

# **FOURTEENTH ANNUAL TOXIC CHEMICAL REPORT**

*A summary of information contained in the  
Toxic Chemical Report Forms for calendar year 2000*

**JULY 2002**

Illinois Environmental Protection Agency  
Springfield, Illinois

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## PREFACE

Facilities with persistent, bioaccumulative and toxic (PBT) chemicals and chemical categories were required for the first time to submit toxic chemical release reports covering calendar year 2000. The reports submitted by facilities in the new PBT categories totaled 163.3 thousand pounds, which is one percent of the 174.3 million pounds reported by all facilities in calendar year 2000.

The 174.3 million pound total amount is 22.6 million pounds or about eleven percent less than was reported for 1999. Once again, fugitive and stack air emissions of 63.6 million pounds exceeded all other types of releases and transfers. However, this amount was down by 21.2 million pounds (25 percent) compared to 1999.

The long-term downward trend of environmental releases in Illinois continues. Facility reports indicate a 49 percent decrease in normalized toxic chemical releases from 1988 to 2000, and a decrease of 3 percent from 1999 to 2000. The toxic chemical with the greatest quantity reduction in the period 1988-2000 was toluene (17.3 million pounds or 79 percent).

In this fourteenth report, the Agency has also included a special analysis using a ten-year time frame from 1991-2000 (TRI-10). While the raw data show that approximately 37.5 million more pounds of releases have been reported over this ten-year period, more facilities were added in select years due to changes in reporting requirements. As a result, the analysis shows that more zip codes had a net increase in releases than decreases. When looking at facilities, 210 zip codes had a net number of facilities with a decrease compared to 106 zip codes with an increase.

Toxic release information will be continually examined and analyzed by the Illinois EPA to identify industrial categories, facilities, chemicals and geographic areas which should receive focused attention with the objective of release reduction, especially through pollution prevention efforts.



A handwritten signature in black ink that reads "Renee Cipriano" with a long horizontal flourish extending to the right.

Renee Cipriano, Director

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## EXECUTIVE SUMMARY

Over 2,300 unique facilities have reported toxic chemical release information to the Illinois EPA since the reporting program mandated by federal law began in 1987. Not including 1987, an average of around 1,300 facilities have reported each year, with the actual number ranging between 1,258 and 1,477.

Facilities with persistent, bioaccumulative and toxic (PBT) chemicals and chemical categories were required to report for the first time this year. A total of 163.3 thousand pounds of PBTs were reported for calendar year 2000.

For calendar year 2000, 1,321 facilities submitted 4,268 individual toxic chemical release reports showing a total of 174.3 million pounds of releases and transfers. Zinc compounds had the highest reported releases and transfers, at 41.7 million pounds. The combined total of fugitive and stack air emissions topped all other environmental areas at 63.6 million pounds. Facilities in Standard Industrial Classification (SIC) Code 4911 (Electric Services - coal and/or oil fired power plants) exceeded all other industrial categories with reported releases and transfers of 26.8 million pounds.

In order to perform meaningful trend analyses of total toxic chemical releases, including offsite transfers, the Illinois EPA utilizes information reported by facilities for toxic chemicals which have been reportable in the same form for each of the years 1988-2000. This approach is called "normalizing". Offsite transfers for recycle or energy recovery, reportable for 1991 and later years, are not considered.

A total of 1,407 facilities are included in the special ten-year analysis which had a net increase of 37.5 million pounds reported. In addition, there were 210 zip codes in Illinois that had a net number of facilities with a decrease while 106 zip codes had a net number of facilities with an increase. It is important to highlight that these data are not normalized (i.e., facility reporting requirements changed in certain years).

Total "normalized" releases and transfers have decreased 49 percent from 1988 to 2000. The toxic chemical with the greatest quantity reduction in that period was toluene (17.3 million pounds or 79 percent), which is a teratogen, reproductive toxin and fetal toxin. Facilities in the SIC category 2821 (Plastic Materials, Synthetic Resins and Nonvulcanizable Elastomers) as a group had the greatest quantity reduction (9.9 million pounds, or 67 percent).

The toxic chemical with the greatest amount of releases from 1996 through 2000 was zinc compounds, totaling 135.9 million pounds. Considering only those toxic chemicals with significant human health effects, i.e. which are known or probable human carcinogens, teratogens, fetal toxicants and/or reproductive toxicants, manganese compounds had the highest total of 37.1 million pounds.

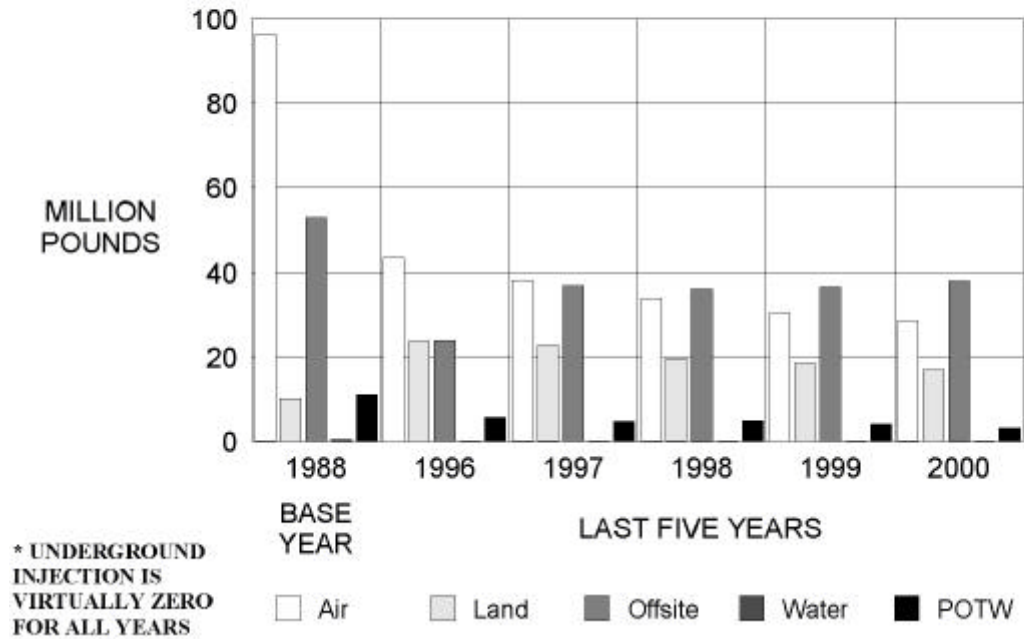
The group of facilities in SIC Code 3312 reported 157.8 million pounds of releases from 1996 through 2000, the greatest for any industrial category, and also had the highest total of 44.0 million pounds in the period for those toxic chemicals with significant human health effects.

Facilities located in ZIP Code 61832 in Danville (Vermilion County) reported the highest total of air emissions from 1996 through 2000, totaling 18.9 million pounds. Considering only those toxic chemicals with significant human health effects, facilities located in ZIP Code 61832 also reported the highest total of 18.3 million pounds.

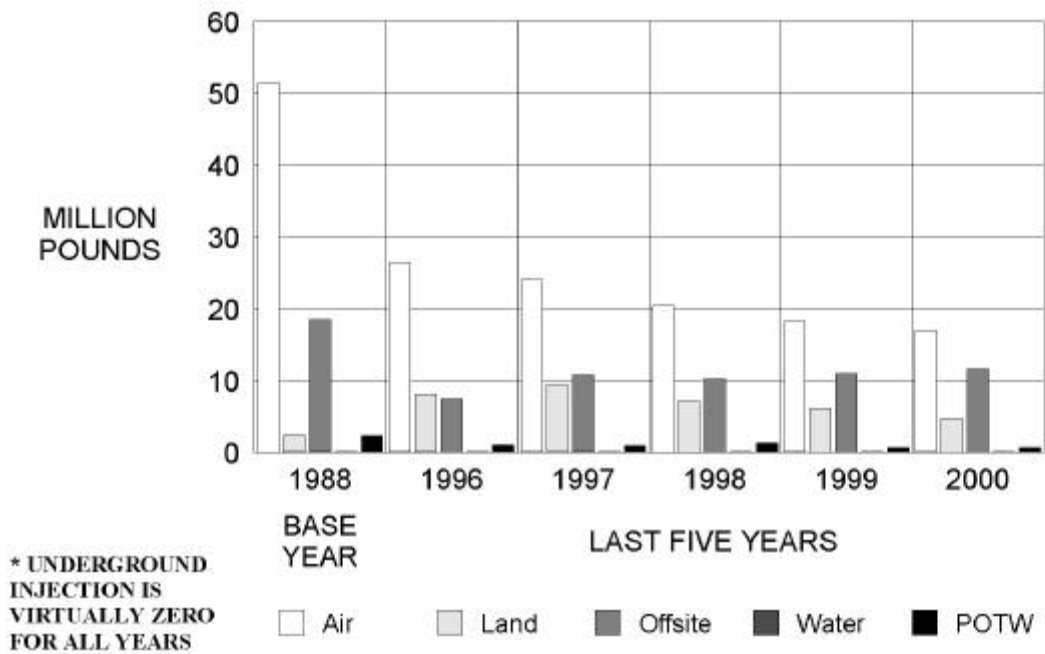
**CURRENT AND PAST YEAR HIGHLIGHTS**

<b>MEDIA</b>	<b>2000</b>	<b>1999</b>	<b>DIFFERENCE %</b>
<b>Air</b>	<b>63.6</b>	<b>84.8</b>	<b>-25</b>
<b>Other Off-site Transfers</b>	<b>48.4</b>	<b>47.1</b>	<b>3</b>
<b>On-site Land</b>	<b>44.7</b>	<b>45.7</b>	<b>-2</b>
<b>Off-site Transfers to POTW</b>	<b>10.5</b>	<b>12.9</b>	<b>-19</b>
<b>Water</b>	<b>7.0</b>	<b>6.4</b>	<b>9</b>
<b>Total</b>	<b>174.3</b>	<b>196.9</b>	<b>-11</b>

## TOTAL RELEASES AND TRANSFERS - ALL CHEMICALS



## TOTAL RELEASES AND TRANSFERS - CHEMICALS WITH SIGNIFICANT HUMAN HEALTH EFFECTS



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# INTRODUCTION

## EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

Congress adopted Title III as part of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Title III is known as the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). EPCRA established programs to provide the public with important information on the hazardous chemicals in their communities, as well as providing emergency planning and notification requirements which help protect the public in the event of a release of hazardous chemicals.

### SECTION 313 (Annual Toxic Chemical Release Reporting)

Section 313 of EPCRA requires annual reports to be filed by certain companies which release any of over 600 listed chemicals and compounds to the environment. This reporting covers routine releases that occur as a result of normal business operations within a calendar year, and non-routine or accidental releases.

In 1987, the Illinois General Assembly amended the Illinois Environmental Protection Act to provide for a coordinated state implementation of Section 313. This amendment also established an orderly procedure for the public to access this information. Under the Act, the Illinois Environmental Protection Agency (IEPA) is charged with the administration of Section 313, which requires industry to report annually to the U.S. EPA and state governments via the toxic chemical release form (Form R).

Form R includes all routine and non-routine releases of toxic chemicals to the air, water and land, as well as transfers of wastes to off-site treatment, storage and disposal facilities. The information reported is not necessarily derived from actual monitoring or measurements, but may be estimated from published emission factors, material balance calculations, or engineering calculations.

Form R information reported to the Illinois EPA is entered into a computer data base known as the Illinois Toxic Chemical Inventory (TCI), as required by the Illinois Environmental Protection Act.

### SUMMARY OF FORM R

A complete copy of Form R is enclosed as Appendix A. In general, the information to be provided by the reporting facility can be summarized as follows:

- The name, location and type of business
- Whether the chemical is manufactured, processed, or otherwise used and the general categories of use of the chemical
- An estimate of the maximum amounts of the toxic chemical present at the facility at any time during the preceding year
- Waste treatment/disposal methods and efficiency of methods for each wastestream
- Quantity of the chemical entering each environmental medium (air, water, land) annually
- Source reduction and recycling activities for the toxic chemical
- A certification by a senior official that the report is complete and accurate

### EXPLANATION OF TERMS

In order to better understand the form and references made to the information reported, selected terms have been defined as follows:

**"SIC Code"** - Standard Industrial Classification (SIC) Code - A two, three or four digit number code designed by the federal Office of Management and Budget in its "SIC Manual", which identifies an industry or industrial grouping. For example, the two-digit code "28" refers to the major group, "Chemicals and Allied Products," the three-digit code

"281" refers to the industry group, "Industrial Inorganic Chemicals," and the four-digit code "2812" refers to the specific industry, "Alkalies and Chlorine." The four-digit code identifies a specific facility rather than company.

**"Publicly Owned Treatment Works (POTW)"** - A wastewater treatment facility which is owned by a unit of government or a public utility company.

**"Off-Site Locations"** - Locations outside the boundaries of a facility to which wastes are transported for treatment or disposal.

**"Chemical Abstracts Service Registry Number (CAS #)"** - A numeric designation assigned by the American Chemical Society's Chemical Abstracts Service which uniquely identifies a chemical or chemical compound.

**"Fugitive or non-point air emissions"** - Releases to the air that are not conveyed through stacks, vents, pipes, ducts or any other confined air stream. Examples include leakage from valves, pump seals, flanges, compressors, sampling connections open ended lines, evaporative losses from surface impoundments and production lines, and releases from building ventilation systems.

**"Stack or point air emissions"** - Releases to the air which are conveyed through stacks, vents, ducts, pipes or other confined air streams, and includes storage tank emissions and air releases from control equipment.

**"Wastestream"** - An ongoing generation of waste which results from an industrial process or originates in an industrial area and which can be consistently described by the same physical and chemical characteristics.

**"Releases to land"** - Refers to landfilling, land treatment/application farming, surface impoundment or any other releases of a toxic chemical to land within the boundaries of a facility.

## **FACILITIES COVERED**

Facilities subject to reporting under Section 313 are those that have 10 or more full-time employees, that are in certain SIC major groups and industries, and that manufactured, processed or otherwise used a listed toxic chemical or chemical category in excess of specified threshold quantities.

The thresholds for reporting are different for users and manufacturers or processors of chemicals. For 1989 and subsequent reporting years, facilities using listed toxic chemicals in quantities over 10,000 pounds and facilities manufacturing or processing these chemicals in excess of 25,000 pounds are required to submit a Form R to both the Illinois EPA and the U.S. EPA by July 1 of the following year.

From 1987 through 1997, facilities in the SIC Manufacturing Division, including major groups 20 through 39, were required to report. Beginning with 1998, facilities in major group 10 (except facility codes 1011, 1081 and 1094) major group 12 (except facility code 1241), facility codes 4911, 4931 and 4939 in major group 49 (limited to facilities which combust coal and/or oil for the purpose of generating power for distribution in commerce), facility code 4953 (limited to facilities regulated under RCRA Subtitle C), facility codes 5169, 5171 and 7389 (limited to facilities primarily involved in solvent recovery services on a contract fee basis), were also required to report.

## **COMPLIANCE**

In order to manage and process all of the data being supplied by industry under Section 313, the Illinois EPA developed a system of quality control. Obvious errors in the submissions were considered to be either "entry" or "technical" errors.

"Entry" errors, such as pages missing from the Form R or a submittal on a wrong form, prohibited the data from being entered into the Agency's computer database. The Illinois EPA contacts the facility with a letter or by phone asking the owner or operator to correct the noted deficiency.



"Technical" errors are handled much the same way; however, the Agency is able to initially enter the data in the computer for later edits once the facility provides the correct information. It has been noted that numerous "technical" errors are made by facilities in the areas of CAS numbers and chemical name spellings.

## **LIMITATIONS ON USE OF INFORMATION**

It is emphasized that the reported toxic chemical release information on which this annual report is based includes total annual amounts of specific chemicals, which are released to the environment. Reporting of information about concentrations or rate of release of toxic chemicals is not currently required. For that reason, this information cannot be used to assess specific instances of chemical exposure. Other factors such as meteorological information must be known as well for such an assessment. See the next section for additional information.

## **CHEMICAL HAZARD ASSESSMENT**

Having the data now available under EPCRA is only the first step in assessing the potential chemical hazards in Illinois. In order to comprehend this information and begin to realize how it may impact communities, other factors must be considered. The chemical properties and associated toxicology of the chemicals of concern should be considered.

## **TOXICOLOGY**

In order to assess the significance of a chemical release of any kind, it is necessary to discuss some fundamentals of toxicology. Above all, it is necessary to appreciate the most basic concept of toxicology, "the dose makes the poison."

This fact indicates that all substances are poisons, even common items like table salt and sugar, if the dose is high enough. On the other hand, some substances are poisonous at relatively low doses. Many of the chemicals addressed by EPCRA Section 313 fall into this category.

Even with relatively poisonous substances no harm can occur unless there has been exposure to the substance (the dose). If there is no exposure, no matter how potent the poison, there can be no toxic response. For most types of chemical exposures, the body has defense mechanisms to protect against or repair the damage done by the chemical. As long as the protection and repair mechanisms are able to keep up with the effects of the chemical, no adverse effect is seen.

Once this threshold is exceeded, however, the magnitude of the response will be in direct proportion to the magnitude of the exposure. Eventually, if the exposure is long enough or severe enough, the chemical causes failure of some organ or organ system, resulting in incapacitation and ultimately death of the organism. This points out two concepts in toxicology, the concept of a threshold of toxicity and the concept of a target organ of a chemical.

For certain types of toxic actions, it is generally accepted that, in theory, any amount of toxic, even the smallest, has an effect. Certain types of cancer and reproductive effects fall into this "no threshold category. Specifically, it is thought that this theory pertains to damage of genetic material by chemicals, by biological agents such as certain viruses, or by physical agents such as ionizing radiation.

Repair mechanisms are known to exist for genetic material, and damage often occurs in areas of the genetic material having no expressed function. Nevertheless, the theory holds that even one unrepaired injury to a key area of the genetic material can result in a mutated cell. If this cell continues to divide, it will produce a colony of genetically different cells. The consequences of this type of damage can be expressed as a birth defect, a mutation, a tumor, or the damage can cause a "silent mutation" in which there is no obvious effect (if the damage occurs in an area of the genetic material having no expressed function).

Since it is impossible to detect a single injury or even small numbers of injuries to the genetic material at this time, scientific studies to determine whether a chemical can cause genetic damage are designed to expose laboratory test organisms to high doses of the chemical in order to maximize the chances of seeing a response. For cancer tests, the

results of positive tests at the high doses (doses which are almost always much larger than expected levels of human exposures) are then extrapolated downward to doses which are relevant to expected human exposures.

These extrapolations are usually expressed as the extra risk of contracting cancer above the "background" cancer incidence due to exposure to low levels of the chemical, such as one extra chance in 100,000 or one in a million. An extra risk of one chance in a hundred thousand or one in one million is generally considered, insignificant, since there exists for everyone a similarly small, unavoidable risk of death due to natural disasters such as floods, tornadoes, lightning, etc.

These concepts of:

1. "the dose makes the poison";
2. the requirement for a route of exposure;
3. there may be specific target organs for a chemical;
4. thresholds exist for some responses; and
5. there are insignificant risk levels for those chemicals for which no threshold is thought to exist;

are concepts which may be used as part of the regulatory control strategy for releases of toxic chemicals to the environment.

As a result of spills, derailments, past disposal practices, industrial accidents, illegal dumping, etc., environmental, public safety and health agencies must on occasion respond to unplanned chemical releases to the environment. In fact, accidental conditions which result in major releases of toxic chemicals to the environment were the driving force behind passage of EPCRA's Community Right-to-Know requirements.

In cases of chemical emergencies it is critical to know the chemical, physical and toxicological properties of the chemical(s) released so that appropriate counter-measures can be undertaken as soon as possible. Knowledge of all important routes of exposure, any critical target organs, any especially sensitive populations, threshold and acutely toxic levels, and antidotes are all important in planning what to do should an emergency arise.

Even in cases which are not of an emergency nature, such as some spill cleanups, illegal dumpings or past disposal practices, it is important to know the toxicological properties of the chemicals involved. Relevant routes of exposure, sensitive organs or populations, threshold levels or levels of insignificant, and the potential fate of the chemicals in all environmental media are important subjects which must be addressed in assessing the amount of cleanup which may be necessary in the incident. In some cases, where similar-acting chemicals are involved, special care must be taken to account for additive effects on sensitive organs.

Information on the toxicological aspects of many chemicals of concern and on toxicology in general can be obtained from the references listed in Appendix B.

Many references are available which explain the properties and usage of various chemicals. An abbreviated listing of these references is presented in Appendix D

## **SPECIAL TREND ANALYSIS, 1991-2000 (TRI-10)**

The Agency has selected this fourteenth annual report, to present a special analysis using a ten-year time frame (TRI-10). This TRI-10 analysis is a comparative yardstick that shows how specific areas around Illinois have performed for toxic chemical releases. Some areas of the State saw decreases in aggregate releases while other areas had increases or little change. Calendar year 1991 was chosen as the beginning year of TRI-10 (offsite transfers for recycle or energy recovery were first reportable) while 2000 was the cutoff. The release information is presented using zip code mapping so that location-specific trends are more readily apparent.

A total of 1,407 facilities are included in this analysis which had a net increase of 37.5 million pounds reported. However, it is important to highlight that over the TRI-10 period the reporting requirements have changed in specific years where more facilities are required to report. For example, there were seven new industrial categories that were required to report for the first time in 1998 accounting for approximately 70.5 million pounds or 35 percent of the 202.5 million pounds reported by all facilities in 1998. Therefore, the following analyses use raw totals and are not normalized as is done elsewhere in this report.

