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United States  
Environmental Protection  
Agency

Office of Ground-Water  
Protection (WH-550G)  
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May 1986

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Water

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# State Program Briefs Pesticides in Ground Water

TD427P35S7



STATE PROGRAM BRIEFS  
PESTICIDES IN GROUND WATER

U.S. Environmental Protection Agency  
Office of Water  
Office of Ground-Water Protection  
Washington, DC 20460

May 1986

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## INTRODUCTION

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As part of the U.S. Environmental Protection Agency's (EPA) background preparation for designing enhanced efforts to protect ground water from pesticide contamination, EPA conducted a review of known State activities related to pesticides in ground water. During the summer of 1985, EPA reviewed existing reports and other materials and summarized information on each State in draft Program Briefs. EPA Regional office staff provided an opportunity for key State officials to review the draft Briefs for accuracy. EPA is now making them available to interested parties through publication of this report.

Because of the variety of State agencies involved and the limited degree of coordination among them in many States, it is difficult to obtain a definitive picture of past and existing State efforts to address pesticides in ground water at this time. Nonetheless, some conclusions can be drawn about the status of State programs in general, even though the compilation of information may be incomplete for some individual States.

Perhaps the most important conclusion to be drawn is that while the majority of States recognize the potential significance of the pesticides in ground water problem, efforts to address the problem have been fragmented. Often, the agency responsible for pesticides control is housed in the State agriculture department while primary responsibility for water quality and waste disposal programs is located in a State environmental protection agency. Responsibility for assuring safe drinking water often rests in still another agency, such as a public health department. Each agency may have performed tasks related to pesticides in ground water, but there appears to have been limited coordination among them. This situation mirrors, in many respects, the division of responsibilities among EPA and other Federal agencies at the national level.

Most of the monitoring States have performed thus far for pesticides in ground water has been in response to a known or suspected problem. Of the 24 States that reported specific findings, the most frequently identified pesticides were aldicarb, EDB, and atrazine. The increased concern about ground-water contamination generally and the recognition of pesticides as a potential contaminant has led several States to initiate more comprehensive ground-water monitoring programs. These efforts, still largely in the planning stage, usually focus monitoring in areas of pesticide usage where the ground water is considered to be most vulnerable to contamination.

Many States have initiated user awareness programs to address at least some aspects of the problem. Most notable are "Amnesty Day" programs, in which State and local organizers arrange for the collection and safe disposal of pesticide products from households and farms. States have also begun educational programs to increase understanding of the ground water resource and how it may become contaminated by agricultural practices.

While many States have at least some activities addressing pesticide contamination, only a few have begun efforts that could be defined as prevention programs. Several States have established or are developing regulatory programs to require anti-backsiphoning devices and other safety measures on chemigation systems. Others are considering establishment of requirements for pesticide mixing/loading and storage areas.

A few States are preparing for implementation of new State laws governing either ground-water protection generally, including pesticide problems, or laws dealing with pesticide contamination specifically. Since these programs are in the formative stage, the exact nature of the controls or management schemes that will be used are still undetermined. Some anticipate more vigorous State registration of pesticides to keep those which threaten ground water from being used in the State. At least one State law suggests more extensive research and implementation of integrated pest management as part of the protection program. Other controls being considered include requiring buffer zones around wells, requiring prior approval for the use of certain pesticides, and banning the use of pesticides in areas where contamination has been found. In developing these programs, one of the first steps States are taking is identifying areas where pesticide contamination of ground water is most likely to be a problem.



For many years, States did a limited amount of ground-water protection planning using funds under Sections 208, 106 and 205(j) of the Clean Water Act. With the additional impetus in 1985 and 1986 of special Section 106 ground-water grants, virtually all States are now developing and implementing ground-water protection strategies addressing all sources of contamination, including pesticides. Many State plans for ground-water monitoring also include pesticides. The only grant funds under FIFRA for State pesticide programs directly are earmarked for enforcement and certification of pesticide applicators; EPA has also funded a few, limited ground-water monitoring studies. A few States are using FIFRA enforcement funds to help support investigation of ground-water contamination incidents; other States have begun incorporating educational materials on ground water into applicator certification training programs.

Despite the evident need for better coordination among agencies at the State (and Federal) level, several ongoing projects to control nonpoint sources of water quality problems at the substate level demonstrate a significant amount of cooperation between Federal, State, and local agencies. Projects typically include providing technical and cost-sharing assistance to landowners for the installation of best management practices, many of which protect both surface and ground-water quality. In some projects, participation in integrated pest management programs is a condition of receiving cost-sharing assistance.

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The information contained in the Briefs reflects the status of State activities as of August 1985. Because of the increasing interest in the problem of pesticides in ground water, many States are now initiating or expanding their efforts, and further progress has been made on many of the activities that are included in the Briefs. Any questions about the overall project should be directed to Marian Mlay, Director, Office of Ground-Water Protection, 401 M Street, S.W., Washington, D.C. 20460. Questions about individual State Program Briefs should be directed to the EPA Regional Ground Water Representative or Pesticides Branch Chief (see Appendix A) or to the appropriate State officials (listed in each Program Brief).

State Program Brief/Pesticides in Ground Water
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## CONNECTICUT

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 2 in seriousness.
Contaminating Pesticides	EDB and Vorlex
Monitoring Program Status	<p>Surface water supplies are monitored every three years for regulated pesticides, and ground-water supplies are monitored only when a problem is suspected, such as with the recent EDB contamination.</p> <p>The Water Supply Section has completed extensive sampling for EDB. Their first round of EDB analyses was completed in 1984. A second sampling will determine whether EDB levels have increased and will attempt to detect the presence of Vorlex in these same supplies. The state has taken nearly 2,500 water samples, with approximately 230 private wells and 50 public supplies contaminated. The Water Supply Section has committed substantial resources to identifying the extent of pesticide contamination with the support of over 3,000 work hours in 1984 and plans to make a comparable commitment in 1985. The state plans to start monitoring for additional pesticides this year, but has concerns over developing a response plan when the new pesticides are found and determining what remedial action to take.</p> <p>The Connecticut Agricultural Experiment Station in a year-long study analyzed 42 community water supply wells that tap major aquifers in 12 towns for a wide range of pesticides, 32 compounds including EDB. No pesticides were detected in any of the samples. The station will be analyzing more samples and is researching alternatives to using pesticides to control pests, learning how pesticides are held and released in soils, and searching for ways to destroy compounds like EDB in ground water.</p>
Enforcement Authority	Department of Environmental Protection (DEP)
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> The discovery of groundwater contaminates as a result of the use of soil fumigants has dramatically increased the workload of our field staff.</p> <p>The DEP has responded to the situation by making use/follow-up inspections a priority item and by increasing the number of man hours spent on groundwater monitoring.</p>

State Program Brief/Pesticides in Ground Water
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**CONNECTICUT (cont'd)**

It will be noted on the allocation of work-years, conventional enforcement activities are of little value to the problem of groundwater contamination. A monitoring and public information program is a more appropriate system.

The allocations have been adjusted to reflect the emphasis on groundwater monitoring for pesticides which falls under the category of agricultural public information.

Other Grants. No data.

Contamination Control Programs	<p>Cooperative efforts are underway between several DEP units, the Department of Health Services (DHS), and the Department of Agriculture. The DHS has lab services available and regulates water supplies. The DEP has a pesticide use program, site investigations, and order for pollution abatement and alternative water suppliers.</p> <p>Connecticut refused state registration of the soil fumigant, Vorlex, with formulations containing 1,2 dichloropropane.</p> <p>DEP has issued 30 orders to provide potable water where pesticide contamination has occurred.</p>
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Other Activities	<p>An act Concerning Provision of Potable Drinking Water was passed by the 1985 General Assembly. The major provisions of this bill are:</p> <ol style="list-style-type: none"> <li>1. State will order responsible parties to provide short-term as well as long-term potable drinking water in the event ground water contamination has occurred. State will provide 100 percent of a short-term solution until order is complied with.</li> <li>2. Where no responsible party can be identified, state will provide 100 percent of the cost of short-term solution and 100 percent of the cost of the engineering report (50 percent for private water companies) to develop long-term solution. The state will also provide grants (50 to 75 percent for municipal systems and 50 percent for private water companies serving less than 10,000 customers) for the construction of capital improvements needed for the most cost-effective long-term solution. Municipalities may be advanced up to 100 percent of the short- or long-term cost.</li> </ol>
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State Program Brief/Pesticides in Ground Water
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**CONNECTICUT (cont'd)**

3. Allows the Commissioner to prescribe fees for pesticide registration as well as fee to register any person who distributes, sells, offers for sale a restricted or permit use pesticide. Fees collected are credited to the emergency spill response fund established under this act.

In addition to this program, the Governor has set up a Pesticide Task Force and a Scientific Advisory Committee to work on setting standards and developing recommendations to contain and control chemical contamination of public and private water supplies.

