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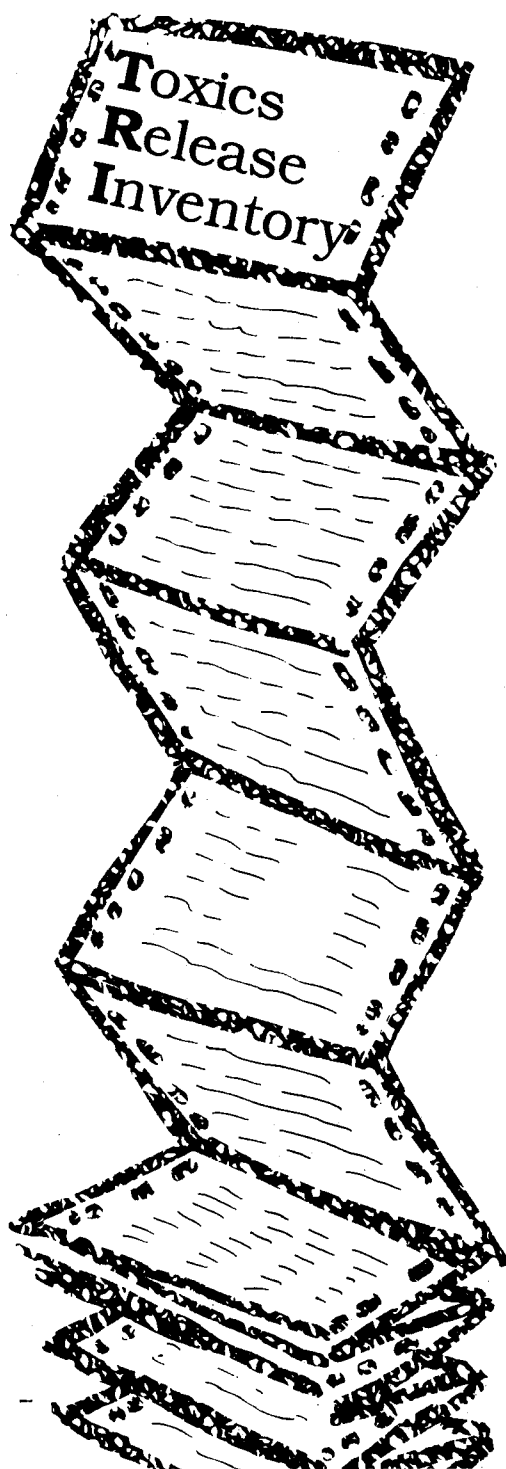
Pesticides And Toxic Substances (TS-778)



# Chemical Releases And Chemical Risks

## A Citizen's Guide To Risk Screening





Suppose a headline in your morning paper said: "Local Plant Releases 10,000 Pounds of Toxic Chemicals to the Environment." Would any of these questions occur to you?

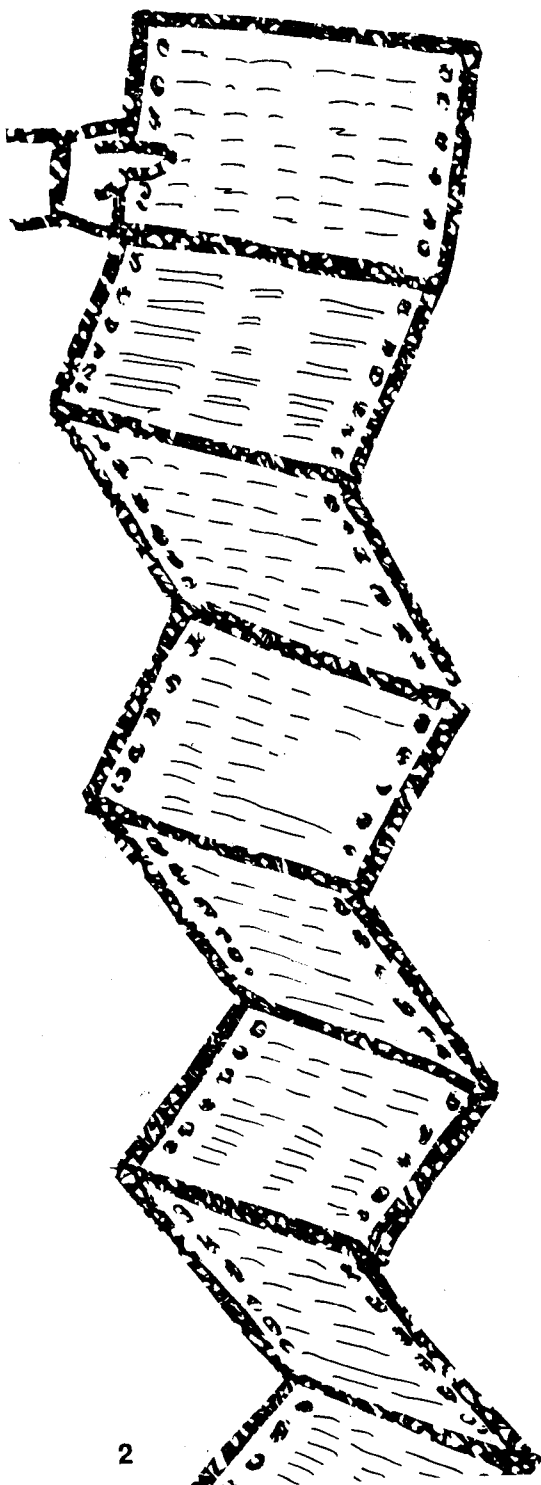
- "Will these chemicals affect my health or the health of my family?"
- "What is the government doing about these releases?"
- "How can I get more information?"
- "What can I do to protect myself and my community from environmental hazards?"