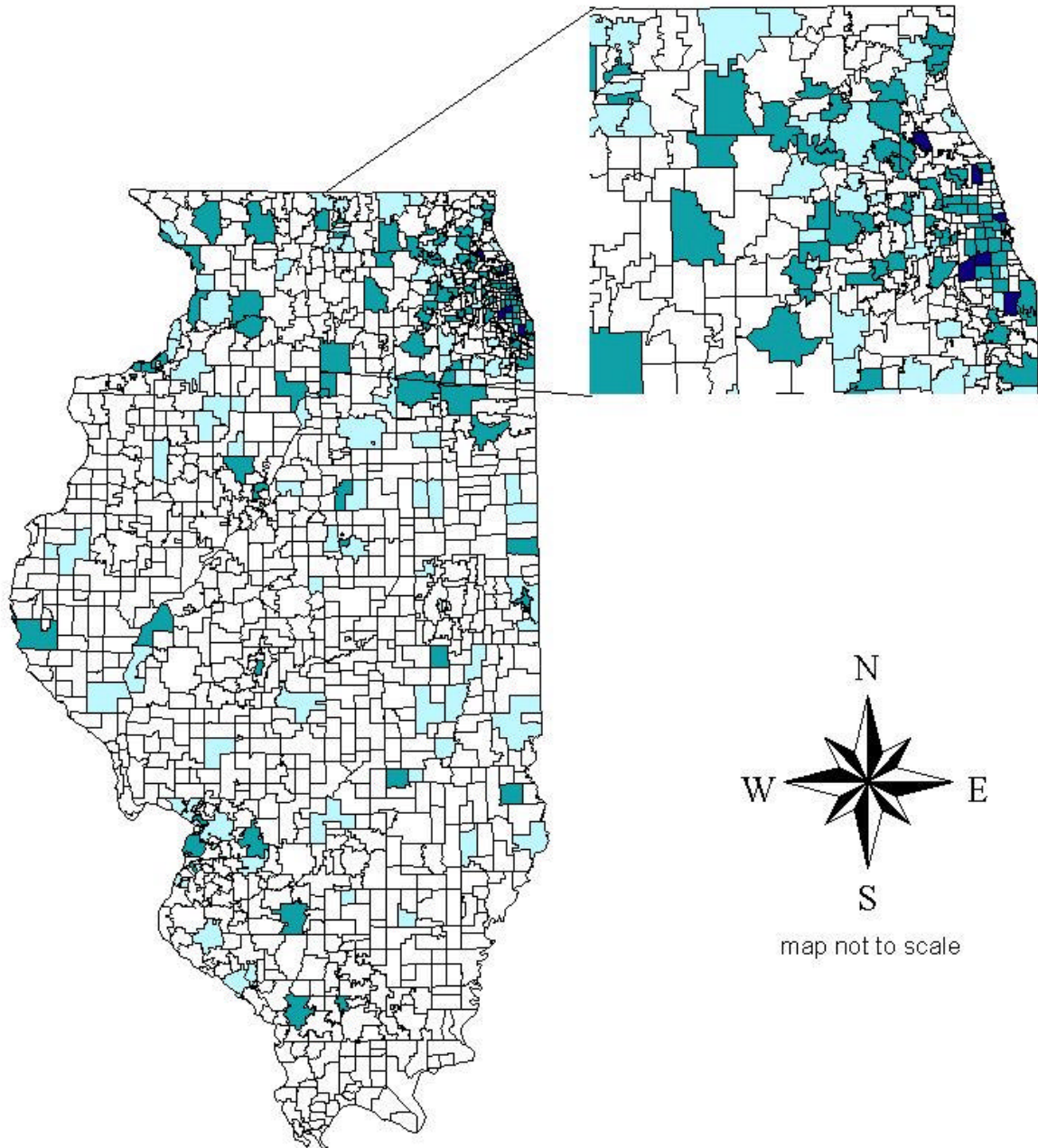
### **RELEASES AND FACILITY ANALYSIS**

The Agency analyzed areas around Illinois to determine the number of facilities that reported increases and decreases in releases. When coupled with the information presented above, these data provide a better overall understanding of release trends throughout Illinois. Below are two maps that show the net number of facilities by zip code.

Map 1 shows the total number of facilities by zip code that had a net TRI-10 decrease. Zip code 60638 in Chicago (Cook County) had 19 facilities that reported a TRI-10 decrease. In addition, zip code 60632 in Chicago (Cook County) had 14 facilities that reported a TRI-10 decrease. For this ten-year period, there were 210 zip codes in Illinois that had a net number of facilities with a decrease.

MAP 1

# Facility Analysis by Zip Code (Decreases from 91-00)

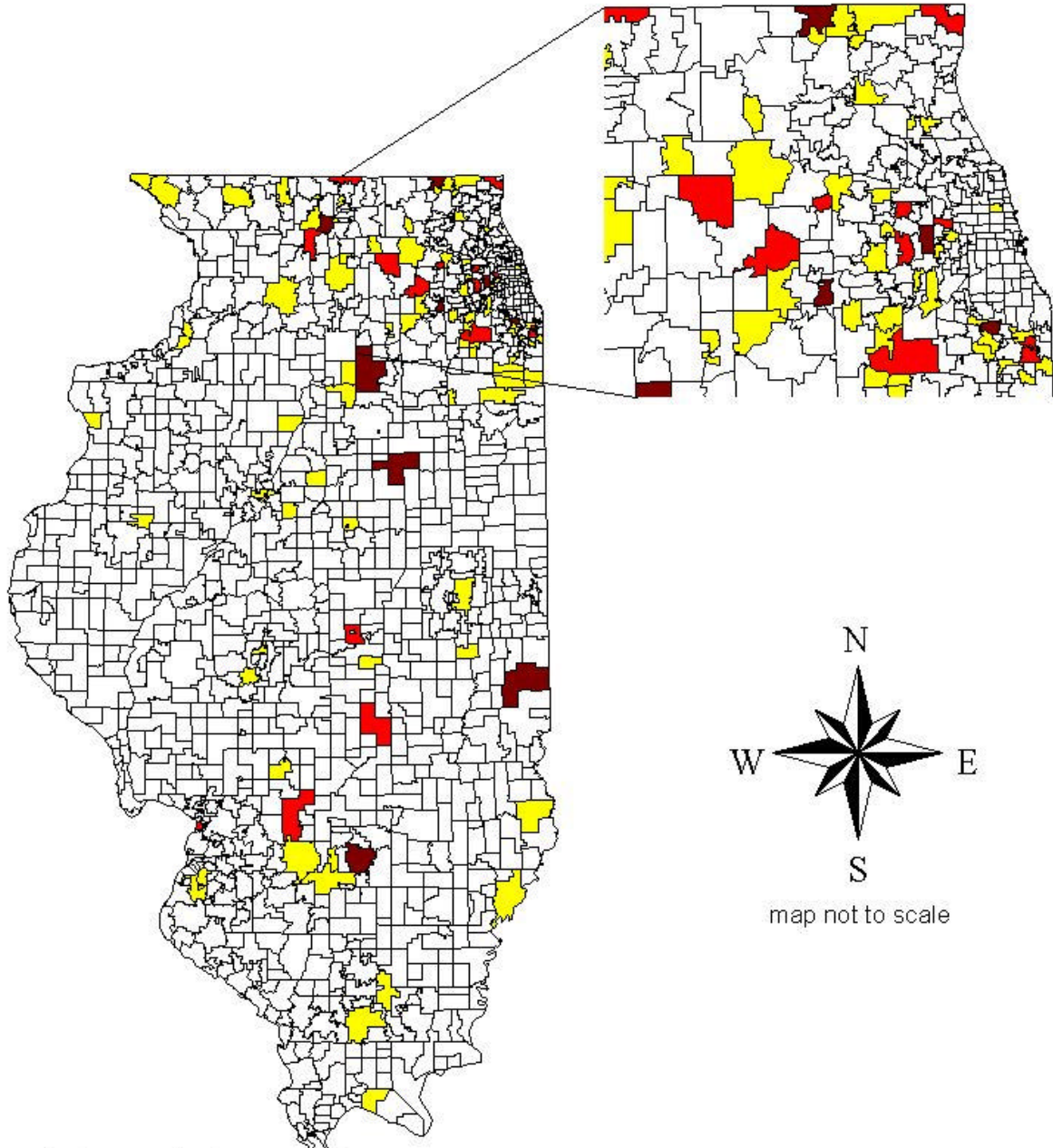


- zip code boundaries
- zip codes with net number of facilities that reported a decrease - 91-00
- 19 - -6
- 5 - -2
- 1

Map 2 shows the total number of facilities by zip code that had a net TRI-10 increase. Zip code 61764 in Pontiac (Livingston County) had 5 facilities that reported a TRI-10 increase while zip code 60505 in Aurora (Kane County) had 4 facilities that reported a TRI-10 increase. An additional 7 counties had 3 facilities each that reported a TRI-10 increase. For this ten-year period, there were 106 zip codes in Illinois that had a net number of facilities with an increase.

MAP 2

# Facility Analysis by Zip Code (Increases from 91-00)



zip code boundaries

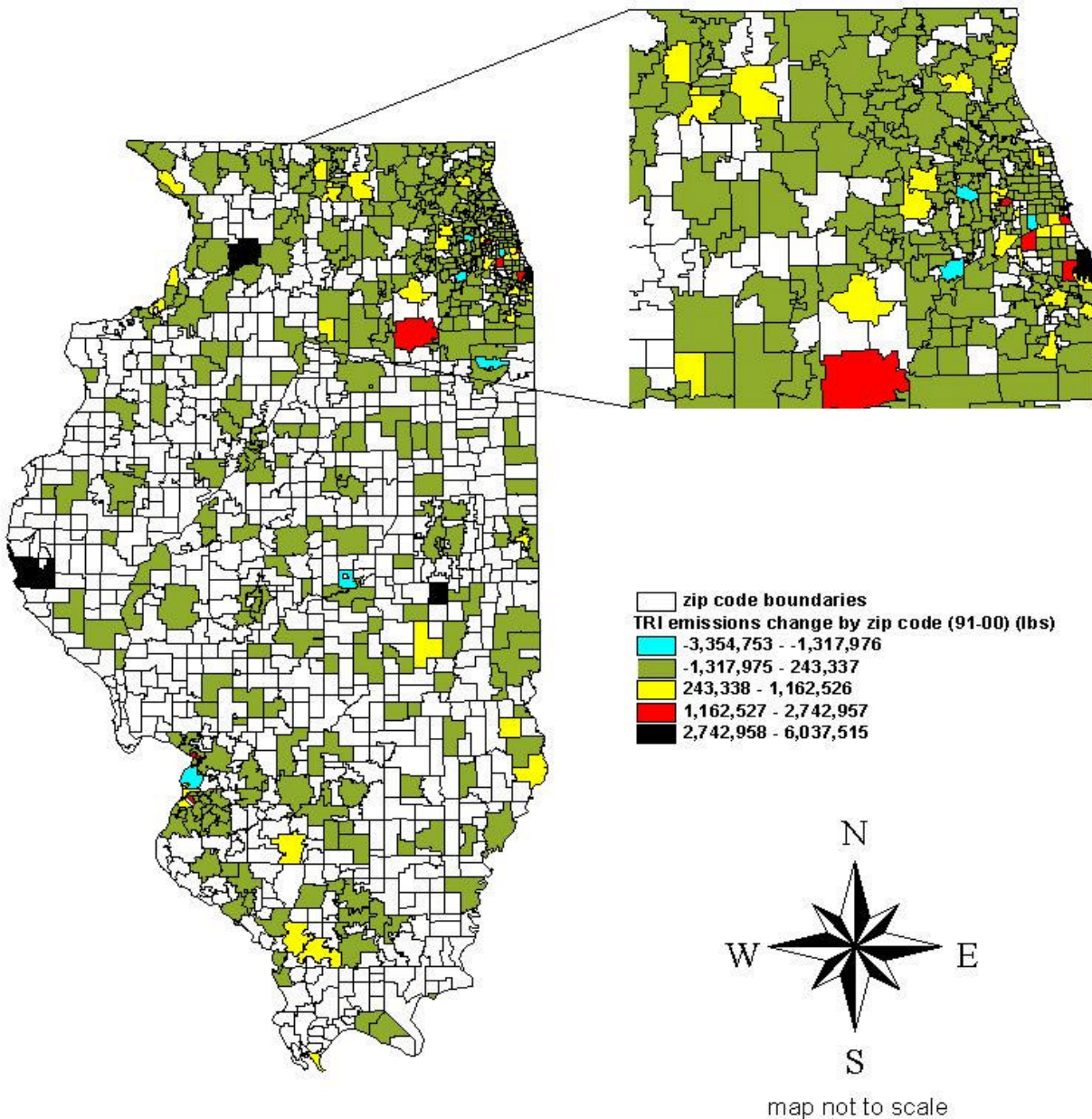
zip codes with net number of facilities that reported an increase - 91-00

- 1
- 2
- 3 - 5

Map 3 shows the total releases for all the zip codes in Illinois. Keystone Steel & Wire Company in Peoria and Peoria County (zip code not available on map) saw the greatest TRI-10 decrease in releases (5,503,085 pounds, 2 facilities in zip code). Zip code 60914 in Bourbonnais (Kankakee County) had the next greatest TRI-10 decrease in releases (3,354,753 pounds, 4 facilities in zip code). Zip code 61081 in Sterling (Whiteside County) saw the greatest TRI-10 increase in releases (6,037,515 pounds, 7 facilities in zip code) while zip code 61953 in Tuscola (Douglas County) had the next greatest TRI-10 increase in releases (4,578,198 pounds 3 facilities in zip code).

MAP 3

# Releases Analysis by Zip Code





## TOP TEN LISTINGS FOR FACILITIES

The Agency also looked at the ranking of facility decreases and increases in Illinois. Table 1 is a by-name listing of the top ten facilities that had TRI-10 decreases. Table 2 lists the top ten facilities with TRI-10 increases.

**Table 1: TRI-10 analysis by facility (top 10 decreases)**

DECREASES						
	FACILITY #	COUNTY	ZIP CODE	CITY	DECREASES 91-00	LARGEST RELEASE CATEGORY
1	KEYSTONE STEEL & WIRE COMPANY	Peoria	61641	Peoria	-5,503,085	Offsite Transfer
2	BIRMINGHAM STEEL CORPORATION KANKAKEE ILLINOIS STEEL DIV	Kankakee	60914	Bourbonnais	-3,370,559	Recycle
3	KOPPERS INDUSTRIES, INC.	Cook	60804	Cicero	-2,696,223	Offsite Transfer
4	MUELLER CO. PLANT #4	Macon	62526	Decatur	-1,737,736	Recycle
5	FLEXSYS AMERICA, L.P. KRUMMRICH	St. Clair	62206	Sauget	-1,651,487	POTW
6	RESOLUTION PERFORMANCE PRODUCTS, LLC	Cook	60501	Bedford Park	-1,332,624	Offsite Transfer
7	AUBURN STEEL COMPANY - LEMONT DIV	Will	60440	Lemont	-1,317,976	Recycle
8	MCINTYRE GROUP, LTD	Will	60466	University Park	-1,276,887	Offsite Transfer
9	GRANITE CITY STEEL	Madison	62040	Granite City	-1,259,717	Land
10	TOSCO WOOD RIVER REFINERY	Madison	62084	Roxana	-950,869	Air

**Table 2: TRI-10 analysis by facility (top 10 increases):**

<b>INCREASES</b>						
	<b>FACILITY #</b>	<b>COUNTY</b>	<b>ZIP CODE</b>	<b>CITY</b>	<b>INCREASES 91-00</b>	<b>LARGEST RELEASE CATEGORY</b>
1	NORTHWESTERN STEEL AND WIRE COMPANY	Whiteside	61081	Sterling	6,036,085	Land
2	CABOT CORP. CAB-O-SIL DIV.	Douglas	61953	Tuscola	4,069,306	Air
3	TITAN WHEEL CORPORATION OF ILLINOIS	Adams	62301	Quincy	3,334,419	Recycle
4	USS SOUTH WORKS	Cook	60617	Chicago	3,142,354	Offsite Transfer
5	AMOCO PETROLEUM ADDITIVES COMPANY	Madison	62095	Wood River	2,742,957	Offsite Transfer
6	TAKASAGO INTERNATIONAL CORPORATION	Will	60466	University Park	2,449,041	Offsite Transfer
7	EQUISTAR CHEMICALS, LP	Grundy	60450	Morris	2,058,424	Air
8	SOLUTIA INC. - KRUMMRICH, IL	St. Clair	62206	Sauget	1,908,553	Offsite Transfer
9	CHICAGO SPECIALTIES L.L.C.	Cook	60628	Chicago	1,761,225	POTW
10	ELEMENTIS PIGMENTS INC.	St. Clair	62205	East St. Louis	1,675,394	Offsite Transfer

## **ANALYSIS OF FORM R INFORMATION**

### **CALENDAR YEAR 2000**

#### **BASIS**

For the current calendar year analysis, all valid reports for chemicals reportable in 2000 are included in the release and transfer totals. This includes PBTs (reportable for the first time in 2000), chemicals which may be reportable in a different form than when they were first listed and reports from the new SIC major group codes and facility codes ("new industrial categories") which are required to report beginning with 1998. For this reason, release totals in this section differ from those given for 2000 in the "Trend Analysis, 1988-2000" section.

## FACILITIES

### Total Releases and Transfers

For calendar year 2000, 1,321 facilities submitted 4,268 toxic chemical release reports totaling 174.3 million pounds.

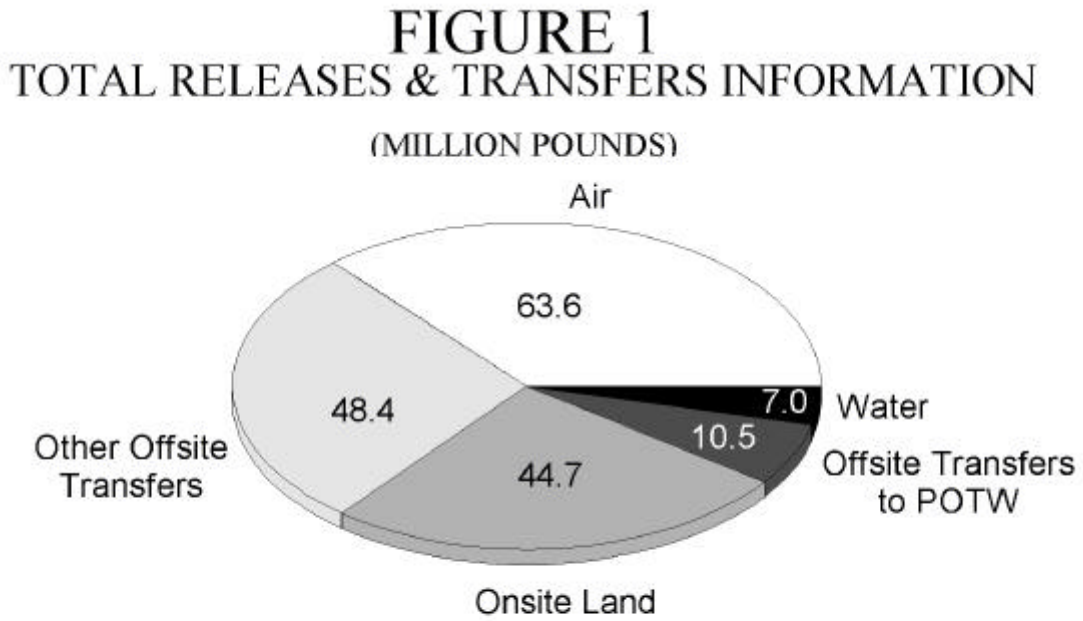
Table 3 lists the facilities reporting the top 20 total release and transfer amounts, not including offsite transfers for recycle or energy recovery.

Table 3  
Total Releases and Transfers

		(Million Pounds) Top 20 Facilities Releases					Offsite Transfers		Total Releases & Transfers	
Facility Name	City	Fugitive Air	Stack Air	Water	Under- ground Injection	On- Site Land	POTW	Other		
1.	<u>Peoria Disposal Company #1</u>	Peoria	0.0	0.0	0.0	0.0	18.7	0.0	0.0	18.7
2.	<u>Keystone Steel &amp; Wire Co.</u>	Peoria	0.0	0.0	0.0	0.0	0.6	0.0	7.3	7.9
3.	<u>Northwestern Steel &amp; Wire Co.</u>	Sterling	0.0	0.0	0.0	0.0	5.8	0.0	0.1	6.0
4.	<u>Granite City Steel</u>	Granite City	0.1	0.1	0.1	0.0	5.5	0.0	0.0	5.9
5.	<u>Devro-Teepak</u>	Danville	0.1	3.3	0.0	0.0	0.0	0.0	0.0	3.4
6.	<u>Wood River Power Station</u>	Alton	0.0	3.4	0.0	0.0	0.0	0.0	0.0	3.4
7.	<u>Birmingham Steel Corp., Kankakee, IL Steel Div.</u>	Bourbonnais	0.0	0.0	0.0	0.0	0.0	0.0	3.4	3.4
8.	<u>AES-Edwards c/o CILCO</u>	Bartonville	0.0	2.9	0.0	0.0	0.5	0.0	0.0	3.4
9.	<u>IBP, Inc.</u>	Joslin	0.0	0.0	2.8	0.0	0.0	0.0	0.3	3.1
10.	<u>Koppers Industries, Inc.</u>	Cicero	0.0	0.1	0.0	0.0	0.0	0.0	2.7	2.9
11.	<u>Newton Power Station</u>	Newton	0.0	0.5	0.0	0.0	2.0	0.0	0.0	2.5
12.	<u>Vermilion Power Station</u>	Oakwood	0.0	2.4	0.0	0.0	0.1	0.0	0.0	2.5
13.	<u>Williams Ethanol Services, Inc.</u>	Pekin	0.0	0.1	1.6	0.0	0.6	0.0	0.0	2.4
14.	<u>Corn Products Argo Plant</u>	Bedford Park	0.6	0.8	0.0	0.0	0.0	1.0	0.0	2.4
15.	<u>City Water, Light &amp; Power, City of Springfield</u>	Springfield	0.0	2.2	0.0	0.0	0.1	0.0	0.0	2.2
16.	<u>Bunge Lauhoff Grain Co.</u>	Danville	0.7	1.5	0.0	0.0	0.0	0.0	0.0	2.2
17.	<u>Freeman United Coal Mining Co., Crown 3 Mine</u>	Farmersville	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.2
18.	<u>Tosco Wood River Refinery</u>	Roxana	0.8	1.1	0.2	0.0	0.0	0.0	0.2	2.2
19.	<u>Big River Zinc Corp.</u>	Sauget	0.0	0.1	0.0	0.0	1.0	0.0	1.0	2.1
20.	<u>Krack Corp.</u>	Addison	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.9
Totals for Top 20 Facilities			2.4	18.7	4.8	0.0	39.1	1.1	15.0	81.1
Totals for all Reporting Facilities			12.7	50.9	7.0	0.0	44.7	10.5	48.4	174.3

Note: Some number differences may be due to rounding

Figure 1 shows the distribution of total releases and transfers for 2000.



