE POTENTIAL FOR GROUND-WATER CONTAMINATION FROM LEACHING.
PESTICIDE APPLICATION	ORD-14	VALIDATION OF PREDICTIVE TECHNIQUES FOR ENVIRONMENTAL EXPOSURE	ORD JAMES BASILICO 382-6747	STUDY	IN PROGRESS	DEVELOPS AN EXTENSIVE FIELD DATA BASE TO ESTABLISH PARAMETERS TO TEST EXPOSURE MODELS WHICH ASSESS PESTICIDE MIGRATION THROUGH THE SATURATED AND UNSATURATED ZONES.
PESTICIDE APPLICATION	DSR- 4	PESTICIDES IN GROUND WATER	DSR/CSPO DORAN VIVIANI 382-7570	STUDY	6/86	ASSESSES THE EXTENT OF PESTICIDE CONTAMINATION OF GROUND WATER AND PRESENTS OPTIONS FOR ADDRESSING THE PROBLEM.
PESTICIDE APPLICATION	OWRS-14	GREAT LAKES AGRICULTURAL NPS DEMONSTRATION PROJECT	OWRS/CSO ANNE WEINBERG 382-7107	FEDERAL FUNDING	11/86	SUPPORTS NASDA THROUGH A COOPERATIVE AGREEMENT TO DOCUMENT AGRICULTURAL NONPOINT SOURCE SUCCESS STORIES IN THE GREAT LAKES REGION; INCLUDES REPORT ON A MULTI-COUNTY STRATEGY TO PROTECT GROUND WATER FROM NONPOINT SOURCES IN MINNESOTA.
PESTICIDE APPLICATION	OWRS-15	WORKSHOP ON CONSERVATION TILLAGE	OWRS/CSO ANNE WEINBERG	STUDY	1987	PUBLISHES FINDINGS OF A WORKSHOP THAT EXAMINED WHETHER INCREASED USE OF

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
			382-7107			PESTICIDES AND FERTILIZERS WITH CONSERVATION TILLAGE CONTRIBUTES TO GROUND-WATER CONTAMINATION.
PESTICIDE APPLICATION	RD4- 1	AGRICULTURAL CHEMICALS PROJECTS	REGION IV/OWPB JIM KUTZMAN FTS 257-3886	STUDY	IN PROGRESS	INCLUDES SEVERAL PROJECTS: A SPECIAL STUDY WITH USGS IN SW GEORGIA IN A RECHARGE AREA WITH EXTENSIVE USAGE OF AGRICULTURAL CHEMICALS; INFORMATION-GATHERING CONTACTS WITH USDA; AND A COOPERATIVE EFFORT WITH ORD ON AGRICULTURAL CHEMICALS IN GROUND WATER.
PESTICIDE APPLICATION	RD5- 4	SUMMARY OF STATE ACTIVITIES IN PESTICIDE GROUND-WATER MONITORING	REGION V/OWW BILL MELVILLE FTS 886-1480	STUDY	7/86	DESCRIBES ACTIVITIES TO DATE IN THE STATES IN REGION V.
PESTICIDE APPLICATION	RD7- 1	BIG SPRINGS STUDY	REGION VII JULIE ELFVING FTS 752-2817	STUDY	COMPLETE	ASSESSES A 103-SQUARE-MILE BASIN, OVER A 5 YEAR PERIOD, TO DETERMINE THE NATURE AND SCOPE OF GROUND-WATER CONTAMINATION FROM THE APPLICATION OF AGRICULTURAL CHEMICALS; ANALYZES AND DOCUMENTS THE CONTAMINATION PROCESS AND EVALUATES AND DEMONSTRATES THE EFFECTIVENESS OF SELECTED BEST MANAGEMENT PRACTICES.
PESTICIDE APPLICATION	RD8- 1	INVENTORY OF PESTICIDES IN GROUND-WATER PROJECTS	REGION IX JIM THOMPSON FTS 454-8267	STUDY	COMPLETE	CONSISTS OF AN INVENTORY OF PESTICIDE RELATED PROJECTS, SPECIAL STUDIES, AND GROUND-WATER MONITORING FOR CALIFORNIA, ARIZONA, NEVADA, AND HAWAII.
PESTICIDE APPLICATION	RD10- 2	GROUND-WATER VULNERABILITY TO PESTICIDE CONTAMINATION - PHASE I	REGION X/OWW BILL MULLEN FTS 389-1216	STUDY	11/85	IDENTIFIES VULNERABLE AQUIFERS IN THE STATE OF WASHINGTON.
PESTICIDE APPLICATION	RD10- 4	PESTICIDES IN GROUND-WATER SAMPLING SURVEY IN OREGON	REGION X/OWW BILL MULLEN FTS 389-1216	MONITORING	12/86	INCLUDES SAMPLING AND ANALYSIS FROM SEVERAL AREAS OF OREGON FOR PESTICIDE CONTAMINATION. INFORMATION ON PESTICIDES USE PATTERN AND VULNERABLE GROUND-WATER AREAS IS BEING COLLECTED AND A SERIES OF OVERLAY MAPS DEVELOPED. THESE WILL BE USED TO MAKE FUTURE MONITORING DECISIONS.
PESTICIDE APPLICATION	RD10- 5	GROUND-WATER VULNERABILITY TO PESTICIDE CONTAMINATION - PHASE II	REGION X/OWW BILL MULLEN FTS 389-1216	STUDY	9/86	IDENTIFIES PESTICIDE USE PATTERNS WITHIN VULNERABLE AQUIFERS IN THE STATE OF WASHINGTON.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
FERTILIZER APPLICATION	OTS- 1	AGRICULTURAL CHEMICALS IN GROUND-WATER STRATEGY	OPTS BOB BARNES 382-2882	STRATEGY	WINTER FY88	OUTLINES EPA GOALS AND PLANS OVER THE NEXT 5-10 YEARS TO PREVENT AND RESPOND TO INCIDENTS OF GROUND-WATER CONTAMINATION FROM PESTICIDES AND NITRATE FERTILIZERS.
FERTILIZER APPLICATION	OTS- 1	TSCA GROUND-WATER STRATEGY	OTS/EED KAREN HAMMERSTROM 382-3886	STRATEGY	1986	ADDRESSES CONTAMINATION OF GROUND WATER FROM SELECTED TOXIC SUBSTANCES; EXAMINES TSCA AUTHORITY TO COLLECT AND ASSESS DATA ON HEALTH AND ENVIRONMENTAL EFFECTS OF TOXIC SUBSTANCES THAT CONTAMINATE GROUND WATER; AND PROVIDES INFORMATION TO OTHER EPA OFFICES TO CONTROL THE PRODUCTION, TRANSPORT, STORAGE, DISPOSAL AND USE OF TOXIC SUBSTANCES.
FERTILIZER APPLICATION	OWRS- 9	RURAL CLEAN WATER PROGRAM OF THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE, USDA	OWRS/CSO ROBERT THRONSON 382-7104 STEVE DRESSING 382-7110	INTERAGENCY	ONGOING	DEMONSTRATES THROUGH COST-SHARING PROJECTS HOW AGRICULTURAL BEST MANAGEMENT PRACTICES CAN REDUCE THE POTENTIAL FOR GROUND AND SURFACE WATER POLLUTION FROM NONPOINT SOURCES.
FERTILIZER APPLICATION	OWRS-14	GREAT LAKES AGRICULTURAL NPS DEMONSTRATION PROJECT	OWRS/CSO ANNE WEINBERG 382-7107	FEDERAL FUNDING	11/86	SUPPORTS NASDA THROUGH A COOPERATIVE AGREEMENT TO DOCUMENT AGRICULTURAL NONPOINT SOURCE SUCCESS STORIES IN THE GREAT LAKES REGION; INCLUDES REPORT ON A MULTI-COUNTY STRATEGY TO PROTECT GROUND WATER FROM NONPOINT SOURCES IN MINNESOTA.
FERTILIZER APPLICATION	OWRS-15	WORKSHOP ON CONSERVATION TILLAGE	OWRS/CSO ANNE WEINBERG 382-7107	STUDY	1987	PUBLISHES FINDINGS OF A WORKSHOP THAT EXAMINED WHETHER INCREASED USE OF PESTICIDES AND FERTILIZERS WITH CONSERVATION TILLAGE CONTRIBUTES TO GROUND-WATER CONTAMINATION.
FERTILIZER APPLICATION	RO4- 1	AGRICULTURAL CHEMICALS PROJECTS	REGION IV/GWPB JIM KUTZMAN FTS 257-3886	STUDY	IN PROGRESS	INCLUDES SEVERAL PROJECTS: A SPECIAL STUDY WITH USDS IN SW GEORGIA IN A RECHARGE AREA WITH EXTENSIVE USAGE OF AGRICULTURAL CHEMICALS; INFORMATION-GATHERING CONTACTS WITH USDA; AND A COOPERATIVE EFFORT WITH ORD ON AGRICULTURAL CHEMICALS IN GROUND WATER.

GROUND-WATER ACTIVITIES SURVEY				
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY
DE-ICING	DMRS- 7	TRANSPORTATION INDUSTRY	DMRS/ITD BOB SOUTHWORTH 382-7150	STUDY
				STATUS
				7/87
				SUMMARY
				ANALYZES PROCESSES USED TO CLEAN TRANSPORTATION EQUIPMENT (INCLUDING DE-ICING OF AIRCRAFT) TO DETERMINE THE NEED FOR RUNOFF CONTROLS.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
URBAN RUN OFF	OWRS-10	NATIONWIDE URBAN RUNOFF PROGRAM	OWRS/CSD DENNIS ATHAYDE 382-7112	STUDY	1/84	ADDRESSES URBAN RUNOFF IMPACTS AT 30 SITES NATIONWIDE. GROUND-WATER CONTAMINATION IS ADDRESSED IN TWO PROJECTS AT FRESNO, CA, AND LONG ISLAND, NY.
URBAN RUN OFF	ROB- 2	FRISCO STORM WATER CONTROL/GROUND-WATER MONITORING PROJECT	REGION VIII/DGW JIM DUNN FTS 564-1446	FEDERAL FUNDING	5/87	DETERMINES FATE OF BOTH PHOSPHORUS AND OTHER URBAN RUNOFF POLLUTANTS AS THEY ENTER GROUND WATER AND PASS THROUGH THE SOIL MATRIX; EXAMINES EFFECT ON GROUND-WATER DRINKING WATER SUPPLIES.
URBAN RUN OFF	ROB- 4	PRELIMINARY STUDY OF EFFECTS OF STORM WATER INJECTION BY CLASS V WELLS	REGION VIII/DGW DICK LONG FTS 564-1542	FEDERAL FUNDING	IN PROGRESS	CHARACTERIZES THE PRECIPITATION/RUNOFF RELATIONSHIP AND THE RESULTING QUALITY AND LOADING DERIVED FROM THE URBAN AND RESIDENTIAL AREAS; EXAMINES RESULTING CHANGES IN GROUND-WATER QUALITY AT TWO SITES.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
MINING	OAR-13	EFFECTS OF PHOSPHATE MINERALIZATION AND THE PHOSPHATE INDUSTRY ON RADIUM-226 IN GROUND WATER OF CENTRAL FLORIDA	OAR/CSD JOHN RUSSELL 475-9820	MONITORING	1977	ANALYZES GROUND-WATER SAMPLES TAKEN FROM AREAS OF MAJOR PHOSPHATE MINING AND BENEFICATION ACTIVITIES; RECOMMENDS ADDITIONAL MONITORING AND TECHNICAL STUDIES TO IMPROVE WATER AND LAND MANAGEMENT.
MINING	OAR-14	GROUND-WATER QUALITY IMPACTS OF URANIUM MINING AND MILLING IN THE GRANTS MINERAL BELT, NEW MEXICO	OAR/CSD JOHN RUSSELL 475-9820	STUDY	1975	ASSESSES IMPACTS OF WASTE DISCHARGES ON GROUND WATER; EVALUATES ADEQUACY OF COMPANY MONITORING PROGRAMS; DETERMINES COMPOSITION OF POTABLE WATERS AT URANIUM MINES AND MILLS; RECOMMENDS IMPROVEMENTS TO INDUSTRY-SPONSORED MONITORING AND MINING PRACTICES.
MINING	ORD-27	MINING WASTE STUDIES	ORD JACK HUBBARD FTS 684-7507	STUDY	IN PROGRESS	SUPPORTS THE DEVELOPMENT OF MINING WASTE REGULATIONS BY STUDIES ON POLLUTION CONTROL.
MINING	OSW-28	SUBTITLE D REGULATION OF MINING WASTES	OSW/WMD DON DERKICS 382-3345	REGULATION	8/88	WILL BRING MINE WASTES UNDER RISK-BASED REGULATORY SYSTEM WITH SPECIFIC CRITERIA.
MINING	OWRS-3	EFFLUENT GUIDELINES FOR COAL MINING (REVISION)	OWRS/ITD SUSAN DUNAGY 382-7141	REGULATION	10/85	REVISES EFFLUENT GUIDELINES PROMULGATED FOR SURFACE AND UNDERGROUND COAL MINES.
MINING	OWRS-11	COAL MINING NONPOINT SOURCE PROGRAM	OWRS/CSD BOB THOMPSON 382-7104	INTERAGENCY	ONGOING	DEVELOPS MOUS WITH VARIOUS DEPARTMENT OF INTERIOR OFFICES TO CONTROL MINING NONPOINT SOURCES AFFECTING SURFACE AND GROUND-WATER SPECIFIC AREAS; SEVERAL REPORTS PUBLISHED OVER PAST 10 YEARS DISCUSS GROUND-WATER CONTAMINATION.
MINING	ROB-3	REGION VIII MINE WASTE TEAM ACTION PLAN	REGION VIII/WMD ROB WALLINE FTS 564-1588	POLICY	9/86	PROMOTES REDUCTION OF ENVIRONMENTAL DEGRADATION AND PUBLIC EXPOSURE TO HEALTH-THREATENING CONTAMINANTS FROM MINING WASTE RELEASES AT CERCLA OR OTHER SITES.

