THE TOXICS RELEASE INVENTORY, 1994

State of Texas

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Executive Summary

The Toxics Release Inventory (TRI) is annually prepared by the Environmental Protection Agency. It reports the volumes of toxic chemical wastes released and transferred off-site by manufacturing facilities in Texas and elsewhere in the nation. The purpose of this document is to describe the progress that has occurred in the management of toxic chemical wastes among Texas manufacturers who report to the TRI. In 1994, 1,215 manufacturers in 138 counties released 250.1 million pounds and transferred off-site 273.3 million pounds of toxic chemical wastes. This document overviews the status of these releases and transfers statewide by county, industry, and toxic waste chemical. It also describes release and transfer trends from 1988 to 1994 for a standardized group of toxic chemicals. Highlights are listed below.

o Counties that had the largest volumes of releases and transfers in 1994 and during the six-year comparison were clustered east of Interstate 35, and along the Texas Gulf Coast.

o Although the chemical industry was by far the source of the largest volume of releases and transfers of toxic chemicals in Texas, it experienced the most improvement in the reduction of these wastes.

o In 1994, air emissions totaled 127 million pounds (50.8%), releases to land were 13.9 million pounds (5.6%), releases to water were 2.7 million pounds (1.1%,), and 106.4 million pounds (42.5%) were injected in special underground wells.

o Since 1988, substantial reductions have occurred in the volumes of releases to air (-39.5%) and land (-60.2%) and in the volumes of transfers to POTWs (-52.5%) and to disposal/treatment facilities (-33.8%). Releases to water increased, however, 266.3 percent since 1993 and 28.2 percent since 1988. Overall, Texas ranked third nationally in the reduction of releases of chemical wastes for this period.

o Recycling (47.1%) and energy recovery (27.5%) of toxic chemicals were the most prevalent forms of transfers in 1994. Recycling increased 13.9 percent, but energy recovery declined 9.2 percent from 1993 to 1994.

o The 33/50 Program in Texas has successfully reduced (-43.6%) the releases of 17 high-priority TRI chemicals since 1988.

The TRI is one of many sources of information on the state of the Texas environment. Its data should be cautiously used because the list of chemicals is modified from year to year by the EPA as more scientific knowledge is acquired about the nature of these and other chemicals that occur in waste releases. These data should also be carefully used in the policy decision-making process addressing public health and safety because of the many additional factors that affect human risk, exposure and morbidity.

Forward

The Toxics Release Inventory (TRI) was authorized under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. Manufacturing facilities in the Standard Industrial Classification codes of 20 to 39 (i.e., chemicals, petroleum refining, primary metals, fabricated metals, paper, plastics, and transportation equipment) that have the equivalent of 10 or more full-time employees and meet the established thresholds for manufacturing, processing, or otherwise use of chemicals listed by EPCRA are required to report their releases and transfers of these waste chemicals. Thresholds for manufacturing and processing are currently 25,000 pounds for each listed chemical; the threshold for other uses is 10,000 pounds.

The Environmental Protection Agency (EPA) defines a chemical or chemical category to be toxic if it produces significant acute health effects at concentration levels that are reasonably likely to exist beyond facility boundaries as a result of continuous, or frequently recurring, releases. In humans, these effects include: carcinogenic effects; teratogenic effects; and serious, irreversible reproductive dysfunctions, neurological disorders, heritable genetic mutations, or other chronic health effects. A chemical may also be listed in the TRI if it produces sufficiently serious adverse environmental effects because of its toxicity, toxicity and persistence in the environment, or its toxicity and tendency to bioaccumulate (Environmental Protection Agency 1996c).

This report is adapted from the "*1994 Toxics Releases Inventory: Public Data Release, Executive Summary*" published by the EPA (1996a). The organization and wording of several sections are similar to those in the EPA report to facilitate comparisons by readers between the Texas and national data and to include precise wording of important terms and program descriptions.

Information presented here is intended to familiarize individuals and groups in business, government, academia, and the general public who are interested in the quality of the Texas environment and the progress that local industries have made to control and reduce releases of toxic chemicals. Charts and other graphics are used to simplify presentation of the data. Other data, particularly for individual Texas counties, are presented in tabular form and appear in Appendices. While TRI data on Texas counties are readily available by electronic and CD means from several sources, this report is one of the few, if not only, written compilations of 1994 releases and transfers of toxic chemical wastes in the state.

Each year, the EPA modifies the list of chemicals for which it collects data. Some chemicals are added to the TRI list because they are requested by the public and interest groups and because recent research has found them to be toxic. Other chemicals are removed from the list because they are produced in insignificant quantities (i.e., less than 500 pounds) or they are no longer considered according to scientific studies to be dangerous to humans and the environment. The EPA also modifies its list of toxic chemicals and manufacturers can retroactively amend their Form R reports at any time. Form Rs can be changed because of changes in accounting or estimation procedures, product design, regulatory requirements, and

production levels and shifts of chemicals to off-site facilites for energy recovery, disposal, treatment, or recycling. As of June 1996, in response to petitions to modify the EPCRA section 313 list of toxic chemicals, the EPA delisted 15 chemicals, partially delisted or modified 3 chemicals, and named 8 chemicals as pending, or possible candidates for delisting or modification. It granted petitions that added 41 chemicals to the TRI, and made other modifications to the TRI list for various reasons (Environmental Protection Agency 1996b).

These changes in the TRI create a dynamic data set that requires careful description of the period for which the data are reported. The 1994 list included 343 chemicals and 22 chemical categories; 322 of these chemicals were also listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and 230 TRI chemicals were identified by the Resource Conservation Recovery Act (RCRA).

This report is based on 1994 TRI data. Also, in several sections of this report, the chemical releases and transfers reported for the period 1988 to 1994 were standardized to a common list of chemicals. Consequently, the trend data did not include some of the waste chemicals in the 1994 TRI. Data for 1987 are not presented because of reporting problems experienced by the EPA during the initial year of the TRI Program.

The Office of Technology Assessment estimates that manufacturing accounts for only 5 percent of all releases and transfers of toxic chemicals in the United States (EPA 1996b). The 1,215 Texas manufacturers who reported to the TRI in 1994 released 250,125,829 pounds of toxic chemicals, or 11 percent of the national volume. According to the EPA (1996b), Texas nationally ranked first for air releases (127,035,700 pounds), fifth for water releases (2,719,512 pounds), and eighth for land releases (13,960,174 pounds). It ranked third for transfers 273,269,533 pounds), behind Pennsylvania and Michigan.

We are grateful to the Texas Natural Resource Conservation Commission for providing technical assistance in acquiring the TRI data and to Dr. Doug Wunneburger, in the Mapping Sciences Laboratory at Texas A&M University, for his assistance and advice regarding the use of geographical information systems software and applications. The authors are solely responsible, however, for the content of this report. Any questions or comments about the report should be directed to the authors. A copy of this report can be obtained with either black and white, or color graphics on the internet at ***http://www-txsdc.tamu.edu/tri.html***.

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THE TOXICS RELEASE INVENTORY, 1994
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INTRODUCTION

The Toxics Release Inventory (TRI) is a database which provides information to the public about releases and transfers of toxic chemical wastes from manufacturing facilities into the environment. The TRI was established under the Emergency Planning and Community Right-to-Know Act of 1986 and expanded under the Pollution Prevention Act of 1990. Facilities report their TRI information annually to EPA and to the state in which they are located.

Who Must Report to TRI?

A facility must report to the TRI if it:

- conducts manufacturing operations within Standard Industrial Classification (SIC) codes 20 through 39;
- has 10 or more full-time employees; and
- manufactures or processes more than 25,000 pounds or uses more than 10,000 pounds of any listed chemical during the calendar year.

What Must Be Reported?

Release and transfer information is reported in three sections of the TRI Form R by manufacturing facilities. Sections 5 and 6 deal with on-site releases and off-site transfers of toxic chemicals, respectively, and are the basis of this report. Information in section 8 concerns both on-site and off-site manangement of toxic chemicals which result from routine production and non-production related operations. Section 8 infomation is not presented here because of different reporting procedures used for that section and because some manufactering facilities do not consider toxic chemicals transferred off-site for recycling to be"in waste" (EPA 1996b).

Form R information includes:

- amounts of each listed chemical released to the environment at the facility;
- amounts of each chemical shipped in or as wastes from the facility to other locations for recycling, energy recovery, treatment, or disposal;
- amounts of each waste chemical recycled, burned for energy recovery, or treated at the facility;
- maximum amount of a listed chemical present on-site at the facility during the year;
- types of activities conducted at the facility involving a toxic chemical;
- source reduction activities undertaken to prevent pollution and waste generation;
- environmental permits held by the facility;
- name and telephone number of a person to contact at the facility for more information.

What Are Releases?

A release is an on-site discharge of a toxic chemical to the environment. This includes emissions to the air, discharges to bodies of water, releases at the facility to land, as well as contained disposal into underground injection wells.

Air Releases. Releases to air are reported either as stack or fugitive emissions. Stack emissions are releases to air that occur through confined air streams, such as stacks, vents, ducts, or pipes. Fugitive emissions are all releases to air that are not released through a confined air stream. Fugitive emissions include equipment leaks, evaporative losses from surface impoundments and spills, and releases from building ventilation systems.

Surface Water Releases. Releases to water include discharges to streams, rivers, lakes, oceans, and other bodies of water. This includes releases from contained sources, such as industrial process outflow pipes or open trenches. Releases due to runoff, including stormwater runoff, are also reportable to TRI.

Underground Injection. Underground injection is a contained release of a fluid into a subsurface well for the purpose of waste disposal. Most underground injection reported to TRI involves injection of waste into Class I or Class V wells. Class I wells are used to inject liquid hazardous wastes or industrial and municipal wastewaters beneath the lowermost underground source of drinking water. Class V wells are generally used to inject non-hazardous fluid into or above an underground source of drinking water. Currently, TRI reporting does not distinguish between these two types of wells, although the well types differ according to their environmental impacts.

Land Releases. Releases to land occur within the boundaries of the reporting facility. Releases to land include disposal of toxic chemicals in landfills (in which wastes are buried), land treatment/application farming (in which a waste containing a listed chemical is applied to or incorporated into soil), surface impoundments (which are uncovered holding areas used to volatilize and/or settle waste materials), and other land disposal methods (such as spills, leaks, or waste piles).

What Are Off-Site Transfers?

Facilities also report the amounts of each listed chemical as or in wastes which they ship to other locations that are geographically or physically separate from them for recycling, energy recovery, treatment, or disposal. Each type of off-site transfer is defined below. Except for off-site transfers for disposal, these quantities do not necessarily represent entry of the chemical into the environment. Transfers for treatment and disposal have been reported since 1987. Transfers for recycling and energy recovery have been reported since 1991.

Publicly Owned Treatment Works (POTWs). A POTW is a wastewater treatment facility (sewage treatment plant) that is owned by a county or municipality. Wastewaters are transferred through pipes or sewers to a POTW. Treatment or removal of a chemical from the

wastewater depends upon the nature of the chemical, as well as the treatment methods used by the POTW. Not all TRI chemicals can be treated or removed by a POTW. Some chemicals are destroyed in treatment. Others may evaporate into the atmosphere. Chemicals, such as metals, are removed but are not destroyed by treatment and may be disposed of in landfills. Some chemicals pass through the POTW and are discharged to receiving waters.