**\* UNDERGROUND INJECTION IS VIRTUALLY ZERO FOR ALL YEARS**

## CHEMICALS

Releases and transfers of 254 different toxic chemicals and categories during 2000 were reported by Illinois facilities. Table 4 lists release and transfer information for the 20 chemicals with the highest reported total amounts.

Table 4  
Total Releases and Transfers  
(Million Pounds)  
Top 20 Chemicals

CAS Number or Category	Chemical Name	Releases					Offsite Transfers		Total Releases & Transfers
		Fugitive Air	Stack Air	Water	Under- ground Injection	Land	POTW	Other	
1. <u>000010982</u>	Zinc Compounds	0.2	0.4	0.0	0.0	25.3	0.0	15.6	41.7
2. <u>007647010</u>	Hydrochloric Acid	0.0	14.3	0.0	0.0	0.0	0.0	0.1	14.4
3. <u>000010511</u>	Nitrate Compounds	0.0	0.0	6.5	0.0	0.0	5.0	1.1	12.6
4. <u>000010450</u>	Manganese Compounds*	0.0	0.0	0.0	0.0	6.9	0.0	3.8	10.8
5. <u>000110543</u>	N-Hexane*	2.3	6.2	0.0	0.0	0.0	0.0	0.0	8.5
6. <u>000010040</u>	Barium Compounds	0.0	0.2	0.0	0.0	4.3	0.0	2.3	6.9
7. <u>007664939</u>	Sulfuric Acid	0.0	4.8	0.0	0.0	0.0	0.2	0.2	5.2
8. <u>007664417</u>	Ammonia	0.5	2.0	0.0	0.0	0.0	1.6	0.9	5.1
9. <u>000108883</u>	Toluene*	2.5	1.5	0.0	0.0	0.0	0.0	0.8	4.9
10. <u>000067561</u>	Methanol	0.8	1.1	0.0	0.0	0.0	1.2	1.6	4.7
11. <u>000078933</u>	Methyl Ethyl Ketone*	0.6	0.7	0.0	0.0	0.0	0.3	2.0	3.5
12. <u>000100425</u>	Styrene*	0.6	1.6	0.0	0.0	0.0	0.0	1.3	3.5
13. <u>000010420</u>	Lead Compounds*	0.0	0.0	0.0	0.0	1.9	0.0	1.3	3.3
14. <u>000075150</u>	Carbon Disulfide*	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.3
15. <u>000010090</u>	Chromium Compounds*	0.0	0.0	0.0	0.0	1.3	0.0	1.7	3.1
16. <u>000010230</u>	Glycol Ethers	0.7	1.5	0.0	0.0	0.0	0.3	0.3	2.9
17. <u>001330207</u>	Xylene (Mixed Isomers)*	1.0	1.4	0.0	0.0	0.0	0.0	0.4	2.9
18. <u>007664393</u>	Hydrogen Fluoride	0.0	2.5	0.0	0.0	0.0	0.2	0.0	2.8
19. <u>000085449</u>	Phthalic Anhydride	0.0	0.1	0.0	0.0	0.0	0.0	2.6	2.7
20. <u>007440508</u>	Copper	0.0	0.0	0.0	0.0	1.6	0.0	0.8	2.6
Totals for Top 20 Chemicals, Compounds		9.4	41.6	6.8	0.0	41.6	9.1	37.0	145.5
Totals for All Reported Chemicals & Compounds		12.7	50.9	7.0	0.0	44.7	10.5	48.4	174.3

\* Known to have "Significant" human health effects (i.e. are known or probable human carcinogens, teratogens, reproductive toxicants or fetal toxicants).

Note: Some number differences may be due to rounding

## Persistent, Bioaccumulative, Toxic (PBT) Chemicals

Table 5 lists Illinois' 2000 PBT totals for each media. For PBT chemicals reported in 2000, the USEPA reported rankings for all States. A closer look at three of the categories shows that Illinois is ranked #4 nationally for mercury and mercury compounds, #21 for polychlorinated biphenyls (PCBs), and #27 for dioxin and dioxin-like compounds.

Table 5  
Total Releases and Transfers  
(Pounds, unless otherwise noted)  
PBT Chemicals

Chemical or chemical category name	Releases				Offsite Transfers		Total Releases & Transfers	Recyc. Recov.
	Air	Water	UIC	Land	POTW	Other		
1. <u>Aldrin</u>	0.0	0.0	0.0	0.0	0.0	1.4	1.5	0.0
2. <u>Benzo[g,h,i]perylene</u>	629.5	15.1	0.0	76.0	53.1	3,233.2	4,006.9	1,617.9
3. <u>Chlordane</u>	1.0	0.0	0.0	0.0	0.0	31.0	32.0	0.0
4. <u>Heptachlor</u>	0.0	0.0	0.0	0.0	0.0	217.0	214.0	0.0
5. <u>Hexachlorobenzene</u>	0.0	0.0	0.5	0.0	0.0	25.0	25.5	0.0
6. <u>Isodrin</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. <u>Methoxychlor</u>							29.0	
8. <u>Octachlorostyrene</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9. <u>Pendimethalin</u>	1.0	0.0	0.0	0.0	0.0	28.0	90.0	0.0
10. <u>Pentachlorobenzene</u>	2.0	0.0	0.0	0.0	0.0	88.0	78.0	0.0
11. <u>Polychlorinated biphenyls (PCBs)</u>	276.0	0.0	0.0	0.0	0.0	372.0	648.0	320.0
12. <u>Tetrabromobisphenol A</u>	285.0	0.0	0.0	0.0	0.0	0.0	285.0	109.0
13. <u>Toxaphene</u>	0.0	0.0	0.0	0.0	0.0	9.0	9.0	0.0
14. <u>Trifluralin</u>	1.0	0.0	0.0	0.0	0.0	33.0	34.0	0.0
15. <u>Mercury</u>	1,143.6	7.9	0.0	223.0	8.2	150.0	1,532.7	1,475.0
16. <u>Mercury compounds</u>	5,138.1	10.4	0.0	10,265.9	15.0	44,208.5	59,638.0	6,610.3
17. <u>Dioxin and Dioxin-like compounds category*</u>	[50.9]	[0.0]	[0.0]	[0.0]	[0.0]	[37.4]	[88.3]	[7.8]
18. <u>Polycyclic aromatic compounds category (PACs)</u>	26,042.5	50.2	0.0	598.8	199.8	69,837.7	96,729.0	83,557.7

Note: Some number differences may be due to rounding

\* [Grams]

## STANDARD INDUSTRIAL CLASSIFICATION (SIC) CATEGORIES

Facilities in 251 individual four-digit SIC codes have reported toxic chemical releases and transfers for calendar year 2000. Table 6 summarizes the information for the 20 SIC codes reporting the highest release and transfer totals.

Table 6  
Total Releases and Transfers  
(Million Pounds)  
Top 20 SIC Codes

SIC Code	Description	Releases					Off-site Transfers		Total Releases & Transfers
		Fugitive Air	Stack Air	Water	Under-ground Injection	Land	POTW	Other	
1. <u>4911</u>	Electric Services	0.0	17.7	0.2	0.0	5.7	0.0	3.2	26.8
2. <u>3312</u>	Steel Works, Blast Furnaces (Including Coke Ovens) and Rolling Mills	0.4	0.5	0.2	0.0	12.1	0.3	12.5	26.0
3. <u>4953</u>	Refuse Systems	0.0	0.0	0.0	0.0	18.7	0.7	3.4	22.8
4. <u>2075</u>	Soybean Oil Mills	1.4	6.1	0.0	0.0	0.0	0.0	0.0	7.5
5. <u>2869</u>	Industrial Organic Chemicals, Not Elsewhere Classified	0.3	1.2	1.6	0.0	0.6	1.4	1.9	7.0
6. <u>2821</u>	Plastic Materials, Synthetic Resins and Nonvulcanizable Elastomers	0.4	2.7	0.2	0.0	0.0	0.1	2.6	6.0
7. <u>2911</u>	Petroleum Refining	1.4	2.0	1.2	0.0	0.0	0.0	0.2	4.8
8. <u>2865</u>	Cyclic Organic Crudes & Intermediates, and Organic Dyes and Pigments	0.1	0.4	0.1	0.0	0.0	0.7	3.3	4.6
9. <u>3471</u>	Electroplating, Plating, Polishing, Anodizing and Coloring	0.2	0.2	0.0	0.0	0.0	1.5	2.2	4.1
10. <u>3089</u>	Plastic Products, Not Elsewhere Classified	0.2	3.7	0.0	0.0	0.0	0.0	0.2	4.1
11. <u>2046</u>	Wet Corn Milling	0.6	1.2	0.0	0.0	0.0	1.8	0.2	3.9
12. <u>2819</u>	Industrial Inorganic Chemicals, Not Elsewhere Classified	0.0	0.4	0.0	0.0	0.2	0.5	2.3	3.5
13. <u>2011</u>	Meat Packing Plants	0.0	0.0	3.1	0.0	0.0	0.0	0.3	3.5
14. <u>1222</u>	Bituminous Coal Underground Mining	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6
15. <u>2752</u>	Commercial Printing, Lithographic	1.9	0.5	0.0	0.0	0.0	0.0	0.1	2.5
16. <u>3341</u>	Secondary Smelting & Refining of Nonferrous Metals	0.1	0.2	0.0	0.0	0.0	0.0	2.1	2.3
17. <u>3339</u>	Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum	0.0	0.1	0.0	0.0	1.0	0.0	1.0	2.2
18. <u>3585</u>	Air Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment	0.1	0.0	0.0	0.0	1.9	0.0	0.0	2.1
19. <u>2843</u>	Surface Active Agents, Finishing Agents, Sulfonated Oils, and Assistants	0.2	0.3	0.0	0.0	0.0	0.2	1.2	1.9
20. <u>3711</u>	Motor Vehicles and Passenger Car Bodies	0.7	0.9	0.0	0.0	0.0	0.1	0.1	1.9
Totals for Top 20 SIC Codes:		8.2	38.3	6.5	0.0	42.9	7.6	36.8	140.3
Totals for All SIC Codes:		12.7	50.9	7.0	0.0	44.7	10.5	48.4	174.3

Note: Some number differences may be due to rounding



## ZIP CODES - AIR EMISSIONS

Air emissions for calendar year 2000 in the 20 ZIP codes with the highest reported totals are summarized in Table 7.

Table 7

### Total Air Emissions (Million Pounds) Top 20 ZIP Codes

	ZIP Code	County	City	Total Air Emissions		
				Fugitive	Stack	Total
1.	<u>61832</u>	Vermilion	Danville	0.8	4.9	5.7
2.	<u>62526</u>	Macon	Decatur	0.7	3.4	4.1
3.	<u>62002</u>	Madison	Alton	0.0	3.4	3.4
4.	<u>61607</u>	Peoria	Bartonville	0.0	2.9	2.9
5.	<u>61858</u>	Vermilion	Oakwood	0.0	2.4	2.4
6.	<u>62707</u>	Sangamon	Springfield	0.0	2.2	2.2
7.	<u>62084</u>	Madison	Roxana	0.8	1.1	1.9
8.	<u>60501</u>	Cook	Summit	0.6	1.1	1.7
9.	<u>61025</u>	JoDaviess	East Dubuque	0.0	1.4	1.4
10.	<u>62655</u>	Morgan	Meredosia	0.0	1.2	1.2
11.	<u>60450</u>	Grundy	Morris	0.1	0.9	1.0
12.	<u>60410</u>	Will	Channahon	0.2	0.8	1.0
13.	<u>62306</u>	Adams	Quincy	0.1	0.9	1.0
14.	<u>61054</u>	Ogle	Mt. Morris	0.7	0.3	0.9
15.	<u>62914</u>	Alexander	Cairo	0.3	0.6	0.9
16.	<u>60633</u>	Cook	Chicago	0.0	0.9	0.9
17.	<u>61938</u>	Coles	Mattoon	0.8	0.0	0.9
18.	<u>62739</u>	Montgomery	Coffeen	0.0	0.8	0.8
19.	<u>61350</u>	LaSalle	Ottawa (rural)	0.0	0.7	0.7
20.	<u>61109</u>	Winnebago	Rockford	0.0	0.7	0.7
Top 20 ZIP Codes (Air):				5.2	30.5	35.7
Total for All Reporting Facilities (Air):				12.7	50.9	63.6

Note: Some number differences may be due to rounding





## TREND ANALYSIS, 1988-2000 SUMMARY

From 1988 to 2000, there have been many additions to and deletions from the list of toxic chemicals, and published guidance has modified chemical reporting. Coupled with the facts that the quality of data reported for 1987 is questionable and that reporting threshold amounts decreased from 1987 to 1989, it is nearly impossible to evaluate trends using all reported information from all facilities for all years.

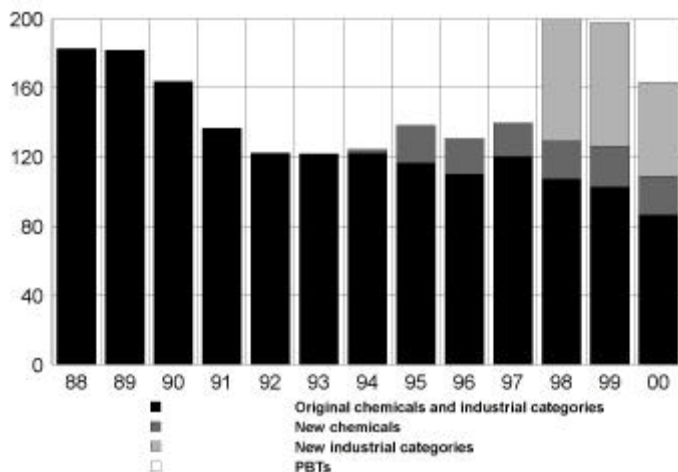
Considering the dynamic nature of the Form R reporting program, in order to perform meaningful analyses of toxic chemical releases, especially with regard to evaluating release trends, the Illinois EPA utilizes information provided by facilities for toxic chemicals which have been reportable in the same form for all years, 1988 through 2000.

This approach is called "normalizing". Offsite transfers for recycle or energy recovery, which were reportable beginning with calendar year 1991, are not considered in trend analysis for this period. Other reported information may be used, as indicated, to illustrate specific points.

Illinois toxic chemical release data trends are analyzed from several different perspectives in this annual report, including specific facilities, specific chemicals, SIC code groups and ZIP codes. In each of these, separate analyses are shown for: (1) all reported chemicals; and for (2) those reported chemicals which are known to have "significant" human health effects (i.e., are known or probable human carcinogens, teratogens, reproductive toxins or fetal toxins). For display purposes, release amounts are shown for the base year, 1988, and for the last five years.

Total "normalized" releases and transfers have decreased 49 percent from 1988 to 2000. The toxic chemical with the greatest quantity reduction was toluene (17.3 million pounds, or 79 percent), which is a teratogen, reproductive toxin and fetal toxin. Facilities in the SIC category 2821 (Plastic Materials, Synthetic Resins and Nonvulcanizable Elastomers) as a group had the greatest quantity reduction (9.9 million pounds, or 67 percent).

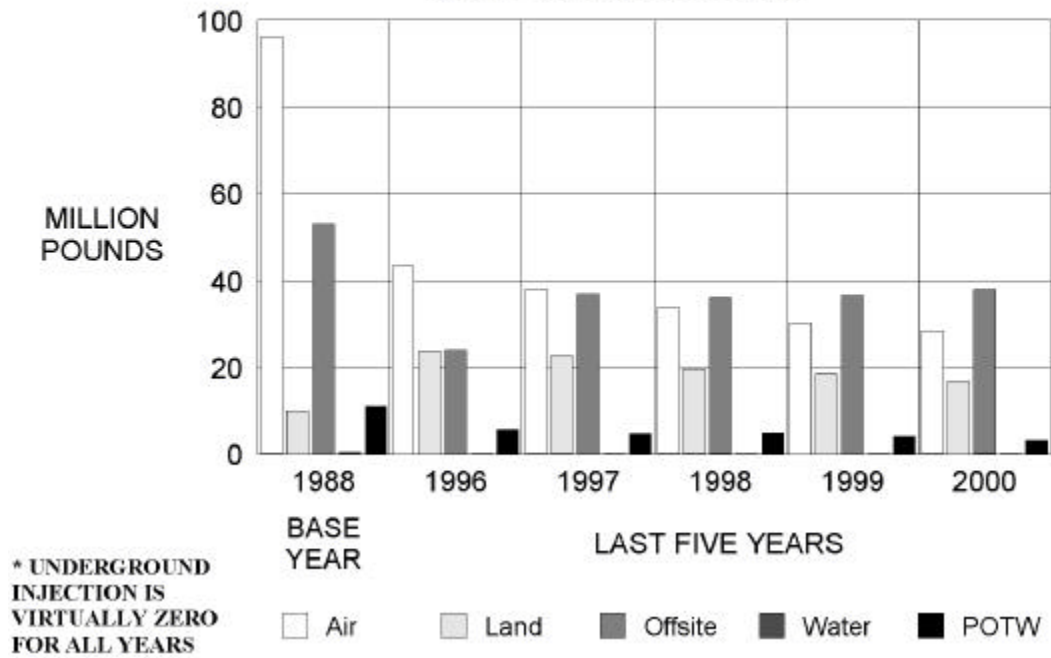
Even though the "normalizing" approach is necessary to properly characterize trends, of necessity it omits some information about TRI releases. Specifically, releases of hydrochloric acid, sulfuric acid and ammonia are not included in "normalized" quantities because the reporting guidance for these chemicals changed in 1995. New TRI chemicals which have been added, notably in 1995, and the new industrial categories reporting for the first time in 1998, are not included. The chart below shows release and transfer quantities in million pounds, including a) chemicals reportable by the original industrial categories in the same form for all years plus aerosols of hydrochloric and sulfuric acid and ammonia air emissions (it is impossible to approximate changes to ammonia releases other than air emissions prior to 1995 based on the guidance issued in 1995) ("original chemicals and industrial categories"), b) new chemicals added ("new chemicals"), c) the new industrial categories added for 1998 ("new industrial categories"), and PBTs in 2000.



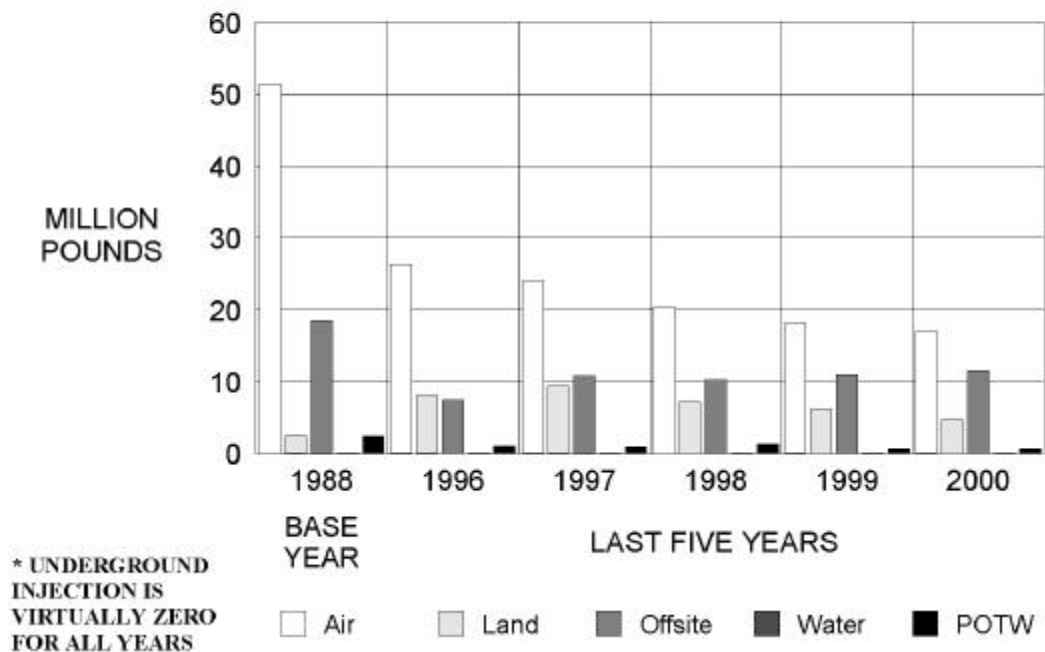
## SUMMARY

Figures 2 and 3 summarize the overall totals for releases and transfers from 1988 through 2000.

### FIGURE 2 TOTAL RELEASES AND TRANSFERS - ALL CHEMICALS



**FIGURE 3**  
**TOTAL RELEASES AND TRANSFERS - CHEMICALS**  
**WITH SIGNIFICANT HUMAN HEALTH EFFECTS**



**FACILITIES**

Tables 9 through 14 list information about facilities which have filed one or more Form Rs for toxic chemicals reportable each year in the same form. The "Totals For All Reporting Facilities" are for all facilities which reported toxic chemicals which were reportable in the same form each year.

## Total Releases and Transfers

Facilities reported releases totaling 470.7 million pounds from 1996 through 2000. During this period, the top 20 facilities accounted for approximately 54 percent of those releases and transfers, as shown in Table 9.