This pamphlet describes risk screening, a tool that government agencies can use to identify the chemical releases that may require further investigation. It also explains how you can find answers to questions you might have about releases of potentially toxic chemicals in your community.

### **What is the Toxic Chemical Release Inventory (TRI)?**

In 1986, Congress responded to growing public concern about chemical accidents by passing a law to help America's communities deal safely and effectively with hazardous substances. This law, the Emergency Planning and Community Right-to-Know Act (also known as Title III of the Superfund Amendments and Reauthorization Act of 1986), provides for the collection and publication of much new information about toxic chemicals.

Section 313 of the law requires thousands of companies to report releases to the environment of more than 300



toxic chemicals. The reports are made to EPA and state governments. Each year, firms with more than 10 employees that manufacture, import, process or use specified amounts of these chemicals must report the annual total of routine and accidental releases to the air, water and land.

EPA has compiled this release data in a national computerized data base called the Toxic Chemical Release Inventory (TRI), available through the National Library of Medicine (1-800-638-8480). EPA is also making the information readily available to the public in county libraries, the Government Printing Office, federal depository libraries, and through a variety of other means including a comprehensive national report (*The Toxics-Release Inventory, A National Perspective*, EPA 560/4-89-005, June 1989).

### **What Does the TRI Mean to You?**

Creation of the TRI data base marks the first time that members of the public will have access to detailed information about releases of toxic chemicals in their communities. Information that must be reported includes:

- What chemicals were released into the environment in the preceding year.
- How much of each chemical went into the air, water, and land.
- The amount of waste transported away from the facility for disposal.
- How chemical wastes were treated at the facility.
- The effectiveness of that treatment.