SOURCE	ID/LEAD OFFICE	TITLE	GROUND-WATER ACTIVITIES SURVEY			SUMMARY
			CONTACT	TYPE OF ACTIVITY	STATUS	
NATURAL LEACHING	0AR- 8	NATIONWIDE OCCURRENCE OF RADON AND OTHER NATURAL RADIOACTIVITY IN PUBLIC WATER SUPPLIES	0AR/CSD JOHN RUSSELL 475-9820	MONITORING	10/85	SAMPLES GROUND-WATER SUPPLIES AND ANALYZES FOR RADON, GROSS ALPHA, GROSS BETA, RA-226, RA-228, TOTAL RADIUM, U-234, U-238, TOTAL URANIUM, AND U-234/238 RATIOS.
NATURAL LEACHING	ORD-12	METHODS TO DETERMINE THE IMPACT OF GEOLOGY ON GROUND-WATER QUALITY	ORD JIM BASILICO 382-2583	STUDY	IN PROGRESS	DEVELOPS TECHNIQUES FOR DETERMINING THE IMPACT OF GEOLOGY, INCLUDING THE IMPACT OF SURFACE DEVELOPMENT AND WATER, ON GROUND-WATER QUALITY; DEVELOPS METHODS FOR DETECTING GEOLOGICAL AREAS WITH NATURALLY OCCURRING CONTAMINANTS.

GROUND-WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
SALT WATER INTRUSION	OPA - 8	EFFECTS OF CLIMATE CHANGE ON HYDROLOGIC CONDITIONS	OPA JIM TITUS 382-7821	STUDY	IN PROGRESS	CONSISTS OF A SERIES OF STUDIES THAT EXAMINE GLOBAL WARMING PATTERNS DUE TO INCREASED CARBON DIOXIDE. TWO HYDROLOGICAL IMPACTS DISCUSSED ARE SALT WATER INTRUSION INTO FRESH WATER AQUIFERS DUE TO A RISE IN SEA LEVEL AND DESALINATION AND REDUCTION IN GROUND WATER LEVELS AS A RESULT OF CHANGING RAINFALL PATTERNS.

GROUND WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
ABANDONED WASTE SITE	OAR- 7	HAZARD ASSESSMENT--SUPERFUND SUPPORT	OAR BILL GUNTER 475-9630	GUIDANCE	IN PROGRESS	ASSISTS IN ACCIDENT, INCIDENT, AND ASSESSMENT MONITORING AT SUPERFUND SITES HAVING RADIOACTIVE CONTAMINATION. EVALUATES ALL POTENTIAL PATHWAYS TO MAN, INCLUDING DRINKING WATER.
ABANDONED WASTE SITE	OECM- 2	DEVELOPMENT AND MANAGEMENT OF RCRA AND CERCLA ENFORCEMENT CASES	OECM CHERYL WASSEMAN 382-7550	ENFORCEMENT	ONGOING	DEVELOPS CIVIL JUDICIAL CASES FOR VIOLATIONS OF RCRA AND CERCLA REGULATIONS, INCLUDING FAILURE TO ADEQUATELY MONITOR THE GROUND WATER. INCLUDES PREPARING AND NEGOTIATING CASES THROUGH REFERRAL TO THE DEPARTMENT OF JUSTICE.
ABANDONED WASTE SITE	OERR- 2	DRAFT SUPERFUND EXPOSURE ASSESSMENT MANUAL	OERR MIKE KOSAKOWSKI 382-6611	GUIDANCE	1/86	PROVIDES FRAMEWORK FOR ASSESSING HUMAN EXPOSURE FROM CONTAMINANTS AT SUPERFUND SITES; COVERS ANALYSIS OF CONTAMINANTS, DETERMINATION OF FATE, AND EVALUATION OF NATURE AND MAGNITUDE OF HUMAN POPULATION EXPOSURE.
ABANDONED WASTE SITE	OERR- 3	CERCLA COMPLIANCE POLICY MANUAL	OERR/PAS STEPHEN SMITH 382-2200	GUIDANCE	6/87	PROVIDES GUIDANCE FOR IMPLEMENTING EPA POLICY ON COMPLIANCE OF CERCLA REMEDIAL ACTIONS WITH THE REQUIREMENTS OF OTHER FEDERAL ENVIRONMENTAL AND PUBLIC HEALTH STATUTES.
ABANDONED WASTE SITE	OERR- 4	CERCLA REMEDIAL ACTIONS AND NEPA/ETIS FUNCTIONAL EQUIVALENCY	OERR DICK HYDE 475-8334	GUIDANCE	N/A	PROVIDES GUIDANCE ON SUPERFUND/DFA INTERACTION TO ENSURE THAT REVIEWS FOR REMEDIAL ACTION MEET FUNCTIONAL EQUIVALENCY REQUIREMENTS OF NEPA.
ABANDONED WASTE SITE	OERR- 5	EMERGENCY RESPONSE CLEANUP SERVICES CONTRACTS	OERR/ERO LINDA GARCZYNSKI 382-2668	RESPONSE	ONGOING	PROVIDES SERVICES TO CLEAN UP CONTAMINATION AT FEDERALLY FUNDED REMOVAL SITES.
ABANDONED WASTE SITE	OERR- 6	SUPERFUND REMOVAL PROCEDURES--REVISION #3	OERR/ERO SHERRY HARKINS 382-5650	GUIDANCE	1/87	PROVIDES PROCEDURES FOR PLANNING AND CONDUCTING REMOVAL ACTIONS; INCLUDES AN APPROACH FOR DETERMINING THE TYPE AND EXTENT OF THREAT AND FOR SELECTING AN APPROPRIATE RESPONSE ACTION.
ABANDONED WASTE SITE	OERR- 7	ACTION LEVELS FOR DRINKING WATER CONTAMINATION INCIDENTS UNDER THE NEW NATIONAL CONTINGENCY PLAN	OERR/ERO HANS CRUMP 382-2188	RESPONSE	12/86	DISCUSSES SIX OPTIONS FOR SETTING AN ACTION LEVEL AT WHICH TO INITIATE RESPONSE AT SITES WITH DRINKING WATER CONTAMINATION.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
ABANDONED WASTE SITE	DERR-8	REPORTABLE QUANTITIES (40 CFR 302)	DERR/ERD JOHN RILEY 382-2190	REGULATION	9/86 FINAL 12/86 PROPOSED	REQUIRES RELEASES OF DESIGNATED SUBSTANCES TO REPORT TO THE FEDERAL GOVERNMENT THOSE RELEASES THAT EXCEED A SPECIFIED THRESHOLD; EFFORTS ARE UNDERWAY TO EXPAND THE REQUIREMENTS TO INCLUDE POTENTIAL CARCINOGENS, CHRONICALLY TOXIC SUBSTANCES, RADIOISOTOPES, AND AIR TOXICANTS. 717 SUBSTANCES WILL HAVE RULES PROMULGATED.
ABANDONED WASTE SITE	DERR-9	TECHNICAL ASSISTANCE TEAM (TAT) CONTRACTS	DERR/ERD LINDA GARCZYNSKI 382-2688	RESPONSE	ONGOING	INCLUDES HYDROGEOLOGIC INVESTIGATIONS TO IDENTIFY CONTAMINATION AT SUPERFUND INCIDENTS AND TECHNICAL SUPPORT DURING RESPONSE.
ABANDONED WASTE SITE	DERR-11	NATIONAL PRIORITIES LIST (40CFR 300.66)	DERR/HSCD JANE METCALF 382-7383	REGULATION	UPDATE DUE 12/86	IDENTIFIES THOSE HAZARDOUS WASTE SITES THAT POSE THE MOST POTENTIAL RISK TO HUMAN HEALTH AND THE ENVIRONMENT; THE PREPAREDNESS OF SITES LISTED ON THE NPL HAVE GROUND WATER CONTAMINATION.
ABANDONED WASTE SITE	DERR-12	REMEDIAL CONTRACTS	DERR/HSCD STEVE MOOPER 382-2640	RESPONSE	ONGOING	INCLUDES PRELIMINARY ASSESSMENTS, SITE INSPECTIONS, REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES THAT CHARACTERIZE THE EXTENT OF CONTAMINATION IN GROUND WATER AND ALL OTHER MEDIA AND ESTABLISH CLEANUP MEASURES.
ABANDONED WASTE SITE	DERR-13	STATE PARTICIPATION IN THE SUPERFUND REMEDIAL PROGRAM	DERR/HSCD JAN WINE 382-2455	GUIDANCE	ONGOING	DISCUSSES POLICIES AND PROCEDURES FOR STATE PARTICIPATION IN ALL PHASES OF CLEANUP.
ABANDONED WASTE SITE	DERR-14	INTERIM PROCEDURES FOR DELETING SITES FROM THE NATIONAL PRIORITIES LIST	DERR/HSCD STEVE GOLIAN 475-6703	GUIDANCE	6/86	GUIDANCE FOR DETERMINING WHETHER SITE CLEANUP HAS BEEN SUFFICIENTLY ADEQUATE TO DELETE THE SITE FROM NPL.
ABANDONED WASTE SITE	DERR-15	DRAFT SITE INSPECTION SAMPLING STRATEGY TO SUPPORT HAZARD RANKING SYSTEM SCORING	DERR/HSCD LUCY STEBOLD 382-2454	GUIDANCE	1/86	PROVIDES SITE INSPECTION TEAM WITH TECHNICAL GUIDANCE ON HOW TO DEVELOP A SAMPLING PLAN, INCLUDING THE SELECTION OF SAMPLING POINTS.
ABANDONED WASTE SITE	DERR-16	HAZARD RANKING SYSTEM (NCP APPENDIX A)	DERR/HSCD STEVE CALDWELL 475-4604	REGULATION	REVISION DUE 4/88	EVALUATES RISKS FROM MULTI-MEDIA PATHWAYS OF CONTAMINATION AND SERVES AS THE BASIS FOR SELECTING SITES FOR THE NATIONAL PRIORITIES LIST.
ABANDONED	DERR-17	GUIDANCE ON REMEDIAL INVESTIGATIONS	DERR/HSCD	GUIDANCE	6/85	PROVIDES TECHNICAL AND PROCEDURAL