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State Program Brief/Pesticides in Ground Water
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# MAINE

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked for seriousness.
Contaminating Pesticides	Aldicarb
Monitoring Program Status	<p>The state has analyzed all Public Water Systems (PWSs) twice for regulated pesticides (none detected), and intends to analyze new PWSs for regulated pesticides.</p> <p>Union Carbide, with the cooperation of the Pesticide Control Board, sampled 164 wells for aldicarb.</p> <p>The Drinking Water Program Manager is working on a new program that will divide the state into four regions where they will look for specific pesticides in ground water that can be identified by agricultural land usage. The Drinking Water Program has coordinated with the Pesticide Control Board to determine specific crops grown and chemicals used in the area. The scope of work for this project should be completed by mid-February with monitoring commencing in the spring. The associated costs, space, and time have already been arranged with the state laboratory to conduct this analysis.</p> <p>A monitoring program has been developed to monitor impacts from pesticides/herbicides application associated with various land use activities in the vicinity of water supplies. Priority will be given to pesticides commonly used in Maine and those that pose the greatest threat of contaminating ground water. The project will test approximately 237 samples and cost about \$80,000.</p>
Enforcement Authority	Department of Agriculture, Food and Rural Resources, Board of Pesticide Control (DAFRR/BPC)
Grants	<p><u>Section 106 Ground-water Grant.</u> Will establish mechanism to ensure implementation of state's ground-water policy. Includes monitoring and planning for pesticide control.</p> <p><u>FIFRA Enforcement Grant.</u> Aldicarb contamination of ground water in Aroostock County continues to present a problem for the BPC. BPC cannot determine whether aldicarb is being applied in compliance with the label or whether the insecticide is a potential contaminant under any circumstances.</p> <p><u>Other Grants.</u> SDWA funds provide the necessary resources for the \$80,000 program.</p>

State Program Brief/Pesticides in Ground Water
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**MAINE (cont'd)**

Contamination Control Programs	Maine issued a state local use registration for aldicarb through an additional label restriction. All use is now prohibited within 500 feet of a well used for drinking water.
Other Activities	No data.
State Agency Contacts	<p>Frank Fiore Management Planning Division Department of Environmental Protection State House Station 17 Augusta, ME 04333 (207) 289-2811</p> <p>Robert Denny Director Pesticides Control Board State Office Building - Station 28 Augusta, ME 04330 (207) 289-2731 FTS: 8-868-2731</p>

State Program Brief/Pesticides in Ground Water
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**MASSACHUSETTS**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	EDB
Monitoring Program Status	<p>The regulated pesticides have been analyzed for all surface sources (none detected). The Division of Water Supply in conjunction with the Pesticide Bureau has completed an extensive study of EDB contamination of ground-water supplies. A total of 273 sources were sampled, of which 63 were Public Water Systems.</p> <p>The Water Supply Branch in Region I has initiated a sampling/monitoring study of selected water supplies, both public and private. This study is concentrated in western Massachusetts and will supplement the work done by the Pesticide Bureau and the Division of Water Supply. Approximately 30 sites have been sampled and are being analyzed for EDB and hydrocarbon content. Analytical support is provided by a contract laboratory in Madison, Wisconsin. The results from this study should be ready in February and will help define the overall impact of EDB contamination in public and private water supplies in the Connecticut River Valley.</p> <p>The state has begun a monitoring program to test for seven agricultural pesticides in public and private wells in 24 communities in the Connecticut Valley.</p> <p>A pesticide use survey has been initiated. Questionnaires have been sent to 200 lawn care, landscaping, and golf course maintenance companies. The information will be used to develop the state's long-term pesticide strategy.</p>
Enforcement Authority	Department of Food and Agriculture, Bureau of Pesticides
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> The department has initiated a ground-water testing program, which in addition to the administrative functions pertinent to the enforcement program, required much of the time and resources of the remaining inspectional staff.</p>

State Program Brief/Pesticides in Ground Water
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**MASSACHUSETTS (cont'd)**

Massachusetts concurs with the National Priorities listed in the FY 85 grant guide, specifically in relation to enforcement activity related to groundwater contamination.

Other Grants. Section 205j funds are being utilized to support the pesticide task force.

Contamination  
Control  
Programs

A new interagency task force has been formed, headed by the Director of the Division of Water Supply, to examine and deal with pesticide contamination of ground water. Currently, they have a memo of understanding with the Pesticide Bureau to examine pesticide practices in the state. This information will be used to develop a long-range pesticide strategy and to identify resource needs.

Other  
Activities

The Pesticide Control Board issued an emergency order (90 days) banning the use of aldicarb on potato fields within 1,000 feet of water supply wells.

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State Program Brief/Pesticides in Ground Water
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**NEW HAMPSHIRE**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No specific pesticides reported.
Monitoring Program Status	The Water Supply and Pollution Control Commission, the Division of Public Health Services and the Pesticide Control Division have begun a monitoring program to sample ground water in high pesticide use areas. The first phase of this project will focus on areas abutting apple orchards. Eight cluster areas in three towns will have two samples per cluster taken and analyzed for 17 sentinel pesticides, insecticides, herbicides, and fungicides. During FY 86 this survey will be expanded to examine impacts from approximately 10 sites abutting extensive vegetable-growing areas and approximately 10 sites near golf courses.
Enforcement Authority	Division of Pesticide Control, Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> Program to be developed to look at ground-water impacts in areas of prior agricultural operations. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**NEW HAMPSHIRE (cont'd)**

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State Program Brief/Pesticides in Ground Water
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## RHODE ISLAND

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	Aldicarb
Monitoring Program Status	<p>Monitors all their Public Water Systems (PWSs) annually, surface as well as ground, for the regulated pesticides. The state has completed extensive study of nearly all PWSs, both surface and ground, for aldicarb contamination. All private wells within 1/2-mile radius of about 130 potato fields were sampled. The study identified approximately two PWSs and 15 private wells as being contaminated. The state has refused to register aldicarb for the 1985 growing season due to lack of appropriate labeling restrictions regarding use. It is uncertain which pesticide potato farmers will use in lieu of aldicarb.</p> <p>The Rhode Island Department of Environmental Management has recently released for bid a survey that will sample approximately 500 wells for ground water impacts from certain land uses. Eight categories of land use are being addressed, three of which (agriculture, turf farming, and silviculture and nursery operations) will deal with pesticide and fertilizer impacts.</p>
Enforcement Authority	Department of Environmental Management
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> Monitoring of use and enforcement against pesticide misuses that could result in pesticide contamination of groundwater will be the third priority. Rhode Island possesses a number of groundwater aquifers that may serve as a valuable source of drinking water in the future.</p> <p><u>Other Grants.</u> No data.</p>

State Program Brief/Pesticides in Ground Water
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## RHODE ISLAND (cont'd)

Contamination Control Programs	<p>Denied state registration of Temik 15G® (aldicarb) and its use for 1985. Ban may continue into 1986.</p> <p>The pesticide Advisory Board has been abolished.</p> <p>An act relating to pesticide contamination was passed and took effect on July 1, 1985, and establishes a Pesticide Relief Fund. This fund will be used for (1) "emergency relief for pesticide contamination and (2) financial support for pest control methods that reduce or eliminate reliance on chemicals, particularly support for integrated pest management. The fund is financed by annual pesticide registration fees. The fund can be used for testing and monitoring domestic water supplies, carbon filters and other treatment devices, bottled water, alternative water supplies, other environmental monitoring, municipal grants up to one-third the cost of extending public water supply systems to serve areas of multiple domestic water supplies, grants for integrated pest management, research, and public education.</p> <p>A Pesticide Relief Advisory Board was also established in this bill. The board will make recommendations to the director of DEM regarding uses for the fund and will provide advice on pesticides and the health dangers associated with pesticide use. The board will consist of 11 members--10 public members and the chairperson of the joint committee on the environment or his/her designee. (The Advisory Board described previously no longer exists.)</p> <p>An appropriation bill for \$100,000 was also passed to purchase filters for private wells contaminated with aldicarb above the state action level of 10 ppb.</p>
Other Activities	<p>The Rhode Island Department of Health recently purchased new equipment to do all pesticide analysis in-house. This should be on line in March 1985.</p>

State Program Brief/Pesticides in Ground Water
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**RHODE ISLAND (cont'd)**

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State Program Brief/Pesticides in Ground Water
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**VERMONT**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	<p>The Health Department has initiated a special study on herbicides used and the impacts on ground water. They are looking at three sites that use different herbicides and are studying transport and contamination of ground water.</p> <ol style="list-style-type: none"> <li>1) Highway guard rail site - Bromacil and 2,4,D</li> <li>2) Railroad site - Diuron, atrazine and prometon</li> <li>3) Electric utility right-of-way - Triclopyr and 2,4,D</li> </ol> <p>Each site has four test wells, one up gradient and three wells down gradient. The study began in spring 1984, samples were collected during the summer and fall, and additional sampling will be done during 1985. Results to date have not detected any herbicides. Well screens were set five feet below the water table, which is approximately 15 feet deep at two sites, 60 feet deep at the third site.</p>
Enforcement Authority	Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> A use-related priority includes enforcement against misuse of pesticides that could result in contamination of ground water.</p> <p>Contaminated ground water, from the use/misuse of pesticides by the dairy industry is of great concern.</p> <p>The monitoring of chemical run-offs or movement off site will identify existing problems or situations that pose potential problems if left unchecked.</p> <p><u>Other Grants.</u> No data.</p>

State Program Brief/Pesticides in Ground Water
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**VERMONT** (cont'd)

Contamination Control Programs	Vermont issued a state local use registration prohibiting the use of aldicarb within 500 feet of a private well used for drinking water.
Other Activities	A Vermont pesticide law was passed in June 1985 and will utilize increased pesticide registration fees for a pesticide monitoring program.
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State Program Brief/Pesticides in Ground Water
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**NEW JERSEY**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked in the top four for seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Environmental Protection, Bureau of Pesticide Control
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
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State Program Brief/Pesticides in Ground Water
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## NEW YORK