Table 9

### Total Release and Transfer Amounts Top 20 Facilities

Facility	City	Total Releases and Transfers (Million Pounds)						Total 96-00
		Base Yr 1988	1996	Last Five Years			1999	
1. <u>Northwestern Steel &amp; Wire Co.</u>	Sterling	7.0	14.6	15.0	13.0	10.0	6.0	58.6
2. <u>Keystone Steel &amp; Wire Co.</u>	Peoria	4.5	6.9	5.6	5.3	6.6	7.9	32.3
3. <u>Granite City Steel</u>	Granite City	4.8	6.0	6.1	5.9	5.6	5.7	29.3
4. <u>Birmingham Steel Corp. Kankakee, IL Steel Division</u>	Bourbonnais	0.0	0.0	5.3	5.0	5.2	3.4	18.9
5. <u>Devro-Teepak</u>	Danville	2.0	3.9	3.9	3.6	3.5	3.3	18.2
6. <u>Koppers Industries, Inc.</u>	Cicero	1.3	2.6	3.0	4.0	3.1	2.8	15.5
7. <u>Flexsys America, L.P., Krumrich</u>	Sauget	0.0	1.5	1.6	1.6	1.4	1.6	7.8
8. <u>Big River Zinc Corp.</u>	Sauget	2.0	1.4	1.1	1.2	1.9	2.0	7.7
9. <u>Equistar Chemicals, LP</u>	Morris	4.9	1.6	1.7	2.0	1.2	0.7	7.2
10. <u>Mueller Company, Plant #4</u>	Decatur	0.0	0.0	1.5	1.7	1.8	1.8	6.8
11. <u>Acme Steel Co. - Riverdale Plant</u>	Riverdale	1.9	0.9	3.3	2.1	0.3	0.1	6.7
12. <u>Carus Chemical Co.</u>	LaSalle	1.6	1.1	1.3	1.4	1.4	1.4	6.6
13. <u>GE Company</u>	Ottawa	2.4	1.0	1.0	1.1	0.9	1.5	5.5
14. <u>American Steel Foundry</u>	Granite City	0.0	1.3	1.2	0.8	1.1	0.6	5.1
15. <u>Quebecor Printing, Inc.</u>	Mt. Morris	1.7	1.3	0.9	0.7	0.9	0.9	4.7
16. <u>Auburn Steel Co., Inc. - Lemont Div.</u>	Lemont	0.0	1.8	1.3	0.1	0.2	1.3	4.7
17. <u>Ford Motor Co., Chicago Assembly</u>	Chicago	2.0	0.7	0.8	1.0	0.9	0.9	4.3
18. <u>Viskase Corp.</u>	Bedford Park	1.2	1.7	1.6	0.9	0.0	0.0	4.3
19. <u>McIntyre Group, LTD</u>	University Park	0.0	0.0	0.2	0.9	1.6	1.3	4.0
20. <u>Abbott Laboratories, North Chicago Plant</u>	North Chicago	0.7	0.7	0.8	0.7	1.2	0.6	4.0
Totals for Top 20 Facilities:		38.0	49.3	57.1	53.2	48.8	44.0	252.4
<u>Totals for All Reporting Facilities:</u>		<u>170.8</u>	<u>97.2</u>	<u>102.8</u>	<u>94.5</u>	<u>89.7</u>	<u>86.5</u>	<u>470.7</u>

Note: Some number differences may be due to rounding

Considering only toxic chemicals known to have significant human health effects, facilities reported total releases and transfers of 197.1 million pounds during those same years. The top 20 facilities accounted for 55 percent of that total, as show in Table 10.

Table 10

Total Release and Transfer Amounts  
Chemicals With Significant Human Health Effects  
Top 20 Facilities

		Total Releases and Transfers (Million Pounds)						
Facility	City	Base Year	Last Five Years					Total 96-00
			1996	1997	1998	1999	2000	
1. <u>Northwestern Steel &amp; Wire Co.</u>	Sterling	2.7	6.2	7.3	5.7	4.0	2.5	25.7
2. <u>Devro-Teepak</u>	Danville	2.0	3.9	3.9	3.6	3.5	3.3	18.2
3. <u>Carus Chemical Co.</u>	LaSalle	1.3	0.9	1.1	1.2	1.4	1.4	6.1
4. <u>Keystone Steel &amp; Wire Co.</u>	Peoria	0.4	1.2	1.0	0.9	1.2	1.5	5.7
5. <u>GE Company</u>	Ottawa	2.3	1.0	1.0	1.0	0.8	1.5	5.3
6. <u>Birmingham Steel Corp.</u>	Bourbonnais	0.0	0.0	1.1	1.4	1.5	0.8	4.8
7. <u>Quebecor World Mt. Morris, Inc.</u>	Mt. Morris	1.7	1.2	0.8	0.6	0.9	0.9	4.5
8. <u>Viskase Corp.</u>	Bedford Park	1.2	1.7	1.6	0.9	0.0	0.0	4.3
9. <u>Granite City Steel</u>	Granite City	1.2	0.8	0.8	0.8	0.8	0.8	4.1
10. <u>R.R. Donnelley &amp; Sons Co.</u>	Mattoon	2.3	0.3	0.7	0.8	0.9	0.9	3.7
11. <u>American Steel Foundry</u>	Granite City	0.0	0.7	0.7	0.7	1.0	0.5	3.7
12. <u>Quebecor World - Salem Div. (Salem Gravure)</u>	Salem	0.7	1.1	1.3	0.6	0.0	0.5	3.6
13. <u>Abbott Laboratories North Chicago Plant</u>	North Chicago	0.6	0.4	0.6	0.4	1.0	0.5	3.1
14. <u>Shell Epoxy Resins, LLC</u>	Bedford Park	0.0	0.0	0.0	0.8	0.8	1.3	2.9
15. <u>Able Electro Polishing</u>	Chicago	0.0	0.7	0.7	0.3	0.5	0.5	2.7
16. <u>No-Sag Foam Products Corp.</u>	West Chicago	0.0	0.5	0.6	0.5	0.5	0.4	2.5
17. <u>Crownline Boats, Inc.</u>	West Frankfort	0.0	0.3	0.4	0.4	0.6	0.6	2.3
18. <u>Allied Tube &amp; Conduit Corp.</u>	Harvey	0.4	0.6	0.5	0.4	0.3	0.3	2.1
19. <u>GFC-Bridgeview, Inc.</u>	Bridgeview	0.2	0.7	0.5	0.5	0.3	0.0	2.0
20. <u>Flexsys America, L.P. Krummrich</u>	Sauget	0.0	0.4	0.4	0.4	0.4	0.4	2.0
Totals for Top 20 Facilities:		17.0	22.8	25.0	22.2	20.5	18.6	109.1
Totals for All Reporting Facilities:		75.1	43.1	45.2	39.3	36.1	33.4	197.1

Note: Some number differences may be due to rounding



## Decreases in Releases and Transfers

The top twenty facilities with decreases in releases and transfers of toxic chemicals from 1996 through 2000 are shown in Table 11.

Table 11  
Total Release and Transfer Decreases  
Top 20 Facilities

Facility	City	Base Year 1988	Total Releases and Transfers (Million Pounds)					Total Decrease 96-00
			Last Five Years					
			1996	1997	1998	1999	2000	
1. <u>Northwestern Steel and Wire Co.</u>	Sterling	7.0	14.6	15.0	13.0	10.0	6.0	8.7
2. <u>Borden Chemical, Inc.</u>	Forest Park	0.8	1.8	0.7	0.0	0.0	0.0	1.8
3. <u>Viskase Corp.</u>	Bedford Park	1.2	1.7	1.6	0.9	0.0	0.0	1.7
4. <u>Cabot Corp., Cab-O-Sil Div.</u>	Tuscola	3.9	2.0	0.2	0.2	0.2	0.3	1.7
5. <u>Equistar Chemicals, LP</u>	Morris	4.9	1.6	1.7	2.0	1.2	0.7	0.9
6. <u>Acme Steel, Riverdale Plant</u>	Riverdale	1.9	0.9	3.3	2.1	0.3	0.1	0.9
7. <u>GFC - Bridgeview</u>	Bridgeview	0.2	0.7	0.5	0.5	0.3	0.0	0.7
8. <u>American Steel Foundry</u>	Granite City	0.0	1.3	1.2	0.8	1.1	0.6	0.7
9. <u>Imco Recycling of Illinois</u>	Chicago Heights	0.0	1.2	0.7	0.8	0.5	0.6	0.7
10. <u>Devro-Teepak</u>	Danville	2.0	3.9	3.9	3.6	3.5	3.3	0.6
11. <u>Quebecor World - Salem Div. (Salem Gravure)</u>	Salem	0.8	1.1	1.3	0.6	0.0	0.5	0.6
12. <u>Equilon Wood River Lubricants Plant</u>	Roxana	1.7	0.6	0.5	0.6	0.0	0.0	0.6
13. <u>Senior Flexonics, Inc.</u>	Bartlett	0.1	0.6	0.3	0.1	0.1	0.0	0.5
14. <u>Caterpillar, Inc. Performance Engine Products Division</u>	Mossville	0.3	0.5	0.0	0.0	0.0	0.0	0.5
15. <u>Auburn Steel Co., Inc. - Lemont Div.</u>	Lemont	0.0	1.8	1.3	0.1	0.2	1.3	0.5
16. <u>Nascote Industries</u>	Nashville	0.7	0.5	0.6	0.6	0.0	0.1	0.5
17. <u>Stapan Company - Millsdale Road</u>	Elwood	2.6	0.7	0.6	0.4	0.4	0.2	0.4
18. <u>Burkart Foam, Inc.</u>	Cairo	0.5	0.6	0.4	0.4	0.3	0.2	0.4
19. <u>3M Cordova Plant</u>	Cordova	0.9	0.7	0.5	0.8	0.5	0.3	0.4
20. <u>Brunswick Laboratories</u>	Murphysboro	0.3	0.4	0.3	0.1	0.0	0.0	0.4
Totals for Top 20 Facilities:		29.8	37.4	34.7	27.6	18.8	14.2	23.2
Totals for All Reporting Facilities:		88.8	72.1	65.5	52.7	42.5	33.5	38.7

Note: Some number differences may be due to rounding

The top twenty facilities with decreases in releases and transfers of chemicals with significant human health effects are shown in Table 12.

Table 12

Total Release and Transfer Decreases  
Chemicals With Significant Human Health Effects  
Top 20 Facilities

Facility	City	Base Year 1988	Total Releases and Transfers (Million Pounds)					Total Decrease 96-00
			Last Five Years					
			1996	1997	1998	1999	2000	
1. <u>Northwestern Steel and Wire Co.</u>	Sterling	2.7	6.2	7.3	5.7	4.0	2.5	3.6
2. <u>Viskase Corp.</u>	Bedford Park	1.2	1.7	1.6	0.9	0.0	0.0	1.7
3. <u>GFC-Bridgeview, Inc.</u>	Bridgeview	0.2	0.7	0.5	0.5	0.3	0.0	0.7
4. <u>Quebecor World - Salem Div. (Salem Gravure)</u>	Salem	0.7	1.1	1.3	0.6	0.0	0.5	0.6
5. <u>Devro-Teepak</u>	Danville	2.0	3.9	3.9	3.6	3.5	3.3	0.6
6. <u>Senior Flexonics, Inc.</u>	Bartlett	0.1	0.5	0.3	0.1	0.1	0.0	0.5
7. <u>Caterpillar Inc. Performance Engine Products Div.</u>	Mossville	0.1	0.5	0.0	0.0	0.0	0.0	0.5
8. <u>Acme Steel Co. - Riverdale Plant</u>	Riverdale	1.0	0.4	0.7	0.3	0.3	0.0	0.4
9. <u>Burkart Foam, Inc.</u>	Cairo	0.5	0.6	0.4	0.4	0.3	0.2	0.4
10. <u>Equilon Woodriver Lubricants Plant</u>	Roxana	1.2	0.4	0.3	0.4	0.0	0.0	0.4
11. <u>Quebecor World Mt. Morris, Inc.</u>	Mt. Morris	1.7	1.2	0.8	0.6	0.9	0.9	0.3
12. <u>National Castings, Inc.</u>	Cicero	0.1	0.3	0.1	0.1	0.1	0.0	0.3
13. <u>Cerro Copper Products Co.</u>	Sauget	0.2	0.3	0.3	0.1	0.1	0.1	0.3
14. <u>The Remline Co.</u>	Yorkville	0.0	0.2	0.3	0.2	0.0	0.0	0.2
15. <u>Sun Process</u>	Mount Prospect	0.0	0.2	0.3	0.0	0.0	0.0	0.2
16. <u>Allied Tube &amp; Conduit Corp.</u>	Harvey	0.4	0.6	0.5	0.4	0.3	0.3	0.2
17. <u>Maytag, Galesburg Refrigeration Products</u>	Galesburg	0.1	0.2	0.0	0.0	0.0	0.0	0.2
18. <u>Auburn Steel Co., Inc. - Lemont Div.</u>	Lemont	0.0	0.4	0.3	0.0	0.0	0.2	0.2
19. <u>Able Electro Polishing</u>	Chicago	0.0	0.7	0.7	0.3	0.5	0.5	0.2
20. <u>Zenith Electronics Corp., Rauland Div.</u>	Melrose Park	0.8	0.2	0.4	0.1	0.2	0.0	0.2
Totals for Top 20 Facilities		12.9	20.6	20.0	14.5	10.7	8.5	12.1
Totals for All Reporting Facilities:		37.2	34.7	32.5	24.7	19.4	14.9	12.6

Note: Some number differences may be due to rounding

## Increases in Releases and Transfers

Release and transfer amounts reported by a number of facilities increased from 1988 through 2000. Table 13 shows the top twenty facilities ranked according to total release and transfer increases in pounds per year for the eight-year period.

Table 13  
Total Release and Transfer Increases  
Top 20 Facilities

	Facility	City	Base Year 1988	Total Releases and Transfers (Million Pounds)					Total Increase 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>Birmingham Steel Corp., Kankakee Illinois Steel Div.</u>	Bourbonnais	0.0	0.0	5.3	5.0	5.2	3.4	3.4
2.	<u>Mueller Co., Plant #14</u>	Decatur	0.0	0.0	1.5	1.7	1.8	1.8	1.7
3.	<u>Shell Epoxy Resins, LLC</u>	Bedford Park	0.0	0.0	0.0	0.8	0.8	1.3	1.3
4.	<u>McIntyre Group, LTD</u>	University Park	0.0	0.0	0.2	0.9	1.6	1.3	1.3
5.	<u>Keystone Steel &amp; Wire Co.</u>	Peoria	4.5	6.9	5.6	5.3	6.6	7.9	1.1
6.	<u>Tosco Wood River Refinery</u>	Roxana	0.0	0.0	0.0	0.0	0.6	0.9	0.9
7.	<u>Williams Ethanol Services, Inc.</u>	Pekin	0.0	0.0	0.0	0.0	0.8	0.7	0.7
8.	<u>R. R. Donnelley &amp; Sons Co.</u>	Mattoon	2.4	0.3	0.8	0.8	0.9	0.9	0.6
9.	<u>Big River Zinc Corp.</u>	Sauget	2.0	1.4	1.1	1.2	1.9	2.0	0.6
10.	<u>Olin Corp. - Zone 17 Facility</u>	East Alton	1.0	0.6	0.7	0.7	0.6	1.2	0.6
11.	<u>Fair-Rite Products Corp.</u>	Flat Rock	0.0	0.0	0.0	0.0	0.0	0.5	0.5
12.	<u>PMP Fermentation Products, Inc.</u>	Peoria	0.0	0.0	0.2	0.3	0.5	0.5	0.5
13.	<u>General Electric Co.</u>	Ottawa	2.4	1.0	1.0	1.1	0.9	1.5	0.5
14.	<u>Mossville Complex/Caterpillar, Inc.</u>	Mossville	0.0	0.0	0.2	0.3	0.3	0.4	0.4
15.	<u>Clark Refining &amp; Marketing, Inc.</u>	Hartford	0.0	0.1	0.1	0.1	0.4	0.5	0.4
16.	<u>Mitsubishi Motor MFG. of America, Inc.</u>	Normal	0.3	0.4	0.5	0.4	0.5	0.7	0.3
17.	<u>Laclede Steel Co.</u>	Alton	0.7	0.0	0.7	1.7	0.4	0.3	0.3
18.	<u>Chem Plate Industries, Inc.</u>	Elk Grove Village	0.1	0.1	0.2	0.2	0.3	0.4	0.3
19.	<u>Koppers Industries, Inc.</u>	Cicero	1.3	2.6	3.0	4.0	3.1	2.8	0.2
20.	<u>Illini Protein</u>	Rock City	0.0	0.0	0.2	0.0	0.2	0.2	0.2
Totals for Top 20 Facilities:			14.7	13.5	21.2	24.7	27.5	29.5	16.0
Totals for All Reporting Facilities:			43.0	25.0	36.0	41.0	46.9	50.3	25.3

Note: Some number differences may be due to rounding

Table 14 shows the top twenty facilities reporting increases in releases and transfers of toxic chemicals with significant human health effects.

Table 14

Total Release and Transfer Increases  
Chemicals With Significant Human Health Effects  
Top 20 Facilities

	Facility	City	Base Year 1988	Total Releases and Transfers (Million Pounds)					Total Increase 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>Shell Epoxy Resins, LLC</u>	Bedford Park	0.0	0.0	0.0	0.8	0.8	1.3	1.3
2.	<u>Birmingham Steel Corp., Kankakee, IL Steel Div.</u>	Bourbonnais	0.0	0.0	1.1	1.4	1.5	0.8	0.8
3.	<u>R. R. Donnelley &amp; Sons Co.</u>	Mattoon	2.3	0.3	0.7	0.8	0.9	0.9	0.6
4.	<u>Tosco Wood River Refinery</u>	Roxana	0.0	0.0	0.0	0.0	0.4	0.6	0.6
5.	<u>General Electric Co.</u>	Ottawa	2.3	1.0	1.0	1.0	0.8	1.5	0.5
6.	<u>Carus Chemical Co.</u>	LaSalle	1.3	0.9	1.1	1.2	1.4	1.4	0.5
7.	<u>Mitsubishi Motor MFG. of America, Inc.</u>	Normal	0.3	0.2	0.3	0.3	0.3	0.5	0.3
8.	<u>Keystone Steel &amp; Wire Co.</u>	Peoria	0.4	1.2	1.0	0.9	1.2	1.5	0.3
9.	<u>Crownline Boats, Inc.</u>	West Frankfort	0.0	0.3	0.4	0.4	0.5	0.6	0.2
10.	<u>Williams Ethanol Services, Inc.</u>	Pekin	0.0	0.0	0.0	0.0	0.3	0.2	0.2
11.	<u>Chicago Specialties, LLC</u>	Chicago	1.5	0.0	0.0	0.0	0.0	0.2	0.2
12.	<u>Mueller Co., Plant #4</u>	Decatur	0.0	0.0	0.1	0.2	0.2	0.2	0.2
13.	<u>Bombardier Recreational Products</u>	Benton	0.1	0.1	0.1	0.1	0.1	0.3	0.2
14.	<u>Mossville Complex/Caterpillar, Inc.</u>	Mossville	0.0	0.0	0.2	0.2	0.3	0.2	0.2
15.	<u>Fair-Rite Products Corp.</u>	Flat Rock	0.0	0.0	0.0	0.0	0.0	0.2	0.2
16.	<u>Olin Corp., Zone 17 Facility</u>	East Alton	0.0	0.0	0.1	0.1	0.0	0.2	0.2
17.	<u>Enthone-OMI, Inc.</u>	Bridgeview	0.0	0.0	0.0	0.0	0.0	0.1	0.1
18.	<u>Morton International, Inc.</u>	Ringwood	0.1	0.2	0.2	0.2	0.0	0.3	0.1
19.	<u>Domino Amjet, Inc.</u>	Gurnee	0.0	0.0	0.0	0.2	0.2	0.1	0.1
20.	<u>Cambridge Industries, Inc.</u>	Centralia	0.5	0.1	0.1	0.1	0.2	0.3	0.1
Totals for Top 20 Facilities:			9.0	4.5	6.4	8.0	9.2	11.5	7.0
Totals for All Reporting Facilities:			18.6	8.3	11.5	13.8	16.5	18.5	10.3

Note: Some number differences may be due to rounding

## Pollution Prevention Efforts

Reporting of information about source reduction (pollution prevention) efforts has been required beginning with reporting year 1991. A total of 779 facilities have indicated undertaking such activities for one or more years from 1996 through 2000. The top twenty facilities in this category are shown in Table 15.

The fact that a facility claimed source reduction activities for a chemical does not necessarily mean that the reduction in releases and transfers of the chemical are attributable to those activities.

Table 15  
Source Reduction-Based Release and Transfer Decreases  
Top 20 Facilities  
(Chemicals for Which Source Reduction Activities  
Were Claimed Any Year, 96-00)

	Facility	City	Base Year 1991	Total Releases and Transfers (Million Pounds)					Total Reduction 96-00
				1996	1997	1998	1999	2000	
1.	<u>Cabot Corporation, Cab-O-Sil Div.</u>	Tuscola	0.0	2.0	0.2	0.2	0.0	0.0	2.0
2.	<u>GFC - Bridgeview, Inc.</u>	Bridgeview	0.0	0.7	0.5	0.0	0.0	0.0	0.7
3.	<u>Quebecor World - Salem Div. (Salem Gravure)</u>	Salem	0.4	1.1	1.3	0.6	0.0	0.4	0.7
4.	<u>Stepan Co. - Millsdale Rd.</u>	Elwood	0.0	0.7	0.5	0.3	0.3	0.2	0.5
5.	<u>Chicago Specialties, LLC</u>	Chicago	2.0	0.5	0.0	0.1	0.0	0.0	0.5
6.	<u>Equilon Woodriver Lubricants Plant</u>	Roxana	1.1	0.4	0.4	0.5	0.0	0.0	0.4
7.	<u>Brunswick Laboratories</u>	Murphysboro	0.3	0.4	0.3	0.1	0.0	0.0	0.4
8.	<u>R.R. Donnelley &amp; Sons Co.</u>	Mattoon	1.9	0.3	0.8	0.8	0.0	0.0	0.3
9.	<u>Tru Vue</u>	Chicago	0.0	0.2	0.3	0.0	0.0	0.0	0.2
10.	<u>Clark Refining &amp; Marketing, Inc.</u>	Blue Island	0.0	0.2	0.0	0.0	0.0	0.0	0.2
11.	<u>Case Corp.</u>	East Moline	0.0	0.2	0.1	0.0	0.0	0.0	0.2
12.	<u>Akzo Nobel Chemicals, Inc.</u>	McCook	0.0	0.2	0.1	0.1	0.0	0.0	0.2
13.	<u>Nascote Industries, Inc.</u>	Nashville	0.7	0.2	0.6	0.6	0.0	0.0	0.2
14.	<u>Quality Metal Finishing Co.</u>	Byron	0.0	0.2	0.1	0.1	0.0	0.0	0.2
15.	<u>MSC Laminates &amp; Composites</u>	Elk Grove Village	0.1	0.2	0.1	0.0	0.2	0.0	0.1
16.	<u>John Deere Harvester Works - East Moline</u>	East Moline	0.1	0.1	0.0	0.1	0.0	0.0	0.1
17.	<u>Schrock Cabinet Co</u>	Arthur	0.0	0.1	0.1	0.0	0.0	0.0	0.1
18.	<u>Dana Corp. Victor Products Div.</u>	Robinson	0.0	0.1	0.0	0.0	0.0	0.0	0.1
19.	<u>3M Tape Manufacturing Div.</u>	Bedford Park	0.5	0.1	0.1	0.1	0.1	0.0	0.1
20.	<u>Mitsubishi Motor Manufacturing of America, Inc.</u>	Normal	0.0	0.1	0.4	0.1	0.0	0.0	0.1
Totals for Top 20 Facilities:			7.1	8.1	6.1	3.7	0.7	0.7	7.3
Totals for 223 Facilities Reporting Decreases:			13.2	12.8	9.8	6.8	2.8	2.5	10.2

Note: Some number differences may be due to rounding

Table 16 shows the twenty facilities reporting the greatest reductions based on source reduction efforts for chemicals with significant human health effects.