Off-Site for Recycling. Toxic chemicals sent off-site for recycling may be recovered or regenerated by a variety of methods, including solvent recovery, metals recovery, and acid regeneration. Once recycled, these chemicals may be returned to the originating facility or sold for further processing or use.

Off-Site for Energy Recovery. Toxic chemicals sent off-site for energy recovery are combusted off-site in industrial furnaces (including kilns) or boilers that generate heat or energy for use at that off-site location. Treatment of a chemical by incineration is not considered to be energy recovery.

Off-Site for Treatment. Toxic chemicals sent off-site may be treated through a variety of methods, including biological treatment, neutralization, incineration, and physical separation. These methods result in varying degrees of destruction of the toxic chemical. In some cases (such as stabilization or solidification), the chemical is not destroyed but is prepared for further waste management, such as contained disposal.

Off-Site for Disposal. Toxic chemicals sent off-site to a facility for disposal generally are either released to land or injected underground at the off-site location.

In summary, the release and transfer of toxic chemical wastes by manufacturing facilities can occur by several methods. Some methods result in the destruction of the waste chemicals, other methods do not. The volumes of toxic chemicals released in 1994 and during the period from 1988 to 1994 are reported for each method of release and transfer in subsequent parts of this report. Finally, the TRI is a dynamic or changing data set with special requirements when longitudinal patterns of releases and transfers are examined. An important requirement is that the list of waste chemicals released and transferred be comparable from one year to the next. Although use of a standardized list of chemicals under-reports the total volume of toxic waste chemicals annually released and transferred in a trend analysis, it provides an opportunity to track specific waste chemicals over the whole period for which they are reported by the TRI.

PART 1

TRI RELEASES AND TRANSFERS, 1994

The TRI list included 343 chemicals and 22 chemical categories in 1994. Manufacturing facilities filed a separate form, called a Form R, for each listed chemical they produced, processed, or used in excess of reporting thresholds. Facilities reported the amount of each listed chemical they released to the air, water, and land, as well as the amount they injected into underground disposal wells. They reported also the amount of each waste chemical transferred from the facility to elsewhere in Texas, the Nation, and to other countries, such as Mexico and Canada.

On-Site Releases

In Texas, 1,215 facilities in 138 counties filed 5,620 Form Rs. These facilities released over 250 million pounds of listed toxic chemicals into the environment in 1994. The amount and distribution of toxic chemical releases is shown in Figure 1.1 by type of release. Overall, 250,125,829 pounds of toxic chemicals were released: air (127,035,700 pounds), underground injection (106,410,443 pounds), land (13,960,174 pounds), and surface water (2,719,512 pounds). Air emissions constituted 51 percent of all toxic chemical releases. Underground injection accounted for slightly more than 43 percent of all releases, compared to1 percent to surface water and 6 percent to land.

Total Releases by County, 1994. Texas ranked first nationally in 1994 for air/water/land releases and for total releases (including underground injection). The top ten counties with the largest total quantities of reported toxic chemical releases, including and excluding releases by underground injection, are shown in Figure 1.2. These counties are located on the Texas Gulf Coast. Harris County reported the largest amount of TRI releases (54,563,827 total pounds). More than one-half of the releases in Harris County was by air emission (37,384,680 pounds). Releases for all individual counties with TRI facilities are reported by type of release in Appendix A. No TRI chemical releases were reported by the following ten counties: Camp, Fayette, Freestone, Hardeman, Jackson, Maverick, San Augustine, Tyler, Ward, and Wilson. Figure 1.2 shows also the counties with the largest quantities of reported toxic chemical releases in 1994, excluding underground injection. This alternative ranking method is presented because releases to properly designed and constructed Class I injection wells have lower exposure potentials than other, more direct release methods. Of these counties, Harris County ranked 4th nationally among the top 50 counties for total air/water/land releases; Jefferson County ranked 14th; Nueces County ranked 16th; Brazoria County ranked 21st; and Orange County ranked 33rd. Tooele, Utah had the largest volume of releases (56.1 million pounds) in 1994 (EPA 1996b).

The total amount of releases reported by facilities in these counties does not necessarily indicate that risks from toxic chemicals are highest there. For example, release totals do not take into account the geographic size of the county or the size of the county's population. Human health risks from releases of toxic chemicals depend on a variety of factors, including the type of

release, the toxicity of a chemical, the proximity of populations to the releases, and the health characteristics of individual members of the public.

Releases by Industry, 1994. In the private sector, only manufacturing facilities in Standard Industrial Classification (SIC) codes 20 through 39 were required to report to the TRI for 1994. The industry groups currently subject to TRI, along with their corresponding SIC codes are listed below. Facilities owned and operated by the Federal government were required to report for the first time in 1994; releases from these facilities are discussed in another part of this report. Other industry groups are currently under consideration by the EPA for future addition to the reporting requirements.

Standard Industrial Classification (SIC) Codes for TRI Industries

Code	Industry
20	Food and kindred products
21	Tobacco products
22	Textile mill products
23	Apparel and other finished products made from fabrics and similar materials
24	Lumber and wood products, except furniture
25	Furniture and fixtures
26	Paper and allied products
27	Printing, publishing, and allied industries
28	Chemicals and allied products
29	Petroleum refining and related industries
30	Rubber and miscellaneous plastics products
31	Leather and leather products
32	Stone, clay, glass, and concrete products
33	Primary metal industries
34	Fabricated metal products, except machinery and transportation equipment
35	Industrial and commercial machinery and computer equipment
36	Electronic and other electrical equipment and components, except computer equipment
37	Transportation equipment
38	Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks
39	Miscellaneous manufacturing industries
MC	Multiple codes (20-39) reported
NO	No codes (20-39) reported

Figure 1.3 presents the 10 industries with the largest quantities of reported toxic chemical releases, including underground injection, in 1994. The chemical industry had the most releases with over 180 million pounds, more than all other industries combined.

Total Releases by Facilities, 1994. All facilities must report the name of their parent company, if applicable, on their Form Rs. Table 1.1 lists the top ten facilities for total TRI releases, including underground injection. Collectively, these ten facilities accounted for 114,451,142 pounds, or 45.8 percent of total TRI releases in 1994. Du Pont facilities in Jefferson, Victoria, and Orange Counties released a total of 58,480,097 pounds, or 23.4 percent of all releases in the State.

Table 1.1 lists also the top ten companies/facilities for releases to air, water, and land, excluding underground injection, in 1994. These 10 companies accounted for 40,928,821 pounds, or 28.5 percent of all air/water/land releases and 16.4 percent of the total releases (including underground injection). One company in Nueces County was the leading facility with 10,013,020 pounds of releases primarily to land.

Releases by Chemical. Table 1.2 shows the ten chemicals released in the greatest quantity for each release type, aggregated media without underground injection, and aggregated total (with underground injection). For total releases, the group of ten chemicals accounted for 152,108,753 pounds, or 60.8 percent of the releases by all media. For each medium, the top ten chemicals accounted for the following pounds and percent of the medium total: 82,092,841 pounds or 64.6 percent of all air releases; 2,473,990 pounds or 91.0 percent of all surface water releases; 13,413,793 pounds or 96.1 percent of all land releases; and 90,566,025 pounds or 85.1 percent of all underground injections. Although the chemical list for each type of release varied, ammonia and methanol were listed among the top chemicals for each type of release. Ethylene glycol was listed for both land and underground injection releases, and styrene was listed for both air and water releases. The top chemical for each release medium was ethylene (air), phosphoric acid (water), chromium compounds (land), and ammonium nitrate solutions (underground injection).

Off-Site Transfer of Chemicals

Facilities must also provide information about the off-site transfer of TRI chemicals wastes during the reporting year. Texas facilities transferred nearly 274 million pounds of toxic chemicals in waste to off-site locations for recycling, energy recovery, treatment, and disposal in 1994. Figure 1.4 shows the quantity of toxic chemicals transferred to off-site locations for each type of waste management activity. Recycling accounted for 128,829,186 pounds (47%), energy recovery for 75,022,132 pounds (27%), disposal/treatment for 48,391,594 pounds (18%), and POTW for 21,026,621 pounds (8%).

Transfers by County, 1994. Transfers are reported by type for each county with TRI facilities in Appendix B. Thirty-five counties had facilities that reported no transfers for the year. Harris County had the largest amount of transfers (117,922,659 pounds, overall 43.2%) and for each type of transfer (POTW/86.4%; recycling/17.6%; energy recovery/70.5%; and disposal/treatment/50.1%)

Transfers by Industry, 1994. The top ten industries based on reported pounds of chemical transfers are shown in Figure 1.5. The chemical and primary metals industries transferred the most pounds of TRI chemicals off-site. They transferred 71.6 percent of all industry transfers in 1994.

Transfers by Chemical, 1994. The top ten chemicals reported for off-site transfers are listed in Table 1.3. These chemicals represented 153,036,251 pounds, 56 percent of the total volume of transfers.

In review, Texas ranked first nationally for total volume of releases, followed by Tennessee (155,824,043 pounds) and Louisiana (153,041,482 pounds) in 1994. It ranked fourth nationally for total transfers. Fifty-four percent of the counties in Texas had facilities that reported TRI releases and transfers to the EPA; 116 counties had no reporting facilities. The largest volumes of releases to air, water, and land occurred in Harris County (which also had the largest volume of transfers), and in Jefferson, Nueces, Brazoria, and Orange Counties during 1994. Much of this activity is owed to the economic prominence of the petrochemical and chemical industries located in these counties (U.S. Bureau of the Census 1994).

Table 1.1. Top Ten Texas Facilities for Largest Total TRI Releases, 1994

Name	City	County	Pounds
Total Releases			
Du Pont	Beaumont	Jefferson	32,869,795
Du Pont	Victoria	Victoria	21,102,730
BP Chemicals Inc.	Port Lavaca	Calhoun	11,402,049
American Chrome & Chemicals	Corpus Christi	Nueces	10,013,020
Monsanto Co.	Alvin	Brazoria	8,314,020
Sterling Chemicals Inc.	Texas City	Galveston	8,227,811
Hoechst Celanese Chemical	Pasadena	Harris	7,446,240
Dow Chemical Co.	Freeport	Brazoria	6,201,750
Du Pont	Orange	Orange	4,507,572
Celanese Eng. Resins Inc.	Bishop	Nueces	4,366,155
Top 10 Total			**114,451,142**
Air/Water/Land Releases			
American Chrome & Chemicals	Corpus Christi	Nueces	10,013,020
Dow Chemical Co.	Freeport	Brazoria	6,201,750
Eastman Chemical Co.	Longview	Harrison	3,906,880
Shell Oil Co.	Deer Park	Harris	3,634,295
Mobil Chemical Co. O/A	Beaumont	Jefferson	3,327,406
Mobil Oil Beaumont Refinery	Beaumont	Jefferson	3,293,409
Hoechst Celanese Chemical	Pasadena	Harris	2,982,890
Du Pont	Orange	Orange	2,715,845
Rexene Corp.	Odessa	Ector	2,434,314
Union Carbide Corp.	Seadrift	Calhoun	2,419,012
Top 10 Total			**40,928,821**