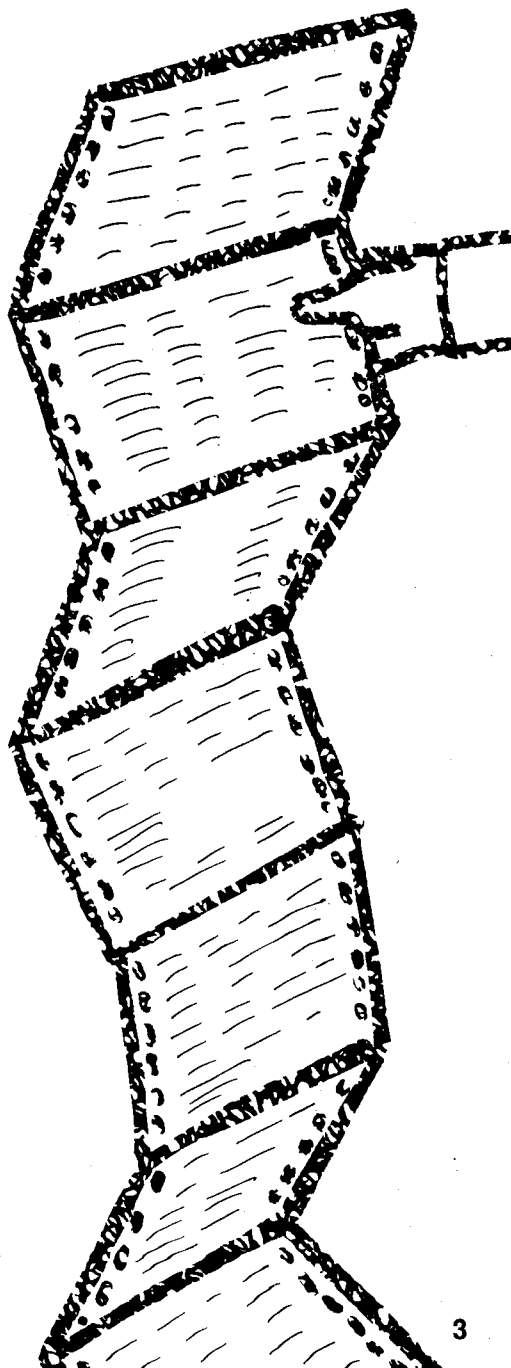
By using the TRI data base, which will be updated annually, you will be able to determine the estimated annual emissions of a particular chemical from manufacturing plants in a specific geographic area. You will also be able to compare the emissions reported by similar facilities in different parts of the country. The national report contains many analyses that compare releases of different chemicals, types of facilities, and geographic areas.

You can use the TRI data to gain a more complete picture of chemical risks in your community, and, working with local authorities, make decisions and take actions that will protect you and your neighbors from those risks.

### What Can the TRI Tell You?

The TRI data base provides the first comprehensive overview of toxic chemical pollution from manufacturing facilities in the United States. It is nationwide in scope, and can be used to develop comparisons among industries; locate previously unknown sources of toxic chemicals in the environment; and track pollution reduction trends.

The TRI also has some limitations. The reporting requirements do not cover all businesses that release potentially toxic chemicals. Dry cleaners, for example, release toxic chemicals, but they are not covered by the law. Neither are automobile service stations. Nor does the law cover toxic chemicals that reach the environment from non-industrial sources, including some cleaning products, paints and paint strippers, and automobile exhausts. Only manufacturing firms with 10 or more employees that manufacture, import, process or use a certain amount of toxic chemical during the course of a year are covered.



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In addition, the reported amounts of chemicals released during the year are *annual estimates*. The TRI does not show whether a chemical was released in large amounts over a short period of time, or in small amounts throughout the year. This information can be important in determining the effects of a chemical on human health and the environment.

Another limitation of the TRI data base is that the release information alone does not tell you the levels of exposure (the amount of a chemical an individual or population comes into contact with during a given period of time) or risk (the probability of harm to human health or the environment) from these chemicals. Exposure and risk do not always correlate directly with the level of release. A large release of a relatively low-toxicity chemical may present a lower risk than a much smaller release of a highly toxic chemical. For example, sodium sulfate, a common salt, accounted for nearly 95 percent of all TRI releases to water in 1987. EPA has deleted this low-toxicity substance from the list of reportable chemicals.

Although the TRI data are a useful starting point for identifying potential problems, much additional information is needed to make reliable estimates of the risks posed by the chemical releases.

## **How Will Government Agencies Evaluate and Use the TRI?**

The TRI can provide valuable information for federal, state, and local governments to use in setting priorities for their toxic chemical management programs.

The data show which chemicals were released to the environment, and how much of each chemical was released to the air, land, or water by reporting facilities in specific areas or nationwide. It also tells how manufacturers are treating their waste to make it less toxic, safer to handle, or easier to dispose of.

Officials may use the TRI to compare reported chemical releases to those allowed in discharge permits and other standards. Examination of the data may point out "hot spots," or areas that appear to have unusually high releases. It can help government set priorities for further investigation and reduction of releases, and to identify chemicals for possible regulatory action.

To help state and local officials use the TRI, EPA has prepared a "Risk Screening Guide" (*Toxic Chemical Release Inventory Risk Screening Guide*, EPA 560/2-89-002, June 1989) which provides a procedure for determining which releases may be of greatest concern in any geographical area.

## What is Risk Screening?

How dangerous is this chemical? Can it cause cancer? Harm fish in our lake? Questions like these require scientists to make an estimate of risk, or the likelihood that a substance will harm people or animal species. The answers may be different from one situation to another, because a chemical may be dangerous to people or animals in one situation, but virtually harmless to them in another. This is due to differences in exposure.