Table 16

Source Reduction-Based Release and Transfer Decreases  
Top 20 Facilities  
(Chemicals for Which Source Reduction Activities  
Were Claimed Any Year, 96-00)  
Chemicals With Significant Human Health Effects

	Facility	City	Base Year 1991	Total Releases and Transfers (Million Pounds)					Total Increase 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>GFC-Bridgeview, Inc.</u>	Bridgeview	0.0	0.7	0.5	0.0	0.0	0.0	0.7
2.	<u>Quebecor World - Salem Div. (Salem Gravure)</u>	Salem	0.4	1.1	1.3	0.6	0.0	0.4	0.7
3.	<u>Equilon Wood River Lubricants Plant</u>	Roxana	0.9	0.3	0.3	0.4	0.0	0.0	0.3
4.	<u>R. R. Donnelley &amp; Sons Co.</u>	Mattoon	1.8	0.3	0.7	0.8	0.0	0.0	0.3
5.	<u>Nascote Industries, Inc.</u>	Nashville	0.5	0.2	0.3	0.5	0.0	0.0	0.2
6.	<u>Quality Metal Finishing Co.</u>	Byron	0.0	0.2	0.1	0.1	0.0	0.0	0.2
7.	<u>MSC Laminates &amp; Composites</u>	Elk Grove Village	0.1	0.2	0.1	0.0	0.1	0.0	0.1
8.	<u>Clark Refining &amp; Marketing Inc.</u>	Blue island	0.0	0.1	0.0	0.0	0.0	0.0	0.1
9.	<u>Dana Corp., Victor Products Div.</u>	Robinson	0.0	0.1	0.0	0.0	0.0	0.0	0.1
10.	<u>3M Tape Manufacturing Div.</u>	Bedford Park	0.2	0.1	0.1	0.1	0.1	0.0	0.1
11.	<u>Case Corp.</u>	East Moline	0.0	0.1	0.0	0.0	0.0	0.0	0.1
12.	<u>Zexel USA Corp.</u>	Decatur	0.0	0.1	0.0	0.0	0.0	0.0	0.1
13.	<u>Mitsubishi Motor MFG. of America, Inc.</u>	Normal	0.0	0.1	0.3	0.1	0.0	0.0	0.1
14.	<u>John Deere Harvester Works - East Moline</u>	East Moline	0.0	0.1	0.0	0.1	0.0	0.0	0.1
15.	<u>Morton International, Inc.</u>	Ringwood	0.0	0.1	0.1	0.0	0.0	0.0	0.1
16.	<u>Cerro Copper Products Co.</u>	Sauget	0.0	0.1	0.2	0.1	0.1	0.1	0.1
17.	<u>Wheatland Tube Co. - Chicago Div.</u>	Chicago	0.0	0.1	0.0	0.0	0.0	0.0	0.1
18.	<u>Schrock Cabinet Co.</u>	Arthur	0.0	0.1	0.1	0.0	0.0	0.0	0.1
19.	<u>Cambridge Industries, Inc.</u>	Centralia	0.3	0.1	0.0	0.0	0.0	0.0	0.1
20.	<u>R &amp; O Specialties Inc.</u>	Rock Island	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Totals for Top 20 Facilities:			4.4	4.2	4.4	2.8	0.4	0.6	3.6
Totals for 223 Facilities Reporting Decreases:			7.2	6.6	6.3	4.4	1.5	1.5	5.2

Note: Some number differences may be due to rounding

## CHEMICALS

A total of 309 toxic chemicals and chemical categories have been reportable on Form R in the same form from 1988 through 2000.

Tables 17 through 28 summarize toxic chemical release and transfer amounts for each environmental media. The top twenty chemicals are listed for each media unless a smaller number of chemicals had non-zero release and transfer amounts.

Table 17

### Total Air Emissions Top 20 Chemicals

CAS Number or Category	Chemical Name	Combined Stack and Fugitive Emissions (Million Pounds)							Total Emissions 96-00
		Base Year 1988	1996	1997	1998	1999	2000		
1. <u>000108883</u>	Toluene	18.4	4.9	5.2	4.3	3.7	4.0	22.2	
2. <u>000075150</u>	Carbon Disulfide	3.3	5.3	5.4	4.4	3.5	3.3	21.9	
3. <u>001330207</u>	Xylene (Mixed Isomers)	7.0	3.5	2.9	2.6	2.4	2.4	13.9	
4. <u>000010230</u>	Glycol Ethers	2.8	2.5	2.5	2.5	2.3	2.3	12.0	
5. <u>000100425</u>	Styrene	1.9	2.0	1.9	2.1	2.4	2.2	10.6	
6. <u>000067561</u>	Methanol	3.7	2.3	2.2	1.8	1.7	1.8	9.9	
7. <u>000079016</u>	Trichloroethylene	4.6	3.0	2.6	1.6	1.2	0.9	9.4	
8. <u>000075092</u>	Dichloromethane	4.3	2.5	2.0	1.8	1.6	1.0	8.9	
9. <u>000078933</u>	Methyl Ethyl Ketone	5.1	2.2	1.9	1.7	1.6	1.2	8.7	
10. <u>000074851</u>	Ethylene	5.2	1.6	1.6	1.4	1.4	1.2	7.3	
11. <u>000010982</u>	Zinc Compounds	2.2	1.7	0.7	0.7	0.7	0.6	4.4	
12. <u>000071363</u>	n-Butyl Alcohol	1.4	0.8	0.9	0.9	0.8	0.9	4.3	
13. <u>007782505</u>	Chlorine	4.4	2.0	0.3	0.3	0.3	0.3	3.2	
14. <u>000108101</u>	Methyl Isobutyl Ketone	1.7	0.7	0.8	0.6	0.5	0.4	3.0	
15. <u>000115071</u>	Propylene	0.8	0.5	0.5	0.9	0.3	0.3	2.6	
16. <u>000108952</u>	Phenol	0.5	0.7	0.5	0.4	0.5	0.4	2.5	
17. <u>000071432</u>	Benzene	1.6	0.4	0.4	0.4	0.4	0.5	2.1	
18. <u>000095636</u>	1,2,4-Trimethylbenzene	0.4	0.3	0.4	0.4	0.4	0.4	1.8	
19. <u>000100414</u>	Ethylbenzene	0.5	0.3	0.3	0.4	0.3	0.4	1.7	
20. <u>000107131</u>	Acrylonitrile	1.1	0.4	0.4	0.4	0.3	0.2	1.7	
Totals for Top 20 Chemicals:		71.0	37.9	33.5	29.7	26.3	24.7	152.2	
Totals for All Chemicals:		96.2	43.6	38.2	33.8	30.5	28.3	174.3	

Note: Some number differences may be due to rounding

Table 18

Total Air Emissions  
Chemicals With Significant Human Health Effects  
Top 20 Chemicals

CAS Number or Category	Chemical Name	Base Year 1988	Combined Stack and Fugitive Emissions (Million Pounds)					Total Emissions 96-00
			Last Five Years					
			1996	1997	1998	1999	2000	
1. <u>000108883</u>	Toluene	18.4	4.9	5.2	4.3	3.7	4.0	22.2
2. <u>000075150</u>	Carbon Disulfide	3.3	5.3	5.4	4.4	3.5	3.3	21.9
3. <u>001330207</u>	Xylene (Mixed Isomers)	7.0	3.5	2.9	2.6	2.4	2.4	13.9
4. <u>000100425</u>	Styrene	1.9	2.0	1.9	2.1	2.4	2.2	10.6
5. <u>000079016</u>	Trichloroethylene	4.6	3.0	2.6	1.6	1.2	0.9	9.4
6. <u>000075092</u>	Dichloromethane	4.3	2.5	2.0	1.8	1.6	1.0	8.9
7. <u>000078933</u>	Methyl Ethyl Ketone	5.1	2.2	1.9	1.7	1.6	1.2	8.7
8. <u>000071432</u>	Benzene	1.6	0.4	0.4	0.4	0.4	0.5	2.1
9. <u>000107131</u>	Acrylonitrile	1.1	0.4	0.4	0.4	0.4	0.2	1.7
10. <u>000127184</u>	Tetrachloroethylene	2.0	0.4	0.3	0.2	0.1	0.3	1.3
11. <u>000075003</u>	Chloroethane	0.5	0.2	0.2	0.2	0.2	0.2	0.9
12. <u>000075014</u>	Vinyl Chloride	0.1	0.1	0.1	0.1	0.1	0.1	0.6
13. <u>000010450</u>	Manganese Compounds	0.0	0.2	0.1	0.1	0.1	0.1	0.5
14. <u>000075070</u>	Acetaldehyde	0.1	0.1	0.1	0.1	0.1	0.1	0.4
15. <u>000010420</u>	Lead Compounds	0.0	0.2	0.1	0.0	0.0	0.0	0.4
16. <u>000106990</u>	1,3-Butadiene	0.0	0.1	0.1	0.1	0.1	0.1	0.3
17. <u>007439965</u>	Manganese	0.2	0.1	0.1	0.1	0.1	0.1	0.3
18. <u>000079107</u>	Acrylic Acid	0.1	0.0	0.1	0.0	0.0	0.0	0.2
19. <u>000050000</u>	Formaldehyde	0.1	0.0	0.0	0.0	0.0	0.0	0.2
20. <u>007440020</u>	Nickel	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Totals for Top 20 Chemicals:		50.6	26.0	23.8	20.2	18.0	16.7	104.7
Totals for All Chemicals:		51.5	26.3	24.0	20.5	18.2	17.0	106.0

Note: Some number differences may be due to rounding



Table 19

Total Water Releases  
Top 20 Chemicals

	CAS Number or Category	Chemical Name	Water Releases (Thousand Pounds)					Total Releases 96-00	
			Base Year 1988	Last Five Years					
			1996	1997	1998	1999	2000		
1.	<u>000067561</u>	Methanol	16.5	32.4	60.2	28.7	23.7	35.8	180.8
2.	<u>000010230</u>	Glycol Ethers	2.1	16.9	16.7	16.5	17.5	27.5	95.1
3.	<u>000010982</u>	Zinc Compounds	16.3	19.1	16.9	14.7	14.4	14.8	79.9
4.	<u>000111422</u>	Diethanolamine	60.1	0.6	0.5	0.5	43.3	4.6	49.6
5.	<u>000107211</u>	Ethylene Glycol	172.8	1.6	11.3	0.1	14.1	21.0	48.0
6.	<u>007439965</u>	Manganese	26.3	9.4	9.2	10.0	7.3	7.2	43.2
7.	<u>007440508</u>	Copper	10.8	6.4	5.7	5.1	4.8	6.0	28.1
8.	<u>000010450</u>	Manganese Compounds	4.1	5.5	3.3	4.5	5.8	5.1	24.2
9.	<u>007440020</u>	Nickel	2.7	3.7	3.9	5.0	2.6	2.8	17.9
10.	<u>007782505</u>	Chlorine	41.7	1.6	2.5	2.4	1.7	9.5	17.8
11.	<u>007723140</u>	Phosphorus (Yellow or White)	2.0	3.5	3.1	3.5	3.5	3.3	16.9
12.	<u>000050000</u>	Formaldehyde	2.2	2.1	2.6	2.9	2.9	2.6	13.0
13.	<u>000108952</u>	Phenol	4.4	2.9	2.4	2.3	2.0	2.1	11.6
14.	<u>000010090</u>	Chromium Compounds	8.7	2.6	1.8	1.6	1.3	2.2	9.4
15.	<u>000010420</u>	Lead Compounds	7.1	2.9	1.8	1.8	1.8	0.8	9.1
16.	<u>000075058</u>	Acetonitrile	0.9	0.3	0.3	2.9	2.9	2.6	8.9
17.	<u>007440360</u>	Antimony	0.0	1.3	1.2	1.3	1.3	1.3	6.3
18.	<u>000075150</u>	Carbon Disulfide	0.0	0.0	1.4	1.6	1.6	1.4	6.1
19.	<u>000010100</u>	Copper Compounds	3.6	2.1	1.2	1.2	1.3	0.2	6.0
20.	<u>007440473</u>	Chromium	2.4	1.1	1.5	1.0	0.9	0.8	5.3
Totals for Top 20 Chemicals:			384.8	116.1	147.5	107.7	154.5	151.8	677.6
Totals for All Chemicals:			449.5	129.3	157.7	117.2	163.6	158.6	726.4

Note: Some number differences may be due to rounding

Table 20

Total Water Releases  
Chemicals With Significant Human Health Effects  
Top 20 Chemicals

	CAS Number or Category	Chemical Name	Base Year 1988	Water Releases (Thousand Pounds)					Total Releases 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>007439965</u>	Manganese	26.3	9.4	9.2	10.0	7.3	7.2	43.2
2.	<u>000010450</u>	Manganese Compounds	4.1	5.5	3.3	4.5	5.8	5.1	24.2
3.	<u>007440020</u>	Nickel	2.7	3.7	3.9	5.0	2.6	2.8	17.9
4.	<u>000050000</u>	Formaldehyde	2.2	2.1	2.6	2.9	2.9	2.6	13.0
5.	<u>000010090</u>	Chromium Compounds	8.7	2.6	1.8	1.6	1.3	2.2	9.4
6.	<u>000010420</u>	Lead Compounds	7.1	2.9	1.8	1.8	1.8	0.8	9.1
7.	<u>000075150</u>	Carbon Disulfide	0.0	0.0	1.4	1.6	1.6	1.4	6.1
8.	<u>007440473</u>	Chromium	2.4	1.1	1.5	1.0	0.9	0.8	5.3
9.	<u>000108883</u>	Toluene	1.5	1.8	1.0	0.5	1.0	1.0	4.3
10.	<u>000010495</u>	Nickel Compounds	3.2	1.1	1.1	1.0	1.0	0.4	3.9
11.	<u>001330207</u>	Xylene (Mixed Isomers)	0.6	0.9	0.8	0.7	0.7	0.3	3.4
12.	<u>007439921</u>	Lead	2.1	0.6	0.5	0.6	0.4	0.5	2.6
13.	<u>000107131</u>	Acrylonitrile	0.5	0.1	0.5	0.5	0.5	0.0	1.6
14.	<u>000071432</u>	Benzene	1.3	0.6	0.1	0.1	0.1	0.1	1.0
15.	<u>000100425</u>	Styrene	1.6	0.6	0.0	0.0	0.0	0.0	0.7
16.	<u>000075014</u>	Vinyl Chloride	0.4	0.5	0.0	0.0	0.0	0.0	0.6
17.	<u>007440382</u>	Arsenic	0.0	0.1	0.1	0.1	0.1	0.1	0.5
18.	<u>000079107</u>	Acrylic Acid	1.8	0.1	0.1	0.1	0.1	0.1	0.4
19.	<u>000075092</u>	Dichloromethane	0.9	0.0	0.1	0.1	0.1	0.0	0.3
20.	<u>000106990</u>	1, 3-Butadiene	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Totals for Top 20 Chemicals:			67.5	33.8	29.5	32.0	27.6	25.2	148.1
Totals for All Chemicals:			68.7	33.9	29.7	32.1	27.8	25.3	149.0

Note: Some number differences may be due to rounding

Table 21

Total On-Site Land Releases  
Top 14 Chemicals

	CAS Number or Category	Chemical Name	On-Site Land Releases (Million Pounds)					Total Releases 96-00	
			Base Year 1988	Last Five Years					
			1996	1997	1998	1999	2000		
1.	<u>000010982</u>	Zinc Compounds	3.8	14.6	13.1	12.3	12.1	10.2	62.3
2.	<u>000010450</u>	Manganese Compounds	0.8	5.1	5.9	4.6	3.3	2.7	21.6
3.	<u>000010090</u>	Chromium Compounds	0.1	1.4	1.7	1.2	1.4	0.5	6.3
4.	<u>007439965</u>	Manganese	0.5	0.7	0.7	0.7	0.8	0.9	3.9
5.	<u>000010420</u>	Lead Compounds	0.3	0.8	0.8	0.5	0.4	0.3	2.8
6.	<u>007440508</u>	Copper	0.0	0.1	0.0	0.0	0.0	1.6	1.7
7.	<u>007429905</u>	Aluminum (Fume or Dust)	0.1	0.9	0.3	0.0	0.0	0.0	1.3
8.	<u>007440473</u>	Chromium	0.2	0.1	0.0	0.1	0.0	0.1	0.3
9.	<u>007440020</u>	Nickel	0.0	0.0	0.0	0.0	0.1	0.1	0.2
10.	<u>007440439</u>	Cadmium	0.0	0.0	0.0	0.1	0.0	0.0	0.2
11.	<u>007440666</u>	Zinc (Fume or Dust)	3.1	0.0	0.0	0.0	0.0	0.0	0.1
12.	<u>007440382</u>	Arsenic	0.0	0.0	0.0	0.0	0.1	0.0	0.1
13.	<u>007439921</u>	Lead	0.2	0.0	0.0	0.0	0.1	0.0	0.1
14.	<u>000010040</u>	Barium Compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.1
15.	<u>000074851</u>	Ethylene	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Totals for Top 15 Chemicals:			9.2	23.8	22.7	19.6	18.4	16.8	101.3
Totals for All Chemicals:			10.1	23.8	22.8	19.6	18.5	16.8	101.4

Note: Some number differences may be due to rounding

Table 22

Total On-Site Land Releases  
Chemicals With Significant Human Health Effects  
Top 20 Chemicals

CAS Number or Category	Chemical Name	Base Year 1988	On-Site Land Releases (Thousand Pounds)					Total Releases 96-00	
			Last Five Years						
			1996	1997	1998	1999	2000		
1.	<u>000010450</u>	Manganese Compounds	833.5	5,083.5	5,927.5	4,568.4	3,301.7	2,745.9	21,627.2
2.	<u>000010090</u>	Chromium Compounds	72.7	1,390.5	1,745.3	1,230.5	1,414.9	495.1	6,276.3
3.	<u>007439965</u>	Manganese	520.7	727.0	741.9	732.5	783.6	953.1	3,938.2
4.	<u>000010420</u>	Lead Compounds	261.9	823.6	840.7	503.2	364.0	255.2	2,786.9
5.	<u>007440473</u>	Chromium	184.0	69.9	49.4	59.9	48.8	125.5	353.8
6.	<u>007440020</u>	Nickel	41.9	8.6	8.3	21.3	70.6	94.7	203.6
7.	<u>000440439</u>	Cadmium	0.0	0.0	0.0	141.7	28.4	0.0	170.2
8.	<u>007440382</u>	Arsenic	0.0	0.0	0.0	0.0	68.8	42.1	111.0
9.	<u>007439921</u>	Lead	177.7	1.6	0.0	0.0	61.2	31.3	94.2
10.	<u>000010078</u>	Cadmium Compounds	0.0	0.0	2.0	1.0	0.0	21.4	24.4
11.	<u>000108883</u>	Toluene	42.8	0.6	10.2	1.5	0.3	3.2	15.8
12.	<u>000010495</u>	Nickel Compounds	13.0	1.1	1.0	0.0	5.1	8.3	15.7
13.	<u>000071432</u>	Benzene	0.6	0.9	2.8	2.0	0.7	5.5	12.0
14.	<u>001330207</u>	Xylene (Mixed Isomers)	16.9	2.9	0.1	1.1	0.1	4.2	8.6
15.	<u>000078933</u>	Methyl Ethyl Ketone	0.3	5.4	0.0	2.3	0.1	0.1	8.0
16.	<u>000010020</u>	Arsenic Compounds	0.0	0.0	0.0	0.0	4.1	1.2	5.4
17.	<u>000127184</u>	Tetrachloroethylene	0.0	4.4	0.0	0.0	0.0	0.0	4.4
18.	<u>000075150</u>	Carbon Disulfide	0.0	0.0	0.0	1.6	0.0	0.0	1.6
19.	<u>000050000</u>	Formaldehyde	330.8	0.2	0.1	0.0	0.1	0.0	0.6
20.	<u>000100425</u>	Styrene	0.1	0.0	0.0	0.0	0.5	0.0	0.5
Totals for Top 20 Chemicals:			2,497.4	8,120.7	9,329.8	7,267.5	6,153.6	4,787.4	35,659.1
Totals for All Chemicals:			2,497.9	8,121.4	9,330.4	7,267.6	6,153.7	4,788.0	35,661.0

Note: Some number differences may be due to rounding

Table 23

Total Off-Site Transfers to POTW  
Top 18 Chemicals

	CAS Number or Category	Chemical Name	Base Year 1988	Off-Site Transfers to POTW (Million Pounds)					Total Transfers 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>000067561</u>	Methanol	3.0	1.8	1.6	1.2	1.7	1.2	7.5
2.	<u>000108952</u>	Phenol	1.2	1.4	0.9	0.6	0.5	0.4	3.9
3.	<u>000078933</u>	Methyl Ethyl Ketone	0.0	0.3	0.3	0.3	0.4	0.3	1.6
4.	<u>000010230</u>	Glycol Ethers	0.5	0.2	0.2	0.3	0.2	0.3	1.3
5.	<u>000100027</u>	4-Nitrophenol	0.4	0.0	0.0	0.6	0.5	0.1	1.2
6.	<u>007664393</u>	Hydrogen Fluoride	0.0	0.2	0.3	0.3	0.0	0.2	1.1
7.	<u>007439965</u>	Manganese	0.0	0.0	0.2	0.6	0.0	0.0	0.8
8.	<u>000075150</u>	Carbon Disulfide	0.0	0.3	0.2	0.2	0.0	0.0	0.8
9.	<u>000095476</u>	O-Xylene	0.0	0.2	0.1	0.1	0.1	0.0	0.6
10.	<u>000106445</u>	P-Cresol	0.7	0.4	0.0	0.0	0.0	0.0	0.5
11.	<u>000107211</u>	Ethylene Glycol	0.5	0.1	0.2	0.0	0.0	0.1	0.4
12.	<u>000062533</u>	Aniline	0.7	0.0	0.0	0.1	0.1	0.1	0.3
13.	<u>000010982</u>	Zinc Compounds	0.2	0.0	0.1	0.1	0.0	0.0	0.3
14.	<u>007697372</u>	Nitric Acid	0.3	0.0	0.1	0.0	0.0	0.1	0.2
15.	<u>000108101</u>	Methyl Isobutyl Ketone	0.0	0.0	0.0	0.0	0.0	0.0	0.2
16.	<u>000078922</u>	Sec-Butyl Alcohol	0.0	0.0	0.0	0.0	0.1	0.0	0.2
17.	<u>000010100</u>	Copper Compounds	0.1	0.0	0.0	0.0	0.0	0.0	0.2
18.	<u>000079016</u>	Trichloroethylene	0.0	0.1	0.0	0.0	0.0	0.0	0.1
19.	<u>000010450</u>	Manganese Compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.1
20.	<u>000108883</u>	Toluene	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Totals for Top 20 Chemicals:			7.8	5.3	4.6	4.6	3.8	3.1	21.4
Totals for All Chemicals:			11.0	5.8	4.9	4.9	4.1	3.2	22.8