Table 1.2. Top Ten Chemicals by Release Media in Texas, 1994

Air

Chemical	Pounds
ETHYLENE	20,156,877
PROPYLENE	12,441,998
METHANOL	10,529,968
AMMONIA	8,659,683
TOLUENE	8,126,349
XYLENE (MIXED ISOMERS)	6,170,271
METHYL ETHYL KETONE	5,223,592
STYRENE	3,876,532
BENZENE	3,531,974
CYCLOHEXANE	3,375,597
Top 10 Total	**82,092,841**

Water

Chemical	Pounds
PHOSPHORIC ACID	1,100,545
AMMONIA	637,585
ZINC COMPOUNDS	454,492
METHANOL	97,998
METHYL TERT-BUTYL ETHER	41,788
CHLORINE	41,078
DIETHANOLAMINE	28,300
PHENOL	27,285
MOLYBDENUM TRIOXIDE	22,988
STYRENE	21,931
Top 10 Total	**2,473,990**

Land

Chemical	Pounds
CHROMIUM COMPOUNDS	10,230,958
AMMONIA	743,461
METHANOL	689,334
LEAD COMPOUNDS	474,780
4,4'-ISOPROPYLIDENEDIPHENOL	394,000
MANGANESE COMPOUNDS	290,653
ZINC COMPOUNDS	207,811
STYRENE	196,731
ETHYLENE GLYCOL	101,052
XYLENE (MIXED ISOMERS)	85,013
Top 10 Total	**13,413,793**

Underground Injection

Chemical	Pounds
AMMONIUM NITRATE (SOLUTION)	24,084,418
AMMONIA	16,702,397
NITRIC ACID	15,179,505
METHANOL	8,801,203
ACETONITRILE	7,176,879
FORMIC ACID	6,854,034
ETHYLENE GLYCOL	3,731,383
PHENOL	2,821,222
ACRYLONITRILE	2,616,170
ACRYLAMIDE	2,598,814
Top 10 Total	**90,566,025**

Total Air/Water/Land

Chemical	Pounds
ETHYLENE	20,156,914
PROPYLENE	12,442,002
METHANOL	11,317,300
CHROMIUM COMPOUNDS	10,275,655
AMMONIA	10,040,729
TOLUENE	8,184,573
XYLENE (MIXED ISOMERS)	6,262,427
METHYL ETHYL KETONE	5,229,094
STYRENE	4,095,194
BENZENE	3,551,934
Top 10 Total	**91,555,822**

Total Releases

Chemical	Pounds
AMMONIA	26,743,126
AMMONIUM NITRATE (SOLUTION)	24,091,227
ETHYLENE	20,156,914
METHANOL	20,118,503
NITRIC ACID	15,255,568
PROPYLENE	12,442,002
CHROMIUM COMPOUNDS	10,283,454
TOLUENE	8,493,917
ACETONITRILE	7,515,067
FORMIC ACID	7,008,975
Top 10 Total	**152,108,753**

Table 1.3. Top Ten TRI Chemicals Transferred Offsite in Texas, 1994

Chemical	Pounds
TERT-BUTYL ALCOHOL	29,395,514
ZINC COMPOUNDS	26,091,183
METHANOL	20,189,859
LEAD COMPOUNDS	15,738,232
ZINC (FUME OR DUST)	15,438,002
COPPER	12,800,592
COPPER COMPOUNDS	11,434,256
ETHYLENE	9,987,301
DIETHYL SULFATE	6,180,476
HYDROCHLORIC ACID	5,780,836
TOP 10 TOTAL	**153,036,251**

Figure 1.1. Quantity and Distribution of Releases in Texas, 1994

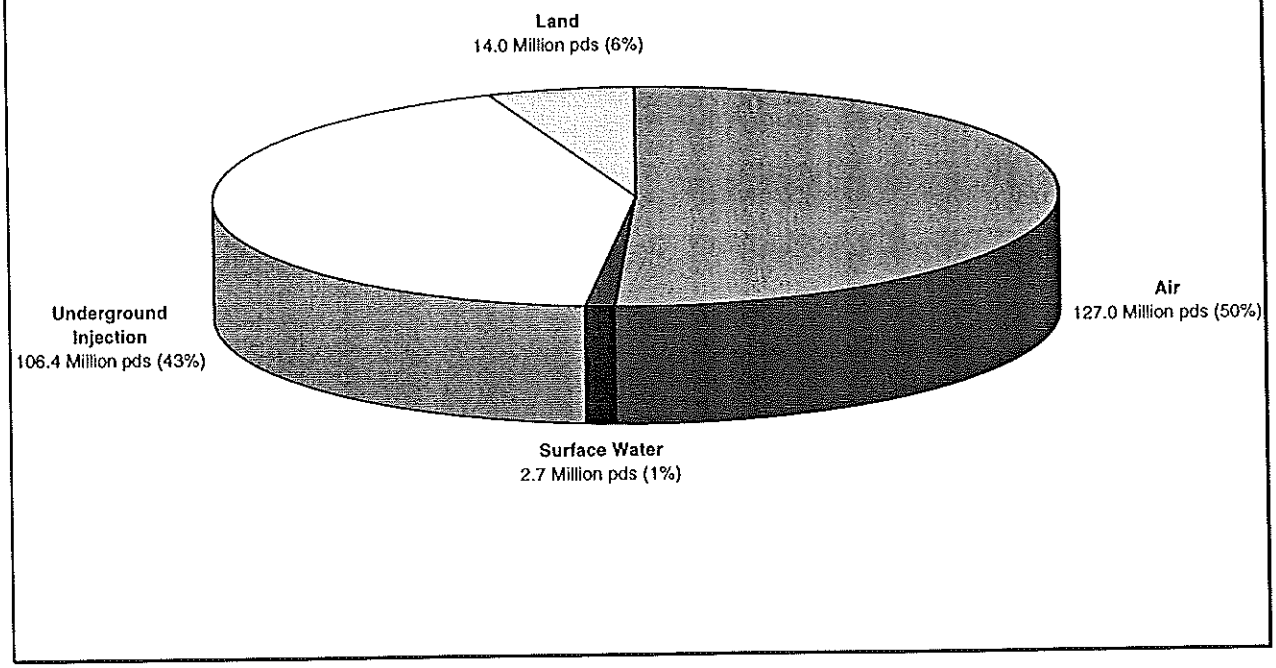


Figure 1.2. Top Ten Texas Counties for Largest Total TRI Releases (including underground injection), 1994

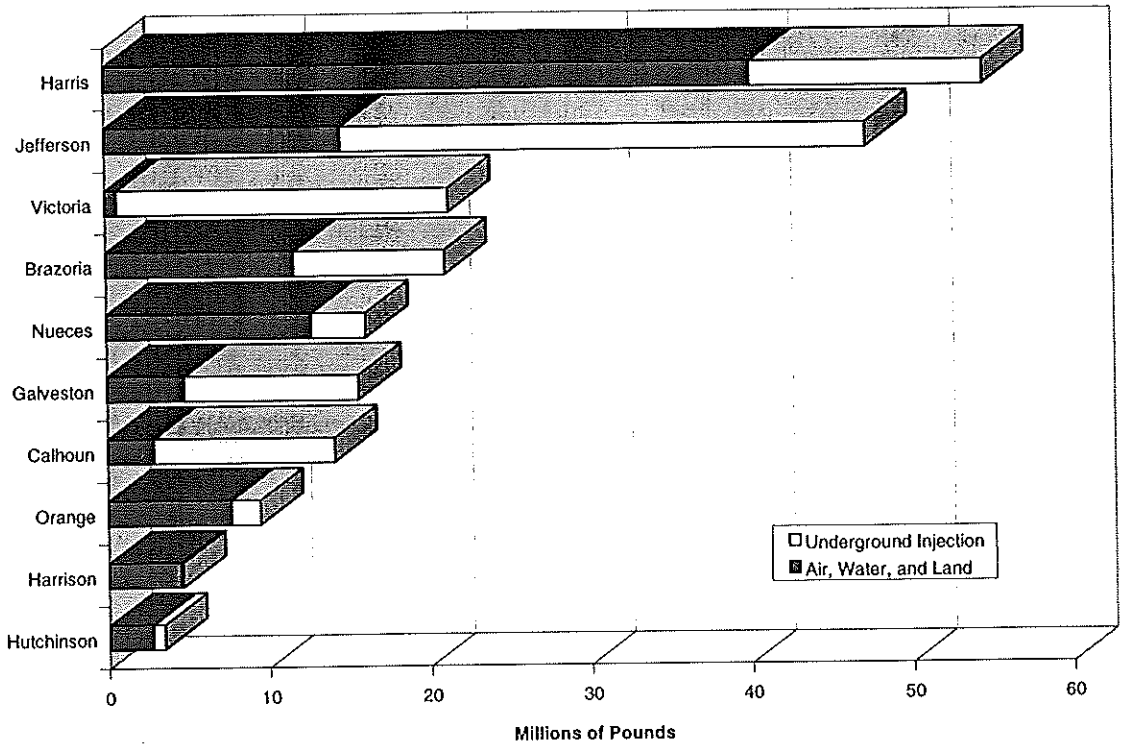


Figure 1.3. Top Ten Texas Industries Total Releases (including underground injection), 1994