Risk screening is a tool that uses available information, including TRI data, and rapidly develops a relative estimate of risk for a particular chemical at a particular site. By ranking risks as high, medium, or low, risk screening can point to sites where a more detailed investigation of the risk from high-priority chemicals may be needed.

Risk screening has its limitations. It does not provide a numerical estimate of risks of a chemical release (such as "three cases of cancer per million people exposed"). Nor can it answer health-related questions like "Will I get cancer?" Additional information and analysis is needed to determine whether chemical releases are affecting or will affect the health of people in a community.

But risk screening can be used effectively by government agencies to set priorities for further action by pinpointing those chemicals, facilities, and areas of the community that appear to be of greatest concern.

Risk screening consists of three steps:

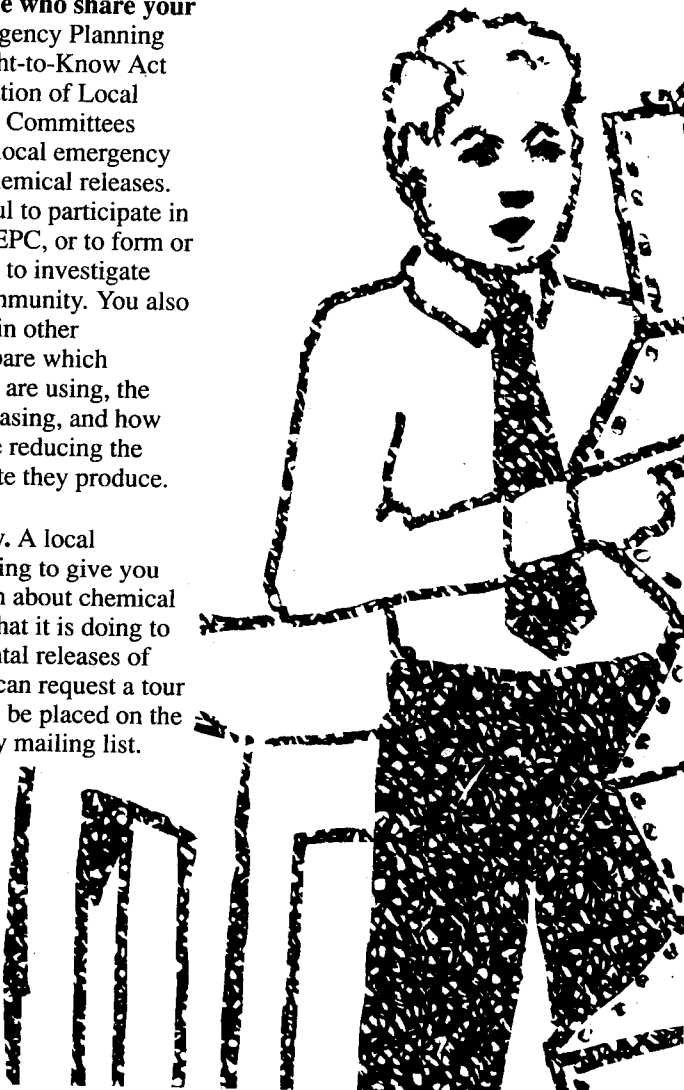
- (1) Ranking the "Toxicological Potency" of a Chemical.** Different chemicals can produce very different effects. Toxicological potency is a relative measure of a chemical's potential to harm human health or the environment. Many factors are considered in developing a toxicological potency ranking. Health effects include the potential to cause cancer, genetic damage, reproductive harm or damage to the nervous system. Ecological effects include damage to animals and fish. potential exposure several factors are taken into account. They include how much of the chemical is released, how it might move through the environment (by air, surface water or ground water), and how persistent the chemical is in the environment.
- (2) Ranking Exposure.** No matter how toxic a chemical may be, it cannot harm a living organism unless it has contact with it. When ranking
- (3) Ranking Potential Risk.** Using the toxicological potency and exposure rankings, the risk screening procedure identifies chemicals, facilities and routes of exposure that are of "high," "medium," and "low" priority for followup investigation. This step evaluates the relative probability that a release in a particular area will harm human health or the environment.

