

An Introduction to the Data

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ABSTRACT

The U.S. Environmental Protection Agency has been collecting toxic chemical release information data since 1988 on the TRI database, the first publicly accessible environmental database in the world. TRI is also the first to cut across environmental media, providing information on releases into the air, water, and soil and off-site transfers of toxic chemicals. Release information is available for over 300 different chemicals and 20 chemical categories from 23,000 facilities, for a total of over 225,000 reports from all three reporting years. TRI has been instrumental in generating new pollution prevention initiatives by focusing attention on specific facilities and in developing new environmental laws and regulations (including the recently passed amendments to the U.S. Clean Air Act), water quality standards, and air toxics regulations in various states. Now that three years of data are available, trends in transfers and emissions of chemicals can be analyzed. Such information as the increases and decreases of carcinogens on a state, county, or even facility level can be extracted to provide officials and the public with the most complete emissions trends available.

I want to welcome you to this international conference on the Toxics Release Inventory. I have been involved in working on TRI now for almost four and a half years, and I want to share some of the lessons we have learned. We also look forward to hearing your concerns and issues during the breakout sessions.

My presentation will give a brief overview of the issues that are related to data management. In the later sessions, we will give more details about how we built the database and all of its implications. I want to spend more time giving you illustrations of how these data can be used to challenge your thinking as you listen to the other speakers and think about how to use this information in your country.

One of the main points that makes the TRI very different from any other database in the United States is that the law specifically mandates that data be collected and made publicly accessible, which has set a precedent for information policy in the United States. After enactment of

this law, older regulations were amended and other laws are now being considered with similar provisions so the public will have more access to information.

As Mary Ellen Weber pointed out, the TRI is the first multimedia database that contains water, air, land, storage, and offsite information; therefore, it is unique. Many other databases exist in the United States, but this is the only one explicitly mandated to be publicly available.

Scope of the TRI

The scope of the program, as has been reported, is annual. So far, we have received nearly 85,000 reports per year. Three years of the data are now publicly available in a computer on-line system and in many other products, such as compact disks, diskettes, and papers. A significant amount of data is processed each year. Each form has about 60 data elements with a fairly large amount

of information. We are now processing the fourth year data, which will be publicly available in the spring of 1992.

Currently, we receive data on 300 chemicals and 20 chemical categories from approximately 23,000 facilities each year. One interesting statistic is that eight industries represent about 75 percent of those reports: paper, chemical, plastics, primary metals, fabricated metals, electronics, petroleum, and transportation.

These data are used by a variety of people in a variety of ways, including

- Studies on environmental distribution,
- Multiyear analyses,
- Geographic distribution analyses,
- Individual chemical analyses, and
- Studies on the distribution of carcinogens.

Many companies are deciding to make dramatic voluntary reductions in their toxic releases. Citizens are beginning to study the releases of chemicals in their communities. Good neighbor contracts are being established between industry and citizens. These data are used at the national level and the state and local level to enact voluntary programs and write new legislation within states. This activity has created a strong demand for other types of analyses and informa-

tion tools. Some demonstrations during this conference will show how this information can be used with other sources, such as population data, and in what we call geographic information systems.

Other types of analyses are being conducted as well. Geographic distribution lets you look at chemicals at different sites, states, and locations that intersect with the population to give you a better understanding of all the analyses that can be performed.

The following figures start at an aggregated level of information that shows distribution of multimedia releases across the United States. These data are often used at the national level to target strategies for enforcement.

Trends

Now that we have three years of data, we can start looking at trends. In Figure 1, you can see the 1987 level, which is the bar to the left, the 1988 level (the center bar), and the 1989 level, which is the bar on the right. This information helps people to focus questions and resources. Which facilities reported in 1989 that did not report in 1987? Is industrial production increasing or decreasing in an area? We are now beginning to perform trend analyses with these TRI data.