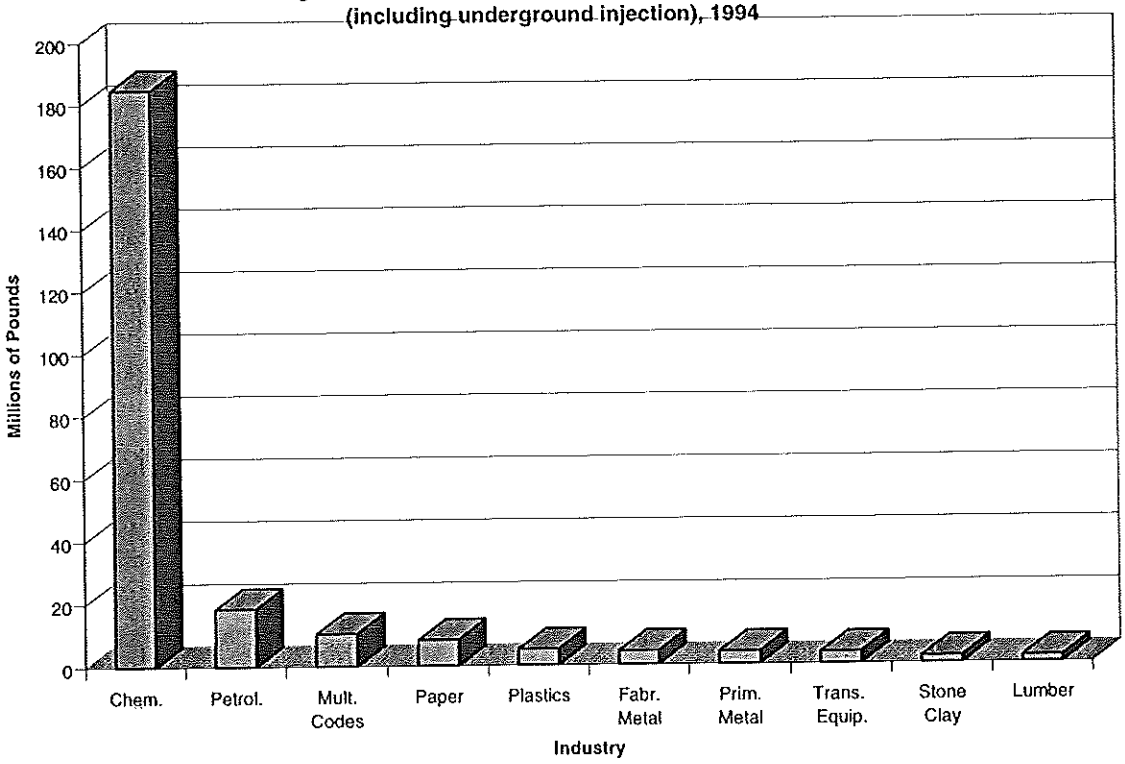


Figure 1.4. Off-site Transfers of TRI Chemicals in Texas, 1994

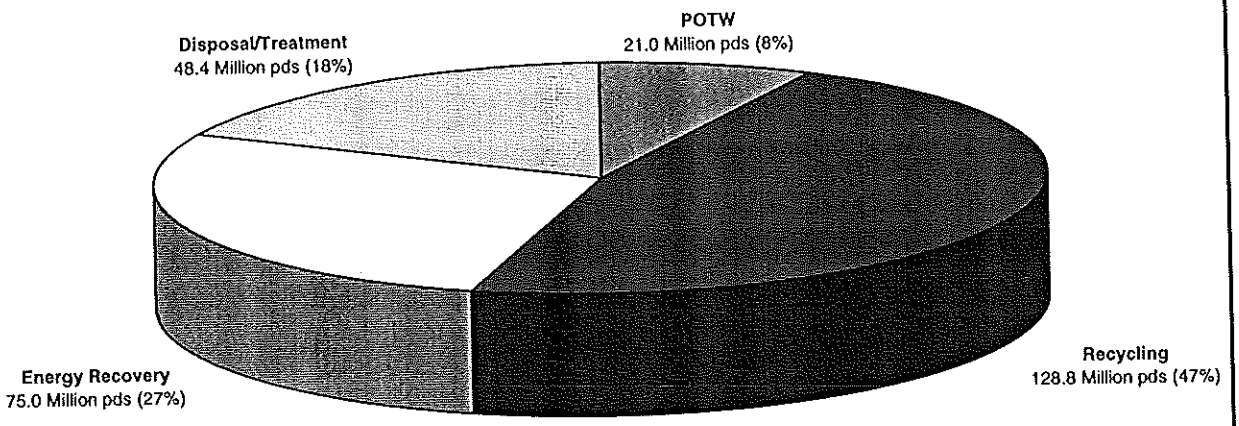
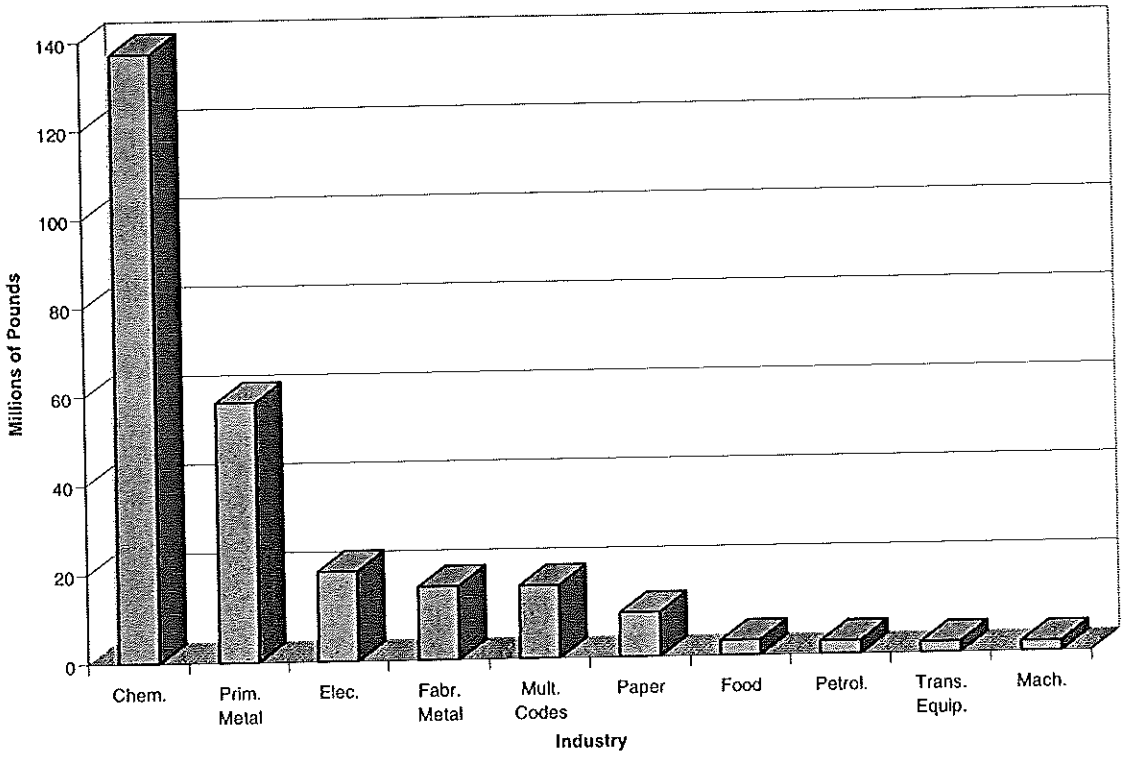


Figure 1.5. Top Ten Texas Industries' Total Transfers, 1994



PART 2

YEAR-TO-YEAR COMPARISON OF RELEASES AND TRANSFERS

Changes in the volume of TRI releases and transfers are examined first for the period of 1993 to 1994 and then for the period of 1988 to 1994. Because the numbers and types of toxic chemicals varied in each of these periods, the chemical list was standardized for the two-year and six-years periods. Chemicals used for comparisons in these analyses are listed in Appendix C.

Total TRI Releases and Transfers, 1993-1994 (Includes Underground Injection)

Reported toxic chemical releases decreased by nearly 8.6 percent nationally and 2.0 percent in Texas between 1993 and 1994. Transfers increased by nearly 7.4 percent in the U.S. and 5.6 percent in Texas during this period. Table 2.1 shows the change in Texas from 1993 to 1994 in release and transfer quantities. Land (-12.4%) and air (-8.4%) releases declined compared to increases in water releases (266.3%) and underground injection (8.9%). Transfers increased for recycling (13.9%), POTWs (12.2%) and disposal/treatment (9.8%). Energy recovery transfers declined (-9.2%).

Change by County, 1993-1994. Figure 2.1 is a map of all counties and their percentages of change in releases. Appendix D lists the counties and their volumes and percentages of change by type of release. Overall, 71 of 138 counties had facilities that reported decreases in the volume of their releases from 1993 to 1994; 45 counties had increased emissions; 22 counties had either no releases or no change in the volume of their emissions. Counties that had the greatest decline by total volume (> 1 million pounds per county) were: Nueces, Harris, Matagorda, Galveston, and Victoria Counties. Jefferson and Calhoun Counties had the greatest increases in total volume (> 1 million pounds per county) of TRI releases.

Changes in the volume of toxic transfers are shown in Figure 2.2 by county. Appendix E lists the changes in the volume of TRI transfers by county and type of transfer. Fifty-three counties experienced declines, 48 counties had increases, and 37 had no change in the amounts of total transfers from 1993 to 1994. Harris, Victoria, and Ector Counties had the largest decreases (> 1 million pounds per county) in pounds of transfers. El Paso, Dallas, Brazoria, and Calhoun Counties had the largest increases in total volume (> 1 million pounds per county) of transfers.

Change by Chemical, 1993-1994. Changes in the volumes of releases and transfers of the top five chemicals are shown in Table 2.2. Although Texas had a total net decline in the volume of releases from 1993 to 1994, all of the chemicals shown in the table increased in total pounds of releases and transfers during the period. Excluding releases by underground injection, methanol, propylene, phosphoric acid, carbonyl sulfide, and zinc compounds had the largest increases among releases to air, water, and land. For all types of releases (including underground injection), the top chemicals were ammonium nitrate, acetonitrile, propylene, phosphoric acid, and acrylamide; they had an increase of 13.3 million pounds. The chemicals that had the largest

volume increase (18.8 million pounds) among transfers were: zinc, copper, lead compounds, zinc compounds, and methanol.

Change by Industry, 1993-1994. Volume and percentage of change for total releases (including underground injection) are reported in Table 2.3 by type of release for each industry. Thirteen of 21 industrial categories reported net reductions of releases. Excluding industries with multiple and no reported SIC codes, the petroleum and chemical industries had the largest net declines in pounds (> 1 million pounds) released. Most of their declines occurred in releases to air. The chemical industry also had a large decrease of releases to land. The chemical industry offset most of its reductions with increases by underground injection and releases to water. The paper industry had the largest net increase (> 1 million pounds), particularly in air and water releases since 1993.

Changes in the volume and percentages of transfers are reported in Table 2.4 by industry. Nine of 21 industrial categories reported reductions in the volume of transfers; 12 reported net increases. The chemical and fabricated metals industries reported the largest declines in total pounds (each > 5 million pounds) of transfers. The primary metals and electronics industries (also the multiple codes) accounted for the largest total increases in pounds (each > 4 million pounds) of transfers from 1993 to 1994. Substantial net increases occurred in recycling and transfers to disposal and treatment facilities, contrasted with a large net decrease in transfers to energy recovery.

Total TRI Releases and Transfers, 1988-1994 (Includes Underground Injection)

Since 1988, the EPA's baseline year for TRI comparisons, releases declined by 44.1 percent nationally. Five states (Kansas, New Hampshire, Alaska, Colorado, and Louisiana) reduced their releases by more than 70 percent; 22 states decreased their releases by more than 50 percent. Texas releases of toxic chemicals had a net decline of 31.7 percent over the six-year period. Figure 2.3 shows the annual changes in the volume of Texas' releases and transfers of 290 TRI chemicals standardized for the six-year period (see Appendix C). Table 2.5 illustrates the change in each release type in Texas between 1988 and 1994. Air emissions declined 75.1 million pounds (-39.5%). Land releases declined 20.0 million pounds (-60.2%) and underground injections declined 3.9 million pound (-4.5%). The volume of toxic chemicals released to surface water increased .5 million pounds (28.2%). Table 2.5 shows also a reduction of 41.9 million pounds of transfers (-40.8%) during this period.

Change by County, 1988-1994. The percent change over the six-year period in total releases is shown by county in Figure 2.4. Eighty-three counties decreased the amount of their TRI releases, compared to 50 counties with increased releases. Fifty-one counties had reductions greater than or equal to 50 percent. Appendix F lists the change in the volume of releases by type of release for each county over the six-year period. Counties with the greatest volume of reductions (> 4 million pounds) were in descending order: Harris, Brazoria, Nueces, Guadalupe, Victoria, Harrison, Brown, Ellis, Calhoun, Tarrant, Dallas, Galveston, and Orange Counties. Jefferson and Wichita Counties had the largest increases (each > 1 million pounds) in releases.