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	Aldicarb (Temik), carbaryl (Sevin), methomyl (Lannate), carbofuran (Furadan), chlorothalonil (Bravo), dacthal (DCPA), 1,2-dicloropropane, dinoseb, oxamyl (Vydate), and picloram
Monitoring Program Status	An extensive aldicarb sampling program was undertaken by Suffolk County Department of Health Services and Union Carbide Corporation. Other pesticides that have been monitored include EDB, and 1,2-dichloropropane. The Suffolk County Department of Health Services has begun an extensive pesticide monitoring program. Additionally, Cornell University and the New York State Department of Health have monitored for aldicarb in upstate New York.
Enforcement Authority	Department of Environmental Conservation
Grants	<p><u>Section 106 Ground-water Grant.</u> A pesticide control assessment of upstate New York is under way.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**NEW YORK (cont'd)**

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State Program Brief/Pesticides in Ground Water
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**PUERTO RICO**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
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State Program Brief/Pesticides in Ground Water
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**VIRGIN ISLANDS**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Conservation and Cultural Affairs
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
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State Program Brief/Pesticides in Ground Water
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**DELAWARE**

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 1 in seriousness. Note: Three other sources were also ranked No. 1.
Contaminating Pesticides	No pesticides found in public water systems. Some samples collected in agricultural fields have yielded trace amounts of atrazine.
Monitoring Program Status	Investigations have been conducted into pesticides in ground water public water systems. Concerns exist that these studies may not have been sufficiently comprehensive. Studies are currently being conducted on water-soluble pesticides in corn and soybean fields via monitoring wells. The University of Delaware is also conducting experiments with six commonly used pesticides and herbicides on test plots.
Enforcement Authority	Department of Agriculture, Division of Protection and Promotion
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> Pesticide enforcement activities and operator certification are funded under this grant.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Department of Agriculture runs the pesticide certification, labeling, and licensing program. It also provides advice on application procedures and doses.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**DELAWARE** (cont'd)State  
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State Program Brief/Pesticides in Ground Water
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**MARYLAND**

Sources of Contamination	Agricultural activities have been reported as a contamination source.
Contaminating Pesticides	Trace quantities of Atrazine, Simazine, Alachlor, and Trifluralin
Monitoring Program Status	No specific program currently monitors for pesticide contamination. Pesticides are usually detected through other existing enforcement programs (i.e., UIC, PWS, NPDES, and MACS).
Enforcement Authority	Department of Agriculture ( <u>Note</u> : The Department of Health and Mental Hygiene, Water Management Administration enforces federal/state drinking water program, and controls pesticides and other contaminants directly impacting ground water.)
Grants	<p><u>Section 106 Ground-water Grant.</u> The Department of Health and Mental Hygiene is using a \$112,000 grant to develop a ground-water strategy.</p> <p><u>FIFRA Enforcement Grant.</u> Department of Agriculture and Soil Conservation Service are administering the grant (\$300,000) including operator certification.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Contamination is controlled through Public Water Supply Monitoring Program, Toxic Materials Permits Program, Ground Water Discharge Permits, and Maryland Agricultural Cost-Share Program.
Other Activities	Strict soil conservation controls are in effect.

State Program Brief/Pesticides in Ground Water
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**MARYLAND (cont'd)**

State  
Agency  
Contacts

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Program Development Division  
Office of Environmental Programs  
Maryland Department of Health and Mental Hygiene  
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Baltimore, MD 21201  
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David Shriver  
Chief  
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Maryland Department of Agriculture  
50 Harry S. Truman Parkway  
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State Program Brief/Pesticides in Ground Water
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**PENNSYLVANIA**

Sources of Contamination	Agricultural activities were reported as one contamination source.																									
Contaminating Pesticides	Atrazine, Simazine, Alachlor, and Metolachlor.																									
Monitoring Program Status	Case-by-case basis.																									
Enforcement Authority	Department of Agriculture, Bureau of Plant Industry																									
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> Pesticide enforcement activities and certification of operators were funded by the grant. <u>Other Grants.</u> No data.																									
Contamination Control Programs	No data.																									
Other Activities	<p>The Conestoga River Basin Rural Clean Water Project has, as a secondary objective, the goal of obtaining monitoring data to characterize the pesticide problem in ground water. No current monitoring data are available from the literature at hand. However, 1983 regional ground-water pesticide data are given in tabular form as follows:</p> <table><tr><th>Pesticide</th><th>n</th><th>Maximum (ug/L)</th><th>% Samples &gt;Detection Limit</th><th>Detection Limit</th></tr><tr><td>Atrazine</td><td>99</td><td>3.0</td><td>36</td><td>0.2 ug/L</td></tr><tr><td>Simazine</td><td>99</td><td>3.4</td><td>15</td><td>0.2 ug/L</td></tr><tr><td>Alachlor</td><td>99</td><td>3.0</td><td>10</td><td>0.05 ug/L</td></tr><tr><td>Metolachlor</td><td>9</td><td>0.4</td><td>6</td><td>0.01 ug/L</td></tr></table>	Pesticide	n	Maximum (ug/L)	% Samples >Detection Limit	Detection Limit	Atrazine	99	3.0	36	0.2 ug/L	Simazine	99	3.4	15	0.2 ug/L	Alachlor	99	3.0	10	0.05 ug/L	Metolachlor	9	0.4	6	0.01 ug/L
Pesticide	n	Maximum (ug/L)	% Samples >Detection Limit	Detection Limit																						
Atrazine	99	3.0	36	0.2 ug/L																						
Simazine	99	3.4	15	0.2 ug/L																						
Alachlor	99	3.0	10	0.05 ug/L																						
Metolachlor	9	0.4	6	0.01 ug/L																						

State Program Brief/Pesticides in Ground Water
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**PENNSYLVANIA (cont'd)**

State  
Agency  
Contacts

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P.O. Box 2063  
Harrisburg, PA 17120  
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Pesticides Operations Coordinator  
Pennsylvania Department of Agriculture  
2301 N. Cameron Street  
Harrisburg, PA 17110  
(717) 787-4843

State Program Brief/Pesticides in Ground Water
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**VIRGINIA**

Sources of Contamination	Agricultural activities were reported as a contamination source. Domestic termite control was also reported as a contamination source.
Contaminating Pesticides	Chlordane, EDB, and arsenic
Monitoring Program Status	Monitoring as required for known sites.
Enforcement Authority	Department of Agriculture and Consumer Services, Division of Product and Industry Regulations
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> Pesticide enforcement and operator certification are on-going. <u>Other Grants.</u> No data.
Contamination Control Programs	Ground-Water Pollution Education Program is an awareness program initiated for county agents.
Other Activities	Completed a state-wide survey in response to cases of EDB contamination in Florida.
State Agency Contacts	P.J. Smith Office of Water Resources Management Virginia Water Control Board 2111 N. Hamilton Street Richmond, VA 23230 (804) 257-0072  Harry K. Rust Supervisor Virginia Department of Agriculture & Consumer Service P.O. Box 1163 Richmond, VA 23209 (804) 786-3798 FTS: 8-963-3798

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### WEST VIRGINIA

Sources of Contamination	Agricultural activities were reported as a contamination source.
Contaminating Pesticides	Tordon (2 cases) and Atrazine (1 case)
Monitoring Program Status	The West Virginia Department of Health (DOH) Drinking Water Program monitors certain pesticides.
Enforcement Authority	Department of Agriculture (DOA), Plant Pest Control Division
Grants	<p><u>Section 106 Ground-water Grant.</u> A comprehensive ground-water plan, which includes pesticides management, is under development.</p> <p><u>FIFRA Enforcement Grant.</u> DOA observes application activities for compliance and investigates complaints, but it has no specific ground-water program.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Implemented through DOH and DOA.
Other Activities	No data.
State Agency Contacts	<p>Timothy Laraway, Branch Head Solid and Hazardous Waste/Ground Water Branch Division of Water Resources West Virginia Department of Natural Resources 1201 Greenbrier Street Charleston, WV 25311 (304) 348-5935</p> <p>Dr. Charles Coffman Director Plant Pest Control Division West Virginia Department of Agriculture Capitol Building Charleston, WV 25305 (304) 348-2212</p>

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**ALABAMA**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in the top four in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture and Industries, Division of Agricultural Chemistry and Plant Industries
Grants	<p><u>Section 106 Ground-water Grant.</u> While the state plans to support a variety of ground-water activities with Section 106 funds in FY 86, it has no plans to include ground-water monitoring for pesticides.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	<p>John Poole Chief Ground-Water Section Department of Environmental Management 1751 Federal Drive Montgomery, AL 36130 (205) 271-7832</p> <p>John A. Bloch (also, John Cousins) Director Ag. Chemistry/Plant Industry Division Alabama Department of Agriculture &amp; Commerce P.O. Box 3336 Montgomery, AL 36193 (205) 832-3753</p>

State Program Brief/Pesticides in Ground Water
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### FLORIDA

Sources of Contamination	Agricultural activities and stormwater runoff from agricultural activities have been reported as a contamination source and ranked No. 1 in seriousness. Note: Two other sources were also ranked No. 1.
Contaminating Pesticides	EDB, aldicarb (Temik), Silvex, and Lindane
Monitoring Program Status	Program established to assess impact of pesticide applications. In response to cases of EDB and Temik contamination and as a result of the Florida Water Quality Assurance Act of 1983, an extensive monitoring program has now been initiated. The Act requires placing into effect an extensive ground-water monitoring network for the purpose of monitoring the impact of pesticide application on ground-water aquifers on a permanent basis. Over 1,800 monitoring wells have been identified as suitable. A central publicly accessible repository of the data has been established.
Enforcement Authority	Department of Agriculture and Consumer Services, Division of Inspection
Grants	<p><u>Section 106 Ground-water Grant.</u> Funds have been used to monitor for pesticides, especially Temik and EDB.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	A major study is being conducted by the Florida Department of Environmental Regulation (FDER) in cooperation with the University of Florida and a consulting firm (CH <sub>2</sub> M Hill) to evaluate the behavior and fate of EDB in ground water. A Pesticide Review Council has been established by the Water Quality Act to provide technical assistance in regards to the use of new pesticides. A Pesticide Section was established within the FDER and an existing pesticide section was strengthened in the Department of Agriculture to better address the regulation of pesticide use and its environmental fate. Corrective action is being undertaken for EDB-contaminated water.