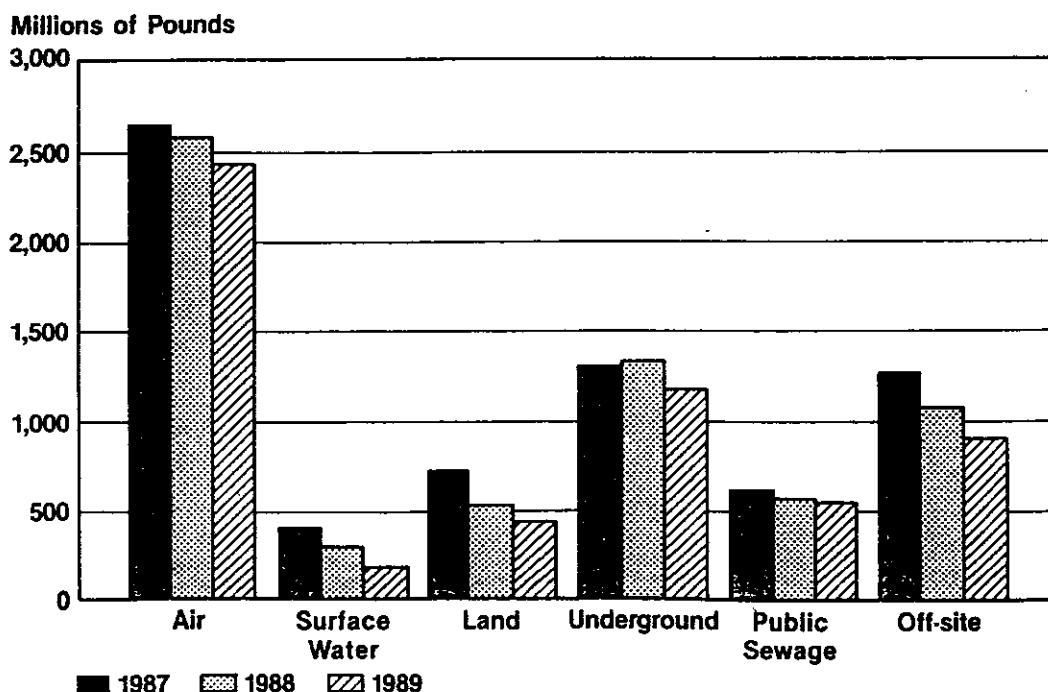


Figure 1.—Changes in releases and transfers of chemicals: 1987-89.

Figure 2 shows the differences between the total releases from 1988 to 1989. If you think about this in terms of our states, you can see that a significant number, about a third, had decreases in toxic release inventories or transfers of greater than one million pounds. Two states, Texas and Louisiana, had decreases in their releases but were still ranked first and second in overall releases.

You can take the analysis down to another level and look at data on the county level in the United States. Figure 3 shows the top 100 counties with the largest releases and transfers in 1989. Again, the data help both the state and national level policymakers to set priorities and focus resources to make determinations about how they want to work with industry to control emissions.

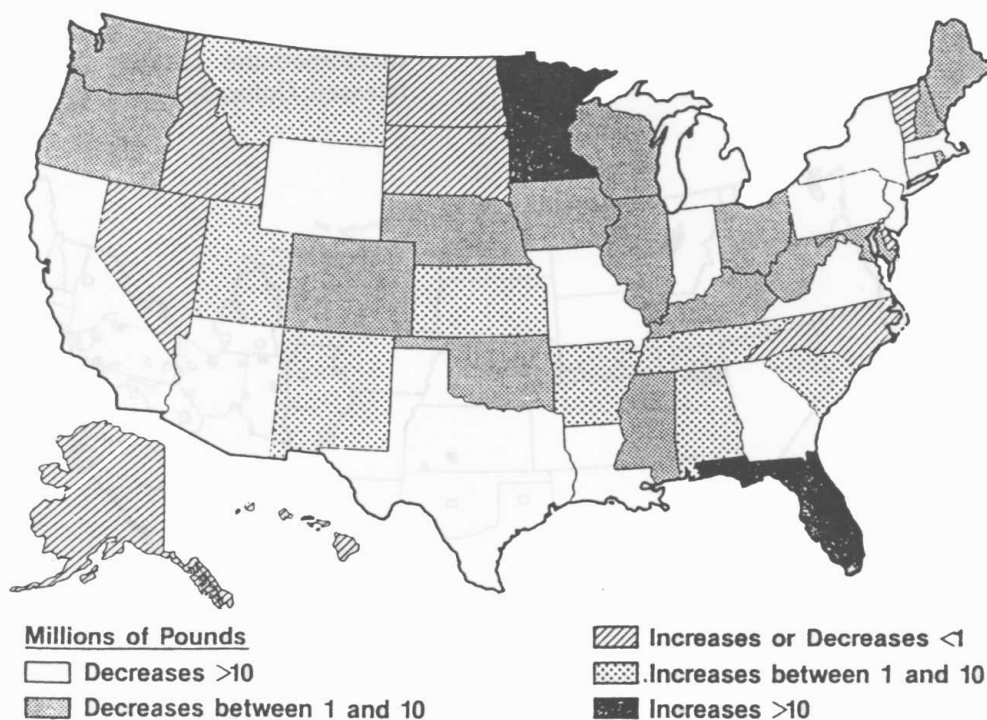


Figure 2.—Changes in TRI total by state: 1988-89.



Figure 3.—Top 100 counties for TRI total releases and transfers: 1989.

You can also examine the counties that have the most change from 1988 to 1989. Figure 4 indicates the 50 counties with largest increases and the 50 with the greatest decreases. You can begin to make comparisons and decisions about how to focus resources.