Changes in toxic chemical transfers over the six-year period are reported in Figure 2.5. Appendix G lists the six-year changes in TRI transfers by county. Standardization of the types of transfers for the time period resulted in data reported for transfers to only POTW disposal and treatment facilities because reporting for recycling and energy recovery was not required in 1988. Sixty-four counties reduced the amount of their transfers; 32 counties had net increases of transfers (18 of these counties had increases > 1,000%); and 46 counties had no change in the volume of their transfers between 1988 and 1994. Harris, Orange, Jefferson, Galveston, Dallas, and Tarrant Counties had the largest reductions (> 1 million pounds), compared to Victoria, Leon, San Patricio, Guadelupe, and Matagorda Counties with the largest increases of transfers (> .3 million pounds).

Change by Chemical, 1988-1994. Table 2.6 lists the five chemicals with the largest volume of increases in releases (including underground injection for total releases) and transfers for the six-year period. The largest total increases in releases by volume occurred with ammonium nitrate (solution), acetonitrile, acrylamide, phosphoric acid, and carbonyl sulfide. Transfers of ethylene glycol, acetonitrile, chromium compounds, vinyl acetate, and diaminotoluence were the largest by volume since 1988.

Change by Industry, 1988-1994. Amounts and percentages of change since 1988 are shown in Table 2.7 by types of release and industry. Net reductions occurred by each type of release, except by water. Releases to water had a net increase of 455,609 pounds. The chemical industry experienced the largest decrease in pounds of releases (58 million pounds) since 1988; total releases have decreased 27 percent since 1988. The primary metals industry had the next largest reduction, 18.4 million pounds or an 84 percent decrease. The textiles industry had the largest percentage decline (-94.5%), compared to the apparel (> 1,000%), leather (239.2%), plastics (48.9%), and lumber (6.3%) industries which experienced net increases of releases.

The six-year change in the volume of transfers are reported by types of transfer and industry in Table 2.8. Net reductions exceeded 20 million pounds for each type of transfer. All industries reported net reductions in transfers, except the leather industry and facilities reporting multiple SIC codes and no codes. The chemical (-29.7 million pounds), paper (-2.2 million pounds), primary metals (-1.6 million pounds), and transportation equipment (-1.4 million pounds) industries reported the largest reductions by volume.

Overall, these comparisons were based on a standardized list of TRI chemicals for the description of short-term change from 1993 to 1994 and a different list of waste chemicals standardized for the long-term period 1988 to 1994. In both the short- and long-terms, the volumes of releases of TRI chemicals declined in Texas. Transfers of TRI chemicals increased, however, from 1993 to 1994, but declined for the 290 waste chemicals examined over the long term. Although a major source of releases and transfers of toxic chemical wastes, the chemical industry, particularly those facilities located along the Texas Gulf Coast, reported the greatest net reductions in the volumes of releases and transfers over both time periods.

Table 2.1. Change in Releases and Transfers in Texas, 1993-1994

Type	Pounds	Percent
Releases		
Air	-10,587,954	-8.35
Water	1,509,661	266.28
Underground Injection	6,711,978	8.89
Land	-1,872,909	-12.44
Total On-site Releases	**-4,239,224**	**-1.95**
Transfers		
POTW	1,989,160	12.19
Recycling	15,690,367	13.91
Energy Recovery	-7,560,378	-9.19
Disposal/Treatment	3,998,232	9.78
Total Off-site Transfers	**14,117,381**	**5.60**

Table 2.2. Top Five Chemical Increases in Releases and Transfers in Texas, 1993-1994*

Chemical	Pounds	Percent
Air/Water/Land		
METHANOL	1,533,948	15.70
PROPYLENE	1,333,425	12.00
PHOSPHORIC ACID	1,070,415	1,000.00
CARBONYL SULFIDE	849,914	223.47
ZINC COMPOUNDS	508,210	134.94
Total Releases		
AMMONIUM NITRATE (SOLUTION)	8,507,082	54.59
ACETONITRILE	1,378,677	22.47
PROPYLENE	1,333,425	12.00
PHOSPHORIC ACID	1,070,415	1,000.00
ACRYLAMIDE	990,501	61.48
Total Transfers		
ZINC (FUME OR DUST)	6,987,908	82.70
COPPER	3,997,471	45.41
LEAD COMPOUNDS	3,959,824	33.62
ZINC COMPOUNDS	2,268,401	9.52
METHANOL	1,615,765	8.70

*Changes >1,000% are reported as 1,000%.

Table 2.3. Change in Total Releases by Industry in Texas, 1993-1994*

Industry	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
Food	-10,199	-10.49	319	125.10	0	0.00	-755	-100.00	-10,635	-10.80
Textiles	-3,787	-39.44	-1,000	-57.14	0	0.00	-293	-100.00	-5,080	-43.63
Apparel	-9,731	-4.77	0	0.00	0	0.00	0	0.00	-9,731	-4.77
Lumber	452,079	26.58	-4,585	-96.42	0	0.00	486	156.27	447,980	26.26
Furniture	65,791	13.24	0	0.00	0	0.00	0	0.00	65,791	13.24
Paper	1,058,297	17.69	5,385	14.53	0	0.00	369,483	1,000.00	1,433,165	23.76
Printing	16,642	2.87	0	0.00	0	0.00	0	0.00	16,642	2.87
Chemicals	-6,716,110	-9.39	1,056,493	344.05	6,210,295	8.30	-1,811,274	-14.40	-1,260,596	-0.79
Petroleum	-1,826,146	-11.80	16,227	13.75	64,743	11.98	27,626	9.55	-1,717,550	-10.46
Plastics	-195,575	-3.78	95	950.00	0	0.00	-500	-19.96	-195,980	-3.79
Leather	6,500	5.38	0	0.00	0	0.00	2,915	178.07	9,415	7.70
Stone/Clay	164,295	15.60	-122	-63.21	0	0.00	-119,663	-30.71	44,510	3.08
Prim. Metals	127,148	6.86	433,998	1,000.00	27,235	20.53	-34,835	-4.21	553,546	19.53
Fabr. Metals	-291,396	-6.78	-455	-9.71	0	0.00	52,894	26.06	-238,957	-5.30
Machinery	91,404	11.04	763	58.07	0	0.00	0	0.00	92,167	11.12
Electronics	-231,070	-26.81	3,986	38.56	0	0.00	-6,355	-74.02	-233,439	-26.50
Trans. Equip.	-485,600	-11.59	500	65.79	0	0.00	0	0.00	-485,100	-11.58
Meas./Photo.	-323,896	-45.98	0	0.00	0	0.00	0	0.00	-323,896	-45.98
Miscell.	-4,517	-13.55	0	0.00	0	0.00	0	0.00	-4,517	-13.55
Mult. Codes	-1,068,678	-11.22	-1,884	-3.17	409,705	1,000.00	-343,461	-46.55	-1,004,318	-9.72
No Codes	-1,403,405	-67.42	-59	-100.00	0	0.00	-9,177	-97.35	-1,412,641	-67.56
Total										
Increase	**1,982,156**	(---)	**1,517,766**	(---)	**6,711,978**	(---)	**453,404**	(---)	**2,663,216**	(---)
Decrease	**-12,570,110**	(---)	**-8,105**	(---)	**0**	(---)	**-2,326,313**	(---)	**-6,902,440**	(---)
Net	**-10,587,954**	(---)	**1,509,661**	(---)	**6,711,978**	(---)	**-1,872,909**	(---)	**-4,239,224**	(---)

*Changes >1,000% are reported as 1,000%.

Table 2.4. Change in Total Transfers by Industry in Texas, 1993-1994*

Industry	POTW		Recycling		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
Food	4,913	5.14	-211,641	-80.39	0	0.00	-177,350	-92.54	-384,078	-69.76
Textiles	0	0.00	0	0.00	-7,400	-31.62	-2,855	-100.00	-10,255	-39.06
Apparel	500	200.00	0	0.00	1,991	4.14	0	0.00	2,491	5.16
Lumber	145	37.76	0	0.00	-61,073	-33.44	557,474	141.33	496,546	85.99
Furniture	0	0.00	3,015	6.57	178,216	1,000.00	1,380	1,000.00	182,611	389.72
Paper	562,813	6.60	17,333	1,000.00	47,618	78.44	-4,611	-34.41	623,153	7.24
Printing	3,702	1,000.00	16,213	62.26	-79,975	-96.04	19,816	382.33	-40,244	-35.15
Chemicals	1,183,595	17.21	-5,889,862	-18.51	-7,122,379	-9.27	5,079,978	19.02	-6,748,668	-4.74
Petroleum	-19,357	-11.26	479,813	52.54	4,514	7.88	-444,957	-26.17	20,013	0.70
Plastics	-53,801	-53.84	29,181	10.95	-101,624	-31.83	-150,052	-21.44	-276,296	-19.96
Leather	9,109	328.84	-767	-100.00	0	0.00	0	0.00	8,342	235.85
Stone/Clay	-5,469	-13.63	11,688	45.84	2,150	25.47	-5,550	-4.95	2819	1.51
Prim. Metals	-6,624	-80.74	16,427,724	41.07	175,834	77.93	709,983	80.63	17,306,917	42.10
Fabr. Metals	33,569	544.95	-5,062,163	-28.49	122,285	23.29	-226,474	-7.12	-5,132,783	-23.89
Machinery	-4,411	-52.83	34,741	1.68	-44,044	-89.69	-11,544	-9.72	-25,258	-1.12
Electronics	116,220	86.26	3,787,489	28.20	163,668	11.72	127,709	16.79	4,195,086	26.68
Trans. Equip.	-13,399	-35.15	46,542	6.21	249,030	31.24	-131,077	-30.24	151,096	7.49
Meas./Photo.	-2,010	-3.35	-123,761	-87.09	-40,500	-100.00	10,936	29.65	-155,335	-55.58
Miscell.	-3,594	-87.79	29,110	67.23	-12,600	-100.00	1,985	397.00	14,901	24.63
Mult. Codes	190,575	82.76	7,383,829	198.03	-1,006,003	-64.85	-1,270,950	-23.25	5,297,451	48.27
No Codes	-7,316	-90.59	-1,288,117	-85.30	-30,086	-87.64	-85,609	-47.09	-1,411,128	-81.37
Total										
Increase	**2,105,141**	(---)	**28,266,678**	(---)	**945,306**	(---)	**6,509,261**	(---)	**28,301,426**	(---)
Decrease	**-115,981**	(---)	**-12,576,311**	(---)	**-8,505,684**	(---)	**-2,511,029**	(---)	**-14,184,045**	(---)
Net	**1,989,160**	(---)	**15,690,367**	(---)	**-7,560,378**	(---)	**3,998,232**	(---)	**14,117,381**	(---)

*Changes >1,000% are reported as 1,000%.

Table 2.5. Change in Releases and Transfers in Texas, 1988-1994

Type	Pounds	Percent
Releases		
Air	-75,070,834	-39.46
Water	455,609	28.17
Underground Injection	-3,861,141	-4.49
Land	-19,955,662	-60.21
Total On-site Releases	**-98,432,028**	**-31.65**
Transfers		
POTW	-20,045,078	-52.47
Disposal/Treatment	-21,858,916	-33.82
Total Off-site Transfers	**-41,903,994**	**-40.75**

Table 2.6. Top Five Chemical Increases in Releases and Transfers in Texas, 1988-1994*

Chemical	Pounds	Percent
Air/Water/Land		
PHOSPHORIC ACID	920,957	365.36
CARBONYL SULFIDE	697,241	130.82
1,2,4-TRIMETHYLBENZENE	180,464	57.14
METHYL TERT-BUTYL ETHER	134,815	10.46
VINYL CHLORIDE	105,691	61.91
Total Releases		
AMMONIUM NITRATE (SOLUTION)	20,784,055	628.45
ACETONITRILE	4,207,780	127.23
ACRYLAMIDE	1,282,568	97.24
PHOSPHORIC ACID	920,957	365.36
CARBONYL SULFIDE	697,241	130.82
Total Transfers		
ETHYLENE GLYCOL	2,667,216	104.27
ACETONITRILE	903,933	471.12
CHROMIUM COMPOUNDS	882,820	165.71
VINYL ACETATE	819,674	510.62
DIAMINOTOLUENE	656,400	1,000.00

*Changes >1,000% are reported as 1,000%.