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**FLORIDA** (cont'd)Other  
Activities

No data.

State  
Agency  
Contacts

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 Administrator Ground-Water Section  
 Department of Environmental Regulation  
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 2600 Blair Stone Road  
 Tallahassee, FL 32301  
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Roger Inman  
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 Department of Agriculture and Consumer Services  
 Mayo Building  
 Tallahassee, FL 32301  
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State Program Brief/Pesticides in Ground Water
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**GEORGIA**

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 2 in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	Ground-water monitoring does include occasional monitoring for pesticides. The monitoring being done in southwest Georgia was started as a survey in Seminole County after EDB was found in some water supply systems. This monitoring has continued with EPA, ORD (HQ) paying USGS to continue sampling and to set up a test site of 10 acres to which pesticides are applied and traced. The area was chosen because USGS and the State Geological Survey have very complete data on surface and subsurface conditions in the area. Continued testing is planned for FY 86.
Enforcement Authority	Department of Agriculture, Pesticides Division
Grants	<u>Section 106 Ground-water Grant.</u> Ground-Water Monitoring Network includes monitoring for pesticides. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	Georgia has an ongoing research project involving pesticide mobility in ground water.



State Program Brief/Pesticides in Ground Water
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**GEORGIA (cont'd)****State  
Agency  
Contacts**

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Assistant Director  
Environmental Protection Division  
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Department of Agriculture  
19 Martin L. King, Jr. Drive, S.W.  
Atlanta, GA 30334  
(404) 656-4958

State Program Brief/Pesticides in Ground Water
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**KENTUCKY**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture, Division of Pesticides
Grants	<p><u>Section 106 Ground-water Grant.</u> The pesticides monitoring effort was part of a model development and check of model accuracy. The model was for karst formations; karst aquifers are prevalent in Kentucky and provide very rapid ground-water and, therefore, pollutant transport. Pesticides were among the pollutants being monitored. The report on this work is to be published in February 1986.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.

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**KENTUCKY (cont'd)**

State  
Agency  
Contacts

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Division of Pesticides  
Department of Agriculture  
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Frankfort, KY 40601  
(502) 564-7274

State Program Brief/Pesticides in Ground Water
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**MISSISSIPPI**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture and Commerce, Division of Plant Industry
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	William A. Barnett (also, Darrell Schmidz) Coordinator Ground-Water Protection Program Department of Natural Resources P.O. Box 10385 Jackson, MS 39209 (601) 961-5171  Jack D. Coley (also, Robert McCarty) Director Division of Plant Industry Department of Agriculture & Commerce P.O. Box 5207 Mississippi State, MS 39762 (601) 325-3390

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**NORTH CAROLINA**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	The state regularly monitors several hundred wells for USGS data but does not monitor for pesticides and does not plan to start such monitoring. The aldicarb and EDB monitoring was done as part of a joint training effort of the Department of Natural Resources and Community Development and the North Carolina Department of Agriculture. Aldicarb and EDB were not found in the samples tested. Training was for pesticides applicators.
Enforcement Authority	Department of Agriculture, Pesticide and Plant Protection Division
Grants	<p><u>Section 106 Ground-water Grant.</u> Considering ground-water monitoring and areas of pesticide use as possible activities, but no resources allotted.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> North Carolina's grant applications for FY 85 and FY 86 do not request funds for support of monitoring pesticides in ground water. The state has and funds its own ground-water monitoring program and finds this program adequate for its needs.</p>
Contamination Control Programs	No data.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**NORTH CAROLINA (cont'd)**

State  
Agency  
Contacts

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John L. Smith  
Pesticide Administrator  
Pest Control Division  
Department of Agriculture  
State Agriculture Building  
Raleigh, NC 27611  
(919) 733-3556

State Program Brief/Pesticides in Ground Water
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**SOUTH CAROLINA**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked for seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	Public drinking water systems are monitored for Maximum Contaminant Levels (MCLs) by the State Department of Health and Environmental Control.
Enforcement Authority	Delegated to Clemson University, Division of Regulatory and Public Services Programs. The Department of Health and Environmental Control becomes involved when public water supplies and/or public health are impacted.
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> The state is developing a qualitative analysis outlining ground-water contamination as an area of major concern, and is developing education and enforcement programs to mitigate pesticide misuse.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	Since the elimination of a DBCP problem several years ago, the state has experienced very few problems with pesticides contamination of ground water. There is very little evidence of pesticides misuse. The Plant Pest Regulatory Service, working closely with the Department of Health and Environmental Control, plans to obtain data on pesticides contamination of ground water after EPA sets health advisory levels. Until these health advisory levels are published, the state does not plan to declare pesticides a major ground-water concern.

State Program Brief/Pesticides in Ground Water
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**SOUTH CAROLINA (cont'd)**

State  
Agency  
Contacts

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2600 Bull Street  
Columbia, SC 29201  
(317) 758-5213

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Plant Pest Regulatory Service  
210 Barre Hall, Clemson University  
Clemson, SC 29631  
(803) 656-3171



State Program Brief/Pesticides in Ground Water
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## TENNESSEE

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	<p>The monitoring in Hardeman County is for a Velsicol landfill containing pesticides manufacturing wastes, mainly from the manufacture of endrin, heptachlor, and heptechlor - epoxide. Area wells were found to be contaminated in 1974-75 and remedial action was begun in 1978. Currently, a cap has been placed over the burial site and a modified monitoring program continues. This program determines whether pollution is leaching through the capped landfill. Results to date are inconclusive. The plan is to monitor for three more years and then report results. The end point results may still not achieve drinking water standards.</p> <p>The monitoring in the Memphis area is at the Hollywood Dump and is not specific to pesticides. Results to date do not indicate ground-water contamination by pesticides.</p> <p>The Tennessee Wildlife Resources Agency will manage a State Geographic Information System monitoring for all state agencies in FY 86.</p>
Enforcement Authority	Department of Agriculture, Division of Plant Industries
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.

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**TENNESSEE (cont'd)**

State  
Agency  
Contacts

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Nashville, TN 37204  
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**ILLINOIS**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	State plan discusses ground water in the context of non-point source control for agricultural use of pesticides.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**ILLINOIS (cont'd)**

State  
Agency  
Contacts

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535 West Jefferson  
Springfield, IL 62761  
(217) 782-4674

State Program Brief/Pesticides in Ground Water
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**INDIANA**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No ground-water monitoring projects are planned or in effect.
Enforcement Authority	Indiana State Chemist Office. Actual monitoring of pesticide levels in ground water is outside the legal responsibility of the state chemist.
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	Planning increased surveillance for improper disposal of waste pesticides and containers, and runoff from storage and loading facilities. No resources established for surveillance.

State Program Brief/Pesticides in Ground Water
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**INDIANA** (cont'd)

State  
Agency  
Contacts

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Office of State Chemist  
Department of Biochemistry  
Purdue University  
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(317) 494-1587

State Program Brief/Pesticides in Ground Water
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**MICHIGAN**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No formalized ground-water monitoring program exists; none is planned. Limited sampling conducted in response to complaints and pesticide incidents. Assessments made to enforce state pesticide law.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> Strategy under development and should be completed in FY 86. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Richard Johns Director Ground-Water Quality Division Michigan Department of Natural Resources P.O. Box 30028 Lansing, MI 48989 (517) 373-1947  Robert Kirkpatrick Plant Industry Division Department of Agriculture Lewis Cass Building Lansing, MI 48909 (517) 373-1087