GROUND WATER ACTIVITIES SURVEY						
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WASTE SITE		UNDER CERCLA	STEVE GOLIAN 475-6703			INFORMATION ON HOW TO CONDUCT REMEDIAL INVESTIGATIONS THAT CHARACTERIZE THE GROUND WATER AND OTHER CONTAMINANT PROBLEMS AT THE SITE.
ABANDONED WASTE SITE	OERR-18	GUIDANCE ON FEASIBILITY STUDIES UNDER CERCLA	OERR/HSCD STEVE GOLIAN 475-6703	GUIDANCE	6/85	PROVIDES GUIDELINES FOR DEVELOPING AND EVALUATING ALTERNATIVE CLEANUP ACTIONS AT SITES ON THE NATIONAL PRIORITIES LIST.
ABANDONED WASTE SITE	OERR-19	GUIDANCE DOCUMENT FOR CLEANUP OF SURFACE IMPOUNDMENTS	OERR/HSCD ED BARTH 382-7888	GUIDANCE	8/86	PROVIDES APPROACH TO CONDUCTING LIMITED REMEDIAL INVESTIGATIONS FOR SURFACE IMPOUNDMENTS.
ABANDONED WASTE SITE	OERR-20	MULTIPLE SOURCE GROUND-WATER STRATEGY	OERR/HSCD BILL HANSEN	STRATEGY	IN PROGRESS	PROVIDES OVERVIEW OF EPA'S APPROACH TO UNDERTAKING A SUPERFUND CLEANUP IN RESPONSE TO GROUND WATER CONTAMINATION ATTRIBUTABLE TO MULTIPLE SOURCES.
ABANDONED WASTE SITE	OERR-21	DRAFT GROUND-WATER DECISION GUIDANCE FOR SUPERFUND SITES	OERR/HSCD ED BARTH 382-7888	GUIDANCE	9/86	PROVIDES OVERVIEW OF DECISION MAKING APPROACH FOR GROUND WATER SITUATIONS.
ABANDONED WASTE SITE	OERR-22	GUIDANCE DOCUMENT FOR PROVIDING ALTERNATE WATER SUPPLIES	OERR/HSCD RANDY KAL TREIDER 382-2448	GUIDANCE	FY87	ESTABLISHES GUIDANCE FOR PROVIDING ALTERNATE WATER SUPPLY TO USERS OF A SYSTEM CONTAMINATED BY A SUPERFUND SITE.
ABANDONED WASTE SITE	OERR-23	FIELD OPERATIONS MANUAL	OERR STEVE MOOPER 475-6689	GUIDANCE	FY87	STANDARDIZES PROCEDURES FOR FIELD INVESTIGATION ACTIVITIES INCLUDING GROUND WATER MONITORING.
ABANDONED WASTE SITE	ORD- 5	ENGINEERING SUPPORT FOR SITE AND SITUATION ASSESSMENT	ORD JIM BASILICO 382-5747	STUDY	ONGOING	APPLIES ENGINEERING EXPERTISE TO ASSESSMENTS OF HAZARDOUS WASTE SITES [E.G., WASTE CHARACTERISTICS, HYDROLOGY, GEOLOGY, AND SOIL CHARACTERISTICS].
ABANDONED WASTE SITE	ORD- 6	EVALUATE TECHNOLOGY TO MANAGE UNCONTROLLED WASTE SITES	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	EVALUATES IMPROVED AND NEW TECHNOLOGIES FOR SHORT AND LONG-TERM ACTIONS TO CLEAN UP SPILLS AND NEWLY DISCOVERED RELEASES OF HAZARDOUS SUBSTANCES FROM UNCONTROLLED WASTE SITES.
ABANDONED WASTE SITE	ORD- 7	PREVENT AND CONTAIN HAZARDOUS MATERIAL RELEASES	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	ADAPTS INDUSTRIAL TECHNOLOGIES IN ORDER TO IMPROVE THE PREVENTION AND CONTROL OF GROUND WATER CONTAMINATION AND OTHER POLLUTION.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	IO/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
ABANDONED WASTE SITE	ORD-8	SPECIAL BIODEGRADATION PROCESSES FOR DETOXIFYING CONTAMINATED SOILS	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	DEVELOPS AND EVALUATES BIOLOGICAL METHODS TO DESTROY OR DETOXIFY CHEMICALS IN SOILS AND THUS PREVENT LEACHING TO GROUND WATER.
ABANDONED WASTE SITE	ORD-10	DETERMINATION OF WASTE MOBILITY BY THE USE OF MICRODOSING	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	EVALUATES SOIL PROFILE AND ADJUTER MICRODOSING FOR THEIR CAPACITY TO PREDICT HAZARDOUS WASTE MOVEMENT; COMPARES RESULTS WITH FIELD VERIFICATION STUDIES.
ABANDONED WASTE SITE	ORD-18	GEOPHYSICAL SURVEYS OF HAZARDOUS WASTE SITES	ORD JIM BASILICO 382-5747	MONITORING	IN PROGRESS	DEVELOPS AN IMPROVED ELECTROMAGNETIC INDUCTION INSTRUMENT, EVALUATES SURFACE AND BOREHOLE GEOPHYSICAL TECHNIQUES, AND EVALUATES THE CAPABILITY OF SEISMIC REFLECTION TECHNIQUES TO DETERMINE SUBSURFACE LATERAL GEOLOGICAL NON HOMOGENEITIES.
ABANDONED WASTE SITE	ORD-19	UNSATURATED ZONE MONITORING FOR HAZARDOUS WASTE SITES	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	EVALUATES AGRICULTURAL EQUIPMENT AND METHODS FOR MONITORING IN THE VADOSE ZONE TO DETECT LEACHING AND PENETRATION OF POLLUTANTS FROM HAZARDOUS WASTES.
ABANDONED WASTE SITE	ORD-21	DOWNHOLE SENSING FOR HAZARDOUS WASTE SITE MONITORING	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	DESIGNS, BUILDS, MODIFIES, AND EVALUATES SENSING DEVICES AND METHODS USED TO OBTAIN HYDROLOGIC DATA FROM MONITORING WELLS AT HAZARDOUS WASTE SITES.
ABANDONED WASTE SITE	ORD-25	PRACTICAL STRATEGY FOR ORGANIC PLUME ASSESSMENT	ORD JIM BASILICO 382-5747	STUDY	IN PROGRESS	INCLUDES SURVEYS AT CONTAMINATED AIR FORCE BASES AND SYNTHESIZES EXPERIENCE GAINED INTO A STRATEGY FOR LOCATING ORGANIC CONTAMINATION.
ABANDONED WASTE SITE	OSR-1	ASSESSING CONTAMINATION FROM A SUPERFUND SITE	OSR/CSPO JOHN WARREN 382-2680	STUDY	10/87	EXAMINES THE APPLICABILITY OF STATISTICAL SAMPLING PROTOCOLS FOR ASSESSING CONTAMINATION LEVELS AT CERCLA SITES.
ABANDONED WASTE SITE	OSR-2	STATISTICS AND CERCLA GROUND-WATER CONTAMINATION	OSR/CSPO JOHN WARREN 382-2680	STUDY	6/87	EXAMINES THE PERFORMANCE OF SEVERAL STATISTICAL METHODOLOGIES AT CERCLA SITES HAVING WIDELY DISPARATE CONTAMINATION PROFILES; USES ACTUAL DATA TO TEST THEORETICAL TECHNIQUES FOR ASSESSING THE MAGNITUDE AND EXTENT OF GROUND WATER CONTAMINATION.
ABANDONED	OSWER-7	PROCEDURES FOR PLANNING AND	OSWER	GUIDANCE	5/85	PROVIDES PROCEDURES FOR DETERMINING WHEN

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
WASTE SITE		IMPLEMENTING OFF-SITE RESPONSE ACTIONS	MIKE KILPATRICK 382 4835			TO SEND SUPERFUND WASTE OFF-SITE FOR DISPOSAL OR TREATMENT AND HOW TO IDENTIFY AND SELECT AN APPROPRIATE HLRA FACILITY.
ABANDONED WASTE SITE	OSWER- 8	MEMORANDA OF UNDERSTANDING WITH FEDERAL AGENCIES	OSWER JIM JOWETT 382-2205	INTERAGENCY	ONGOING	ESTABLISHES EACH AGENCY'S RESPONSIBILITY FOR HELPING EPA CLEAN UP CONTAMINATION OF THE GROUND WATER AND OTHER MEDIA OR PREVENT HUMAN EXPOSURE TO THE CONTAMINATION.
ABANDONED WASTE SITE	OWPE-- 3	CORRECTIVE ACTION ORDER GUIDANCE	OWPE/RED MARK GIBERSON 382-4848	GUIDANCE	COMPLETE	PROVIDES GUIDANCE TO REGIONS IN WRITING CORRECTIVE ACTION ORDERS FOR RCHA FACILITIES THAT CONTAMINATE THE GROUND WATER.
ABANDONED WASTE SITE	OWPE- 6	DRAFT INTERIM MEASURES GUIDANCE	OWPE/RED JACKIE MOYA 382-3122	GUIDANCE	5/86	DESCRIBES THE CONDITIONS UNDER WHICH ENFORCEMENT ACTION SHOULD REQUIRE INTERIM MEASURES TO REMOVE OR SLOW THE SPREAD OF CONTAMINATION OF ENVIRONMENTAL MEDIA, INCLUDING GROUND WATER.
ABANDONED WASTE SITE	RDS- 1	UPPER LAKES CONNECTING CHANNELS STUDY--GROUND-WATER COMPONENT	REYDON V/OSW GERI ANNE GARL FTS 886-1480	RESPONSE	1987	IDENTIFIES POTENTIAL WASTE AND CHEMICAL SITES ALONG THE CORRIDOR OF CHANNELS; RANKS SITES ACCORDING TO THE AMOUNT OF GROUND WATER CONTAMINATION RELEASED TO THE CHANNELS; SUPPORTS PREPARATION OF A REMEDIAL ACTION PLAN.

GROUND WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
NUCLEAR	OAR- 4	RADIOLOGICAL ACCIDENT AND INCIDENT ASSESSMENT MONITORING (EMERGENCY RESPONSE)	OAR JOHN RUSSELL 475-9820	TECHNICAL ASSISTANCE	ONGOING	INSTRUCTS DECISION MAKERS ON HOW TO USE MONITORING INFORMATION TO ESTIMATE HUMAN CHRONIC EXPOSURE FROM THE ACCIDENTAL RELEASES AND TO DECIDE ON THE NEED TO DIVERT WATER SUPPLIES.
NUCLEAR	OAR- 5	PROTECTIVE ACTION GUIDANCE FOR NUCLEAR INCIDENTS	OAR JOHN RUSSELL 475-9820	GUIDANCE	N/A	ASSISTS FEDERAL AGENCIES AND THE STATES IN ENVIRONMENTAL MONITORING, RISK ASSESSMENT, PROTECTIVE ACTION DECISIONS, AND ENSURING THE SAFETY OF THE PUBLIC; INCLUDES ASSISTING IN THE ASSESSMENT OF GROUND-WATER CONTAMINATION.
NUCLEAR	OAR- 9	ENVIRONMENTAL RADIATION PROTECTION STANDARDS FOR NUCLEAR POWER OPERATIONS	OAR/CSD JOHN RUSSELL 475-9820	REGULATION	1/77	SPECIFIES LEVELS BELOW WHICH NORMAL OPERATIONS OF THE URANIUM FUEL CYCLE ARE DETERMINED TO BE ENVIRONMENTALLY ACCEPTABLE.

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
					SUMMARY
MULTIPLE	DECH- 3	DEVELOPMENT OF CRIMINAL ENFORCEMENT CASES	DECH CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING
					DEVELOPS CRIMINAL CASES UNDER RCRA, CERCLA, SARA, AND FIFRA FOR VIOLATIONS, INCLUDING CONTAMINATION OF GROUND WATER.
MULTIPLE	DECH- 4	SUPPORT FOR CRIMINAL ENFORCEMENT ACTIONS	DECH CHERYL WASSERMAN 382-7550	ENFORCEMENT	ONGOING
					PROVIDES TECHNICAL SUPPORT FOR DEVELOPING CRIMINAL ENFORCEMENT ACTIONS; INCLUDES MONITORING AND TESTING GROUND WATER AND GATHERING EVIDENCE OF WILLFUL CONTAMINATION.
MULTIPLE	OFA- 2	FEDERAL FACILITIES COMPLIANCE PROGRAM	OFA/FFCB LEE HERWIG JR. 382-5808	REVIEW	ONGOING
					PROMOTES FEDERAL FACILITIES COMPLIANCE WITH APPLICABLE ENVIRONMENTAL STATUTES AND REGULATIONS; ENCOMPASSES A RANGE OF GROUND-WATER RELATED CONCERNS, ESPECIALLY COMPLIANCE WITH THE GROUND-WATER MONITORING REQUIREMENTS UNDER SUBTITLE C OF RCRA.
MULTIPLE	OSM- 9	STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE	OSM/CAO BOB AXELRAD 382-5218	REGULATION	3/88
					IMPOSES MANAGEMENT, WASTE TESTING, AND PAPERWORK STANDARDS ON GENERATORS OF HAZARDOUS WASTE.
MULTIPLE	OSWER- 1	CHEMICAL EMERGENCY PREPAREDNESS PROGRAM--INTERIM GUIDANCE	OSWER ELAINE DAVIES JIM MACKRIS 475-8323	GUIDANCE	11/85
					HELPS COMMUNITIES PREPARE FOR SERIOUS CHEMICAL ACCIDENTS; RESCUE PLANS.
MULTIPLE	OWP- 1	OWA SECTION 404 DREDGE AND FILL PROGRAM	OWP JOHN REAGHER 382-5043	REGULATION	ONGOING
					INCLUDES AUTHORITY FOR EPA TO DENY OR RESTRICT DISCHARGE OF DREDGED OR FILL MATERIAL IF THAT ACTIVITY WILL HAVE ADVERSE IMPACTS ON MUNICIPAL WATER SUPPLIES, SHELLFISH BEDS AND FISHERY AREAS; DEVELOPS AND USES GUIDELINES TO EVALUATE A BROAD RANGE OF ENVIRONMENTAL IMPACTS, INCLUDING THOSE IN WATER SUPPLIES.

GROUND WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
RESOURCE-BASED	OFA- 1	ENVIRONMENTAL REVIEW PROGRAM	OFA/FALD BILL DICKERSON 382-5049	REVIEW	ONGOING
RESOURCE-BASED	OGWP-10	MANAGEMENT PROTECTION PLANS	OGWP MURBERT DEE 382-7077	GUIDANCE	6/87
RESOURCE-BASED	OGWP-11	SOLE SOURCE AQUIFER PROGRAM	OGWP LEE BRAEM 382-7077	REVIEW	ONGOING
RESOURCE-BASED	ONEP- 1	NEAR COASTAL WATER STRATEGIC PLANNING INITIATIVE	ONEP KATHERINE MINSCH 382-7166	STRATEGY	1987
RESOURCE-BASED	ONEP- 2	NATIONAL ESTUARIES PROGRAM	ONEP KATHERINE MINSCH 382-7166	PLANS	ONGOING
RESOURCE-BASED	OPA- 3	COMPARATIVE RISK ANALYSIS OF GROUND-WATER CONTAMINATION SOURCES	OPA/RID HOPE PILLSBURY 382-2704	STUDY	1986
RESOURCE-BASED	OSR- 3	INNOVATIVE RESPONSES TO NONPOINT SOURCES OF GROUND-WATER CONTAMINATION - PHASE 1	OSR BRENNAN DOYLE 382-5604	STUDY	IN PROGRESS
SUMMARY					EXAMINES AND EVALUATES PROPOSED PROJECTS TO IDENTIFY AND MITIGATE ENVIRONMENTAL IMPACTS. ENSURES EPA POLICIES, REGULATORY RESPONSIBILITIES AND ENVIRONMENTAL EXPERTISE ARE IMPLEMENTED. PROVIDES GUIDANCE FOR PREPARING COMPREHENSIVE MANAGEMENT PLANS FOR CRITICAL AQUIFER PROTECTION AREAS AND ELEMENTS OF A STATE WELHEAD PROTECTION PROGRAM; IDENTIFIES MEASURES AND TECHNIQUES THAT STATES, LOCALITIES, AND OTHERS HAVE FOUND USEFUL IN PROTECTING GROUND WATER. PROVIDES FOR SSA DESIGNATION AND REVIEW OF FEDERAL PROJECTS IN SOLE SOURCE AQUIFERS (SSA). SUMMARIZES DEGRADATION PROBLEMS IN NEAR COASTAL WATERS AND DEVELOPS PROGRAMMATIC OPTIONS TO DEAL WITH NEAR COASTAL WATER CONTAMINATION PROBLEMS. DEVELOPS MANAGEMENT STRATEGIES FOR ESTUARIES SUCH AS BUZZARD BAY, MARGANSETT BAY, LONG ISLAND SOUND, PUGET SOUND, SAN FRANCISCO BAY AND ALBEMARLE-PANICO SOUND; IDENTIFIES WHETHER GROUND WATER CONTAMINATION IS A PROBLEM. USES OSW'S LINER LOCATION MODEL AS A FRAMEWORK FOR COMPARING THE POTENTIAL INDIVIDUAL HUMAN HEALTH RISK FROM VARIOUS SOURCES IN A VARIETY OF CLIMATES AND HYDROGEOLOGIC SETTINGS; PROVIDES A WAY TO SET ACTION PRIORITIES BETWEEN SOURCE TYPES. EVALUATES SEVERAL MANAGEMENT APPROACHES TO PREVENT NONPOINT SOURCE GROUND WATER CONTAMINATION. INVESTIGATED PESTICIDE APPLICATION, SALT WATER INTRUSION, IRRIGATION, AND DE ICING. WILL RESULT IN A SERIES OF CASE STUDIES/DEMONSTRATION PRODUCTS OVER THE