Table 2.7. Change in Total Releases by Industry in Texas, 1988-1994*

Industry	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
Food	-2,0877	-19.34	-21,813	-97.44	250	1,000.00	-128,136	-100.00	-170,576	-66.00
Textiles	-113,936	-95.14	750	1,000.00	0	0.00	0	0.00	-113,186	-94.52
Apparel	194,224	1,000.00	0	0.00	0	0.00	0	0.00	194,224	1,000.00
Lumber	121,766	6.41	40	1,000.00	0	0.00	-2,203	-73.43	119,603	6.28
Furniture	-77,832	-12.15	-250	-100.00	0	0.00	0	0.00	-78,082	-12.19
Paper	-1,337,815	-15.96	-90,861	-68.16	0	0.00	-84,905	-18.23	-1,513,581	-16.86
Printing	-843,088	-58.53	0	0.00	0	0.00	0	0.00	-843,088	-58.53
Chemicals	-51,615,440	-44.55	197,568	17.00	-4,648,633	-5.43	-2,203,916	-17.00	-58,270,421	-27.03
Petroleum	-3,875,287	-22.12	667	0.50	585,972	1,000.00	-936,280	-74.72	-4,224,928	-22.32
Plastics	1,606,900	48.93	-145	-58.00	0	0.00	-190	-8.66	1,606,565	48.88
Leather	97,311	325.45	0	0.00	0	0.00	-4,389	-49.09	92,922	239.24
Stone/Clay	-504,637	-29.30	-448	-86.32	0	0.00	47,942	21.59	-457,143	-23.51
Prim. Metals	-3,586,633	-64.43	386,659	563.78	111,480	230.38	-15,349,676	-95.09	-18,438,170	-84.48
Fabr. Metals	-3,558,751	-47.03	2,596	158.97	-13,403	-100.00	100,035	64.18	-3,469,523	-44.84
Machinery	-2,266,715	-71.21	1,571	310.47	0	0.00	0	0.00	-2,265,144	-71.15
Electronics	-1,592,613	-71.63	-11,370	-44.25	0	0.00	-9,257	-80.59	-1,613,240	-71.36
Trans. Equip.	-2,649,936	-41.71	1,260	1,000.00	-245	-98.00	0	0.00	-2,648,921	-41.70
Meas./Photo.	-335,742	-69.32	-250	-100.00	0	0.00	0	0.00	-335,992	-69.34
Misc.	-332,598	-92.03	0	0.00	0	0.00	0	0.00	-332,598	-92.03
Mult. Codes	-4,589,432	-35.24	-9,576	-14.26	104,250	32.60	-1,382,987	-77.81	-5,877,745	-38.70
No Codes	210,297	44.95	-789	-100.00	-812	-100.00	-1,700	-87.18	206,996	43.91
Total										
Increase	**2,230,498**	(---)	**591,111**	(---)	**801,952**	(---)	**147,977**	(---)	**2,220,310**	(---)
Decrease	**-77,301,332**	(---)	**-135,502**	(---)	**-4,663,093**	(---)	**-20,103,639**	(---)	**-100,652,338**	(---)
Net	**-75,070,834**	(---)	**455,609**	(---)	**-3,861,141**	(---)	**-19,955,662**	(---)	**-98,432,028**	(---)

*Changes >1,000% are reported as 1,000%.

Table 2.8. Change in Total Transfers by Industry in Texas, 1988-1994*

Industry	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
Food	-274,778	-73.21	-60,563	-80.91	-335,341	-74.49
Textiles	0	0.00	-55,250	-100.00	-55,250	-100.00
Apparel	-9,250	-92.50	-4,510	-100.00	-13,760	-94.83
Lumber	-4,715	-100.00	-191,449	-90.38	-196,164	-90.59
Furniture	376	60.26	-224,525	-99.39	-224,149	-98.95
Paper	-2,096,577	-18.73	-138,795	-94.04	-2,235,372	-19.71
Printing	-23,806	-86.54	-6,257	-20.02	-30,063	-51.16
Chemicals	-14,292,984	-64.38	-15,368,477	-32.93	-29,661,461	-43.07
Petroleum	-2,622,875	-94.50	-2,054,449	-62.08	-4677,324	-76.87
Plastics	27,636	149.40	-170486	-28.17	-142,850	-22.90
Leather	11,865	1,000.00	0	0.00	11,865	1,000.00
Stone/Clay	-105,294	-75.23	-13,478	-11.22	-118,772	-45.67
Prim. Metals	-15,374	-90.68	-1,542,930	-49.24	-1,558,304	-49.46
Fabr. Metals	-215,980	-84.46	-444,738	-13.08	-660,718	-18.07
Machinery	-39,303	-90.89	-581,753	-85.76	-621,056	-86.06
Electronics	161,011	179.01	-590,362	-39.93	-429,351	-27.37
Trans. Equip.	-232,267	-90.38	-1,154,094	-79.24	-1,386,361	-80.91
Meas./Photo.	-30,616	-34.55	-29,126	-37.85	-59,742	-36.08
Misc.	500	1,000.00	-140,566	-100.00	-140,066	-99.64
Mult. Codes	-257,772	-37.98	833,093	29.71	575,321	16.52
No Codes	-24,875	-97.04	79,799	486.99	54,924	130.71
Total						
Increase	**201,388**	(---)	**912,892**	(---)	**642,110**	(---)
Decrease	**-20,246,466**	(---)	**-22,771,808**	(---)	**-42,546,104**	(---)
Net	**-20,045,078**	(---)	**-21,858,916**	(---)	**-41,903,994**	(---)

*Changes >1,000% are reported as 1,000%.