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**MINNESOTA**

Sources of Contamination	<p>Agricultural activities have been reported as a contamination source and ranked No. 2 in seriousness.</p> <p>Pollution from agricultural practices is believed to be widespread in the Karst area of the southeast and the intensely irrigated sand plains of west-central Minnesota.</p>
Contaminating Pesticides	No data.
Monitoring Program Status	<p>In 1984, the Department of Agriculture conducted a limited ground-water monitoring program for pesticides.</p> <p>At the beginning of FY 84, no ground-water monitoring projects were being conducted solely for pesticides in the state. The Minnesota Department of Agriculture (MDA) has recognized the importance of the potential for ground-water contamination as brought to evidence recently in several instances across the United States.</p> <p>Discussions between MDA and the U.S. Geological Survey (USGS) in 1983 and early 1984 resulted in the formation of a monitoring plan that addressed three areas of the state in which 1) agricultural pesticides are used extensively, 2) there are sandy soils, and 3) land is intensively irrigated. In two of the areas (Bonanza Valley--Sterns, Pope, and Kandiyohi counties, and Anoka Sand Plain--Anoka, Isanti, and Sherburne counties), USGS has placed several test wells in the elevated aquifers that are used in USGS hydrology work. The MDA used selected USGS test wells for this survey. The remaining MDA monitoring locale (Karst Topography Area) in southeastern Minnesota does not contain any USGS test wells and was not utilized in actual sampling during 1984.</p> <p>Thirty wells were selected for sampling from the Bonanza Valley and Anoka Sand Plain. All of these wells are characterized as shallow, ranging between 1 1/2 and 20 feet deep. The monitoring plan called for water samples to be collected and analyzed on the following schedule: 1) pre-pesticide application and pre-spring recharge, 2) mid-season (July), and 3) post-season (September/October). Samples were to be analyzed for specific pesticides used in these regions, and a general screen was to be run for organochlorine (OC), organonitrogen (ON), organophosphate (OP), and phenoxy acid pesticides.</p> <p>Phase I sampling was completed in late May and Phase II in late June, and Phase III was conducted in late October. During the Phase II sampling effort, a Groundwater Pesticide Surveillance</p>



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**MINNESOTA (cont'd)**

Preliminary Questionnaire was hand-delivered to persons whose lands contained the wells. The questionnaire obtained pesticide-use histories on those lands where the test wells were located. The findings were reported as follows:

<u>Sampling Phase</u>	<u>Number of Samples</u>	<u>Samples with OC, OP, or ON Peaks</u>
I	25	5
II	30	8
III	12	0

The MDA wants to expand its monitoring efforts, but this will be contingent upon receiving specific funding and manpower increases from the state legislature. At this time, the Minnesota Department of Health (MDH) Organic Chemicals Survey, of which MDA is a part, is in the process of being authorized and funded at \$365,000; funding for this survey is tentatively scheduled to begin in state FY 86 and continue through FY 87. The project proposal describes two surveys to be conducted by MDH, and one survey by MDA: 85 test wells where ground-water samples will be taken to determine presence of agricultural chemicals in areas of the state having sensitive aquifers.

Enforcement  
Authority

Department of Agriculture

Grants

Section 106 Ground-water Grant. No activities.

FIFRA Enforcement Grant. No activities.

Other Grants. No data.

Contamination  
Control  
Program

No data.

Other  
Activities

Rural Clean Water Program Project. Agricultural sources have been identified as a source of contamination in the Garvin Brook area. The project determined that insecticides were used for rootworm control and that herbicides also were used. A total of 20 contracts have been signed by watershed land owners to implement Best Management Practices (BMPs) for the area.

State Program Brief/Pesticides in Ground Water
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**MINNESOTA** (cont'd)

A recent ranking of public concerns placed ground-water contamination as the fourth priority.

State  
Agency  
Contacts

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State Program Brief/Pesticides in Ground Water
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**OHIO**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Russ Stein Chief Ground-Water Section Water Quality Monitoring & Assessment Division Ohio Environmental Protection Agency 361 E. Broad Street Columbus, OH 43216 (614) 466-9092  Oren Spilker Specialist in Charge of Pesticides Department of Agriculture 8995 East Main Street Reynoldsburg, OH 43068 (614) 866-6361

State Program Brief/Pesticides in Ground Water
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**WISCONSIN**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	Aldicarb
Monitoring Program Status	<p>Of the 363 well water samples collected, 19 percent contained aldicarb. Extensive sampling has been conducted for aldicarb by Department of Natural Resources (DNR), Union Carbide, the University of Wisconsin, and the Portage County Community Human Services Department.</p> <p>The DNR has an ongoing pesticide sampling program for 45 priority pesticides. Funding is expected to remain at approximately \$100,000 per year, expenditures will be used to expand and improve the capabilities of the State Hygiene Laboratory. It was reported by the ground water staff of the DNR that the emphasis of their sampling program for pesticides may be shifting away from non-point to point sources due to recent contamination discoveries at handling and storage facilities.</p>
Enforcement Authority	Department of Agriculture, Trade and Consumer Protection (DATCP)
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> Ground-water legislation was signed into law in May 1984. DATCP will participate in extensive rulemaking during FY 1985 to carry out the legislative mandates.</p> <p>Five new positions will be added to the Agricultural Resource Management Division: a field inspector, supervising inspector, hydrologist/geologist, and two soil scientists.</p> <p>Ground-water protection from pesticide contamination was the fourth ranking priority as defined by WDATCP Plant Industry Inspectors.</p>

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**WISCONSIN (cont'd)**

"Groundwater statutes require the department to write and administer rules to, among other things, protect groundwater from contamination caused by bulk storage pesticides, identify and rank pesticides which have been detected in or have a reasonable probability of entering the groundwater, define management practices to minimize pesticides from entering groundwater at levels exceeding the Preventive Action Limit, and to set forth the range of responses the department may take if the Preventive Action Limit or Enforcement Standard is attained or exceeded."

Other Grants. No data.

Contamination  
Control  
Programs

Severe restrictions were placed on the use of aldicarb. The restrictions were in the form of five label changes submitted by Union Carbide to EPA. The label changes were included in a rule-making change of the DATCP. The purpose of the aldicarb rule was to minimize the quantity of total aldicarb reaching ground water and to prevent aldicarb levels in ground water from exceeding 10 ppb. The rule further requires users to file a report of intended use and restricts the use of aldicarb in areas where concentrations have exceeded 10 ppb.

On May 4, 1984, Wisconsin Governor Anthony Earl signed into law a ground water protection bill (Act 410) designed to protect the quality of that state's ground water. The bill requires each regulatory agency to identify substances that either have already been detected in ground water or are likely to reach ground water as a result of activities the agency regulates. Ground-water protection standards for those substances are then to be established on a two-tiered basis: "enforcement standards" and "preventive action levels."

The bill stipulates that a statewide ground-water monitoring and sampling system be established in order to implement the overall ground-water management program. The DNR in cooperation with other state agencies and a newly established Ground Water Coordinating Council (an eight-member council established by Act 410 to advise state agencies in the coordination of nonregulatory programs relating to ground water) is to develop and manage the ground water monitoring program. Five classifications of monitoring activities are outlined under Act 410. They include problem assessment monitoring, regulatory monitoring, at-rest monitoring, management practice monitoring, and monitoring plan development.

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**WISCONSIN (cont'd)**

The bill has other provisions relating to agriculture and ground water. A new program will be created within the DATCP to regulate the storage of bulk quantities of fertilizer and pesticides. In addition, the bill provides for laboratory certification and registration procedures to be established by the DNR.

A memorandum of understanding, pending signature (4/30/85), has been drafted by the DATCP and DNR and contains standards to ensure "the reliability of ground water sample data used by DATCP for regulatory or enforcement action when data have been generated by persons other than DATCP."

Other  
Activities

No data.

State  
Agency  
Contacts

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State Program Brief/Pesticides in Ground Water
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**ARKANSAS**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	State Plant Board
Grants	<u>Section 106 Ground-water Grant.</u> State ground-water monitoring program proposed which includes irrigation wells. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Ralph H. Desmarais Planning Specialist Arkansas Department of Pollution Control and Ecology P.O. Box 9583 Little Rock, AR 72209 (501) 562-7444  Ralph Pay Director Division of Feed, Fertilizer & Pesticides Arkansas State Plant Board 1 Natural Resources Road Little Rock, AR 72205 (501) 225-1598

State Program Brief/Pesticides in Ground Water
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**LOUISIANA**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture, Office of Agriculture and Environmental Sciences
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Patricia L. Norton Secretary Louisiana Department of Environmental Quality P.O. Box 44066 Baton Rouge, LA 70804 (504) 342-1265  H. F. "Butch" Calhoun III Office of Agricultural & Environmental Sciences Louisiana Department of Agriculture P.O. Box 11453 Baton Rouge, LA 70804 (504) 925-3763



State Program Brief/Pesticides in Ground Water
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**NEW MEXICO**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	The Department of Agriculture monitors in areas of known or suspected problems.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> Work plan does not presently include ground-water tasks, but will in future. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Maxine Goad Program Manager Ground-Water Section Groundwater & Hazardous Waste Bureau New Mexico Environmental Improvement Division P.O. Box 968 Santa Fe, NM 87504 (505) 984-0020  Barry E. Patterson Director Division of Agricultural & Environmental Services New Mexico State Department of Agriculture P.O. Box 3150 New Mexico State University Las Cruces, NM 88003 (505) 646-2674

State Program Brief/Pesticides in Ground Water
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**OKLAHOMA**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	The Department of Health conducts monitoring programs every three years at each public water supply site with ground-water sources. Major aquifers are also monitored. The Department of Agriculture will conduct an exploratory study.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	David Harkness Assistant Director Oklahoma Department of Pollution Control P.O. Box 53504 Oklahoma City, OK 73152 (405) 271-4677  A. L. Bonner Assistant Director Plant Industry Division Oklahoma State Department of Agriculture 2800 North Lincoln Oklahoma City, OK 73105 (405) 521-3864 or 3871