## How Can You Become Involved?

The Emergency Planning and Community Right-to-Know Act is based on the belief that the more information citizens have about environmental hazards in their communities, the better equipped they will be to ensure their own protection from unacceptable health and safety risks. Here are some of the ways you can obtain and use information about chemical releases in your community:

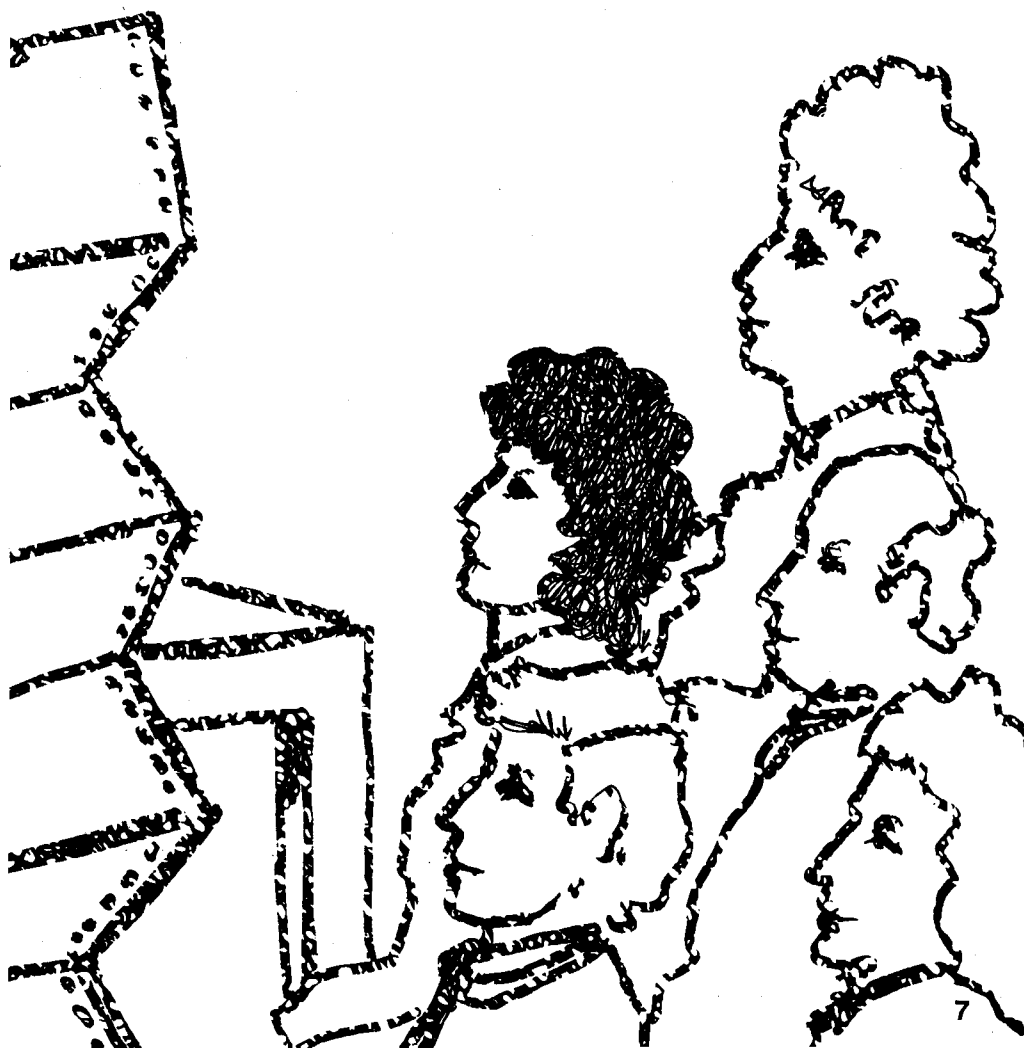
- **Identify other people who share your concerns.** The Emergency Planning and Community Right-to-Know Act provided for the creation of Local Emergency Planning Committees (LEPCs) to develop local emergency response plans for chemical releases. You may find it useful to participate in your community's LEPC, or to form or join a citizens' group to investigate problems in your community. You also can talk with groups in other communities to compare which chemicals local firms are using, the amounts they are releasing, and how similar businesses are reducing the amounts of toxic waste they produce.
- **Contact the company.** A local company may be willing to give you additional information about chemical releases, or discuss what it is doing to reduce its environmental releases of toxic chemicals. You can request a tour of the plant and ask to be placed on the company's community mailing list.