Note: Some number differences may be due to rounding

Table 24

Total Off-Site Transfers to POTW  
Chemicals With Significant Human Health Effects  
Top 20 Chemicals

CAS Number or Category	Chemical Name	Base Year 1988	Off-Site Transfers to POTW (Thousand Pounds)					Total Transfers 96-00
			Last Five Years					
			1996	1997	1998	1999	2000	
1. <u>000078933</u>	Methyl Ethyl Ketone	14.2	341.5	321.0	306.9	355.4	325.5	1,650.4
2. <u>007439965</u>	Manganese	26.0	3.1	243.0	575.5	3.7	6.8	832.3
3. <u>000075150</u>	Carbon Disulfide	37.0	336.7	174.7	158.9	51.6	48.2	770.3
4. <u>000062533</u>	Aniline	688.4	36.0	41.0	74.6	70.3	86.7	308.7
5. <u>000079016</u>	Trichloroethylene	4.5	69.1	24.2	38.4	0.5	0.0	132.3
6. <u>000010450</u>	Manganese Compounds	1.0	21.0	23.4	26.5	26.2	28.9	126.1
7. <u>000108883</u>	Toluene	14.0	39.8	19.9	17.8	15.5	8.8	102.2
8. <u>000079107</u>	Acrylic Acid	0.5	0.3	0.0	34.2	20.9	29.0	84.6
9. <u>000050000</u>	Formaldehyde	47.5	24.4	9.9	16.3	13.5	10.8	74.9
10. <u>000075218</u>	Ethylene Oxide	5.7	21.0	21.0	21.0	4.6	6.0	73.6
11. <u>000010495</u>	Nickel Compounds	57.6	17.2	15.4	12.2	14.4	12.4	71.9
12. <u>000010090</u>	Chromium Compounds	35.7	14.6	13.0	14.0	12.6	13.2	67.7
13. <u>007440020</u>	Nickel	11.9	12.4	12.1	11.1	11.1	9.1	55.9
14. <u>001330207</u>	Xylene (Mixed Isomers)	769.0	21.5	14.2	5.4	5.2	0.8	47.2
15. <u>000071432</u>	Benzene	494.5	18.6	6.4	7.4	2.8	6.1	41.5
16. <u>000075092</u>	Dichloromethane	9.3	17.0	15.8	1.5	2.5	1.1	38.0
17. <u>000109864</u>	2-Methoxyethanol	0.0	2.5	2.1	5.0	17.0	0.0	26.6
18. <u>007440473</u>	Chromium	28.5	4.7	3.6	4.1	3.2	3.2	19.0
19. <u>000067663</u>	Chloroform	0.0	8.3	8.3	0.5	0.5	0.4	18.1
20. <u>000075070</u>	Acetaldehyde	0.5	2.6	5.1	5.2	0.0	0.2	13.3
Totals for Top 20 Chemicals:		2,246.5	1,013.0	974.8	1,337.2	632.2	597.9	4,555.3
Totals for All Chemicals:		2,378.9	1,023.6	986.1	1,349.8	639.3	603.7	4,602.6

Note: Some number differences may be due to rounding

Table 25

Total Other Off-Site Transfers  
Top 20 Chemicals  
(Does Not Include Amount Recycled)

CAS Number or Category	Chemical Name	Other Off-Site Transfers (Million Pounds)						Total Transfers 96-00
		Base Year 1988	Last Five Years					
			1996	1997	1998	1999	2000	
1. <u>000010982</u>	Zinc Compounds	11.0	8.2	16.5	16.0	13.4	14.7	68.7
2. <u>000010450</u>	Manganese Compounds	2.4	2.0	3.2	3.2	3.6	2.8	14.8
3. <u>000085449</u>	Phthalic Anhydride	3.3	2.4	2.9	3.8	2.8	2.6	14.5
4. <u>000067561</u>	Methanol	3.7	0.6	0.7	1.5	1.8	1.6	6.3
5. <u>000010420</u>	Lead Compounds	1.3	0.6	1.5	1.3	1.4	1.1	5.9
6. <u>000078933</u>	Methyl Ethyl Ketone	2.2	0.3	0.6	1.7	1.7	1.9	6.2
7. <u>007440508</u>	Copper	1.1	0.8	1.4	0.8	0.8	0.8	4.7
8. <u>000010090</u>	Chromium Compounds	0.9	1.2	1.4	0.7	0.8	1.0	5.0
9. <u>007429905</u>	Alumium (Fume or Dust)	0.2	0.6	0.8	0.7	1.0	0.5	3.7
10. <u>007697372</u>	Nitric Acid	0.2	0.7	0.7	0.4	0.6	0.8	3.2
11. <u>001330207</u>	Xylene (Mixed Isomers)	1.6	0.4	0.5	0.7	0.3	0.3	2.4
12. <u>000108883</u>	Toluene	3.4	0.5	0.6	0.5	0.5	0.6	2.8
13. <u>007440666</u>	Zinc (Fume or Dust)	1.8	0.1	0.2	0.2	2.0	1.9	4.5
14. <u>000075092</u>	Dichloromethane	0.4	0.3	0.5	0.4	0.7	0.4	2.3
15. <u>007439965</u>	Manganese	1.0	0.7	0.3	0.2	0.4	0.4	2.2
16. <u>000010100</u>	Copper Compounds	1.6	0.3	0.3	0.3	0.4	0.5	1.9
17. <u>007440473</u>	Chromium	1.0	0.2	0.8	0.1	0.2	0.1	1.4
18. <u>000100425</u>	Styrene	0.7	0.3	0.4	0.3	0.2	1.3	2.4
19. <u>000100027</u>	4-Nitrophenol	0.0	0.5	0.5	0.0	0.0	0.0	1.0
20. <u>000010040</u>	Barium Compounds	2.6	0.3	0.2	0.2	0.1	0.1	0.9
Totals for Top 20 Chemicals:		40.5	21.2	34.2	33.1	32.9	33.6	155.0
Totals for All Chemicals:		52.9	23.9	36.8	36.1	36.5	38.0	171.4

Note: Some number differences may be due to rounding

Table 26

Total Other Off-Site Transfers  
Top 20 Chemicals  
Chemicals With Significant Human Health Effects  
(Does Not Include Amount Recycled)

	CAS Number or Category	Chemical Name	Base Year 1988	Other Off-Site Transfers (Million Pounds)					Total Transfers 96-00
				Last Five Years					
				1996	1997	1998	1999	2000	
1.	<u>000010450</u>	Manganese Compounds	2.4	2.0	3.2	3.2	3.6	2.8	14.8
2.	<u>000078933</u>	Methyl Ethyl Ketone	2.2	0.3	0.6	1.7	1.7	1.9	6.2
3.	<u>000010420</u>	Lead Compounds	1.3	0.6	1.5	1.3	1.4	1.1	5.9
4.	<u>000010090</u>	Chromium Compounds	0.9	1.2	1.4	0.7	0.8	1.0	5.0
5.	<u>000108883</u>	Toluene	3.4	0.5	0.6	0.5	0.5	0.6	2.8
6.	<u>000100425</u>	Styrene	0.7	0.3	0.4	0.3	0.2	1.3	2.4
7.	<u>001330207</u>	Xylene (Mixed Isomers)	1.6	0.4	0.5	0.7	0.3	0.3	2.4
8.	<u>000075092</u>	Dichloromethane	0.4	0.3	0.5	0.4	0.7	0.4	2.3
9.	<u>007439965</u>	Manganese	1.0	0.7	0.3	0.2	0.4	0.4	2.2
10.	<u>007440473</u>	Chromium	1.0	0.2	0.8	0.1	0.2	0.1	1.4
11.	<u>007439921</u>	Lead	1.3	0.1	0.2	0.3	0.3	0.3	1.3
12.	<u>000010495</u>	Nickel Compounds	0.2	0.1	0.2	0.1	0.2	0.4	1.0
13.	<u>007440020</u>	Nickel	0.6	0.1	0.1	0.2	0.1	0.2	0.8
14.	<u>000067663</u>	Chloroform	0.1	0.1	0.1	0.1	0.3	0.1	0.6
15.	<u>000079016</u>	Trichloroethylene	0.5	0.1	0.1	0.1	0.1	0.1	0.4
16.	<u>000062533</u>	Aniline	0.2	0.0	0.0	0.0	0.0	0.2	0.3
17.	<u>000117817</u>	DI - (2-Ethylhexyl) Phthalate (DEHP)	0.0	0.1	0.0	0.1	0.0	0.0	0.3
18.	<u>000127184</u>	Tetrachloroethylene	0.2	0.1	0.1	0.0	0.0	0.0	0.2
19.	<u>000050000</u>	Formaldehyde	0.1	0.0	0.0	0.0	0.0	0.0	0.1
20.	<u>000010078</u>	Cadmium Compounds	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Totals for Top 20 Chemicals:			18.3	7.5	10.7	10.1	10.9	11.4	50.7
Totals for All Chemicals:			18.6	7.5	10.8	10.2	11.1	11.5	51.2

Note: Some number differences may be due to rounding



Table 27

Total Releases and Transfers  
Top 20 Chemicals  
(Does Not Include Amount Recycled)

CAS Number or Category	Chemical Name	Base Year 1988	Total Releases and Transfers (Million Pounds) Last Five Years					Total Transfers 96-00
			1996	1997	1998	1999	2000	
1. <u>000010982</u>	Zinc Compounds	17.2	24.7	30.4	29.0	26.2	25.5	135.9
2. <u>000010450</u>	Manganese Compounds	3.3	7.4	9.3	7.8	7.0	5.7	37.1
3. <u>00010883</u>	Toluene	21.9	5.5	5.9	4.9	4.2	4.6	25.1
5. <u>000067561</u>	Methanol	10.3	4.8	4.6	4.6	5.2	4.7	23.8
4. <u>000075150</u>	Carbon Disulfide	3.3	5.7	5.5	4.6	3.6	3.3	22.7
7. <u>000078933</u>	Methyl Ethyl Ketone	7.3	2.9	2.8	3.8	3.7	3.4	16.6
6. <u>001330207</u>	Xylene (Mixed Isomers)	9.4	4.0	3.5	3.4	2.7	2.7	16.3
9. <u>000085449</u>	Phthalic Anhydride	3.4	2.7	3.1	3.9	3.0	2.7	15.4
8. <u>000010230</u>	Glycol Ethers	3.8	2.9	2.9	3.1	2.8	2.9	14.6
12. <u>000100425</u>	Styrene	2.6	2.3	2.3	2.4	2.6	3.5	13.1
13. <u>000010090</u>	Chromium Compounds	1.0	2.6	3.1	2.0	2.2	1.5	11.5
10. <u>000075092</u>	Dichloromethane	4.8	2.8	2.4	2.1	2.4	1.5	11.2
11. <u>000079016</u>	Trichloromethane	5.2	3.1	2.8	1.7	1.3	1.0	10.0
14. <u>000010420</u>	Lead Compounds	1.7	1.6	2.4	1.8	1.8	1.4	9.0
16. <u>000074851</u>	Ethylene	5.2	1.6	1.6	1.4	1.5	1.2	7.3
17. <u>007439965</u>	Manganese	1.8	1.5	1.4	1.6	1.3	1.5	7.3
19. <u>007440508</u>	Copper	1.3	1.0	1.6	0.9	0.9	2.6	7.0
15. <u>000108952</u>	Phenol	2.3	2.3	1.5	1.1	1.1	0.9	7.0
18. <u>007429905</u>	Aluminum (Fume or Dust)	0.4	1.6	1.3	0.9	1.1	0.6	5.6
20. <u>007440666</u>	Zinc (Fume or Dust)	5.4	0.3	0.3	0.3	2.2	2.1	5.2
Totals for Top 20 Chemicals:		111.7	81.4	88.8	81.5	76.9	73.3	401.8
Totals for All Chemicals:		170.8	97.2	102.8	94.5	89.7	86.5	470.7

Note: Some number differences may be due to rounding

Table 28

Total Releases and Transfers  
Top 20 Chemicals  
Chemicals With Significant Human Health Effects  
(Does Not Include Amount Recycled)

	CAS Number or Category	Chemical Name	Total Releases and Transfers (Million Pounds)					Total Transfers 96-00	
			Base Year 1988	Last Five Years					
			1996	1997	1998	1999	2000		
1.	<u>000010450</u>	Manganese Compounds	3.3	7.4	9.3	7.8	7.0	5.7	37.1
2.	<u>000108883</u>	Toluene	21.9	5.5	5.9	4.9	4.2	4.6	25.1
3.	<u>000075150</u>	Carbon Disulfide	3.3	5.7	5.5	4.6	3.6	3.3	22.7
4.	<u>000078933</u>	Methyl Ethyl Ketone	7.3	2.9	2.8	3.8	3.7	3.4	16.6
5.	<u>001330207</u>	Xylene (Mixed Isomers)	9.4	4.0	3.5	3.4	2.7	2.7	16.3
6.	<u>000100425</u>	Styrene	2.6	2.3	2.3	2.4	2.6	3.5	13.1
7.	<u>000010090</u>	Chromium Compounds	1.0	2.6	3.1	2.0	2.2	1.5	11.5
8.	<u>000075092</u>	Dichloromethane	4.8	2.8	2.4	2.1	2.4	1.5	11.2
9.	<u>000079016</u>	Trichloroethylene	5.2	3.1	2.8	1.7	1.3	1.0	10.0
10.	<u>000010420</u>	Lead Compounds	1.7	1.6	2.4	1.8	1.8	1.4	9.0
11.	<u>007439965</u>	Manganese	1.8	1.5	1.4	1.6	1.3	1.5	7.3
12.	<u>000071432</u>	Benzene	2.1	0.5	0.4	0.4	0.4	0.5	2.2
13.	<u>007440473</u>	Chromium	1.3	0.3	0.9	0.2	0.2	0.2	1.9
14.	<u>000107131</u>	Acrlonitrile	1.1	0.4	0.4	0.4	0.3	0.2	1.7
15.	<u>007439921</u>	Lead	1.5	0.1	0.2	0.3	0.4	0.4	1.5
16.	<u>000127184</u>	Tetrachloroethylene	2.3	0.5	0.3	0.2	0.2	0.3	1.5
17.	<u>007440020</u>	Nickel	0.7	0.2	0.2	0.3	0.2	0.3	1.2
18.	<u>000010495</u>	Nickel Compounds	0.3	0.2	0.2	0.2	0.2	0.4	1.2
19.	<u>000075003</u>	Chloroethane	0.5	0.2	0.2	0.2	0.2	0.2	0.9
20.	<u>000067663</u>	Chloroform	0.1	0.1	0.1	0.1	0.3	0.1	0.7
Totals for Top 20 Chemicals:			72.0	42.2	44.4	38.4	35.2	32.8	193.0
Totals for All Chemicals:			75.1	43.1	45.2	39.3	36.1	33.9	197.6

Note: Some number differences may be due to rounding

## STANDARD INDUSTRIAL CLASSIFICATION (SIC) CATEGORIES

Facilities in 315 individual four-digit SIC codes have reported toxic chemical releases from 1988 through 2000. Tables 29 and 30 summarize the release and transfer information for these SIC codes.

Table 29

### Total Release and Transfer Amounts Top 20 SIC Codes

SIC Code	Description	Total Releases and Transfers (Million Pounds)							Total 96-00	% Increases (+) or Decreases (-) 96-00
		Base Year 1988	Last Five Years							
		1988	1996	1997	1998	1999	2000			
1. <u>3312</u>	Steel Works, Blast Furnaces (Including Coke Ovens) and Rolling Mills	24.0	31.1	38.3	33.9	29.0	25.4	157.8	-18	
2. <u>2865</u>	Cyclic Organic Crudes & Intermediates, and Organic Dyes and Pigments	10.7	6.2	6.3	7.0	4.5	4.1	28.2	-35	
3. <u>2821</u>	Plastic Materials, Synthetic Resins and Nonvulcanizable Elastomers	14.7	5.8	5.6	6.4	4.3	4.8	26.8	-17	
4. <u>3089</u>	Plastic Products, NEC*	2.2	6.1	5.9	5.2	4.1	3.8	25.1	-38	
5. <u>2869</u>	Industrial Organic Chemicals, NEC*	8.6	3.4	2.0	2.2	4.5	4.5	16.6	33	
6. <u>2752</u>	Commercial Printing, Lithographic	6.3	1.9	3.1	2.3	2.1	2.5	11.9	32	
7. <u>2819</u>	Industrial Inorganic Chemicals, NEC*	5.7	3.2	2.0	2.0	2.1	2.1	11.5	-36	
8. <u>3341</u>	Secondary Smelting and Refining of Non Ferrous Metal	4.6	2.7	2.3	2.0	1.8	2.3	11.2	-14	
9. <u>3471</u>	Electroplating, Plating, Polishing, Anodizing and Coloring	2.0	2.1	2.3	1.8	2.0	2.6	10.8	24	
10. <u>3339</u>	Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum	2.0	1.4	1.2	1.3	1.9	2.1	7.9	46	
11. <u>2843</u>	Surface Active Agents, Finishing Agents, Sulfonated Oils, and Assistants	3.8	1.2	1.0	1.5	2.2	1.8	7.8	46	
12. <u>2911</u>	Petroleum Refining	3.0	1.4	1.3	1.2	1.6	2.1	7.6	53	
13. <u>3711</u>	Motor Vehicles and Passenger Car Bodies	4.5	1.4	1.4	1.5	1.4	1.7	7.5	28	
14. <u>2851</u>	Paints, Varnishes, Lacquers, Enamels and Allied Products	3.9	1.3	1.4	1.5	1.5	1.5	7.2	15	
15. <u>3086</u>	Plastics Foam Products	0.8	2.0	1.6	1.5	1.3	0.7	7.1	-63	
16. <u>3366</u>	Copper Foundries	0.0	0.0	1.5	1.7	1.8	1.8	6.8	100	
17. <u>3325</u>	Steel Foundries, NEC*	0.3	1.7	1.3	1.0	1.4	0.8	6.2	-52	
18. <u>3479</u>	Coating, Engraving, and Allied Services, NEC*	1.8	1.1	1.3	1.2	1.3	1.1	6.0	-2	
19. <u>3411</u>	Metal Cans	1.0	1.1	1.2	1.1	1.0	1.1	5.7	-1	
20. <u>3499</u>	Fabricated Metal Products, NEC*	1.4	1.2	1.2	1.3	0.7	0.5	4.8	-59	
Totals for Top 20 SIC Codes"		101.4	76.5	82.3	77.7	70.7	67.5	374.68		
Totals for All SIC Codes:		170.8	97.2	102.8	94.5	89.7	86.5	470.7		

Note: Some number differences may be due to rounding

\*NEC - Not Elsewhere Classified

Table 30

Total Release and Transfer Amounts  
Chemicals With Significant Human Health Effects  
Top 20 SIC Codes

SIC Code	Description	Total Releases and Transfers (Million Pounds)							% Increases (+) or Decreases (-)
		Base Year 1988	Last Five Years					Total 96-00	
		1988	1996	1997	1998	1999	2000	96-00	96-00
1. <u>3312</u>	Steel Works, Blast Furnaces (Including Coke Ovens) and Rolling Mills	6.5	9.1	11.6	9.4	7.9	5.9	44.0	-35
2. <u>3089</u>	Plastic Products, NEC*	2.0	6.1	5.8	5.1	4.1	3.7	24.8	-39
3. <u>2821</u>	Plastic Materials, Synthetic Resins and Nonvulcanizable Elastomers	5.5	2.5	2.4	3.4	2.6	3.6	14.5	46
4. <u>2752</u>	Commercial Printing, Lithographic	5.7	1.8	2.9	2.1	1.9	2.3	10.9	33
5. <u>3086</u>	Plastics Foam Products	0.7	1.9	1.6	1.5	1.3	0.7	7.1	-64
6. <u>2819</u>	Industrial Inorganic Chemicals, NEC*	1.3	0.9	1.1	1.3	1.5	1.4	6.2	46
7. <u>3471</u>	Electroplating, Plating, Polishing, Anodizing and Coloring	1.1	1.3	1.4	0.9	1.1	1.0	5.8	-22
8. <u>3325</u>	Steel Foundries, NEC*	0.1	1.1	0.9	0.9	1.2	0.7	4.7	-37
9. <u>2851</u>	Paints, Varnishes, Lacquers, Enamels and Allied Products	3.1	0.8	0.8	1.0	1.0	0.8	4.4	-5
10. <u>2869</u>	Industrial Organic Chemicals, NEC*	0.8	0.6	0.5	0.5	1.2	0.9	3.8	41
11. <u>2911</u>	Petroleum Refining	1.9	0.7	0.6	0.7	0.7	1.0	3.7	47
12. <u>3732</u>	Boat Building and Repair	0.2	0.6	0.6	0.6	0.9	0.9	3.5	54
13. <u>3711</u>	Motor Vehicles and Passenger Car Bodies	2.3	0.6	0.5	0.7	0.7	0.9	3.3	43
14. <u>3499</u>	Fabricated Metal Products, NEC*	1.1	0.9	0.9	0.9	0.5	0.1	3.3	-83
15. <u>3317</u>	Steel Pipe and Tubes	0.5	0.7	0.5	0.5	0.4	0.4	2.5	-50
16. <u>2672</u>	Coated and Laminated Paper, NEC*	1.7	0.6	0.6	0.4	0.5	0.4	2.5	-34
17. <u>2833</u>	Medicinal Chemicals and Botanical Products	0.0	0.4	0.6	0.4	1.0	0.0	2.5	-100
18. <u>3479</u>	Coating, Engraving, and Allied Services, NEC*	1.3	0.5	0.5	0.3	0.6	0.4	2.4	-25
19. <u>2865</u>	Cyclic Organic Crudes & Intermediates, and Organic Dyes and Pigments	4.2	0.6	0.5	0.5	0.2	0.3	2.2	-46
20. <u>2891</u>	Adhesives and Sealants	0.2	0.5	0.6	0.3	0.1	0.3	1.8	-30
Totals for Top 20 SIC Codes:		40.3	32.4	35.1	31.5	29.1	25.9	154.0	
Totals for All SIC Codes:		75.1	43.1	45.2	39.3	36.1	33.8	197.5	

Note: Some number differences may be due to rounding

\*NEC - Not Elsewhere Classified

## ZIP CODES - AIR EMISSIONS

In an attempt to localize the reported information in an understandable format, the following summaries of toxic chemical release information presented in Tables 31 and 32 are based on five-digit zip codes. Also, the analysis presented here is restricted to air emissions to give some indication of the possibility of human exposure. Of course, ZIP code areas vary in size and population. Also, as the case has always been, toxic chemical release and transfer amounts are annual totals, so no inferences can be made from the following rankings relative to exposure dose and resultant human health effects of these air emissions in any of the ZIP codes listed.