State Program Brief/Pesticides in Ground Water
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**TEXAS**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	No data available indicating specific pesticides, however, isolated incidents of ground-water contamination by pesticides have been documented.
Monitoring Program Status	Rural water supplies are not being monitored for pesticides. The Texas Department of Agriculture (TDA) is currently assessing the source and extent of arsenic contamination in ground water in West Texas. The TDA is also attempting to expand its laboratory services and environmental monitoring plan to include monitoring of ground water in areas susceptible to contamination by pesticides. Additionally, the TDA is working with the Texas Department of Water Resources to identify areas of potential contamination and to initiate testing to assess the seriousness of the problem.
Enforcement Authority	Department of Agriculture.
Grants	<p><u>Section 106 Ground-water Grant.</u> Conducted a survey of a interdisciplinary groundwater data base.</p> <p><u>FIFRA Ground-water Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**TEXAS** (cont'd)

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Agency  
Contacts

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State Program Brief/Pesticides in Ground Water
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**IOWA**

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 1 in seriousness. Well sampling was conducted for 34 pesticides; 6 were found.
Contaminating Pesticides	Atrazine (dominant pesticide), cyanazine, alachlor, metolachlor, and fonofos
Monitoring Program Status	Sampling is routinely conducted at Big Spring in cooperation with Iowa Geological Survey, the University Hygienic Lab, and the Conservation Commission. The Iowa Department of Water, Air, and Waste Management (IDWAWM) is currently developing ground-water monitoring strategy.
Enforcement Authority	The Department of Agriculture registers pesticides and certifies operators. IDWAWM has ground-water protection responsibilities.
Grants	<p><u>Section 106 Ground-water Grant.</u> No current activities; however, application for \$204,000 received in Regional Office.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> Section 205(j) has provided funds for monitoring, regional implementation of ground-water programs, and statewide ground-water protection strategy.</p>
Contamination Control Programs	Soil Conservation District and Department of Soil Conservation have contamination control programs and policies. An integrated pest management program is also in place.
Other Activities	ISU Expt. Station has ongoing studies to determine fate of herbicides applied to cropland. Big Spring Basin demonstration project proposed to address these and other issues.

State Program Brief/Pesticides in Ground Water
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**IOWA (cont'd)**

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Contacts

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State Program Brief/Pesticides in Ground Water
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**KANSAS**

Sources of Contamination	Limited data indicate some ground-water contamination by pesticides. Extent of contamination and level of significance are unknown.
Contaminating Pesticides	Atrazine and 2,4-D
Monitoring Program Status	State and federal surface and ground-water monitoring program has been established. The Kansas Department of Health and Environment (KDHE) and the U.S. Geological Survey (USGS) initiated a ground-water quality monitoring network in 1970, which now totals 926 wells. The network currently samples 250 wells per year and analyzes for anions/cations, heavy metals, TOC, pesticides, and radionuclides. The network was established to provide background characterization of 14 important aquifer regions. Generally adequate for design objectives, the network does not provide microscale information necessary to identify specific problems or extent of contamination.
Enforcement Authority	Kansas State Board of Agriculture administers the pesticide control program (inspecting and regulating pesticides, plant pests, and diseases).
Grants	<p><u>Section 106 Ground-water Grant.</u> Pesticide monitoring of ground water as part of overall State Action Program.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	The Kansas Chemigation Safety Act passed by 1985 legislature requires chemigation users to register with and obtain a permit from the Board of Agriculture. The act also requires use of antipollution devices and notification of actual or suspected accidents.
Other Activities	Section 208 funded, USGS Contract Study, irrigation return flow study will be completed by December 1985. Kansas Department of Health and Environment and USGS have initiated cooperative project to assess potential impacts of chemigation process.

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**KANSAS** (cont'd)

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State Program Brief/Pesticides in Ground Water
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**MISSOURI**

Sources of Contamination	Agricultural activities have been reported as a contamination source. In addition, fish tissue analyses have shown chlordane to be a contaminant of growing concern in several urban locations. Subsurface injection for termite control in residential areas cannot be discounted as a source of contamination.
Contaminating Pesticides	Chlordane
Monitoring Program Status	No data now, but Section 205(j) effort is under way to check public water supply wells throughout state and concentrate on Bootheel area in southeast Missouri for pesticides in current use. The Division of Environmental Quality of the Missouri Department of Natural Resources, in cooperation with the Department of Health and Agriculture, recently initiated a substantial pesticide monitoring program.
Enforcement Authority	Department of Agriculture. The Department of Natural Resources and Missouri Clean Water Commission also have enforcement authority through the Missouri Clean Water Law and its Water Quality Standards Regulation. (Pesticide limits for ground water are the same as for surface waters. Some pesticides are not allowed in waters of the state and others have numeric limits.)
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> No activities. <u>Other Grants.</u> Section 205(j) is funding the pesticide monitoring previously described.
Contamination Control Programs	No data.
Other Activities	No data.

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**MISSOURI (cont'd)**

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Agency  
Contacts

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State Program Brief/Pesticides in Ground Water
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**NEBRASKA**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness. A determination of the magnitude of problem cannot be made from existing data.
Contaminating Pesticides	Atrazine and alachlor
Monitoring Program Status	A monitoring strategy is currently being developed and will include monitoring for pesticides.
Enforcement Authority	Direct federal implementation.
Grants	<p><u>Section 106 Ground-water Grant.</u> Draft legislation has been developed for pesticide regulations and program financing. The legal consultant has completed the initial draft of the state Superfund legislation and is now working to complete the more comprehensive Ground Water Protection Act legislation.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Chemigation legislation did not pass the last legislative session. State continues to work with legislators and lobbyists on legislative activities, including state Superfund, nitrates, special protection areas, well driller certification, and a Comprehensive Ground Water Quality Protection Act.
Other Activities	No data.

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**NEBRASKA** (cont'd)

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State Program Brief/Pesticides in Ground Water
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### COLORADO

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 5 in seriousness.
Contaminating Pesticides	No data.
Monitoring Program Status	No data.
Enforcement Authority	Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> Develop public policy recommendations regarding chemigation.</p> <p><u>FIFRA Enforcement Grant.</u> \$6,000 grant directed to support development of slide-tape presentation. The Colorado Agriculture Department assumed the Commercial Applicator Pesticide Program in August 1985 and will be enforcing the program. However, no special ground water initiatives are planned at this time.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	Chemigation task group has developed background paper including statutory/regulatory options and considerations. Informal meetings are being held throughout state to further develop public policy recommendations regarding chemigation. Alachlor, atrazine, atrazine and metolachlor, captalol, carbaryl, penvalerate, pentin hydroxide, benomyl, chlorothalonil, and copper compounds are currently labeled for application through center pivot irrigation systems and are used in Colorado. The state health and agriculture departments have produced a slide-tape program on chemigation equipment and its proper and safe use. This slide-tape program is available for loan or purchase. Comprised of local, state, and federal agencies and organizations, the Colorado High Plains

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**COLORADO (cont'd)**

Technical Coordinating Committee has a Ground Water Subcommittee, which reviews and addresses agriculture water quality issues related to the Ogallala aquifer in Colorado.

**State  
Agency  
Contacts**

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State Program Brief/Pesticides in Ground Water
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**MONTANA**

Sources of Contamination	Agricultural activities were reported as a contamination source.
Contaminating Pesticides	Tordon, MCPA, 2,4-D, phenoxy herbicides and Dicamba detected in trace amounts.
Monitoring Program Status	Some ambient monitoring of pesticides only when a problem is suspected (complaint-basis monitoring). Monitoring in three selected areas (irrigated, loose soils; shallow aquifer, and heavy agricultural use) will continue in FY 86. Monitoring is also done in areas where spillage is likely.
Enforcement Authority	Department of Agriculture, Environmental Management Division.
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> No ground-water related activities reported for FY 85. Recently completed an FY 84 study entitled "A Survey of Potential Contamination of Ground Water Associated with Agricultural Production Practices in Montana."</p> <p>Recently received an EPA grant to study the relationship between pesticide application and ground and surface water contamination (part of FY 84 study). Ground-water monitoring in selected areas will continue to determine the degree and amount of pesticide contamination.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	<p>Certification training materials incorporate information on proper disposal of used containers. Disposal of pesticides and containers listed as state and federal priority in FY 86 Draft SEA.</p> <p>Department of Agriculture currently working with the USGS to make efficient use of USGS data.</p>

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**MONTANA** (cont'd)

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Contacts

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State Program Brief/Pesticides in Ground Water
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**NORTH DAKOTA**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked for seriousness. Sources include dry land agriculture chemical application (fertilizer, pesticide, and agricultural irrigation), leaching of salts and pesticides, and chemigation.
Contaminating Pesticides	The state is conducting two separate studies: 1) identification of potential environmental impacts resulting from the use of Tordon in the Turtle Mountains; and 2) identification of pesticides in the public water supply system. Completion date for these studies is December 1985.
Monitoring Program Status	State randomly samples ground-water supplies and analyzes for volatile and synthetic organics (ten detected last year). Some ambient monitoring when a problem is suspected.
Enforcement Authority	Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> \$30,000 of the grant is being used by the Department of Health to identify environmental impacts on ground water resulting from the use of pesticides.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Pesticide Act regulates the labeling and use of pesticides and established a pesticide control board.
Other Activities	Southeastern Arsenic Study undertaken to determine whether elevated levels of arsenic trioxide as a result of grasshopper control activities in the 1930s and 40s. About 470 well sites were analyzed, as well as 40 soil and rock samples.