GROUND WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
RESOURCE-BASED	OTS- 2	GUIDELINES FOR GROUND-WATER ASSESSMENTS FOR PNM CHEMICALS	OTS/EDD KAREN HAMMERSTROM 382-3822	GUIDANCE	11/86	NEXT SEVERAL YEARS. ESTABLISHES GUIDELINES FOR INTEGRATING GROUND WATER CONCERNS INTO NEW AND EXISTING CHEMICAL PROGRAMS; ADDRESSES MANY SOURCES INCLUDING SPILLS, INJECTION WELLS, AND LAND APPLICATION.
RESOURCE-BASED	OWRS-16	DESIGNING A TARGETED NPS IMPLEMENTATION PROGRAM	OWRS/CSD ANNE WEINBERG 382-7107	GUIDANCE	IN PROGRESS	DISCUSSES HOW TO DESIGN A TARGETED NPS IMPLEMENTATION PROGRAM TO PROTECT BOTH PRIORITY SURFACE AND GROUND WATER RESOURCES (UNDER A COOPERATIVE AGREEMENT WITH NC STATE UNIVERSITY).
RESOURCE BASED	RD1- 1	CAPE COD AQUIFER MANAGEMENT PROJECT	REGION 1/OWW BRUCE ROSINOFF FTS 835-3801	STUDY	9/87	IMPROVES INTERGOVERNMENTAL COORDINATION OF GROUND WATER MANAGEMENT THROUGH THREE WORK GROUPS; EXAMINES IMPROVEMENTS IN PROTECTION PROGRAMS AND DATA MANAGEMENT; REVIEWS METHODS FOR DETERMINING THE ZONE OF CONTRIBUTION FOR PUBLIC WATER SUPPLY WELLS
RESOURCE-BASED	RD3- 3	GROUND WATER CONTAMINATION INCIDENT COMPENDIUM	REGION 111/OWW TOM MERSKI FTS 587-2786	STUDY	8/86	COMPILES HISTORICAL INCIDENTS OF GROUND WATER CONTAMINATION, CREATES AND PERIODICALLY UPDATES AN AUTOMATED DATA BASE.
RESOURCE BASED	RD5- 3	GRAND CALUMET MASTER PLAN - GROUND WATER COMPONENT	REGION V/OWW BILL MELVILLE FTS 886-1480	PLAN	7/86	ASSESSES REGIONAL GROUND WATER FLOW REGIME AND CONTAMINANT TRANSPORT POTENTIAL TO DETERMINE THE GROUND WATER CONTRIBUTION TO THE TOTAL TOXIC LOAD TO THE GRAND CALUMET RIVER BASIN.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
POLICY AND SCIENTIFIC SUPPORT	OGWP-14	CLEAN WATER ACT 106 GRANTS	OGWP SAUL ROSSOFF 382-7077	GRANT	ONGOING	PROVIDES FUNDS TO STATES TO DEVELOP AND IMPLEMENT GROUND-WATER PROTECTION PROGRAMS.
POLICY AND SCIENTIFIC SUPPORT	OGWP- 1	NATIONAL PRIMARY DRINKING WATER REGULATIONS	OGWP/CSO SUSAN GOLDHABER 382-7583	REGULATION	10/86	ESTABLISHES MONITORING AND REPORTING REQUIREMENTS FOR VOLCS; WILL EXPAND TO INCLUDE PMLCS, MCLs AND MONITORING REQUIREMENTS FOR RADIOACTIVE ISOTOPES, INORGANIC AND ORGANIC CONTAMINANTS, MICROBIOLOGICAL CONTAMINANTS, TURBIDITY, AND DISINFECTION AND BYPRODUCTS.
POLICY AND SCIENTIFIC SUPPORT	OGWP- 2	HEALTH ADVISORIES	OGWP/CSO SUSAN GOLDHABER 382-7583	GUIDANCE	ONGOING	PROVIDES GUIDANCE ON ACCEPTABLE LEVELS OF UNREGULATED CONTAMINANTS IN DRINKING WATER FROM SURFACE AND GROUND WATER; COVERS AVAILABLE DATA ON ANALYTICAL METHODS, TREATMENT TECHNIQUES, AND RELATIVE MAGNITUDE OF HUMAN RISK.
POLICY AND SCIENTIFIC SUPPORT	OGWP-12	COMMUNITY WATER SUPPLY SURVEYS	OGWP/CSO ARTHUR PERLER 382-3022	STUDY	1978	SAMPLES OF PUBLIC WATER SUPPLY SYSTEMS THAT USE SURFACE, GROUND WATER, OR A COMBINATION OF SOURCES IN ORDER TO DETERMINE THE INCIDENCE OF ORGANICS. SIX ACTUAL SURVEYS SINCE 1975.
POLICY AND SCIENTIFIC SUPPORT	OGWP-13	GROUND-WATER SUPPLY SURVEY	OGWP/CSO ARTHUR PERLER 382-3022	STUDY	1982	SAMPLES AND ANALYSES OF 945 GROUND WATER SUPPLIES TO DETERMINE THE OCCURRENCE OF VOLATILE ORGANIC COMPOUNDS.
POLICY AND SCIENTIFIC SUPPORT	OGWP-14	NATIONAL ORGANIC MONITORING SURVEY	OGWP/CSO ARTHUR PERLER 382-3022	STUDY	1975	DETERMINES THE PRESENCE AND FREQUENCY OF SPECIFIC CONTAMINANTS IN DRINKING WATER SUPPLIES; USED TO SUPPORT REGULATORY DEVELOPMENT ACTIVITIES.
POLICY AND SCIENTIFIC SUPPORT	OGWP- 1	DRAFT SUPERFUND PUBLIC HEALTH EVALUATION MANUAL	OGWP CRAIG ZAMUDA 382-2201	GUIDANCE	12/85	PROVIDES FRAMEWORK FOR ANALYZING PUBLIC HEALTH RISKS AT SUPERFUND SITES AND FOR DEVELOPING DESIGN GOALS FOR REMEDIAL ALTERNATIVES.
POLICY AND SCIENTIFIC SUPPORT	OGWP-10	CONTRACT LABORATORY PROGRAM	OGWP/HRSD JIM VICKERY 382-7806	RESPONSE	ONGOING	ANALYZES GROUND WATER SAMPLES FROM SUPERFUND SITES.
POLICY AND SCIENTIFIC SUPPORT	OGWP- 1	GROUND-WATER PROTECTION STRATEGY	OGWP MARIAN WILAY 382-7077	STRATEGY	1984	ESTABLISHES AN EPA FRAMEWORK FOR A COORDINATED, NATIONAL APPROACH TO GROUND WATER PROTECTION; ESTABLISHES A

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
					SUMMARY
POLICY AND SCIENTIFIC SUPPORT	OSWP- 2	GUIDELINES FOR GROUND-WATER CLASSIFICATION	OSWP RON HOFFER 382-7077	GUIDANCE	SPRING '87
					DIFFERENTIAL PROTECTION POLICY FOR THREE CLASSES OF GROUND WATER.
POLICY AND SCIENTIFIC SUPPORT	OSWP- 3	GROUND-WATER MONITORING STRATEGY	OSWP NORBERT DEE 382-7077	STRATEGY	12/85
					INTRODUCES TECHNICAL DEFINITIONS AND METHODOLOGIES FOR UTILIZING THE THREE-TIERED GROUND WATER CLASSIFICATION SYSTEM DESCRIBED IN THE STRATEGY.
POLICY AND SCIENTIFIC SUPPORT	OSWP- 4	STATE GROUND-WATER PROGRAM SUMMARIES	OSWP LEE BRAEM 382-7077	STUDY	3/85
					PROVIDES A CROSS AGENCY ANALYSIS OF THE NEED FOR AND USE OF GROUND-WATER MONITORING DATA; DELINEATES OBJECTIVES OF GROUND-WATER MONITORING AND PRESENTS AN IMPLEMENTATION PLAN FOR MEETING THOSE OBJECTIVES.
POLICY AND SCIENTIFIC SUPPORT	OSWP- 5	SELECTED STATE AND TERRITORY CLASSIFICATION SYSTEMS	OSWP RON HOFFER 382-7077	REPORT	5/85
					DESCRIBES SIGNIFICANT STATE GROUND WATER CONTAMINATION PROBLEMS; AIDS OGWMP IN CARRYING OUT THE OBJECTIVE OF GROUND WATER PROTECTION STRATEGY TO STRENGTHEN STATE INSTITUTIONS.
POLICY AND SCIENTIFIC SUPPORT	OSWP- 6	GROUND-WATER DATA MANAGEMENT WITH STORET	OSWP NORBERT DEE 382-7077	GUIDANCE	3/86
					PROVIDES INFORMATION ON THE GROUND WATER CLASSIFICATION SYSTEMS OF 11 STATES AND TERRITORIES; INFORMS THE GENERAL PUBLIC OF SOME STEPS STATES ARE TAKING TO PROTECT GROUND-WATER RESOURCES.
POLICY AND SCIENTIFIC SUPPORT	OSWP- 8	HYDROGEOLOGIC CRITERIA AND GUIDANCE FOR IMPLEMENTATION OF THE SAFE DRINKING WATER ACT AMENDMENTS	OSWP RON HOFFER 382-7077	GUIDANCE REGULATION	8/87
					SUPPLEMENTS THE STORET USER'S HANDBOOK AND AIMS TO IMPROVE THE CONSISTENCY OF THE GROUND WATER DATA STORED IN STORET.
POLICY AND SCIENTIFIC SUPPORT	OSWP-13	GROUND-WATER REQUIREMENTS ANALYSIS	OSWP CARLYLE B. MILLER 382-7077	STUDY POLICY GUIDANCE	3/87
					ESTABLISHES PROCEDURES, APPRAISALS, AND DEFINITIONS FOR THE WELHEAD PROTECTION AREAS AND CRITICAL AQUIFER PROTECTION AREAS.
POLICY AND SCIENTIFIC SUPPORT	OSWP-14	CLEAN WATER ACT 106 GRANTS	OSWP SAUL ROSOFF 382-7077	GRANT	ONGOING
					DETERMINES THE INFORMATION, ANALYTIC, AND COMMUNICATION NEEDS OF VARIOUS GOVERNMENTAL UNITS THAT USE AUTOMATED DATA SYSTEMS.
					EVALUATES EXISTING INFORMATION SYSTEMS TO DETERMINE THEIR UTILITY; DEVELOPS REQUIREMENTS ANALYSIS AND A PLAN FOR IMPLEMENTING AN APPROPRIATE SYSTEM.
					PROVIDES FUNDS TO STATES TO DEVELOP AND IMPLEMENT GROUND WATER PROTECTION PROGRAMS.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
POLICY AND SCIENTIFIC SUPPORT	ORM- 1	STORED DATA SYSTEM	ORM/PSD PHIL LINDENSTRAUTH 382-7220	DATA MANAGEMENT	ONGOING	STORES AND RETRIEVES DATA INCLUDING GROUND WATER MONITORING DATA.
POLICY AND SCIENTIFIC SUPPORT	OMSE- 1	DEVELOPMENT OF GROUND-WATER QUALITY STATUS, TRENDS, AND PROGRAM EFFECTIVENESS INDICATORS	OMSP/OMSE ROBERT DEE 382-7077	POLICY	FY87	DETERMINES HOW EPA WILL TRACK PROGRESS IN PROTECTING THE NATION'S GROUND WATER; ESTABLISHES INDICATORS OF PROGRAM "PROGRESS" OR "SUCCESS"; RECOMMENDS WAYS TO MEASURE GROUND WATER QUALITY CHANGES, AND DEVELOPS PLAN FOR OBTAINING AND INTERPRETING DATA.
POLICY AND SCIENTIFIC SUPPORT	OPA- 7	DETAILED GROUND-WATER CONTAMINATION STUDIES	OPA/ERAD BRENDAN DOYLE 382-5604	STUDY	//86	ANALYZES INFORMATION ON THE COSTS AND BENEFITS OF PREVENTION, CLEANUP AT POINT OF USE, ADDITIONAL CLEANUP, AND MONITORING; DETERMINES EFFECTIVENESS OF DIFFERENT GROUND WATER PROTECTION AND MONITORING STRATEGIES.
POLICY AND SCIENTIFIC SUPPORT	OPA- 8	ECONOMIC EFFICIENCY OF TAILORED STRATEGIES FOR CONTROLLING GROUND-WATER POLLUTION	OPA BILL O'NEIL 382-5610	FEDERAL FUNDING	FY87	STUDIES ALTERNATIVE GROUND WATER MANAGEMENT STRATEGIES WHICH ADDRESS CURRENT PROBLEMS AND PREVENT FUTURE ONES.
POLICY AND SCIENTIFIC SUPPORT	OPA-11	DRINKING WATER PROGRAM ISSUES	OPA/ERAD BRENDAN DOYLE 382-5604	POLICY	12/86	ADDRESSES NON STANDARD SETTING ISSUES, SUCH AS CROSS PROGRAM IMPLICATIONS OF MOIS WITH RESPECT TO GROUND WATER CLEANUP.
POLICY AND SCIENTIFIC SUPPORT	OPA-12	INVENTORY OF DRINKING/GROUND-WATER PROTECTION STANDARDS	OPA/ERAD BRENDAN DOYLE 382-5604	STUDY	12/86	COMPILES THE DRINKING WATER STANDARDS THAT 35 STATES USE TO PROTECT GROUND WATER.
POLICY AND SCIENTIFIC SUPPORT	ORD- 4	CHEMICAL TREATMENT METHODS FOR DIOXINS AND DIBENZOFURANS	ORD JIM BASILICO 382-2538	GENERIC	IN PROGRESS	DEVELOPS AND EVALUATES METHODS FOR THE DESTRUCTION OF DIOXINS AND OTHER CHEMICALLY RELATED WASTES IN SOILS, SEDIMENTS, AND CONTAINED WASTE STREAMS.
POLICY AND SCIENTIFIC SUPPORT	ORD- 8	PREDICTION OF MICROBIAL CONTAMINANT CONCENTRATIONS	ORD JIM BASILICO 382-2538	STUDY	ONGOING	DEVELOPS AND EVALUATES MODELS THAT PREDICT THE MOVEMENT AND SURVIVAL OF VIRUSES AND PATHOGENIC BACTERIA IN GROUND WATER.
POLICY AND SCIENTIFIC SUPPORT	ORD-11	EVALUATING GROUND-WATER CONTAMINATION RISKS FROM HAZARDOUS WASTE DISPOSAL	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS	INVESTIGATES THE PROCESSES THAT GOVERN THE TRANSFORMATIONS, TRANSFORMATION, AND FATES OF HAZARDOUS WASTE CONSTITUENTS IN