Figure 2.1. Percent Change in Total Releases by County, 1993-1994

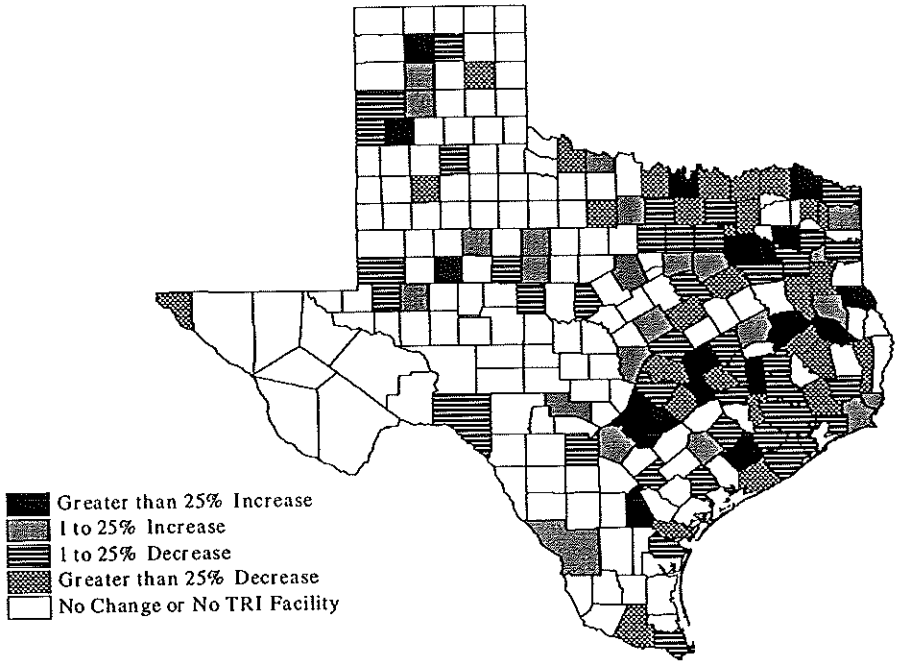


Figure 2.2. Percent Change in Total Transfers by County, 1993-1994

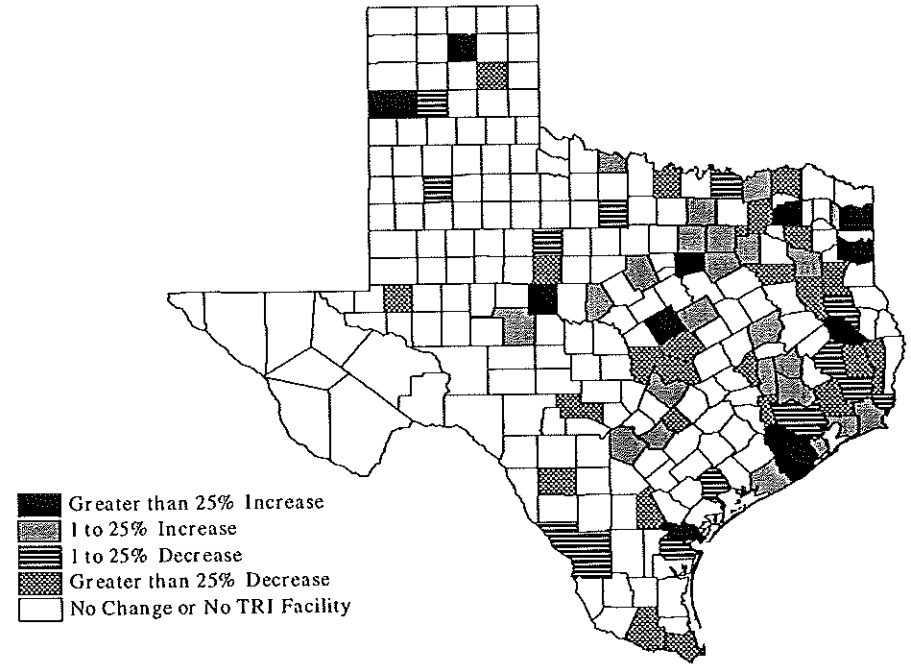
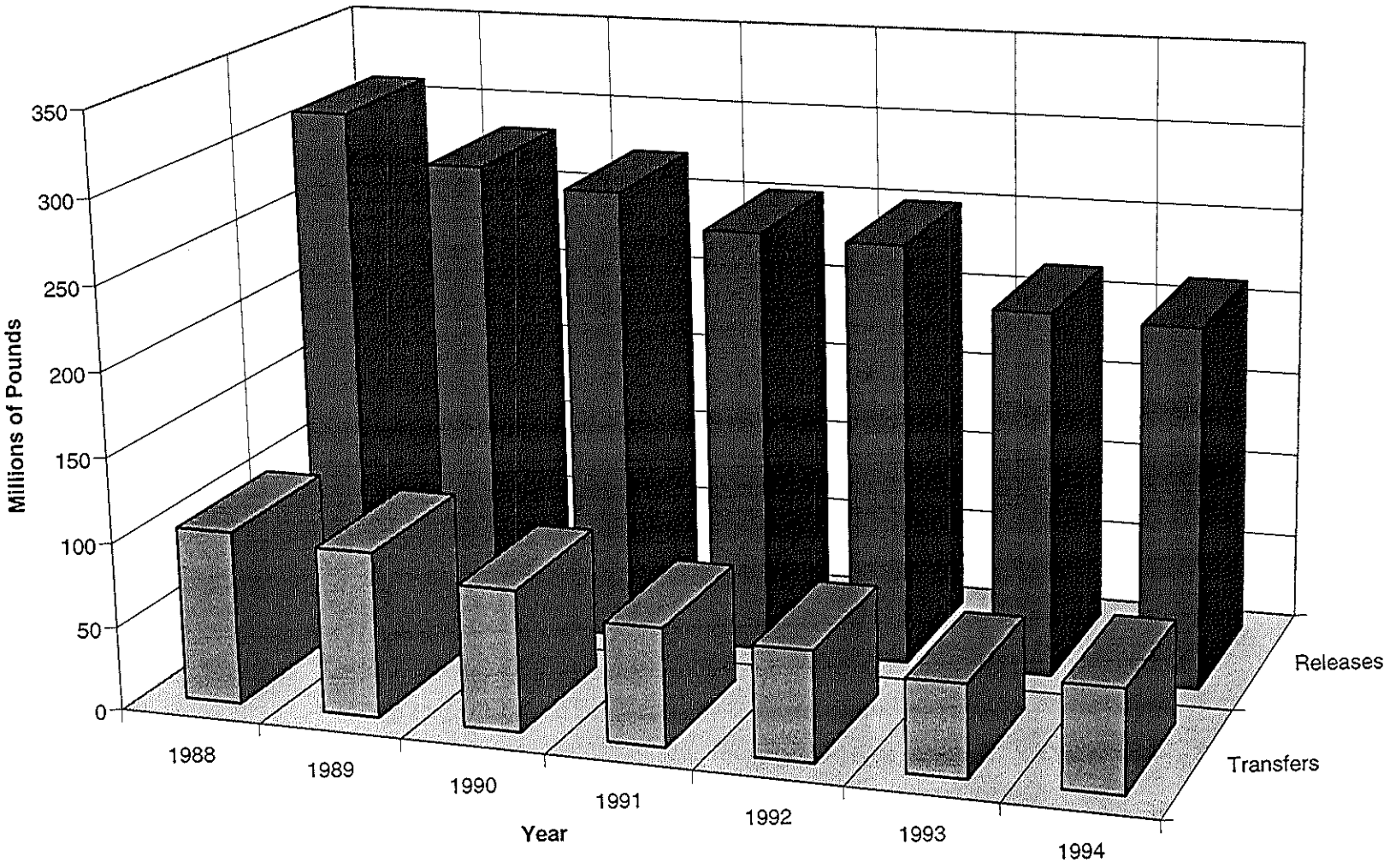


Figure 2.3. TRI Releases and Transfers in Texas from 1988-1994*



*Standardized with 1988 chemical list.

Figure 2.4. Percent Change in Total Releases by County, 1988-1994

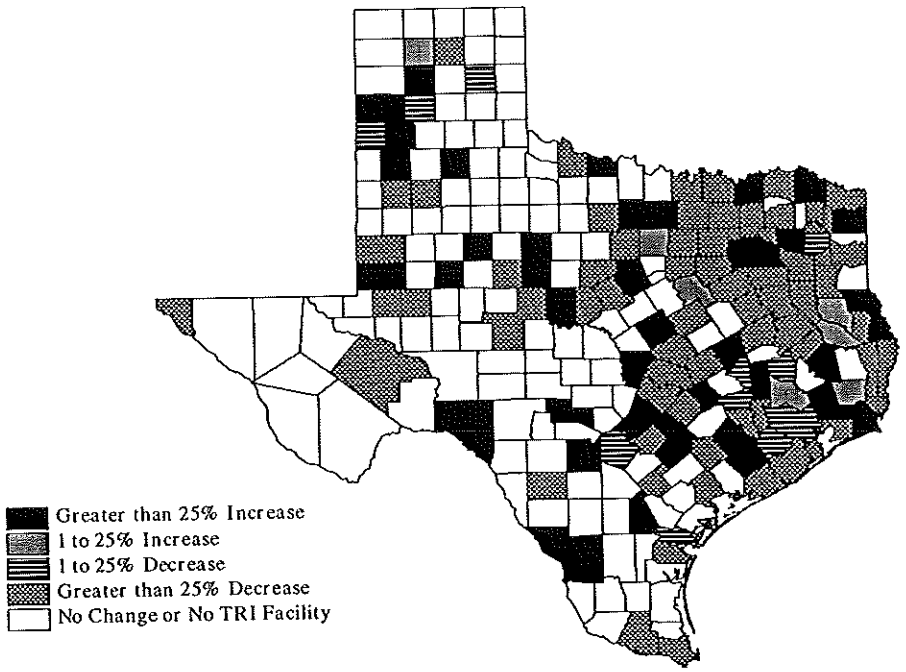
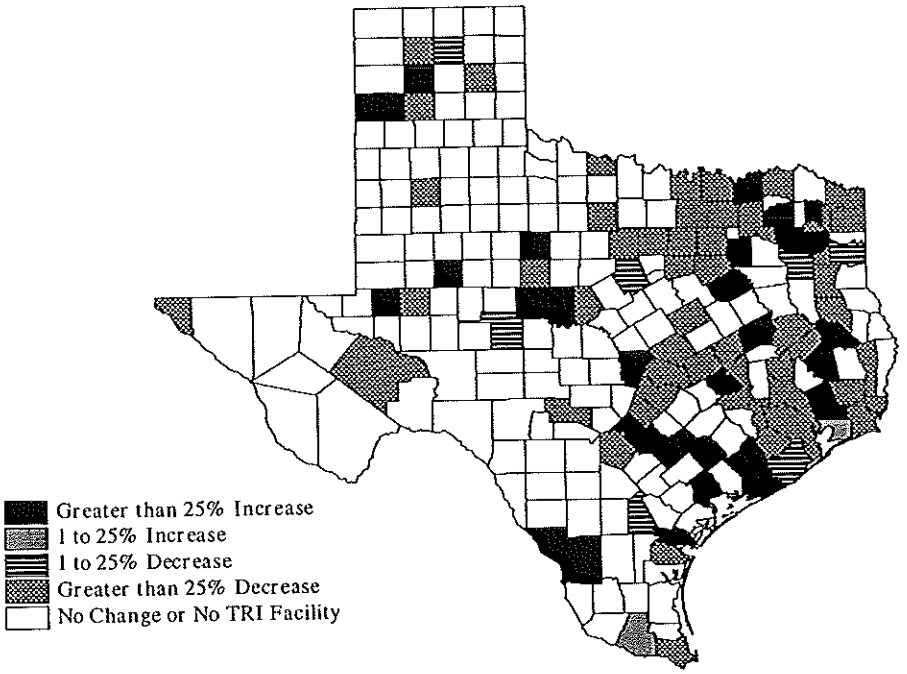


Figure 2.5. Percent Change in Total Transfers, 1988-1994



PART 3

CARCINOGENIC RELEASES AND TRANSFERS, 1994

TRI data alone cannot indicate the risk that chemical releases pose to human health and the environment. Though the TRI data are useful as a starting point in identifying potential risks, other information is required to evaluate the risk in a particular area. A determination of risk depends on many factors, including: the toxicity of the chemical, the extent and manner of exposure, the type of release, and environmental conditions. For example, small releases of highly toxic chemicals may present a greater risk than large releases of less toxic chemicals. Direct releases, such as air emissions, may pose a greater threat to human health and the environment than more contained releases, such as underground injection. Human factors such as physical health, gender, and age can also affect the level of risk posed by exposure to toxic chemicals. Infants, pregnant women, and the elderly are especially vulnerable to the risks of exposure (Goldman 1991; Wagener et al 1995).

Carcinogen Releases to Air/Water/Land

The TRI designates 122 chemicals as carcinogens based on criteria set forth in the Occupational Safety and Health Administration's Hazard Communication Standards. Some of these chemicals, such as benzene and asbestos, are known to cause cancer in humans. Others are suspected to cause cancer in humans because they have been shown to cause cancer in laboratory animals. Carcinogenic chemicals in the TRI are identified with asterisks in Appendix C. Certain metal compound categories contain both carcinogenic and non-carcinogenic compounds. Inorganic arsenic is a carcinogen while organic arsenic is not. However, both inorganic and organic arsenic compounds are reported under the general category arsenic compounds. Chromium compounds is another category that contains both carcinogenic (hexavalent) and non-carcinogenic (trivalent) compounds. Because these groups of compounds were not reported separately, both arsenic and chromium compounds were not included in this analysis.

Carcinogen Releases by County, 1994. More than 177 million pounds of TRI-listed carcinogens were released nationally to air, water, and land (excluding underground injection) in 1994. In Texas, a total of 17.9 million pounds were released (17.5 million pounds to air, 400,000 pounds to land, and 80,000 pounds to water). In addition, 7.7 million pounds were injected underground. Figure 3.1 shows the ten counties with the largest quantities (> 430,000 pounds) of carcinogenic releases to air, water, and land and to underground injection in 1994. Carcinogenic releases are reported for all Texas counties in Appendix H. Harris County had the largest volume (> 5 million pounds) of carcinogenic releases. Calhoun, Brazoria, and Galveston Counties had the largest volumes (each > 1.3 million pounds) of releases by underground injection.

Carcinogen Releases by Industry, 1994. The industries with the largest quantities of carcinogenic releases to air, water, and land in 1994 are shown in Figure 3.2. The chemical industry released 9.2 million pounds (51.3%) of all carcinogens released to air, water, and land. It also released to underground injection 7.6 million pounds, or 99.0 percent of all injected TRI carcinogens. Other industries released collectively less than 75,000 pounds of carcinogens.

Carcinogen Releases by Chemical, 1994. Table 3.1 lists the top ten TRI carcinogens released to air, water, and land in 1994. The total volume (16.2 million pounds) of these carcinogens represented 90.2 percent of all carcinogenic releases to air, water, and land. Styrene was released in the largest quantity (4.1 million pounds, or 22.8% of all released carcinogens), followed by benzene, dichoromethane, chloroform, 1,3-butadiene, acetaldehyde, formaldehyde, propylene oxide, 1,2-dichloroethane, and tetrachloroethylene.

Transfers of Carcinogenic TRI Chemicals

Carcinogen Transfers by County, 1994. Facilities in Texas reported transfers of 43.0 million pounds of carcinogenic chemicals to off-site sources in 1994. Figure 3.3 shows the counties with the largest quantities (> 600,000 pounds) of carcinogenic transfers to off-site sources. Transfers of carcinogens are reported for all Texas counties in Appendix I. Harris County led all counties with 18.3 million pounds, 42.5 percent of all transferred carcinogens. Calhoun, El Paso, Brazoria, Bexar, Ellis, Dallas, Jefferson, Orange, and Bowie Counties followed with a combined total of 13.4 million pounds (31.2%).