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**NORTH DAKOTA (cont'd)**

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Agency  
Contacts

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State Program Brief/Pesticides in Ground Water
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**SOUTH DAKOTA**

Sources of Contamination	Agricultural activities have been reported as a source of contamination, but not ranked for seriousness.
Contaminating Pesticides	Top 10 pesticides in 1981 in Big Sioux Basin listed by use: 2,4-D, Treflan, Lasso, MCPA, Banvel, Parathion, Atrazine, 2,4-D and Banvel, Sutan, and Dual.
Monitoring Program Status	<p>Rural Clean Water Project monitoring at Oak Lakes, Lake Poinsett, and Big Sioux Aquifer Complex. Last date of reported aquifer sampling January, 1984. No pesticides detected although some level of contamination suspected. Site specific monitoring of pesticides is initiated when a problem is suspected.</p> <p>Brookings chemical fire Superfund site installed five monitoring wells that indicated slight contamination of ground water in the Big Sioux. In March, additional wells will be installed to delineate the extent and concentration of the plume.</p>
Enforcement Authority	State Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> No activities.</p> <p><u>FIFRA Enforcement Grant.</u> Activities included pesticide sampling at Farm Chemical disposal site and the development of educational programs. South Dakota is continuing and expanding surveillance activities to identify and remedy problems.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Oakwoods Poinsett Rural Clean Water project for development of Best Management Practices (BMPs). One critical BMP is pesticide management and how this impacts ground-water quality, particularly with respect to conservation tillage. Public education program under Big Sioux aquifer study enhances awareness and implementation of proper well siting with respect to agrichemical storage and runoff.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**SOUTH DAKOTA (cont'd)****State  
Agency  
Contacts**

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State Program Brief/Pesticides in Ground Water
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**UTAH**

Sources of Contamination	Agricultural activities were reported as a suspected potential contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No monitoring on ground water currently being done. Voluntary program is under way to obtain samples from large water companies for pesticide analyses.
Enforcement Authority	Department of Agriculture
Grants	<u>Section 106 Ground-water Grant.</u> Work group assigned to investigate major potential sources of ground water contamination including agriculture.  <u>FIFRA Enforcement Grant.</u> No activities.  <u>Other Grants.</u> No data.
Contamination Control Programs	Department of Agriculture administers labeling program.
Other Activities	Working with Wildlife Resources to educate public on hazards of using herbicides to kill weeds near irrigation canals.
State Agency Contacts	Jay Pitkin Deputy Director Bureau of Water Pollution Control Department of Health P.O. Box 45500 Salt Lake City, UT 84145-0500 (801) 533-6146  Paul Daniels Director Division of Plant Industries Department of Agriculture 350 North Redwood Road Salt Lake City, UT 84103 (801) 533-4107

State Program Brief/Pesticides in Ground Water
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**WYOMING**

Sources of Contamination	Agricultural activities were reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	No monitoring for pesticides is currently being done.
Enforcement Authority	Not delegated.
Grants	<u>Section 106 Ground-water Grant.</u> No activities. <u>FIFRA Enforcement Grant.</u> Not delegated. <u>Other Grants.</u> No data.
Contamination Control Programs	No data.
Other Activities	No data.
State Agency Contacts	Anthony J. Mancini Ground-Water Control Supervisor Department of Environmental Quality 122 W. 25th Cheyenne, WY 82002 (307) 777-7938  Walt Patch Manager Plant Industry Wyoming Department of Agriculture 2219 Carey Avenue Cheyenne, WY 82002 (307) 777-9321

State Program Brief/Pesticides in Ground Water
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**ARIZONA**

Sources of Contamination	Agricultural activities have been reported as a contamination source (citrus orchards and cotton growing).
Contaminating Pesticides	EDB, Aldicarb, and DBCP have been found in the ground water of Tucson, Phoenix, and Yuma. One well has been closed for EDB, 2 wells closed for DBCP in Phoenix.
Monitoring Program Status	<p>Considerable monitoring in the Tucson, Phoenix, and Yuma (interim surveys) areas related to findings of DBCP, and/or EDB in ground water. Limited sampling for EDB (none detected) in Pinal and La Paz and for Aldicarb in Tucson. The City of Phoenix is sampling all drinking water wells, the data is being sent to DHS.</p> <p>BPC and DHS are plotting major aquifers and pesticide usage on statewide basis. These areas are to receive special consideration for monitoring.</p>
Enforcement Authority	Board of Pesticide Control, Structural Pest Control Board (BPC). In FY 84, they worked with the Department of Health Services (DHS) on pesticide container disposal cases which could have resulted in ground-water problems. The Board has no ground-water monitoring program and only has authority if contamination resulted from misuse.
Grants	<p><u>Section 106 Ground-water Grant.</u> Reviewing existing data and developing drinking water standards on voluntary limits for DBCP and EDB. Grant activities include formulation of recommendations for state management of ground-water contamination from categorical problem sources including agricultural pesticides. Additional activities include: the design and development of a comprehensive, integrated state ground water data management system and the identification of current and future ground water uses.</p> <p><u>FIFRA Enforcement Grant.</u> Ground-water contamination is ranked as the seventh priority. The Board of Pesticide Control and the ADHS are cooperatively working on matters related to ground water. Ground-water contamination and hazardous waste disposal have been unwritten priorities for the past two years. Involvement with EDB and Aldicarb is well documented, but enforcement authorities of the Board are limited in these areas. Investigative procedures permit ADHS to initiate strong enforcement action. Ground-water contamination investigations will occur as needed.</p>

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**ARIZONA** (cont'd)

Other Grants. Section 205(j) which provided FY84 funds to investigate preliminary data indicated that 12 wells in the Mesa Area contained low levels of DBCP and TCE. The study collected data for a large number of area wells, determined area geology, analyzed ground water movement, defined verticle extent of contamination and identified direction and migration rate.

Contamination Control Programs	No data.
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Other Activities	No data.
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State Agency Contacts	<p>Phil Briggs Deputy Director Engineering Department of Water Resources 993 Virginia Avenue Phoenix, AZ 85004 (602) 255-1557</p> <p>Nancy Wrona and Edward Swanson Arizona Revision of Environmental Health Services 2005 N. Central Phoenix, AZ 85004 (602) 257-2308</p> <p>Richard W. Sweet Administrator Board of Pesticide Control 1624 West Adams - Suite 103 Phoenix, AZ 85007 (602) 271-3578 FTS: 8-765-3578</p> <p>Bud Paulson State Chemist Agriculture Experiment Station P.O. Box 1586 Mesa, AZ 85201 (602) 833-4942</p>
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**ARIZONA** (cont'd)

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State Program Brief/Pesticides in Ground Water
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**CALIFORNIA**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness.
Contaminating Pesticides	DBCP has been found in approximately one out of four wells tested in concentrations generally under 100 ppb. Other pesticides include EDB, simazine, atrazine, alachlor and carbofuran; however, the confirmed presence of these pesticides is much less extensive than that of DBCP, aldicarb, and 1-2,D.
Monitoring Program	The State Water Resources Control Board (SWRCB) conducts Priority 1 ground-water basin monitoring, has "Hot Spot" programs planned and site-specific monitoring is conducted by SWRCB's nine regional boards. All of these programs include some pesticide monitoring. Pursuant to recent legislation, the California Department of Health Services (CaDHS) has conducted a one-time screening of all large public water systems (PWS) that utilize ground water to determine the presence of organic chemicals. If a water system was determined to be subject to potential contamination, the PWS is required to monitor for specific contaminants including pesticides. Systems with 200 connections or less are exempt until January 1986. The California Department of Food and Agriculture (CDFA) has done some ground-water sampling and is developing a regulatory program to address pesticide pollution in ground water. Monitoring is being conducted in ten counties for aldicarb contamination with ten wells in each county being monitored.
Enforcement Authority	California Department of Food and Agriculture (CDFA). As part of its ground water protection program, CDFA collects monitoring data from all state agencies and publishes an annual report of well inventory data.
Grants	<u>Section 106 Ground-water Grant.</u> General program and monitoring of ground water for pesticide contamination. Specific activities include: the establishment of a centralized ground-water data storage and retrieval system; the development of a ground-water protection strategy that all state agencies have responsibility for implementing; and the conduct of the "Ground Water 'Hot Spots' Toxic Pollutant Problem Identification; Correction and Prevention" Program.

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### CALIFORNIA (cont'd)

#### FIFRA Enforcement Grant. No Activities.

Other Grants. Section 205(j) is funding several projects that relate to pesticide contamination of ground water. These projects include the Ground Water Pollution by Pesticides on the Smith River Plains Project and the North Orange Ground Water Program.

Section 208 has funded a field monitoring program and data search to determine the extent and type of ground and surface water contamination by pesticides. Recommendations were made for water quality standards, pesticide registration procedures and management practices.

#### Contamination Control Programs

Best Management Practices (BMPs) for pesticide use have had apparent success with the rice growing industry in the Sacramento area for the herbicides Bolero and Ordram. Participants included the University of California and the WQCB-Central Valley Region. The program consisted of an educational campaign directed at growers. The thrusts of the strategy were: (1) hold the irrigation water in the field for up to eight days to allow for more complete degradation of the pesticides in the water, and (2) irrigate more efficiently with more recycling of water. However, Ordram and Bolero are mainly surface-water contaminants, and the effect of the BMPs on ground water have not been investigated.

#### Other Activities

California's regulations have been primarily a prescription type program with the proposed applicator giving a description of the proposed use and a commissioner in each of 291 separate districts issuing a permit. Recently, the State passed a first-of-its-kind State law (SB 950) that gives State enforcement agencies a year to spot data gaps in health effects records for a target list of 200 chemicals, and allows pesticide manufactures only a year after that to begin filling those gaps. And by 1988 at the outside, California's law in effect will ban from sale any pesticide with remaining data gaps.