GROUND-WATER ACTIVITIES SURVEY					
SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS
					SUMMARY
POLICY AND SCIENTIFIC SUPPORT	ORD-13	STANDARD SYSTEM FOR EVALUATING GROUND-WATER POLLUTION POTENTIAL USING HYDROGEOLOGIC SETTING	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					THE SUBSURFACE; EVALUATES MATHEMATICAL MODELS AND ASSESSES THEIR VALIDITY THROUGH FIELD EXPERIMENTS.
POLICY AND SCIENTIFIC SUPPORT	ORD-15	MATHEMATICAL MODELS FOR SUBSURFACE TRANSPORT AND FATE	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					DEVELOPS A PROTOCOL TO DETERMINE THE POLLUTION POTENTIAL OF ANY ADDITIONAL PORTION OF AN ADDITION IN THE UNITED STATES; INCLUDES TRAINING AND GUIDANCE ON THE USE OF THE PROTOCOL.
POLICY AND SCIENTIFIC SUPPORT	ORD-16	MOVEMENT AND PERSISTENCE OF DIOXINS IN SOILS AND GROUND WATER	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					CREATES OR MODIFIES A NUMBER OF MODELS THAT PREDICT CONCENTRATIONS OF TOXIC CHEMICALS IN THE SUBSURFACE.
POLICY AND SCIENTIFIC SUPPORT	ORD-17	PREDICTION OF CHEMICAL CONTAMINANT CONCENTRATIONS	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					DETERMINES BATCH ADSORPTION ISOTHERMS USING LABELED DIOXINS; VALIDATES TRANSPORT POTENTIAL USING UNSATURATED MICRODOSIMS.
POLICY AND SCIENTIFIC SUPPORT	ORD-20	DETECTION OF LEACHATE PLUMES IN GROUND WATER WITH GEOPHYSICS	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					EXAMINES ADSORPTION/RETARDATION OF ORGANIC CONTAMINANTS IN THE SUBSURFACE IN TERMS OF SUBSURFACE CHARACTERISTICS AND ORGANIC CHEMICAL PROPERTIES.
POLICY AND SCIENTIFIC SUPPORT	ORD-24	DETECTION OF LEACHATE IN GROUND WATER WITH GEOCHEMICAL METHODS	ORD JIM BASILICO 382-2538	STUDY	10/85
					EVALUATES AND COMPARES STATIC AND DYNAMIC SOIL GAS SAMPLING TECHNIQUES.
POLICY AND SCIENTIFIC SUPPORT	ORD-26	SPATIAL VARIABILITY GROUND-WATER QUALITY MONITORING	ORD JIM BASILICO 382-2538	STUDY	IN PROGRESS
					INVESTIGATES THE MAXIMUM ACCEPTABLE DISTANCE BETWEEN WELLS AT A LOCATION WHERE GEOLOGIC AND HYDROLOGIC VARIABILITY ARE KNOWN TO BE LOW.
POLICY AND SCIENTIFIC SUPPORT	OSR- 5	FEES FOR APPLICATION OF AGRICULTURAL CHEMICALS	OSR/CSRD BRENDAN DOYLE 382-7570	STUDY	IN PROGRESS
					EXAMINES FEASIBILITY OF USING FEES TO FUND STATE GROUND WATER PROGRAMS.
POLICY AND SCIENTIFIC SUPPORT	OSW- 1	IDENTIFICATION AND LISTING OF HAZARDOUS WASTE	OSW/CAO MATT STRAUSS 475-8551	REGULATION	ONGOING
					IDENTIFIES UNIFORMS OF HAZARDOUS WASTES SUBJECT TO REGULATION UNDER RCRA SUBTITLE C.

GROUND-WATER ACTIVITIES SURVEY

SOURCE	ID/LEAD OFFICE	TITLE	CONTACT	TYPE OF ACTIVITY	STATUS	SUMMARY
POLICY AND SCIENTIFIC SUPPORT	OSW- 2	MODIFICATION OF TOXICITY CHARACTERISTICS	OSW/CAO MATT STRAUS 475-8551	REGULATION	ONGOING	EXPANDS THE CURRENT TOXICITY CHARACTERISTIC TEST (WHICH IS ONE OF FOUR TESTS FOR IDENTIFYING WASTES AS HAZARDOUS) TO INCLUDE 38 ADDITIONAL ORGANIC TOXICANTS.
POLICY AND SCIENTIFIC SUPPORT	OSW-11	STANDARDS APPLICABLE TO EXPORTERS OF HAZARDOUS WASTE	OSW/PSPO CAROLYN BARLEY 382-2217	REGULATION	7/86	IMPOSES RESTRICTIONS ON EXPORT OF HAZARDOUS WASTE TO FOREIGN COUNTRIES AS OF 11/8/86 BY REQUIRING CONSENT OF RECIPIENT COUNTRY.
POLICY AND SCIENTIFIC SUPPORT	OWRS- 1	CLEAN WATER ACT 205(J) GRANTS	OWRS/AED PATTY MORRIS 475-8637 TIM ICKE 475-8640	GRANT	ONGOING	PROVIDES FUNDS TO STATES TO DEVELOP STATEWIDE GROUND-WATER PROTECTION STRATEGIES, LEGISLATION OR REGULATIONS, AND PROTECTION PROGRAMS; TO CONDUCT RESOURCE ASSESSMENTS; OR TO DEVELOP DATA MANAGEMENT SYSTEMS.
POLICY AND SCIENTIFIC SUPPORT	RD2- 1	ENVIRONMENTAL MANAGEMENT REPORT ACTION PLAN FOR GROUND-WATER PROTECTION	REGION 11/OWM JOHN MALLECK FTS 364-5635	PLAN	5/86	FOSTERES AN INTEGRATED GROUND-WATER PROTECTION APPROACH THAT ENCOMPASSES IDENTIFICATION OF CRITICAL AREAS; IDENTIFICATION AND ASSESSMENT OF AREAS OF GROUND-WATER CONTAMINATION; STANDARDIZATION AND IMPROVEMENT OF MONITORING; COLLECTION AND MANAGEMENT OF COMPREHENSIVE AND QUALITY ASSURED DATA; AND RESEARCH AND TECHNOLOGY TRANSFER.
POLICY AND SCIENTIFIC SUPPORT	RD3- 1	MAPPING OF REGIONAL AREAS OF HIGH POTENTIAL FOR GROUND-WATER CONTAMINATION	REGION 111/OWM TOM MERSKI FTS 597-2786	STUDY	9/86	RATES EACH COUNTY IN THE REGION IN TERMS OF THE POTENTIAL FOR HUMAN EXPOSURE TO VARIOUS CONTAMINANTS AND CONTAMINATION OF GROUND-WATER RESOURCES; IDENTIFIES HIGH PRIORITY AREA FOR DEVELOPING AND IMPLEMENTING GROUND-WATER PROTECTION PLANS.
POLICY AND SCIENTIFIC SUPPORT	RD5- 2	NORTHERN INDIANA PRIORITY GROUND-WATER AREA PROJECT	REGION V/OWM GERI ANNE GARL FTS 886-1480	STUDY	1987	DEVELOPS SEVERAL METHODS WHICH FEDERAL, STATE, AND LOCAL OFFICES COULD USE TO DEFINE PRIORITY OR VULNERABLE GROUND-WATER; APPLIES THE METHODS TO PILOT AREAS IN NORTHERN INDIANA.

V. SOURCE DESCRIPTION SUMMARIES

V. SOURCE DESCRIPTION SUMMARIES

This section contains a summary description for each of the 33 sources listed in the OTA report Protecting The Nation's Groundwater From Contamination. The summaries are intended to supplement the information contained in the activity list of Section IV.

Each summary contains the following information; definition of the source, potential contaminants associated with the source, extent of the potential problem (i.e., number of facilities, volume of contaminants), geographical distribution and major EPA activities to address source contamination. The first four elements summarize information in the 1984 OTA report and other reference documents listed in Exhibit V-1.

The automated data base presented in Section IV serves as the basis for the summary element "Major Categories of EPA Activities."

There has been no major effort to update this information, however, EPA program offices have supplemented and updated some of OTA's data for some of the major sources addressed by the Agency.

EXHIBIT V-1
LIST OF REFERENCES

Information presented in the first four elements of the source summaries was derived from the OTA report or EPA staff, unless otherwise noted. EPA staff relied on the other references listed below.

1. ICF, Inc. and Pope Ried Associated, Inc. Hazardous Waste Tanks Risk Analysis. Washington, D.C.: June 1986.
2. U.S. Congress, Office of Technology Assessment. Protecting the Nation's Groundwater From Contamination (OTA-0-233). Washington, D.C.: October 1984
3. U.S. EPA. Phase I Subtitle D Study. Washington, D.C.: 1986.
4. U.S. EPA, Office of Drinking Water. Report to Congress on Injection of Hazardous Waste (EPA 540/9-85-003). Washington, D.C.: May 1985.
5. U.S. EPA, Office of Drinking Water. UIC Well Inventory. Washington, D.C.: March 1986.

1. SUBSURFACE PERCOLATION

Definition

Buried tank and drainage systems designed to collect water borne wastes, remove settleable solids from liquid by gravity separation, and permit percolation into the soil of clarified effluent.

Potential Contaminants

Hydrocarbons, metals, nitrates, phosphates, microorganisms, cleaning agents (TCE).

Extent of Potential Problem

An estimated 22 million domestic septic systems were in operation in the United States in 1980, and approximately one-half million new ones are installed annually. A 1983 report indicates that these systems release between 820 and 1,460 billion gallons of waste annually. It is estimated that 25,000 industrial septic systems discharge between 1.2-1.9 billion gallons of waste annually (OTA, 1984).

Septic systems pose a threat to the ground water from improper siting (e.g., too high a density per unit area for a particular hydrogeologic setting), overloaded systems, use of cleaning agents, end of design life, and improper disposal of septage (EPA, 1986).

Geographical Distribution

The highest regional densities of use are in the eastern third of the country and along portions of the west coast (OTA, 1984).

1. SUBSURFACE PERCOLATION
(Continued)

Major
Categories
of EPA
Activities

Guidance - The 5 OMPC guidance manuals issued by EPA emphasize use of the proper siting design, operation and maintenance technologies to prevent system failure, and subsequent ground-water contamination. An OGWP manual targets State and local officials and provides guidance on developing and administering programs that will protect ground water.

Strategy - The Agency is in the early stages of examining how to use TSCA to more effectively control septic tank additives.

2. INJECTION WELLS

Definition

Subsurface emplacement of fluids. Activities encompass industrial, municipal (sewage), agricultural, urban runoff, brine injection, enhanced oil recovery, solution mining, artificial recharge, in-site recovery wells and other drainage wells. EPA has established 5 classes of injection wells for regulatory purposes: Class I, hazardous and nonhazardous waste wells injected below underground sources of drinking water; Class II, oil and gas wells; Class III, solution mining wells; Class IV, hazardous waste wells injecting into or above underground sources of drinking water (banned by EPA); and Class V, all other types of wells.

Potential Contaminants

Hydrocarbons, metals, non metals, organics, organic and inorganic acids, microorganisms, radionuclides.

Extent of Potential Problem

A FY 86 inventory indicated that there were 280,752 operable injection wells in the United States (EPA, 1986). These include: 555 Class I wells, 161,397 Class II wells, 22,727 Class III wells, 14 Class IV wells, and 96,059 Class V wells.