Table 31

### Total Air Emissions Top 20 ZIP Codes

ZIP Code	County	City	Base Year	Total Air Emissions (Million Pounds)						Total 96-00
				Last Five Years						
			1988	1996	1997	1998	1999	2000		
1. <u>61832</u>	Vermilion	Danville	2.5	4.0	3.9	3.6	3.5	3.3	18.9	
2. <u>60450</u>	Grundy	Morris	5.4	1.9	1.9	2.2	1.2	0.8	8.5	
3. <u>60638</u>	Cook	Bedford Park	1.8	1.5	1.5	0.9	0.0	0.0	5.6	
4. <u>61953</u>	Douglas	Tuscola	5.0	2.1	0.4	0.3	0.3	0.4	5.6	
5. <u>61350</u>	LaSalle	Ottawa (Rural)	2.1	1.1	1.1	1.1	1.0	0.7	5.5	
6. <u>62881</u>	Marion	Salem	0.7	1.2	1.4	0.8	0.2	0.6	5.1	
7. <u>61054</u>	Ogle	Mount Morris	1.6	1.3	0.9	0.7	0.9	0.9	4.6	
8. <u>60633</u>	Cook	Chicago	1.9	0.7	0.8	0.9	0.8	0.9	4.4	
9. <u>62206</u>	St. Clair	Sauget	2.7	0.8	0.9	0.6	0.6	0.2	3.8	
10. <u>61938</u>	Coles	Mattoon	2.4	0.3	0.8	0.8	0.9	0.9	3.4	
11. <u>60185</u>	Du Page	West Chicago	0.6	0.6	0.6	0.5	0.6	0.5	3.4	
12. <u>60455</u>	Cook	Bridgeview	0.3	0.8	0.6	0.6	0.4	0.1	3.3	
13. <u>60609</u>	Cook	Chicago	0.8	0.6	0.5	0.5	0.5	0.5	2.9	
14. <u>60410</u>	Will	Channahon	0.6	0.4	0.7	0.6	0.4	0.5	2.9	
15. <u>60421</u>	Lake	Elwood	0.4	0.7	0.6	0.4	0.4	0.2	2.7	
16. <u>60426</u>	Cook	Harvey	1.0	0.5	0.5	0.5	0.5	0.4	2.7	
17. <u>62084</u>	Madison	Roxana	1.6	0.5	0.5	0.5	0.6	0.8	2.6	
18. <u>60007</u>	Clay	Flora	1.1	0.6	0.5	0.2	0.5	0.5	2.5	
19. <u>60501</u>	Cook	Summit	1.5	0.5	0.5	0.5	0.4	0.4	2.4	
20. <u>62454</u>	Crawford	Robinson	2.1	0.4	0.3	0.2	0.3	0.4	2.3	
Totals for Top 20 ZIP Codes:			36.0	20.7	18.8	16.7	14.1	13.1	93.2	
Totals for All ZIP Codes:			95.6	43.5	38.1	33.8	30.5	28.3	174.3	

Note: Some number differences may be due to rounding

Table 32

Total Air Emissions  
Chemicals With Significant Human Health Effects  
Top 20 ZIP Codes

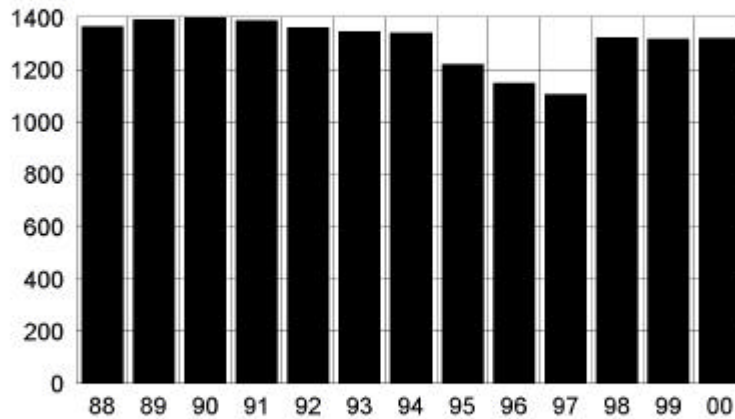
			Total Air Emissions (Million Pounds)							
			Last Five Years							
ZIP Code	County	City	Base Year					2000	Total 96-00	
			1988	1996	1997	1998	1999			
1. <u>61832</u>	Vermilion	Danville	2.2	3.9	3.9	3.6	3.5	3.3	18.3	
2. <u>61350</u>	LaSalle	Ottawa (Rural)	2.1	1.1	1.1	1.1	0.9	0.6	4.8	
3. <u>61054</u>	Ogle	Mount Morris	1.6	1.2	0.8	0.6	0.9	0.9	4.5	
4. <u>60638</u>	Cook	Bedford Park	1.5	1.5	1.5	0.9	0.0	0.0	3.9	
5. <u>62881</u>	Marion	Salem	0.6	1.1	1.4	0.7	0.1	0.5	3.7	
6. <u>61938</u>	Coles	Mattoon	2.4	0.3	0.7	0.8	0.9	0.9	3.6	
7. <u>60185</u>	DuPage	West Chicago	0.4	0.6	0.6	0.5	0.6	0.5	2.8	
8. <u>62896</u>	Franklin	West Frankfort	0.0	0.4	0.4	0.4	0.6	0.6	2.3	
9. <u>60455</u>	Cook	Bridgeview	0.2	0.7	0.5	0.5	0.4	0.0	2.2	
10. <u>60426</u>	Cook	Harvey	0.5	0.5	0.4	0.4	0.3	0.3	2.0	
11. <u>62084</u>	Crawford	Robinson	1.1	0.3	0.3	0.4	0.4	0.6	2.0	
12. <u>62914</u>	Alexander	Cairo	0.5	0.6	0.4	0.3	0.3	0.2	1.9	
13. <u>60410</u>	Will	Channahon	0.6	0.4	0.4	0.3	0.3	0.4	1.7	
14. <u>61537</u>	Marshall	Henry	0.1	0.4	0.3	0.3	0.4	0.2	1.7	
15. <u>60501</u>	Cook	Summit	1.5	0.3	0.4	0.3	0.3	0.3	1.6	
16. <u>61761</u>	McLean	Normal	0.0	0.2	0.3	0.3	0.3	0.5	1.6	
17. <u>60007</u>	Clay	Flora	0.8	0.4	0.3	0.1	0.4	0.3	1.6	
18. <u>60633</u>	Cook	Chicago	0.8	0.3	0.2	0.4	0.3	0.3	1.5	
19. <u>62812</u>	Madison	Roxana	0.1	0.2	0.2	0.2	0.2	0.3	1.1	
20. <u>60103</u>	Cook	Streamwood	0.1	0.6	0.3	0.1	0.1	0.0	1.1	
Totals for Top 20 ZIP Codes:			17.2	15.2	14.5	12.4	11.1	10.6	63.8	
Totals for All Zip Codes:			51.2	26.3	24.0	20.5	18.2	16.9	106.0	

Note: Some number differences may be due to rounding

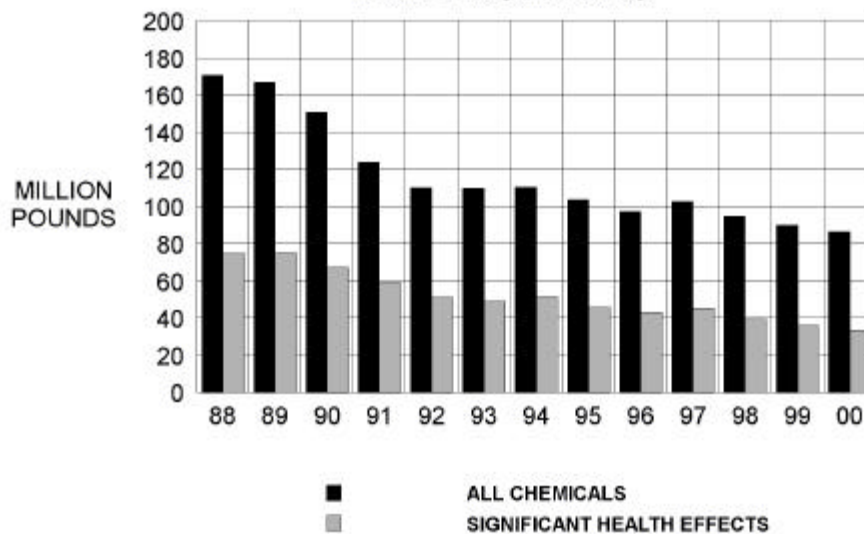
## GENERAL TRENDS

The following charts depict the general trends of toxic chemical release information from 1988 through 2000. Figure 4 indicates the number of reporting facilities in each year. Figure 5 shows totals for all reporting facilities. Figures 6 through 10 show the totals for each release and transfer route.

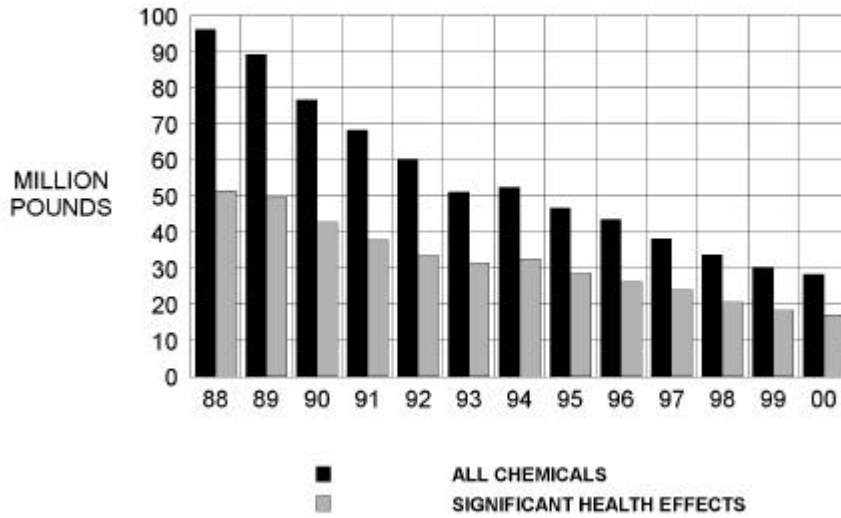
**FIGURE 4**  
NUMBER OF FACILITIES REPORTING



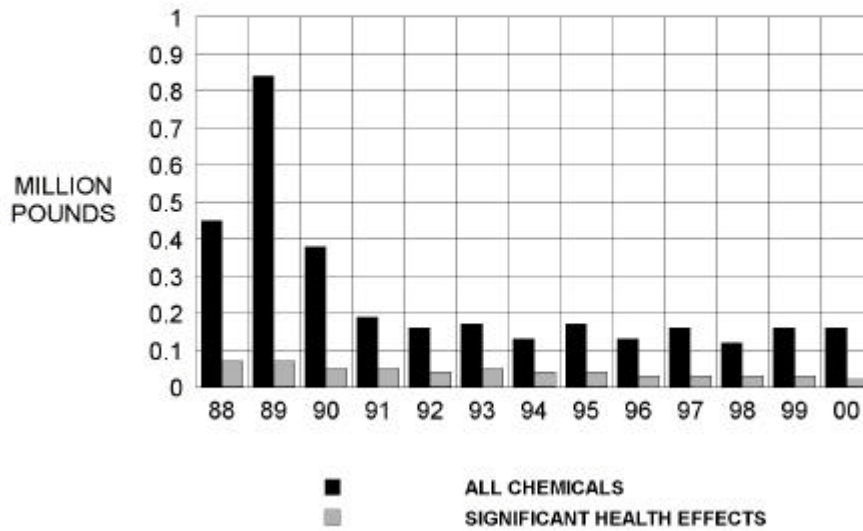
**FIGURE 5**  
TOTAL RELEASES AND TRANSFERS -  
ALL FACILITIES



**FIGURE 6**  
TOTAL AIR EMISSIONS



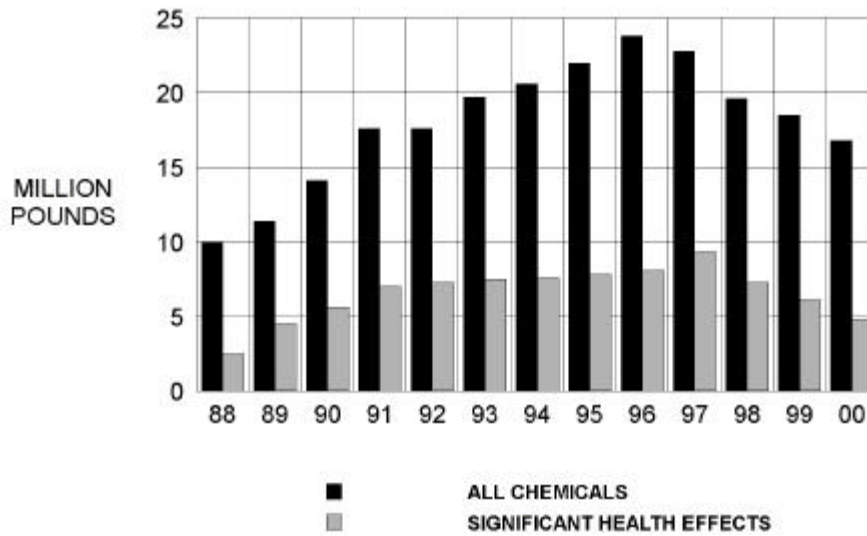
**FIGURE 7**  
TOTAL WATER DISCHARGES





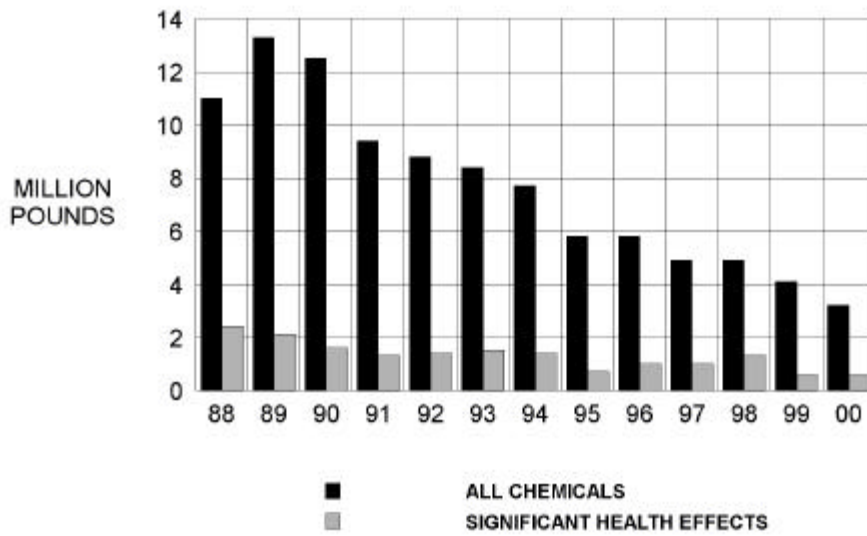
# FIGURE 8

## TOTAL RELEASES TO LAND ONSITE

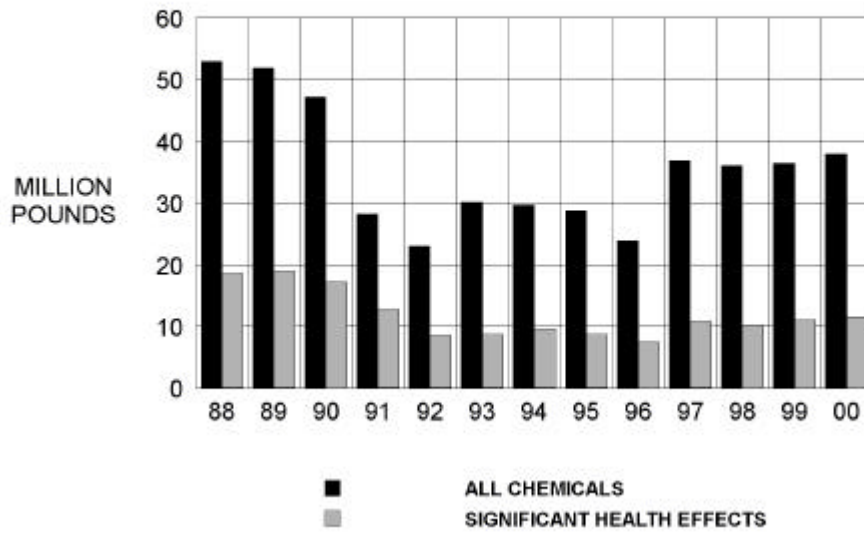


# FIGURE 9

## TOTAL OFFSITE TRANSFERS TO POTW



**FIGURE 10**  
**TOTAL OTHER OFFSITE TRANSFERS**



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## ILLINOIS EPA REGULATORY PROGRAMS

The Illinois EPA operates a number of programs which identify, limit, monitor or otherwise control releases of various chemicals including many toxic chemicals regulated under Section 313. The following is a brief summary of those programs.

### **Bureau of Air**

*Pollutant Monitoring* - A statewide system of air monitoring instruments provides information on various air pollutants either continuously or every two to six days depending on instrument operation.

*Permitting* - Permits are required for processes and machinery that emit air pollutants. Permit conditions are imposed which are designed to ensure that state emission restrictions are met. Approximately 21,000 operating permits have been issued for 7,600 facilities in Illinois.

Chemical releases to the air can occur from point sources such as stacks and vents or from non-point (fugitive) sources such as emissions from open-top holding tanks, wastewater streams or ponds, or from production losses. If these releases are subsequently captured or destroyed, no exposure occurs and, therefore, no toxic response is possible.

For some permitted releases, permit requirements are written to control chemicals of toxicological importance to the extent possible such that any exposure would be at a level of insignificance to the general public. Certain releases not covered by permits can be monitored by the Agency's statewide air monitoring network.

*Air Toxics Program* - The Agency is delegated to implement and enforce the federal standards under Section 112 of the CAAA which limit the air releases of Hazardous Air Pollutants (HAPs). Expanded air toxics regulation has been authorized by legislation, which added Section 9.5 to the Illinois Environmental Protection Act for the purpose of identifying and limiting releases of toxic air contaminants. Pursuant to Section 9.5, the Agency has evaluated a number of toxic air contaminants. As a result of this evaluation, a revised list of 343 chemicals and compounds has been adopted by the Illinois Pollution Control Board (IPCB) as the Illinois Toxic Air Contaminants List. The list consists of Illinois Toxic Air Contaminants, Hazardous Air Pollutants (HAPs) and Great Lakes and Great Waters pollutants.

*Compliance/Enforcement* - More than 3,000 facility inspections are conducted each year to verify compliance with regulations and permit conditions. Violations are referred to the Office of the Attorney General for prosecution.

### **Bureau of Land**

*Pollutant Monitoring* - Information on waste stream characteristics, groundwater quality, hydrological and geological parameters and soil contamination are collected by the Illinois EPA and in many instances are also supplied to the Illinois EPA by regulated facilities.

*Permitting* - Permits are required for persons who treat, store or dispose of certain wastes. Applicants have to demonstrate that landfills are properly designed and constructed so as to prevent or minimize any adverse impacts to human health or the environment. In addition, any special wastes, industrial process, pollution control residual or hazardous wastes, have to be properly identified and analyzed before they can be permitted to be landfilled. In many cases, hazardous wastes have to be recycled, incinerated, treated to certain standards or rendered non-hazardous prior to landfilling. Permits for land disposal facilities require the applicant to monitor groundwater and submit reports to the Agency. The groundwater monitoring programs thus identify whether there have been releases from regulated facilities, and the need for remedial action. Permits have been issued to approximately 530 (450 hazardous and 80 hazardous) public and private waste treatment, storage and disposal facilities.

*Compliance/Enforcement* - To ensure that treatment, storage and disposal facilities continue to meet interim or final operating, monitoring and reporting requirements, on-site investigations, sampling visits and records review

are done to verify compliance with regulations and permit conditions. Through non-compliance letters, meeting with the facilities and appropriate referral of enforcement actions compliance is tracked and maintained.

*Resource Conservation and Recovery Act (RCRA)* - Subtitle C of RCRA provides the authority for the development and implementation of a comprehensive hazardous waste management program. The intent of the Act is to control hazardous wastes; to eliminate environmentally unsound disposal practices; to increase the opportunity for resource conservation and recovery; and to provide for the environmentally acceptable disposal of hazardous wastes.

The Hazardous and Solid Waste Amendments to RCRA in 1984 include, among other changes, the authority to make a facility take corrective action for any release.

Subtitle D of RCRA establishes a voluntary program through which states receive federal technical support to develop and implement solid waste management plans. These plans are intended to promote waste reduction and recycling of solid wastes, and require the closing or upgrading of all environmentally unsound dumps. Additionally, minimum technical standards are in place for all solid waste landfills.

Approximately 200 facilities are subject to regulation under the provisions of RCRA.

### **Bureau of Water - Division of Water Pollution Control**

*Pollutant Monitoring* - A statewide network of 207 stream monitoring locations is routinely used to assess physical, chemical, biological and bacteriological properties of all surface water and also provides information on ambient conditions and water quality trends. This network is augmented by periodic intensive surveys of the 15 major river basins in the state as well as ongoing programs to measure pollutant levels in sediment and fish flesh.