The Assembly Office of Research with assistance from CDFA has completed a report that used existing data to assess the threat to ground water from pesticide application. The report makes recommendations to the Legislation to prevent further contamination, improve monitoring procedures and fill in data gaps. AB 2021, The Pesticide Contamination Prevention Act (PCPA) requires more complete data on currently registered pesticides relative to leaching potential by December 1, 1986. Extensions will be granted through 1989. The Act also: requires CDFA to establish maximum values for movement through soil and persistence in soil and to produce a list of pesticides that exceed those values;

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**CALIFORNIA (cont'd)**

prohibits CDFA from registering or renewing the registration of pesticides with a ground water protection data gap after December 1988 unless granted an extension; requires CDFA to establish a list of pesticides that have the potential to pollute ground water, and the list will be called the Ground Water Protection List; gives CDFA their first legal requirement to monitor soil and ground water for pesticides placed on the Ground Water Protection List.

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**HAWAII**

Sources of Contamination	Agricultural activities have been reported as a contamination source and ranked No. 1 in seriousness. Agricultural use of organic chemicals, including EDB, DBCP, and TCP has resulted in contamination of drinking water. Restoration of water quality will require construction of treatment plants.
Contaminating Pesticides	EDB, DBCP, and TCP have been found in some drinking water sources of Oahu, Maui, and Kauai.
Monitoring Program Status	<p>Extensive monitoring has been completed for DBCP and EDB. When contamination is suspected, other pesticides will be monitored. Groundwater monitoring for contaminants not regulated under SDWA will be conducted in response to incidents of reported contamination. (Note: this activity has been discontinued for an indefinite period.)</p> <p>Pesticide use that could pose a threat to ground water will be examined in the course of routine surveillance and monitoring of user groups.</p>
Enforcement Authority	Department of Agriculture, Division of Plant Industry, Pesticide Branch
Grants	<p><u>Section 106 Ground-water Grant.</u> Development of ground-water program includes overview of Hawaii pesticides regulations; evaluation of health risks associated with EDB, DBCP, and TCP; and, a study to determine fate of DBCP, EDB, and TCP in Hawaii perched ground water.</p> <p><u>FIFRA Enforcement Grant.</u> Pesticide use that could pose a threat to ground water will be examined in the course of routine surveillance and monitoring of user groups.</p> <p>A soil monitoring study (to determine the persistence rate of movement of EDB in the soil profile) was initiated in FY 84. This study was partially financed by enforcement grant funds.</p> <p>Limited monitoring is anticipated in FY 85 and will be conducted jointly with Department of Health and the University of Hawaii's Water Resources Research Center. Enforcement funds will be utilized only in cases of misuse where a threat to ground water is suspected.</p> <p><u>Other Grants.</u> A FY85 205(j) grant is funding monitoring of pesticide contamination in Oahu.</p>

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**HAWAII** (cont'd)

Contamination Control Programs	The State Water Commission is investigating the pesticide problem.
Other Activities	An inventory of pesticides in ground water data sources is being developed under Hawaii Act 127.
State Agency Contacts	<p>Brian Choy Environmental Planner State Department of Health P.O. Box 3378 Honolulu, HI 96801 (808) 548-6767</p> <p>Po Yung Lai, Ph.D., Head Division of Plant Industry Hawaii Department of Agriculture P.O. Box 22159 Honolulu, HI 96822 (808) 548-7119</p>

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**NEVADA**

Sources of Contamination	Agricultural activities were not reported as a contamination source.
Contaminating Pesticides	No data.
Monitoring Program Status	State does not routinely monitor for pesticides in ground water, but does random checks on pesticide disposal during use inspections. Recently, full containers of DDT and 2,4,5-T were found in dump for empty containers. No action has been taken yet.
Enforcement Authority	Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> Incorporating pesticide concerns into overall State Action Plan. No action yet. Ground-water grant given late in year. Draft Action Plan should be completed by January 1986.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	No data.

State Program Brief/Pesticides in Ground Water
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**NEVADA (cont'd)**

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**ALASKA**

Sources of Contamination	Agricultural activities were reported as a contamination source, and ranked No. 4 in seriousness. Herbicide use along rail and highway rights of way may have ground-water contamination potential.
Contaminating Pesticides	None documented. EPA/state drinking water survey may test for leachable pesticide.
Monitoring Program Status	Pesticide use survey under way. EPA Region 10 DWPB test of drinking water wells in Matanuska Valley.  Public drinking water supplies are tested once for SWDA pesticides.
Enforcement Authority	Department of Environmental Conservation, Division of Environmental Health
Grants	<u>Section 106 Ground-water Grant.</u> No activities, no grant in FY 85.  <u>FIFRA Enforcement Grant.</u> No activities, grant pending.  <u>Other Grants.</u> State has pesticide training and certification grant.
Contamination Control Programs	None developed to date.
Other Activities	Amnesty program run by state. "Dump Day" once a year allows residents to bring in up to two barrels of waste that may include pesticides.
State Agency Contacts	Dan Easton Environmental Engineer Alaska Department of Environmental Conservation Pouch 0 Juneau, AK 99811 (907) 465-2653  Bill Burgoyne Alaska Department of Environmental Conservation Box 2309 Palmer, AK 99645 (907) 745-8378

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**IDAHO**

Sources of Contamination	Agricultural activities including crop application and waste disposal have been reported as a potential contamination sources, and have been ranked as a moderate concern in major agricultural areas.
Contaminating Pesticides	None to date. Surveys by state for leachable pesticides has been conducted.
Monitoring Program Status	Monitoring for Safe Drinking Water Act listed pesticides. Focus and program priorities are to define sensitive areas, particularly on Snake Plain aquifer. Pesticide use data is being collected from local extension agents.
Enforcement Authority	Department of Agriculture (Regulation of Use), Department of Health and Welfare, Division of Environmental (contamination actions)
Grants	<p><u>Section 106 Ground-water Grant.</u> Evaluating handling and disposal practices and developing regulations to protect ground water. Two specific projects address pesticides monitoring: Snake Plain Aquifer Management Plan, the Blank River Project and pesticide residual programs to include pesticide rinsate disposal regulation development.</p> <p><u>FIFRA Enforcement Grant.</u> Site investigations for potential water quality problems.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	Public information/education on handling, transport and waste disposal. Enforcement of pesticide labeling requirements.
Other Activities	Pesticide use survey will input to ground-water monitoring programs.

State Program Brief/Pesticides in Ground Water
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**IDAHO** (cont'd)

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State Program Brief/Pesticides in Ground Water
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**OREGON**

Sources of Contamination	Agricultural activities were reported as a contamination source, but not ranked in seriousness. Pesticide contamination potential in central Oregon noted as a concern.
Contaminating Pesticides	EDB, aldicarb, limited testing found zero to traceable levels.
Monitoring Program Status	Oregon Department of Agriculture conducting limited sampling for EDB and aldicarb. EPA Region 10 Drinking Water Branch has done limited sampling in Ontario and the Willanette Valley focusing on leachable pesticide.
Enforcement Authority	Department of Agriculture
Grants	<p><u>Section 106 Ground-water Grant.</u> Oregon Department of Environmental Quality (ODEQ) beginning ground-water management program. Pesticide vulnerable ground water will be included.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> No data.</p>
Contamination Control Programs	No data.
Other Activities	DEQ has developed state of water table aquifers.
State Agency Contacts	<p>Neil Mullane Contract Administrator Oregon Department of Environmental Quality P.O. Box 1760 Portland, OR 97207 (503) 229-6242</p> <p>Tom Harrison Assistant Chief Plant Division Oregon Department of Agriculture 635 Capitol Street, N.E. Salem, OR 97301 (503) 378-3776 FTS: 8-530-3776</p>

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**WASHINGTON**

Sources of Contamination	Agricultural activities have been reported as a contamination source, but not ranked in seriousness. State agencies cooperating in project to map and inventory leachable pesticide use in vulnerable ground-water needs.
Contaminating Pesticides	Picloram, EDB, and Aldicarb
Monitoring Program Status	A special monitoring program was conducted on selected wells for EDB contamination. Further state efforts will continue in seven Washington locations.
Enforcement Authority	Delegated to the State Department of Agriculture (USDA). Enforcement focuses on pesticide misuse. The Department of Agriculture works cooperatively with the Department of Social and Health Services (DSHS) if pesticide misuse involves human exposure and Department of Ecology is involved in ground-water contamination.
Grants	<p><u>Section 106 Ground-water Grant.</u> Funding provided for the investigation of pesticide related health advisory incidents. Development of ground-water monitoring strategy to include pesticides in ground water.</p> <p><u>FIFRA Enforcement Grant.</u> No activities.</p> <p><u>Other Grants.</u> CWA 205j has assisted in development of ground-water strategy. DOE grant funds also passed to DSHS to assist in developing additional criteria for pesticides in drinking water.</p>
Contamination Control Programs	Use of certain pesticides are banned within the sole-source Spokane aquifer. Washington State Department of Agriculture has banned the use of EDB.
Other Activities	WSDA considers geographic bans and other use restrictions as preferable to outright bans on leachable pesticides. DSHS, under legislation mandate, is considering new drinking water standards for synthetic organic chemicals.

State Program Brief/Pesticides in Ground Water
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**WASHINGTON** (cont'd)

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## APPENDIX A

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