Class I - At the time of the FY 86 EPA survey there were 252 hazardous Class I wells. EPA estimates that 11.539 billion gallons of hazardous waste were injected in 1983.

Class II - OTA has estimated that approximately 525 billion gallons of brine are disposed of annually and that 24.5 billion gallons of water are used annually for enhanced oil recovery.

Class IV - Class IV wells are now illegal. When discovered, a site evaluation study is done, and if warranted, they are plugged and abandoned.

2. INJECTION WELLS (Continued)

Extent of Potential Problem (Continued)

Class V - There were approximately 116,150 Class V wells as of March 1986. The most common of these wells are agricultural, industrial, and storm water runoff.

Ground-water contamination can result from either active or inactive injection wells. This contamination commonly occurs because of faulty well construction, improperly plugged or abandoned wells near the injection well, faulty or fractured confining strata, lateral displacement or direct injection into underground sources of drinking water.

Geographical Distribution

The majority of Class I hazardous waste injection wells are located in the Gulf Coast and Great Lakes States. Class II oil and gas wells are distributed throughout the United States, with at least 17 states reporting some type of contamination incident. Class V agricultural drainage wells are most common in IA, ID, TX and CA. Class V industrial drainage wells are present mainly in NY and NJ while Class V storm water drainage wells are most common in the western States.

Major Categories of EPA Activities

Regulations - EPA has a major regulatory program for controlling underground injection practices (SDWA). This program establishes technical criteria and standards for the construction, operation, monitoring and testing of wells. The technical standards are implemented through a permitting program administered either by EPA or approved States. There are two efforts underway which may result in additional regulatory action. One is the land disposal restriction rule under the Hazardous and Solid Waste Amendments of 1984, Sections 210(f) and (g)/RCRA 3004(f) and (g). The second is the Class V well assessment.

2. INJECTION WELLS
(Continued)

Major
Categories
of EPA
Activities
(Continued)

Studies - An assessment of hazardous waste injection required by the 1994 RCRA amendments to determine whether injection of wastes is protective of human health (as defined in this Act) is underway. Components of the study include: an analysis of logging and testing requirements, causes and consequences of well failures, and an assessment of geological, geochemical, and hydrologic characteristics.

Additionally an assessment of the number, location and potential of contamination associated with Class V wells is in process. A report is due to Congress in September 1987.

3. LAND APPLICATION

Definition

Application of treated wastewater, wastewater byproducts (e.g., sludge), hazardous waste or nonhazardous waste to the land which then acts as a medium for treatment and disposal (e.g., spray irrigation, overland flow).

Potential Contaminants

Nitrogen, phosphorous, heavy metals, hydrocarbons microorganisms and radionuclides.

Extent of Potential Problem

Sludge - at least 2,463 publicly-owned treatment works (POTW) currently apply liquid or thickened sludge on land. Over 7 million dry tons of sludge are produced by POTWs, with over 20 percent of municipal sludge generated being applied directly to the land. Industrial sludge data is lacking.

Land Treatment - over 1000 POTWs currently use or plan to use this method.

Hazardous Waste - EPA estimates there are at most 250 land treatment units using primarily petroleum and wood preserving wastes.

Nonhazardous Waste - A 1986 EPA report estimates the number of nonhazardous land application units to be 18,889. Of these 11,937 receive municipal sewage, 5,605 are industrial, 726 are oil and gas, and 621 are other types of facilities.

Geographical Distribution

Unknown.

3. LAND APPLICATION (Continued)

Major Categories of EPA Activities

Regulation - Two major regulatory programs pertain to land application. One addresses the application of municipal sludge and land treatment of wastewater through the Clean Water Act (CWA). The other applies to nonhazardous and hazardous solid waste and is regulated under the Resource Conservation and Recovery Act (RCRA) Subtitles C and D.

Guidance - Substantial guidance has been developed pertaining to system operations and ground-water monitoring under Subtitles C and D of RCRA. Guidance manuals have also been developed by the Office of Research and Development and the Office of Municipal Pollution Control on best practicable waste treatment techniques for POTW land treatment facilities and land application of municipal sludge.

Studies - Because of the land disposal restriction in the 1984 Amendments to the RCRA, land treatment may be prohibited in some cases. Several major studies are underway to better assess the impact of land treatment and land application practices on ground water.

4. LANDFILLS

Definition

Historically, landfills have been the most common method for disposing of solid wastes. These wastes are classified as either hazardous or nonhazardous. RCRA regulations define hazardous waste and specifically exclude various waste products such as domestic sewage wastes, irrigation return flows, certain radioactive wastes, and some industrial wastes. Municipal landfills receive solid waste products that generally, but not always, are nonhazardous. Industrial landfills receive wastes from industries, and these wastes typically are hazardous.

Potential Contaminants

Organics, inorganics, microorganisms, radionuclides.

Extent of Potential Problem

A 1986 EPA survey estimates 16,416 landfills in the United States. This includes 9284 municipal landfills and 3511 industrial landfills. Of this total there are approximately 700 hazardous landfills at 136 facilities.

During 1984, municipal solid waste disposal facilities handled about 133 million tons of municipal solid wastes.

Geographical Distribution

The distribution of landfills appears to follow the general distribution of the population. Consequently, landfills are concentrated around urban population centers and industrial facilities.

4. LANDFILLS
(Continued)

Major
Categories
of EPA
Activities

Policy/Strategy - OSW is developing an integrated ground-water strategy that outlines EPA's policy for making ground-water related RCRA Subtitle C permitting and variance decisions for hazardous waste land disposal facilities including landfills. It will encompass all regulations and guidance pertaining to ground water.

Regulation - Two major regulatory programs address landfills. Subtitle C of RCRA regulates hazardous waste landfills by establishing management, design, location and operating standards as well as ground-water monitoring and corrective action requirements. Additional regulations to implement the restrictions on land disposal enacted by Congress in 1984 are under development.

Subtitle D of RCRA until recently consisted predominately of broad performance-based criteria for nonhazardous waste landfills. However, more specific criteria are under development to govern the location and performance of these facilities.

Subtitle C is designed to be administered initially by EPA and eventually delegated to States. Subtitle D is designed to be State implemented from the start.

Guidance - Eight guidance manuals issued or under development by OSW and OWPE implement the provisions of Subtitles C and D of RCRA. Several specifically address ground-water monitoring, while others pertain to facility location, compliance orders and corrective action.

4. LANDFILLS
(Continued)

Major
Categories
of EPA
Activities
(Continued)

Enforcement - OWPE conducts enforcement activities that focus specifically on ground water.

Studies - Most studies are related in some way to regulatory development under RCRA. They include small generator issues, Subtitle D implementation, and compliance with ground-water protection requirements.

5. OPEN DUMPS

Definition

A dump is a land disposal site where solid wastes are deposited without regard for the design, operation or maintenance of the site. At such sites, dumping usually is unauthorized and unsupervised, and the wastes are left uncovered. A wide variety of types of wastes have been deposited in open dumps.

Potential Contaminants

Organics, inorganics, and microorganisms.

Extent of Potential Problem

Estimates of open dumps range from 1,856 (EPA, 1985) to 2,396 (Waste Age, 1983). These are probably minimum estimates, because many open dumps still may be unidentified.

Geographical Distribution

55 States and Territories reported open dumps to EPA's Open Dump Inventory.

Major Categories of EPA Activities

Regulation - Open dumps are subject to the criteria EPA has developed for classification of solid waste disposal facilities and practices (RCRA). These rules will set performance criteria to protect the ground water, among other things.

Studies - EPA annually updates an inventory of open dumps. The States have identified those solid waste facilities that are open dumps and probably pose risks to health and the environment.

6. RESIDENTIAL (LOCAL) DISPOSAL

Definition

Practices in this category encompass the indiscriminate, unsupervised disposal of household wastes into gutters, sewers, storm drains and backyard burning pits. Supervised disposal in municipal landfills is not covered.

Potential Contaminants

Organic chemicals, metals, nonmetal inorganics, inorganic acids, microorganisms.

Extent of Potential Problem

Household wastes encompass a wide range of product materials: pesticides, paint products, cleaners, automobile products, asphalt and roofing tar; and batteries. Although little quantitative information is available on the patterns of ultimate disposal of these household substances, there is some information on how much of these substances are consumed. Over 90 percent of households use pesticides, and these household uses represent 5-10 percent of all pesticide use in the U.S. Annual household cleaner usage is estimated to be 0.4-5.6 million tons.

Residential disposal may contaminate ground water in several ways. Hazardous materials in the ashes from uncontrolled burning can leach into the ground water. Spilled oil, pesticides and fertilizers also can be washed away and leach. Toxic wastes poured down household drains can corrode pipes, cause septic system malfunctions, and interfere with municipal sewage treatment facilities, all of which may lead to ground-water contamination.

6. RESIDENTIAL (LOCAL) DISPOSAL
(Continued)

Geographical
Distribution

The pattern of residential disposal reflects population density and distribution (OTA, 1984).

Major
Categories
of EPA
Activities

None reported.

7. SURFACE IMPOUNDMENTS

Definition

Surface impoundments are natural depressions or manmade holding areas such as excavations, lagoons, or dikes. Small impoundments, commonly referred to as "pits," are used by industries, municipalities, agricultural operations or households for special purposes such as waste storage or sludge disposal. Wastewater in impoundments is treated in several ways: chemical coagulation and precipitation, pit adjustment, biological oxidation, separation of suspended solids from liquids, and temperature reductions. Non discharging impoundments lose liquid through evaporation and/or seepage. Other impoundments discharge their liquid periodically or continuously into streams, lakes, bays or the ocean.

Potential Contaminants

Organic chemicals, metals, nonmetal inorganics, inorganic acids, microorganisms, radionuclides.

Extent of Potential Problem

EPA's Phase I Subtitle D Study (EPA 1986), reports that there are 191,822 surface impoundments in the United States. Types of impoundments include: 16,232 (8%) industrial, 2,426 (1.2%) municipal, 17,159 (9%) agricultural, 19,813 (10%) mining, 125,074 (65%) oil and gas and 11,118 other. In addition, there are 3,184 known hazardous waste treatment, storage, or disposal impoundments located at approximately 400 facilities.

Surface impoundments are thought to constitute one of the biggest threats to ground water, given the estimated numbers and volumes of waste. About 70 percent of the known impoundments are located in hydrogeologically vulnerable areas, as defined under the 1986 RCRA guidance. In addition, 37 percent are located over aquifers currently serving as sources of drinking water.

7. SURFACE IMPOUNDMENTS (Continued)

Geographical Distribution

Surface impoundments are found in numerous locations throughout the United States. States with the highest number of nonhazardous surface impoundments are AR, KS, LA, NM, OH, OK, PA, TX, WV.

Major Categories of EPA Activities

Regulations - Surface impoundments handle both hazardous and nonhazardous waste and thus are subject to regulatory programs under both Subtitle C and Subtitle D of RCRA. Subtitle C, which regulates hazardous waste, includes current and pending regulations pertaining to restrictions on land disposal, requirements for small quantity generators, standards for owners/operators of treatment, storage and disposal (TSD) facilities, location standards for TSD facilities. Requirements for the hazardous waste program are implemented through a permit program.

Performance criteria under the Subtitle D program address nonhazardous waste and are being revised to be more specific and stringent as required under the 1984 Amendments to RCRA.

Guidance - Numerous guidance manuals accompany the RCRA Subtitle C regulatory program. These manuals establish policies and procedures and provide technical information for both the regulatory agencies and the regulated community.

Studies - A number of studies have been completed or are underway and generally are intended to support development of new regulations required by the 1984 amendments to RCRA and under Subtitle D of RCRA.

8. and 9. WASTE TAILINGS AND WASTE PILES

Definition

Waste tailings and pilings are solid wastes typically associated with mining operations. Piles generally are disturbed soil and overburden from surface mining or waste rock from subsurface mining. Tailings result from on-site operations of cleaning and extracting ores. Both types of waste are piled on the land surface or used as fill.

Potential Contaminants

Arsenic, sulfuric acid, copper, selenium, molybdenum, uranium, thorium, radium, lead manganese and vanadium.

Extent of Potential Problem

Mining -- total annual waste material from mining operations is approximately 2.3 billion tons, which includes both waste piles and tailings.

Metal mining -- about 250 million tons are deposited each year in ponds.

Uranium mining -- estimates of known amounts of tailings are about 215 million tons per year at both active and inactive sites.

Hazardous waste piles -- piles at an estimated 174 facilities contained about 0.39 billion gallons in 1981; the actual amount probably is higher, because this represents the amount of waste only at facilities regulated under Federal law (OTA, 1984).

Geographical Distribution

Unknown.

8. and 9. WASTE TAILINGS AND WASTE PILES
(Continued)

Major
Categories
of EPA
Activities

Regulation - Waste piles are subject to the programs under Subtitles C and D of RCRA. Subtitle C pertains to hazardous waste treatment, storage and disposal facilities; Subtitle D addresses solid (nonhazardous) waste disposal facilities. Regulations under Subtitle C include the future restrictions on land disposal, revision to the small quantity generation rule, location standards and ground-water monitoring and protection requirements. Similar regulations for Subtitle D are under development.

Guidance - Eight guidance manuals issued or under development by OSW and OWPE implement Subtitles C and D of RCRA. Several manuals specifically address ground-water monitoring, while others pertain to facility location, compliance orders and corrective action.

Enforcement/Compliance Monitoring - OWPE conducts enforcement activities that focus specifically on ground water.