Figure 5 is the list of the top 10 chemicals that were released and transferred in 1989. The black bar is the releases and the gray bar is the transfers. I'm sure you are familiar with many of these chemicals.

Taking one of those chemicals, you can then begin to examine individual trends. In Figure 6, take a look at 1,1,1-trichloroethane (or, as we call it, methylene chloroform), which is used as a solvent in cleaning instruments for metal degreasing and textile processing and as a pesticide in such things as aerosols, stain repellents, and inks. This map shows you where the chemical is being released and transferred, by state. The black color represents the three states where the 1,1,1-trichloroethane is the number one chemical released: Colorado, Vermont, and Connecticut.

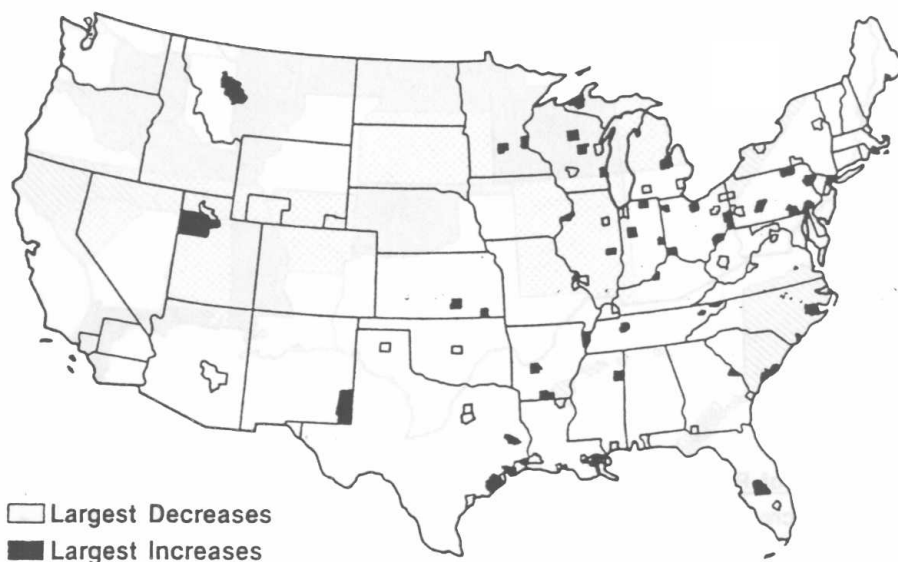


Figure 4.—Fifty counties with the largest increases and decreases from 1988 to 1989.

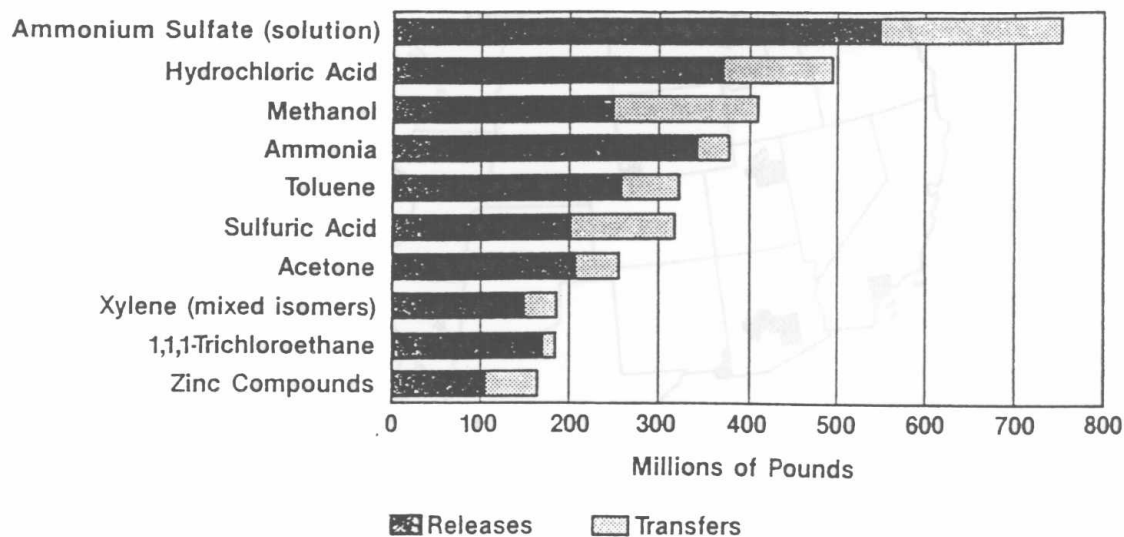


Figure 5.—Top 10 chemicals with the largest release and transfer: 1989.