*Permitting* - Specific pollutant concentration and mass limitations and monitoring/reporting requirements are incorporated into permits for discharge to surface waters for the approximately 2500 municipal, industrial and commercial dischargers in the state. Chemical releases to surface waters may be permitted if it can be shown that the release will conform to state and federal requirements for technology-based treatment and will not cause or contribute to violations of water quality standards established by the IPCB to protect designated uses of these waters. Thus, it may be required that the chemical be treated, removed, broken down or otherwise controlled to a point where the remaining amount will not be harmful to humans, fish and other aquatic life and wildlife, depending on the designated use of the body of water. Revisions of the toxic provisions of the state's water quality standards currently before the IPCB are designed to increase the Agency's ability to protect these waters.

*Compliance/Enforcement* - Field staff inspect facilities to determine compliance with permit conditions. Sampling by field staff and subsequent analyses characterize the chemical and physical make-up of the discharge. Biomonitoring and facility-related stream surveys are also used to quantify this impact on aquatic life in the receiving stream. Self-monitoring reports submitted by facilities, as required by permits, are evaluated for compliance. Unresolved violations are referred to the Office of Attorney General for prosecution.

### **Bureau of Water - Division of Public Water Supplies**

*Pollutant Monitoring* - Monitoring is conducted through regular testing of samples of raw and treated water from each public water supply. Testing includes microbiological, inorganic and organic chemicals, and radiological parameters.

*Permitting* - Owners or official custodians of facilities that wish to install new equipment or water mains or to modify existing equipment or distribution systems are required to obtain a construction permit. Once construction has been completed, an operating permit must be obtained prior to start of operation before putting new construction into operation. Agency personnel review permit applications to ensure proper system design and compliance with applicable regulations. Approximately 1,930 community water supply systems throughout the state are subject to the construction and operating permit requirements of the Agency. Permits are also issued for algae control, for pesticide application upstream of public water supply intakes, and for the waste disposal permit requirements that apply to public water

supply treatment wastes.

The Agency administers the minimum and maximum setback zone procedures, which provide for a buffer area between public water supply wells and sources of possible chemical contamination of those wells, and is responsible for the hazard certification program, which registers all sites posing minimum hazard and provides an exemption from setback requirements.

*Compliance/Enforcement* - Agency field personnel regularly inspect public water supply systems and also respond to complaints and requests for assistance. Technical assistance provided by the Agency has proven to be extremely cost effective in helping supplies maintain adequate operations. In addition, other aspects of the groundwater protection program are conducted by the Agency. In cases of violations of water supply standards, permit requirements or certification requirements, the Agency will initiate enforcement action through the Office of the Attorney General.

### **Office of Emergency Response**

*Emergency Response* - Regulations require immediate reporting of emergency releases of many chemicals to the State. The Illinois EPA works within the State response system to provide technical advice to spillers and responding governmental units during response, mitigation and cleanup of incidents involving chemical emergencies. Over 2,400 such incidents were handled by the Agency in 2000.

*Emergency Preparedness* - The Agency also administers certain provisions of the Illinois Chemical Safety Act (ICSA). The ICSA requires facility contingency planning for dealing with releases of chemical substances, and provides for review and recommendations for improvement of contingency plans by the Illinois EPA following significant releases of chemical substances. Approximately 2,300 facilities are regulated under the provisions of the ICSA.

*Federal PCB Compliance* - The use of certain toxic substances such as Polychlorinated Biphenyls are regulated by the federal government under the authority of the Toxic Substances Control Act. Pursuant to a cooperative agreement, Illinois EPA staff conduct compliance inspections of such substances for the U.S. EPA who initiate any subsequent enforcement actions. This is one of the few Agency programs that address the use aspect of chemicals in contrast to addressing them as a waste, release or residue.

*Compliance/Enforcement* - Spills reported as emergencies are evaluated to determine the need for prevention and remediation measures. Cooperation is achieved in most cases, but formal compliance actions or even referral for prosecution are sometimes necessary to obtain the desired relief.

### **Pollution Prevention**

The Illinois Pollution Prevention Act was passed in 1992. This act may lead to new approaches to preventing pollution in Illinois. The Toxic Pollution Prevention Act of 1989 provides that manufacturing industries in Illinois may elect to develop toxic pollution prevention innovation plans in order to reduce the releases of toxic substances by various manufacturing processes which operate in the state. The Illinois EPA is to concur in innovation plans which will be effective in preventing toxic pollution, provided the plan will achieve the level of toxic pollution prevention of other available processes, and provided the plan will not reasonably be expected to have any significant adverse effect on public health or the environment.

The Illinois Materials Exchange Service, operated by the Agency, identifies potential waste materials for which a facility is attempting to find a potential user so that the materials can be recycled instead of being discarded as a waste. The Illinois EPA also identifies potential waste materials which are being sought by facilities for use in their process as a raw material.

The Illinois EPA also operates an internship program in cooperation with several universities, in an effort to work with Illinois industries to identify opportunities to reduce the generation of waste through the manufacturing process.

## **UTILIZATION OF FORM R DATA**

Data reported on Form R has been utilized in many ways. Some examples are as follows:

### **AIR PROGRAM**

Form R data is being used in conjunction with seasonal emissions reports to help evaluate performance by participants in the Emissions Reduction Market System. The Bureau of Air also utilizes Form R data to identify facilities for regulation under delegated provisions of the federal Clean Air Act Amendments.

### **ILLINOIS CHEMICAL SAFETY ACT (ICSA)**

Section 313 (Form R) data is utilized in the process of adding facilities for coverage under the ICSA. Form R data is also being reviewed to determine compliance with the ICSA by facilities reporting under Section 313.

### **STORM WATER PERMITS**

Form R data is used to identify facilities for storm water permitting activities under the federal Clean Water Act Amendments.

### **HAZARDOUS WASTE SITE OPERATIONS**

Form R information is used by the Illinois EPA's Bureau of Land to identify toxic chemicals present at hazardous waste sites for a number of programmatic reasons.

### **POLLUTION PREVENTION**

Beginning with reporting year 1991, Form R data has been utilized as a tool for analyzing pollution prevention efforts.

### **NON-ROUTINE RELEASES**

Beginning with reporting year 1991, Form R information is being utilized to verify that appropriate emergency notification has been given by facilities which have experienced non-routine releases of toxic chemicals.

### **FREEDOM OF INFORMATION ACT**

Various individuals and citizen groups have requested Form R data for a variety of purposes, including generation of a report to a citizen group's constituency. Many such requests are made to support site investigations related to property transfer.

### **ENVIRONMENTAL TOXICOLOGY ACT**

The Illinois Department of Public Health may use Form R data as input to the health assessments mandated by this Act for Superfund and Clean Illinois sites.

## **HEALTH AND HAZARDOUS SUBSTANCES REGISTRY ACT**

The Illinois Department of Public Health has requested and received Form R data to use as inputs to this Registry.

## **INFORMATION SUPPORT DURING CHEMICAL EMERGENCIES**

The Illinois EPA has used Form R data to determine what chemicals might have been released during facility chemical emergencies involving fire or explosion.

## **LOCAL SAFETY ACTIVITIES**

In addition to handling planning and response activities under the Illinois Chemical Safety Act, local governments have been actively developing and pursuing emergency response and preparedness capabilities under Title III. Local officials used Form R data as input to their emergency response plans.

## **CHEMICAL EXPOSURE SCREENING**

Local public health departments and the U. S. Occupational Safety and Health Administration (OSHA) have requested identification of facilities in certain areas which release specific chemicals for the purpose of targeting exposure screening for facility employees.

## **ENVIRONMENTAL PERFORMANCE**

The Illinois EPA uses Form R data as indicators of environmental performance in its Annual Environmental Conditions Report.

## **OTHER USES**

An industrial trade association has requested pollution prevention information from Form Rs for some of its member facilities.

Form R data from the Illinois Toxic Chemical Inventory has been provided to be used, along with other data, to analyze critical environmental trends in Illinois.

Utility companies in Illinois have requested Form R information for their customers to support them in release reduction.

The Illinois EPA used Form R information, along with EPCRA Section 312 information, to assess the Year 2000 preparedness of chemical facilities in Illinois.

## **CHANGES IN REPORTING REQUIREMENTS**

The following changes have been made by U.S. EPA for calendar year 2000:


- Starting with reporting year 2000, new chemical activity threshold levels are set for persistent, bioaccumulative and toxic (PBT) chemicals and chemical categories.
- For PBT chemicals and chemical categories, the *de minimis* exemption, Form A, and range reporting are not allowed.
- Starting with reporting year 2000, the qualifier, "fume or dust," for the vanadium (CAS RN 7440-62-2) listing was removed; however, a qualifier, "Except when contained in an alloy," for the vanadium listing was added.



- Starting with reporting year 2000, the vanadium compounds chemical category was added to the EPCRA section 313 chemical list.
- The *de minimis* level for atrazine has been changed from 0.1% to 1
- The Alternate Threshold provides eligible facilities with the option of submitting a simplified Form A instead of the full Form R report for non-PBT chemicals and chemical categories.

## **APPENDIX A - FORM R**

*(Note: Due to the length of the instructions for completing Form R, only the form for RY2000 is included in Appendix A.)*

 <b>EPA</b> United States Environmental Protection Agency		<h1>FORM R</h1>		<b>TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM</b>	
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act					
<b>WHERE TO SEND COMPLETED FORMS:</b> 1. EPCRA Reporting Center P.O. Box 3348 Merrifield, VA 22116-3348 ATTN: TOXIC CHEMICAL RELEASE INVENTORY				Enter "X" here if this is a revision <input type="checkbox"/>	
				For EPA use only <input type="checkbox"/>	
<b>Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.</b>					
<b>PART I. FACILITY IDENTIFICATION INFORMATION</b>					
<b>SECTION 1. REPORTING YEAR</b> _____					
<b>SECTION 2. TRADE SECRET INFORMATION</b>					
<b>2.1</b> Are you claiming the toxic chemical identified on page 2 trade secret? <input type="checkbox"/> Yes (Answer question 2.2; Attach substantiation forms)		<input type="checkbox"/> No (Do not answer 2.2; Go to Section 3)		<b>2.2</b> Is this copy <input type="checkbox"/> Sanitized <input type="checkbox"/> Unsanitized (Answer only if "YES" in 2.1)	
<b>SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)</b>					
I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.					
Name and official title of owner/operator or senior management official:				Signature:	Date Signed:
<b>SECTION 4. FACILITY IDENTIFICATION</b>					
<b>4.1</b> Facility or Establishment Name		TRI Facility ID Number			
Street		Facility or Establishment Name or Mailing Address (if different from street address)			
City/County/State/Zip Code		Mailing Address		City/State/Zip Code	
				Country (Non-US)	
<b>4.2</b> This report contains information for: (Important : check a or b; check c or d if applicable)					
a. <input type="checkbox"/> An entire facility		b. <input type="checkbox"/> Part of a facility		c. <input type="checkbox"/> A Federal facility	
				d. <input type="checkbox"/> GOCO	
<b>4.3</b> Technical Contact Name		Telephone Number (include area code)			
<b>4.4</b> Public Contact Name		Telephone Number (include area code)			
<b>4.5</b> SIC Code (s) (4 digits)		Primary	a.	b.	c.
		d.	e.	f.	
<b>4.6</b> Latitude		Degrees	Minutes	Seconds	Longitude
		Degrees	Minutes	Seconds	
<b>4.7</b> Dun & Bradstreet Number(s) (9 digits)		<b>4.8</b> EPA Identification Number (RCRA I.D. No.) (12 characters)		<b>4.9</b> Facility NPDES Permit Number(s) (9 characters)	
<b>4.10</b> Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)					
a.		a.		a.	
b.		b.		b.	
<b>SECTION 5. PARENT COMPANY INFORMATION</b>					
<b>5.1</b> Name of Parent Company		NA <input type="checkbox"/>			
<b>5.2</b> Parent Company's Dun & Bradstreet Number		NA <input type="checkbox"/>			

<b>EPA FORM R</b> <b>PART II. CHEMICAL-SPECIFIC INFORMATION</b>	TRI Facility ID Number  Toxic Chemical, Category or Generic Name
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**SECTION 1. TOXIC CHEMICAL IDENTITY** (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
1.4	<b>Distribution of Each Member of the Dioxin and Dioxin-like Compounds Category.</b> (If there are any numbers in boxes 1-17, then every field must be filled in with either 0 or some number between 0.01 and 100. Distribution should be reported in percentages and the total should equal 100%. If you do not have speciation data available, indicate NA.)
	1    2    3    4    5    6    7    8    9    10    11    12    13    14    15    16    17 NA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

**SECTION 2. MIXTURE COMPONENT IDENTITY** (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
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**SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY**  
(Important: Check all that apply.)

<b>3.1 Manufacture the toxic chemical:</b> a. <input type="checkbox"/> Produce    b. <input type="checkbox"/> Import If produce or import: c. <input type="checkbox"/> For on-site use/processing d. <input type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity	<b>3.2 Process the toxic chemical:</b> a. <input type="checkbox"/> As a reactant b. <input type="checkbox"/> As a formulation component c. <input type="checkbox"/> As an article component d. <input type="checkbox"/> Repackaging e. <input type="checkbox"/> As an impurity	<b>3.3 Otherwise use the toxic chemical:</b> a. <input type="checkbox"/> As a chemical processing aid b. <input type="checkbox"/> As a manufacturing aid c. <input type="checkbox"/> Ancillary or other use
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**SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR**

4.1	<input style="width: 40px;" type="text"/> (Enter two-digit code from instruction package.)
-----	--

**SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE**

			A. Total Release (pounds/year*) (Enter range code or estimate**)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA <input type="checkbox"/>			
5.2	Stack or point air emissions	NA <input type="checkbox"/>			
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1					
5.3.2					
5.3.3					

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box and indicate the Part II, Section 5.3 page number in this box.  (example: 1,2,3, etc.)

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\* For Dioxin or Dioxin-like compounds, report in grams/year  
 \*\* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)		TRI Facility ID Number	
		Toxic Chemical, Category or Generic Name	
<b>SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)</b>			
		NA	A. Total Release (pounds/year*) (enter range code** or estimate)
5.4.1	Underground Injection onsite to Class I Wells	<input type="checkbox"/>	B. Basis of Estimate (enter code)
5.4.2	Underground Injection onsite to Class II-V Wells	<input type="checkbox"/>	
5.5	Disposal to land onsite		
5.5.1A	RCRA Subtitle C landfills	<input type="checkbox"/>	
5.5.1B	Other landfills	<input type="checkbox"/>	
5.5.2	Land treatment/application farming	<input type="checkbox"/>	
5.5.3	Surface Impoundment	<input type="checkbox"/>	
5.5.4	Other disposal	<input type="checkbox"/>	
<b>SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS</b>			
<b>6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)</b>			
<b>6.1.A Total Quantity Transferred to POTWs and Basis of Estimate</b>			
6.1.A.1. Total Transfers (pounds/year*) (enter range code** or estimate)		6.1.A.2 Basis of Estimate (enter code)	
6.1.B. <input type="text"/>		POTW Name <input type="text"/>	
POTW Address <input type="text"/>			
City <input type="text"/>	State <input type="text"/>	County <input type="text"/>	Zip <input type="text"/>
6.1.B. <input type="text"/>		POTW Name <input type="text"/>	
POTW Address <input type="text"/>			
City <input type="text"/>	State <input type="text"/>	County <input type="text"/>	Zip <input type="text"/>
If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box <input type="text"/> and indicate the Part II, Section 6.1 page number in this box <input type="text"/> (example: 1,2,3, etc.)			
<b>SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS</b>			
6.2. <input type="text"/> Off-Site EPA Identification Number (RCRA ID No.)			
Off-Site Location Name <input type="text"/>			
Off-Site Address <input type="text"/>			
City <input type="text"/>	State <input type="text"/>	County <input type="text"/>	Zip <input type="text"/>
Country (Non-US) <input type="text"/>			
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No			

<b>EPA FORM R</b>						TRI Facility ID Number	
<b>PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)</b>						Toxic Chemical, Category or Generic Name	
<b>SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)</b>							
<b>A. Total Transfers</b> (pounds/year*) (enter range code** or estimate)		<b>B. Basis of Estimate</b> (enter code)			<b>C. Type of Waste Treatment/Disposal/</b> <b>Recycling/Energy Recovery</b> (enter code)		
1.		1.			1. <b>M</b>		
2.		2.			2. <b>M</b>		
3.		3.			3. <b>M</b>		
4.		4.			4. <b>M</b>		
6.2. ___ Off-Site EPA Identification Number (RCRA ID No.)							
Off-Site location Name							
Off-Site Address							
City		State		County		Zip	Country (Non-US)
Is location under control of reporting facility or parent company?						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>A. Total Transfers</b> (pounds/year*) (enter range code** or estimate)		<b>B. Basis of Estimate</b> (enter code)			<b>C. Type of Waste Treatment/Disposal/</b> <b>Recycling/Energy Recovery</b> (enter code)		
1.		1.			1. <b>M</b>		
2.		2.			2. <b>M</b>		
3.		3.			3. <b>M</b>		
4.		4.			4. <b>M</b>		
<b>SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY</b>							
<input type="checkbox"/> Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.							
<b>a. General Waste Stream</b> (enter code)	<b>b. Waste Treatment Method(s) Sequence</b> [enter 3-character code(s)]				<b>c. Range of Influent Concentration</b>	<b>d. Waste Treatment Efficiency Estimate</b>	<b>e. Based on Operating Data ?</b>
<b>7A.1a</b>	<b>7A.1b</b>	1	2	<b>7A.1c</b>	<b>7A.1d</b>	<b>7A.1e</b>	
	3	4	5		%	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	6	7	8			<input type="checkbox"/> <input type="checkbox"/>	
<b>7A.2a</b>	<b>7A.2b</b>	1	2	<b>7A.2c</b>	<b>7A.2d</b>	<b>7A.2e</b>	
	3	4	5		%	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	6	7	8			<input type="checkbox"/> <input type="checkbox"/>	
<b>7A.3a</b>	<b>7A.3b</b>	1	2	<b>7A.3c</b>	<b>7A.3d</b>	<b>7A.3e</b>	
	3	4	5		%	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	6	7	8			<input type="checkbox"/> <input type="checkbox"/>	
<b>7A.4a</b>	<b>7A.4b</b>	1	2	<b>7A.4c</b>	<b>7A.4d</b>	<b>7A.4e</b>	
	3	4	5		%	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	6	7	8			<input type="checkbox"/> <input type="checkbox"/>	
<b>7A.5a</b>	<b>7A.5b</b>	1	2	<b>7A.5c</b>	<b>7A.5d</b>	<b>7A.5e</b>	
	3	4	5		%	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	6	7	8			<input type="checkbox"/> <input type="checkbox"/>	
If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box						<input type="text"/>	
and indicate the Part II, Section 6.2/7A page number in this box :						<input type="text"/> (example: 1,2,3, etc)	

\* For Dioxin or Dioxin-like compounds, report in grams/year

<b>EPA FORM R</b> <b>PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)</b>	TRI Facility ID Number <hr/> Toxic Chemical, Category or Generic Name <hr/>
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**SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES**

Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1       2       3       4

**SECTION 7C. ON-SITE RECYCLING PROCESSES**

Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1.       2.       3.       4.       5.   
 6.       7.       8.       9.       10.

**SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES**

		Column A Prior Year (pounds/year*)	Column B Current Reporting Year (pounds/year*)	Column C Following Year (pounds/year*)	Column D Second Following Year (pounds/year*)
8.1	Quantity released ***				
8.2	Quantity used for energy recovery onsite				
8.3	Quantity used for energy recovery offsite				
8.4	Quantity recycled onsite				
8.5	Quantity recycled offsite				
8.6	Quantity treated onsite				
8.7	Quantity treated offsite				
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)				
8.9	Production ratio or activity index				
8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.				
	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)			
8.10.1		a.	b.	c.	
8.10.2		a.	b.	c.	
8.10.3		a.	b.	c.	
8.10.4		a.	b.	c.	
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)			YES <input type="checkbox"/>	NO <input type="checkbox"/>

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\* For Dioxin or Dioxin-like compounds, report in grams/year

\*\*\* Report releases pursuant to EPCRA Section 329(b) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite.

## APPENDIX B - TOXICOLOGY REFERENCES

### General Public

Chemical Manufacturers Association, *Chemicals in the Community: Methods to Evaluate Airborne Chemical Levels*, May, 1988.

Kamrin, Michael A., *Toxicology for the Citizen*; Center for Environmental Toxicology, Michigan State University, 1985.

Ottoboni, M. Alice, *The Dose Makes the Poison: A Plain-language Guide to Toxicology*, Berkeley: Vincente Books, 1984.

Sittig, Marshall, *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Park Ridge, NJ: Noyes Publications, 1985.

Tox FAQs; Fact sheets available from U.S. Dept. of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry; <http://atsdr1.atsdr.cdc.gov:8080/toxfaq.html>.

### Public Health Practitioners

Casarett, Louis J.; Doull, John, *Casarett & Doull's Toxicology*, New York: Macmillan Publishing Co., 1986.

Gosselin, Robert E.; Smith, Roger P.; Hodge, Harold C.; Braddock, Jeanett E., *Clinical Toxicology of Commercial Products*, Baltimore: Williams and Wilkins, 1984.

"Guidelines for Carcinogen Risk Assessment," Federal Register, Wednesday, September 24, 1987. Vol. 51, No. 185.

"Guidelines for the Health Risk Assessment of Chemical Mixtures," Ibid.

"Guidelines for Mutagenicity Risk Assessment," Ibid.

"Guidelines for the Health Assessment of Suspect Developmental Toxicants." Ibid.



"Guidelines for Estimating Exposures," Ibid.

Hays, Wayland J., Jr., *Pesticides Studied in Man*, Baltimore: Williams and Wilkins, 1982.

IRIS, Integrated Risk Information System; USEPA; <http://www.epa.gov/iris>.

Kamrin, Michael A., *Toxicology - A Primer on Toxicology Principles and Applications*; Chelsea, MI: Lewis Publishers, 1988.

## APPENDIX C - CHEMICAL REFERENCES

*The Condensed Chemical Dictionary*, New York: Van Nostrand Reinhold Company, 1993.

*Farm Chemicals Handbook*, Willoughby, OH: Meister Publishing Co., 1997.

*Fire Protection Guide on Hazardous Materials*, National Fire Protection Association, NFPA #HAZ-91, 1991.

Sax, N. Irving, *Dangerous Properties of Industrial Materials*, New York: Van Nostrand Reinhold Co., 1984.

*U.S. EPA Chemical Profiles*

World Wide Web site <http://ww.epa.gov>