Studies - Most of the studies are related to regulatory development under RCRA. They include small generator issues, Subtitle D implementation, and compliance with ground-water protection requirements.

10. MATERIALS STOCKPILES

Definition

Storage piles for substances produced or used in a production process. Materials in stockpiles include crushed stone, copper ore, iron ore, and uranium ore, potash, titanium, phosphate rock, gypsum, coal, sand and gravel.

Potential Contaminants

From coal stockpiles: aluminum, iron, calcium, magnesium, sodium, potassium, sulfur, phosphate, and trace levels of arsenic, cadmium, mercury, lead, zinc, uranium, copper and cobalt; from other stockpiles: metals or nonmetals, depending upon the substance stockpiled.

Extent of Potential Problem

Little is known about the amounts of stockpiled materials. Based on an estimated annual materials production of 3.4 billion tons, approximately 700 million tons per year are stockpiled.

Geographical Distribution

Nationwide.

Major Categories of EPA Activities

None reported.

11. GRAVEYARDS

<u>Definition</u>	Cemetery; burial ground.
<u>Potential Contaminants</u>	Metals, nonmetals and microorganisms.
<u>Extent of Potential Problem</u>	Cemeteries are distributed throughout the United States. The potential for contamination will depend on soil types, depth to ground water, types of caskets used and annual rainfall. Contamination appears to be localized.
<u>Geographical Distribution</u>	Nationwide.
<u>Major Categories of EPA Activities</u>	None reported.

12. ANIMAL BURIAL

Definition

This category covers the disposal of animal carcasses. Mass burials are rare and occur in areas with large concentrations of livestock and in local landfills or open dumps. Individual burials typically take place in special sections of municipal landfills or in residential backyards.

Potential Contaminants

Contamination of the ground water is highly site-specific and depends on disposal practices, surface and subsurface hydrology, proximity of the site to water sources, the type and amount of disposed material and the cause of death.

Extent of Potential Problem

The problem is highly site-specific and depends on disposal practices, surface and subsurface hydrology, the proximity of the burial sites to water sources, the amount of disposed material and the cause of death.

Geographical Distribution

Unknown.

Major Categories of EPA Activities

None reported.

13. ABOVEGROUND STORAGE TANKS

Definition

Stationary devices designed to contain an accumulation of waste or nonwaste materials (EPA, 1986). These tanks for chemical storage are used in industrial, commercial and agricultural operations as well as at individual residences.

Potential
Contaminants

Organics, metal/nonmetal inorganics, inorganic acids, microorganisms, radionuclides.

Extent of
Potential
Problem

Releases from aboveground tanks, commonly due to spills, overflow, or operator errors may result in the contamination of ground water (see "Hazardous Waste Tanks Risk Analysis", ICF, Inc. and Pope Reid Assoc., Inc., June 1986).

Geographical
Distribution

Nationwide.

Major
Categories
of EPA
Activities

Regulation - Aboveground storage tanks containing hazardous wastes are regulated under Subtitle C of RCRA. Recently revised standards for storage or treatment of hazardous waste in tank systems are designed to protect ground water (51 FR 25422).

Guidance - The document "Technical Resource Document for the Storage and Treatment of Hazardous Waste In Tank Systems" is available to assist owners and operators in complying with the hazardous waste tank standards (NTIS Ref. No. PB-87-134391).

14. UNDERGROUND STORAGE TANKS

Definition

Underground storage tanks consist of buried tanks and associated piping systems used to store petroleum products, other chemicals and wastes. Industries use tanks primarily for fuel storage, but also for storage of a wide range of other substances such as acids, metals, industrial solvents, technical grade chemicals, and chemical wastes. Commercial enterprises and residences utilize the storage tanks almost exclusively for fuel storage.

Potential Contaminants

Organics, metals, inorganic acids, microorganisms, radionuclides.

Extent of Potential Problem

About half of the approximately 1.3 million regulated carbon steel tanks are used for retail motor fuel sales, primarily at service stations; and half are used for motor fuel storage at nonretail businesses. Tanks regulated by EPA represent only one-fourth to one-half of all steel tanks. Therefore, the total number of steel tanks is somewhere between 2.4 million and 4.8 million. Some estimates are as high as 7 million tanks. Steel tanks are used in almost every sector of U.S. business including farming operations, trucking operations, and government agencies.

About 100,000 fiberglass tanks used for underground storage of petroleum products; several thousand are in use for storage of non-petroleum products.

The estimated cumulative capacity of all steel and fiberglass tanks is 25 billion gallons, but the extent to which that capacity is used is unknown.

14. UNDERGROUND STORAGE TANKS
(Continued)

Extent of
Potential
Problem
(Continued)

About 2,031 hazardous waste storage tanks (not included in the above figures) and treatment tanks are regulated under RCRA. This figure does not include tanks operating under NPDES permits, which account for an estimated 13.8 billion gallons of waste.

Geographical
Distribution

Tanks are widespread throughout the country; gasoline storage tanks are distributed in proportion to population density.

Major
Categories
of EPA
Activities

Regulation - Hazardous wastes are regulated under Subtitle C of RCRA. Petroleum and hazardous substance tanks are subject to a notification requirement and to an "interim provision" under Subtitle I of RCRA. The notification rule requires owners to notify State authorities of the location of their tanks. Final tank rules are under development.

Guidance - The principal guidance pertains to the interim prohibition on the installation of new tanks which are corrodable.

Studies - Numerous studies are underway to support regulatory development including areawide studies of the extent of contamination from leaking tanks and analyses of leaking tank incidents, tank technologies, economic impacts of regulatory options, retrofitting technologies, leak detection techniques, and costs and effectiveness of corrective action technologies (petroleum).

Research and Development - An assessment of leak detection and tank testing methods and analysis of various response criteria and cleanup technologies for remediation of releases are underway.

15. CONTAINERS

Definition

Containers include storage barrels and drums that hold both wastes and nonwaste products. They can be moved relatively easily, although some may be buried.

Potential Contaminants

Organic chemicals, metals, nonmetals, inorganic acids, microorganisms and radionuclides.

Extent of Potential Problem

Little information is available on containers. Information on containers regulated under RCRA shows that in 1981 about 3,577 facilities used containers to store 0.16 billion gallons of hazardous waste.

Geographical Distribution

Unknown.

Major Categories of EPA Activities

Containers are addressed under Subtitle C of RCRA. RCRA regulates treatment and storage of hazardous waste in containers, and also regulates the disposal of containerized wastes in landfills.

16. OPEN BURNING AND DETONATION SITES

Definition

This category includes burning grounds and ammunition detonation sites such as those operated by the Department of Defense. It also includes sites on the National Priorities List under Superfund that have had fires or were operated as burning sites. Not included are cases of burning in backyards and at landfills which fall under the categories of open dumps, residential disposal, or landfills.

Potential Contaminants

Inorganics, including heavy metals;
organics, including TNT.

Extent of Potential Problem

There are between 50 and 100 open burning and detonation facilities.

Geographical Distribution

Unknown.

Major Categories of EPA Activities

Regulation - Open burning and detonation of hazardous waste cannot currently receive a RCRA permit under Subtitle C. In 1987 OSW expects to issue final regulations under which these practices may be permitted under RCRA. The requirements will include provisions to protect ground water.

17. RADIOACTIVE DISPOSAL SITES

Definition

This category covers disposal of five basic types of wastes at the generation site as well as off-site. Spent fuel is the discharged irradiated fuel from nuclear power plant operations. High level wastes are from the initial processing of irradiated reactor fuels. Transuranic wastes result primarily from fuel reprocessing and from the manufacture of plutonium-containing products. Low-level wastes are in liquid, gaseous, and solid forms and typically are generated by nuclear reactors used for power and weapons production, research and commercial activities. Finally, uranium mill tailings are the earthen residues left from uranium extraction. The waste rock from these mining operations is covered under waste tailings and waste piles.

Potential Contaminants

Radioactive cesium, plutonium, strontium, cobalt, radium, thorium, uranium.

Extent of Potential Problem

Six low-level sites were operating prior to the mid-1970s; three closed, two are accepting reduced volumes, leaving one major site in Washington. The Departments of Defense and Energy also maintain 22 sites.

For high-level wastes, there are three government sites as well as a commercial site where DOE has responsibility.

Seven transuranic sites are used.

Commercial spent fuel -- there are two commercial sites as well as on-site storage at about 100 power reactor facilities.

In 1985 DOE estimated that the total amount of radioactive wastes at various storage sites was: 0.37 million cubic yards of transuranic wastes, 4.32 million cubic yards of low-level wastes, and about 14,000 tons of spent fuel and 0.46 million cubic yards of high-level waste (DOE 1986).

17. RADIOACTIVE DISPOSAL SITES
(Continued)

Extent of
Potential
Problem
(Continued)

Radioactivity poses a significant threat to ground water because of the longevity of isotopes, their ability to migrate undetected and their serious health effects. Numerous radionuclides emitting alpha, beta, and gamma radiation have been detected in ground water.

Geographical
Distribution

Low-level - Commercial: IL, KY, NV, NY, SC, WA.

Low-level - Major government: ID, NV, NM, OH, SC, TN, WA.

High-level - WA (Hanford), ID (Idaho Falls), SC (Aiken), NY (West Valley).

Transuranic - generally at same locations as low-level and high-level.

Major
Categories
of EPA
Activities

Regulation - EPA promulgated environmental standards for the management and disposal of spent nuclear fuel, high-level and transuranic radioactive wastes. These rules set exposure limits from contaminated ground water. Additional regulations are under development that will set standards for the disposal of low-level radioactive wastes and establish standards for protecting the public from radioactive residues in drinking or irrigation water near contaminated disposal sites.

Guidance - An EPA guidance document on transuranium elements establishes dose rate limits for human exposure to transuranium elements in the general environment.

18. PIPELINES

Definition

Pipelines transport, collect and distribute wastes as well as nonwaste products. Principal wastes are municipal sewage, while nonwastes include petroleum products, natural gas, ammonia, coal and sulfur.

Potential Contaminants

Organics, metals, inorganic acids, and microorganisms.

Extent of Potential Problem

Approximately 175,000 miles of pipeline carrying 9.63 billion bbls of petroleum products per year were in operation in the United States in 1976.

About 700,000 miles of sewer pipeline in 1976 carried an estimated amount of 5.6 trillion gallons of sewage in 1978.

Geographical Distribution

Pipelines are found throughout the United States. Sewage pipelines most often are located in densely populated areas.

Major Categories of EPA Activities

Studies - Two studies are underway: the domestic sewage study which promotes pretreatment of aqueous hazardous waste discharged to sewers and the exfiltration study which evaluates how leaks from sewage pipelines affect ground water.

19. MATERIAL TRANSPORT AND TRANSFER OPERATIONS

<u>Definition</u>	Material transport and transfer operations refer to the movement of substances by vehicles such as truck and railroad along transportation corridors. The category also includes handling facilities such as airport and loading docks.
<u>Potential Contaminants</u>	Organics, metals, inorganic acids, microorganisms, and radionuclides.
<u>Extent of Potential Problem</u>	The principal concern from these operations is spills of substances that could contaminate the ground water. Estimates of spills vary from just under 10,000 up to approximately 16,000 per year, including spills from pipelines. These spills account for approximately 14 million tons of hazardous materials or about 0.35 percent of the 4 billion tons shipped annually (OTA, 1984).
<u>Geographical Distribution</u>	Nationwide.
<u>Major Categories of EPA Activities</u>	<u>Regulation</u> - The major regulatory effort is under RCRA. Standards for transporters of hazardous waste cover such items as packaging and labeling and incorporate requirements of the Department of Transportation. A second regulation designed to protect the ground water from the storage and disposal of used oil is under development.

20. IRRIGATION PRACTICES

Definition

The artificial application of water to land to assist in the production of crops.

Potential Contaminants

Fertilizers, pesticides, naturally occurring contaminants (e.g., selenium) and sediment.

Extent of Potential Problem

About 60% of the ground-water use in 1980 was for irrigation. About 14% of all cropland in the United States is irrigated. Irrigation is a potential threat to ground water because the irrigation return flows tend to concentrate salts, fertilizers, and pesticides. Salinity can increase because of evaporation, transpiration and leaching of saline soils (OTA, 1984).

Geographical Distribution

Irrigation is most common in the West, Central and Southern Plains as well as in Arkansas and Florida.

Major Categories of EPA Activities

None reported.

21. PESTICIDE APPLICATIONS (Continued)

Major Categories of EPA Activities

Regulation - Under the Federal Insecticide, Fungicide and Rodenticide Act, EPA has broad authority to require data needed to evaluate the environmental and human health effects of pesticides to determine whether a pesticide should be allowed on the market and with what use restrictions. Additionally, EPA has the power to regulate the use of pesticides via the pesticide label. Each of these authorities has been and is being used to address pesticides which may pose a threat to ground water. EPA is also developing a rule to restrict to certified applicators, the use of pesticides meeting certain environmental fate, toxicity and use pattern criteria and establishing special label requirements for use of pesticides in irrigation systems.

Guidance - EPA is developing ground-water monitoring guidelines to improve the quality and validity of registrant and State ground-water monitoring studies.

Enforcement - EPA oversees cooperative agreements under which States identify pesticide enforcement priorities. About 14 States have identified pesticides in ground water as a concern and are conducting monitoring.

Studies - A major effort is the national survey of pesticides in drinking water which will sample about five dozen pesticides in about 1500 wells to estimate the national incidence of contamination and assess relationships among agricultural use patterns and practices and hydrogeological characteristics; smaller projects include studies in Cape Cod (impact of turf use pesticides), Dougherty Plain (leaching of aldicarb and metolachlor in peanut fields), Collier County (contamination in shallow aquifers), North Iowa and other locations; additionally, EPA is overseeing four registrant monitoring studies.