- **Call or write a letter.** Contact your community's LEPC for information about chemicals in your community. You can locate your community's LEPC through your State Emergency Response Commission. A list of state commissions is on page 8. Get in touch with your regional EPA office or your state and local environmental and public health agencies. These agencies have toxicologists and other professional staff who can answer questions about chemical toxicity and exposure.



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- **Contact the EPA hotline for more information.** The Emergency Planning and Community Right-to-Know Hotline can provide you with more information about the law and related issues. Call toll free 1-800- 535-0202. In Washington, D.C. and Alaska, call 202-479-2449.
  - **Contact your family physician if you believe that you have symptoms related to a chemical exposure.** Your physician can evaluate your symptoms as they relate to your overall medical history.

One way or another, do get involved. The industry reporting requirements under the Emergency Planning and Community Right-to-Know Act are a significant step forward in environmental protection, but your participation is crucial to the success of this program. By reaching a better understanding of the potential risks of chemicals in your community, you will be able to help make informed decisions about controlling those risks and making your community a safer, healthier place for you and your family.





## STATE EMERGENCY RESPONSE COMMISSION TELEPHONE NUMBERS

Alabama	(205) 834-1375	Nebraska	(402) 471-4217
Alaska	(907) 465-2600	Nevada	(702) 885-4240
American Samoa	(684) 633-2331	New Hampshire	(603) 271-2231
Arizona	(602) 231-6326	New Jersey	(609) 292-6714
Arkansas	(501) 562-7444	New Mexico	(505) 827-9222
California	(916) 427-4287	New York	(518) 547-9994
Colorado	(303) 273-1624	North Carolina	(919) 733-3867
Connecticut	(203) 566-4856	North Dakota	(701) 224-2111
Delaware	(302) 736-3169	Northern Mariana	
District of Columbia	(202) 727-6161	Islands	(670) 322-9529
Florida	(904) 488-1472	Ohio	(614) 644-2260
Georgia	(404) 656-4713	Oklahoma	(405) 521-2481
Guam	(671) 734-3410	Oregon	(503) 378-2885
Hawaii	(808) 548-2076	Pennsylvania	(717) 783-8150
Idaho	(208) 334-5888	Puerto Rico	(809) 722-1175
Illinois	(217) 782-4694	Rhode Island	(401) 277-3039
Indiana	(317) 243-5176	South Carolina	(803) 734-0425
Iowa	(515) 281-3231	South Dakota	(605) 773-3151
Kansas	(913) 296-1690	Tennessee	(615) 252-3300
Kentucky	(502) 564-8660	Texas	(512) 465-2138
Louisiana	(504) 925-6113	Utah	(801) 533-5271
Maine	(207) 289-4080	Vermont	(802) 828-2286
Maryland	(301) 486-4422	Virgin Islands	(809) 774-3320
Massachusetts	(617) 292-5810		Ext. 169 or 170
Michigan	(517) 373-8481	Virginia	(804) 225-2513
Minnesota	(612) 296-0488	Washington	(206) 753-5625
Mississippi	(601) 960-9973	West Virginia	(304) 348-5380
Missouri	(314) 751-7929	Wisconsin	(608) 366-3232
Montana	(406) 444-3948	Wyoming	(307) 777-7566

## EPA REGIONAL SECTION 313 CONTACTS

EPA Region 1 (CT, MA, ME, NH, RI, VT)	(617) 565-3230
EPA Region 2 (NJ, NY, VI, PR)	(201) 906-6890
EPA Region 3 (DE, MD, PA, VA, WV, DC)	(215) 597-1260
EPA Region 4 (AL, FL, GA, KY, MS, NC, SC, TN)	(404) 347-5053
EPA Region 5 (IL, IN, MI, MN, OH, WI)	(312) 353-5907
EPA Region 6 (AR, LA, NM, OK, TX)	(214) 655-7244
EPA Region 7 (IA, KS, MO, NE)	(913) 236-2806
EPA Region 8 (CO, MT, ND, SD, UT, WY)	(303) 293-1730
EPA Region 9 (AZ, CA, HI, NV, AS, GU, MP)	(415) 974-7280
EPA Region 10 (AK, ID, OR, WA)	(206) 443-4016



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