21. PESTICIDE APPLICATIONS

Definition

Pesticides are chemicals used to control insects, weeds, and other undesirable organisms. Most pesticide use is in agricultural operations (69-72%). Government agencies and industrial/commercial organizations account for another 21% and the remainder consists of home and garden uses.

Potential Contaminants

1200-1400 active ingredients. Contaminants already detected include alachlor, aldicarb, atrazine, bromacil, carbofuran, cyanazine, DBCP, DCPA, 1, 2 dichloropropane, dyfonate, EDB, metolachlor, metribyzen, oxamyl, simazine, and 1,2,3 trichloropropane. The extent of ground-water contamination cannot be determined with current data.

Extent of Potential Problem

About 552 million pounds of active ingredients were applied to major field crops in 1982. Approximately 280 million acre-treatments are conducted annually. Contamination of the ground water can occur from applications to crops and subsequent leaching as well as from spills, accidents, disposal of excess pesticides and disposal of wastewater from airplanes. In any given location, though, contamination is dependent upon the chemical-physical properties of the pesticide, hydrogeologic setting and agricultural practices (OTA, 1984).

Geographical Distribution

Contamination from 17 different pesticides has been detected in 23 different States including Arizona, Arkansas, California, Florida, Hawaii, Iowa, Maine, Maryland, Massachusetts, Nebraska, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, Washington, Wisconsin (OTA, 1984).

22. FERTILIZER APPLICATIONS

Definition

Fertilizers are chemicals used in agricultural and other operations to improve the growth of crops and other plants.

Potential Contaminants

Nitrates, phosphates.

Extent of Potential Problem

Use of commercial fertilizer has steadily declined in the 1980s, from 54 million tons in 1980-1981 to 42.3 million tons in 1982-1983. Fertilizers used in 1981-1982 contained 11.1 million tons of nitrogen, 4.8 million tons of phosphates and 5.6 million of potash (OTA, 1984).

Geographical Distribution

The five States with the highest fertilizer use in 1981-1982 were California, Illinois, Indiana, Iowa and Texas (OTA, 1984).

Major Categories of EPA Activities

Policy/Strategy - Fertilizers have emerged as a critical ground-water issue. They are being addressed under the Agricultural Chemicals in Ground-Water Strategy which will identify EPA's policy objectives and implementation actions for the next 5-10 years. Under the TSCA ground-water strategy EPA also is examining how to use TSCA authority to develop and assess data on the problem.

Studies - Two studies examined the potential for contamination with conservation tillage and in certain hydrogeologic settings.

23. ANIMAL FEEDING OPERATIONS

Definition

Animal feeding operations are located on farms and at special feedlots. Feedlots are commercial operations at which cattle are fattened until they are ready for market.

Potential
Contaminants

Nitrogen, bacteria, viruses, phosphates.

Extent of
Potential
Problem

The number of feedlots with more than 1,000 animals has increased markedly in the past 20 years. In 1982, there were approximately 1,935 cattle feedlots marketing about 16.8 million cattle. The combined inventory of animals on farms and at feedlots during 1978 included 106 million cattle and calves, 59 million hogs and pigs, 12 million sheep and lambs, 2.2 million ponies and horses, over 359 million chickens and more than 140 million turkeys. Manure and other wastes pose the most significant threats to ground water through leachate that enters the subsurface.

Density of the animal population, not the size of the feedlot, and depth to ground water are the factors that determine the potential for ground-water contamination from any particular feedlot or farm. Ground-water contamination occurs when large numbers of animals in a limited area overburden the assimilative capacity of the soil. Experts estimate that 25 percent of the 718,00 farms with fewer than 300 animals have the potential to degrade the ground water; data are insufficient to estimate runoff and leachate from large feedlots (OTA, 1984).

23. ANIMAL FEEDING OPERATIONS
(Continued)

Geographical
Distribution

Feedlots are located primarily in the Corn Belt and High Plains. The principal rearing regions are the South for poultry, the West for sheep and the Midwest for hogs (OTA, 1984).

Major
Categories
of EPA
Activities

None reported.

24. DE-ICING SALTS APPLICATIONS

Definition

This category includes year-round stockpiles of salts as well as applications of salts to improve driving conditions on snow and ice-covered roads.

Potential Contaminants

Chromate, phosphate, ferric ferrocyanide, sodium ferrocyanide, chloride.

Extent of Potential Problem

During the winter of 1982-1983, a minimum of 9.35 million tons of dry salts and abrasives as well as 1.78 million gallons of liquid salts were applied to the nation's highways. This is an average of 15.5 tons of dry salts and abrasives and 2.9 gallons of liquid salts applied per lane mile. Salting rates generally range from 355-1,065 pounds per mile per application.

Many cases of ground-water contamination from stockpile leachates and runoff from salt-treated roads have been documented. No estimates of the total amount of salts likely to reach the ground water is available. Technology to minimize leachate from stockpiles is available, so research now is focusing on methods to reduce contamination from treated roads. Methods under consideration include redesigning roads, installing runoff collection systems and developing alternatives to existing de-icing salts (OTA, 1984).

Geographical Distribution

Use of de-icing salts occurs primarily in the snow belt which consists of populous areas in the Northeast and the Mideast.

24. DE-ICING SALTS APPLICATIONS
(Continued)

Major
Categories
of EPA
Activities

Studies - EPA is analyzing processes used to clean transportation equipment and will determine whether there is a need to require runoff controls to prevent surface and ground-water contamination.

25. URBAN RUNOFF

Definition: Urban runoff is the portion of total rainfall that flows over the land surface. The runoff is often channeled by drainage networks and contains a broad array of contaminants associated with urban activities. Major contaminants are automobile emissions.

Potential Contaminants Suspended solids and toxic substances, especially heavy metals and hydrocarbons, bacteria, nutrients, and petroleum residues.

Extent of Potential Problem EPA estimates that over 21.2 million urban acres contributed storm water runoff in 1970; this figure is expected to increase to 32.6 million acres by the year 2000. There is no data on the extent to which this runoff and storm water infiltration are contributing to ground-water contamination. The point of discharge, proximity of the discharge to aquifers, and a variety of hydrogeologic factors determine the potential for ground-water contamination. Contamination usually occurs when recharge basins or other storm water detention basins and storage systems are used to contain large volumes of runoff.

Geographical Distribution Urban and suburban areas throughout the country.

25. URBAN RUNOFF
(Continued)

Major
Categories
of EPA
Activities

Studies - The National Urban Runoff Program examined the effects of urban runoff on water quality at 30 sites nationwide. Two of the studies (Fresno, California and Long Island, New York) analyzed ground-water impacts where runoff infiltrated the soil from storm water detention basins and recharge basins.

Two current studies in Region VIII are assessing the fate and transport of urban runoff pollutants in ground water. The studies emphasize water supply impacts and the role of storm water drains (Class V wells) in causing ground-water contamination.

26. PERCOLATION OF ATMOSPHERIC POLLUTANTS

<u>Definition</u>	This category includes the dry deposition of pollutants between storms or transport in snow and water during storms. These pollutants result from a variety of sources including automobile emissions and various industrial processes. Acid rain is one type of atmospheric pollutant transported via percolation.
<u>Potential Contaminants</u>	Sulfur and nitrogen compounds, asbestos, heavy metals.
<u>Extent of Potential Problem</u>	Unknown.
<u>Geographical Distribution</u>	Acid rain, though widely distributed, is found primarily around the Great Lakes, the Northeast and south central Canada; percolation and distribution of other pollutants is a function of where they are released and the prevailing weather patterns.
<u>Major Categories of EPA Activities</u>	None reported.

27. MINING AND MINE DRAINAGE

Definition

This category encompasses extraction of ores and minerals. The mining methods used are a function of topography, geology, environmental constraints, and the ore itself. Surface mining operations include quarrying, open-pit, opencut, opencast, stripping, placing, and dredging.

Potential Contaminants

Coal -- acids, toxic inorganics (heavy metals), and nutrients.

Phosphate -- radium, uranium, and fluorides.

Metallic Ores -- sulfuric acid, lead, cadmium, arsenic sulfate, and cyanide from gold/silver leaching operations.

Extent of Potential Problem

In 1976, there were over 15,000 active coal mines in the United States and 67,000 inactive mines. The total affected land area is estimated at 4 million acres. Approximately 480 million tons of coal are extracted from surface mines annually, while 300 million tons are extracted from deep mines. These mining operations are responsible for generating 3.6 million tons of acid annually from disposal of coal mining wastes. Total acid generated could be as high as 10 million tons annually including both active and abandoned sites.

Ground water is threatened from excavations and operations which can intercept and/or disrupt ground-water flow as well as from the formation of acid mine drainage. An estimated 360,000-1.0 million tons of acid enter the ground water each year.

27. MINING AND MINE DRAINAGE
(Continued)

Geographical
Distribution

The most productive coal mining areas coincide with EPA's Regions III and VIII, producing 213 and 190 million tons of coal respectively annually. EPA's Regions IV and V are the next most productive producing 170 and 110 million tons of coal respectively annually in the Midwest. Deep underground mines are located primarily in Appalachia and surface mines in the West and Midwest (OTA, 1984).

Phosphate mines are concentrated in Florida, with North Carolina being the only other state with phosphate rock mining of any size.

Concentration of metallic ores varies depending on the type of metal being mined. Copper mines are located in 14 States, with Arizona leading in production with 68% of the production. Lead mining is concentrated in Missouri, zinc mining is common in Tennessee and New York, placer gold mining is concentrated in Alaska, vein gold mining predominates in Nevada, and 92% of iron comes from mines in the Lake Superior region.

Major
Categories
of EPA
Activities

Regulation - EPA regulates effluent from surface and underground coal mines; regulation of such discharge can encompass ground-water issues. EPA is developing risk-based regulations for wastes from the mining, milling, and leaching of ores and minerals. These will be proposed in 1988 under RCRA Subtitle D.

Studies - The current regulation of mining operations and waste disposal is being assessed by the Agency. In the area of non-fuel ores and minerals, EPA is conducting assessments to identify, evaluate, and rank risks associated with mine wastes. Methods for the prediction of acid formation and prevention, control of acid formation, and the mitigation of leaching from mining sites are being evaluated.

27. MINING AND MINE DRAINAGE
(Continued)

Major
Categories
of EPA
Activities
(Continued)

Other studies have included an assessment of ground-water impacts from uranium mining and milling in New Mexico and the quality of ground water in parts of Florida exposed to phosphate mining.

28. PRODUCTION WELLS

Definition

Production wells include oil, geothermal and heat recovery and water supply wells.

Potential Contaminants

Organics, metals, other inorganics, microorganisms, and radionuclides.

Extent of Potential Problem

Oil wells -- about 548,000 produced approximately 3.1 billion bbls of crude oil in 1980; there may be as many as 1.2 million abandoned production wells.

Irrigation wells -- more than 376,000 supply water to about 126,000 farms.

All production wells have a similar potential to contaminate the ground water. Installation, operation, and plugging techniques are some of the key factors.

Geographical Distribution

Oil wells are found nationwide. Geothermal wells occur primarily in California, Nevada and Idaho. Water supply wells are estimated to be most numerous in the Southwest, the Central Plains, Idaho and Florida.

Major Categories of EPA Activities

Regulations - Onshore oil and gas regulations are under revision.

OSW is studying whether wastes associated with the exploration, development, and production of oil, gas and geothermal energy should be regulated as hazardous wastes under RCRA.

29. OTHER WELLS

<u>Definition</u>	These are wells used for a variety of monitoring and exploration activities.
<u>Potential Contaminants</u>	Organics, inorganics, microorganisms, and radionuclides.
<u>Extent of Potential Problem</u>	Unknown.
<u>Geographical Distribution</u>	Unknown.
<u>Major Categories of EPA Activities</u>	None reported.

30. CONSTRUCTION EXCAVATION

Definition

Excavation includes clearing, pest control, rough grading, facility construction, and post-construction restoration.

Potential
Contaminants

Pesticides, diesel fuel, oil, calcium chloride, and a variety of other contaminants.

Extent of
Potential
Problem

Excavation at construction sites can contaminate the ground water in several ways. These include pesticide use, spills of petroleum products, contaminants from dust control and from concrete.

Geographical
Distribution

Throughout the United States, particularly in areas experiencing heavy growth; temporary in nature.

Major
Categories
of EPA
Activities

None reported.

31. GROUND-WATER/SURFACE WATER INTERACTIONS

<u>Definition</u>	In certain settings the elevation of surface waters are above the local ground-water table, a situation which favors downward leakage of these surface waters. Contaminants can be transported to and recharge or contaminate underlying ground water by this mechanism.
<u>Potential Contaminants</u>	Organics, inorganics, microorganisms, radionuclides.
<u>Extent of Potential Problem</u>	Unknown.
<u>Geographical Distribution</u>	Unknown.
<u>Major Categories of EPA Activities</u>	None reported.

32. NATURAL LEACHING

<u>Definition</u>	Natural leaching refers to the dissolution of geologic materials which then filtrate into the ground water.
<u>Potential Contaminants</u>	Inorganics and radionuclides.
<u>Extent of Potential Problem</u>	Unknown.
<u>Geographical Distribution</u>	Unknown, very localized.
<u>Major Categories of EPA Activities</u>	<u>Studies</u> - EPA has undertaken a few specialized projects in this area. One such project examined methods to detect geological areas which should not be considered for water supply because of naturally occurring contaminants such as chromium, selenium, uranium and arsenic. In a second project the nationwide occurrence of radon and other natural radioactivity in public water supplies was surveyed.