Carcinogen Transfers by Industry, 1994. Industries with the largest quantities of carcinogenic transfers in 1994 are listed in Figure 3.4. The chemical industry transferred 23.9 million pounds of carcinogens, or 55.7 percent of all carcinogenic transfers. The primary metals, fabricated metals, and electrical industries transferred a total of 10.9 million pounds (25.3%).

Carcinogen Transfers by Chemical, 1994. As shown in Table 3.2, the top ten TRI carcinogenic chemicals in or as wastes transferred in 1994 amounted to 31.7 million pounds, or 73.7 percent of all transfers of carcinogenic chemicals. These chemicals included: dimethyl sulfate, lead, 1,2-dichloroethane, nickel compounds, chromium, nickel, ethyl acrylate, tetrachloroethylene, benzene, and carbon tetrachloride.

To briefly summarize, the release of carcinogenic chemical wastes by Texas facilities which reported to the TRI accounted for 10.1 percent of the volume of carcinogenic releases nationwide. This ranked Texas first, ahead of Indiana (12.9 million pounds) and North Carolina (9.7 million pounds) in 1994. Most of the carcinogenic releases and transfers in Texas occurred along the upper Gulf Coast counties and were by the chemical industry. The degree of risk posed to the public by exposure to these toxic wastes is beyond the scope of this report, and an assessment of risk potential would involve the identification, collection, and analysis of other data, including, for example, personal health histories of the public, extent and manner of exposure, and chemical characteristics.

Table 3.1. Largest Quantities of Air/Water/Land Released Carcinogens in Texas, 1994

Chemical	Air/Water/Land
STYRENE	4,095,194
BENZENE	3,551,934
DICHLOROMETHANE	1,746,283
CHLOROFORM	1,686,640
1,3-BUTADIENE	1,659,945
ACETALDEHYDE	1,281,132
FORMALDEHYDE	709,597
PROPYLENE OXIDE	595,465
1,2-DICHLOROETHANE	504,739
TETRACHLOROETHYLENE	352,922
TOP 10 TOTAL	**16,183,851**

Table 3.2. Largest Quantities of Carcinogenic Transfers in Texas, 1994

Chemical	Transfers
DIMETHYL SULFATE	6,180,476
LEAD	5,409,859
1,2-DICHLOROETHANE	3,923,983
NICKEL COMPOUNDS	3,796,143
CHROMIUM	3,256,385
NICKEL	3,081,266
ETHYL ACRYLATE	1,636,483
TETRACHLOROETHYLENE	1,606,305
BENZENE	1,466,102
CARBON TETRACHLORIDE	1,313,089
TOP 10 TOTAL	**31,670,091**

Figure 3.1. Top Ten Texas Counties with Carcinogenic Releases, 1994 (including underground injection)

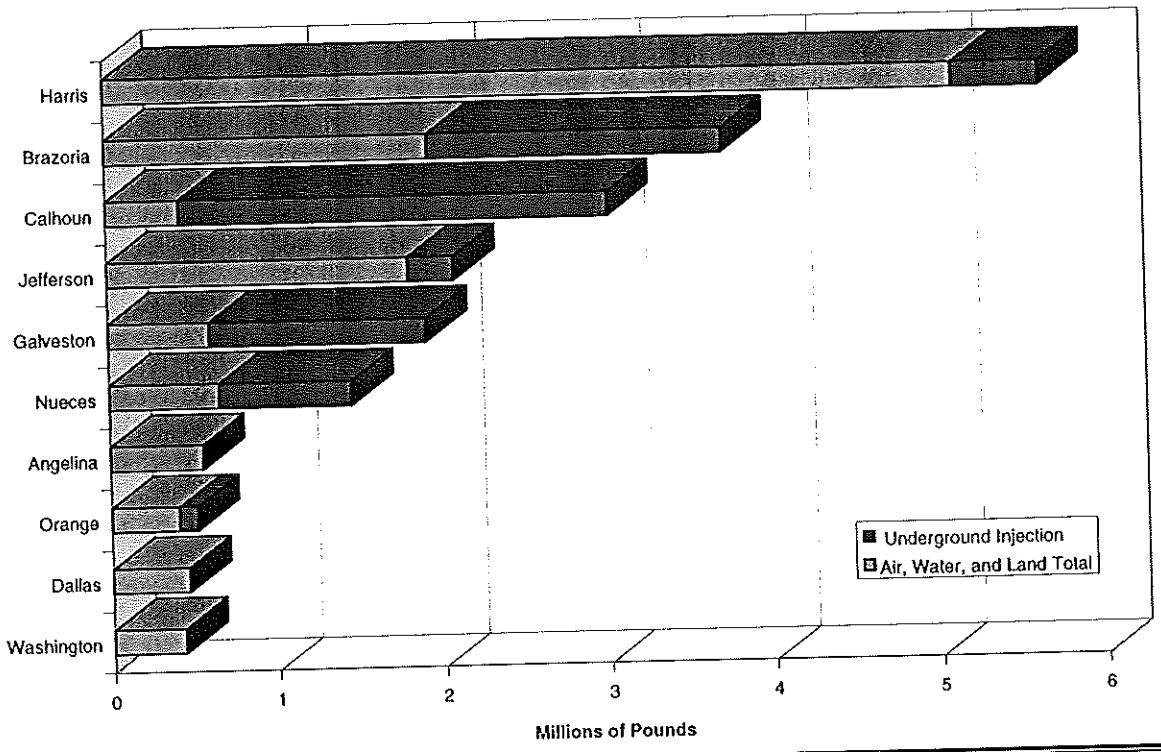


Figure 3.2. Top Ten Texas Industries for Carcinogenic Releases to Air/Water/Land, 1994

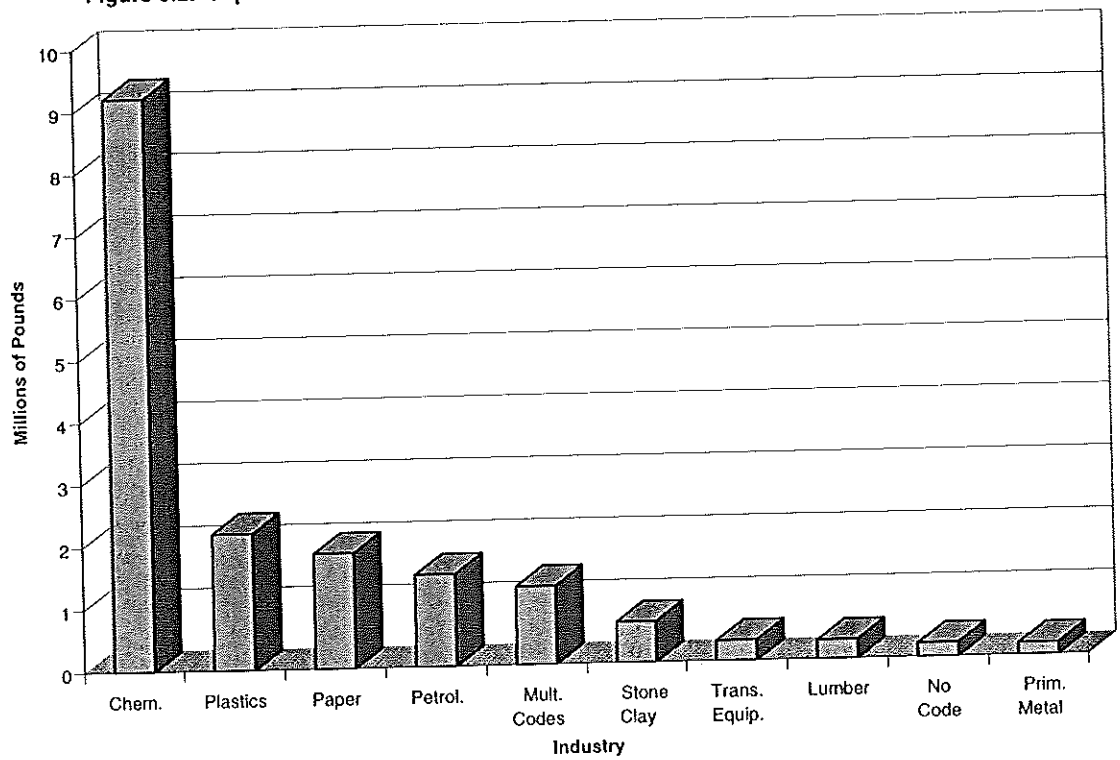


Figure 3.3. Top Ten Texas Counties with Total Carcinogenic Transfers, 1994

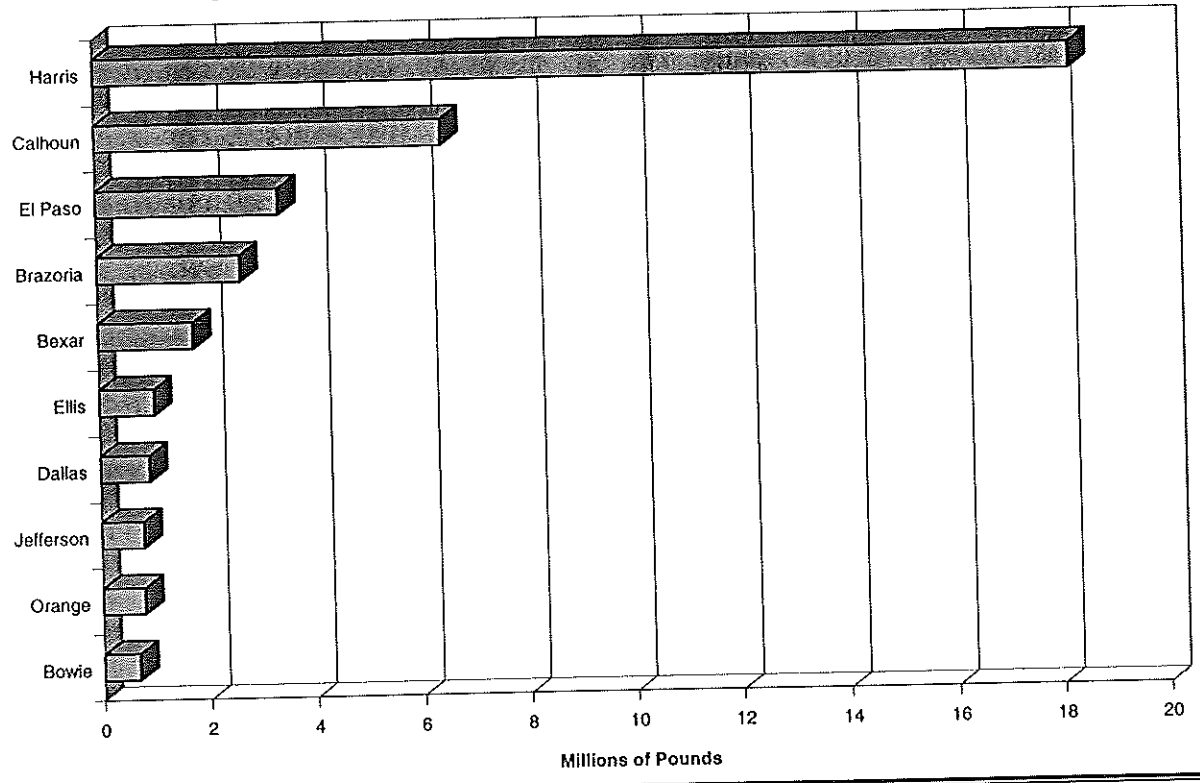
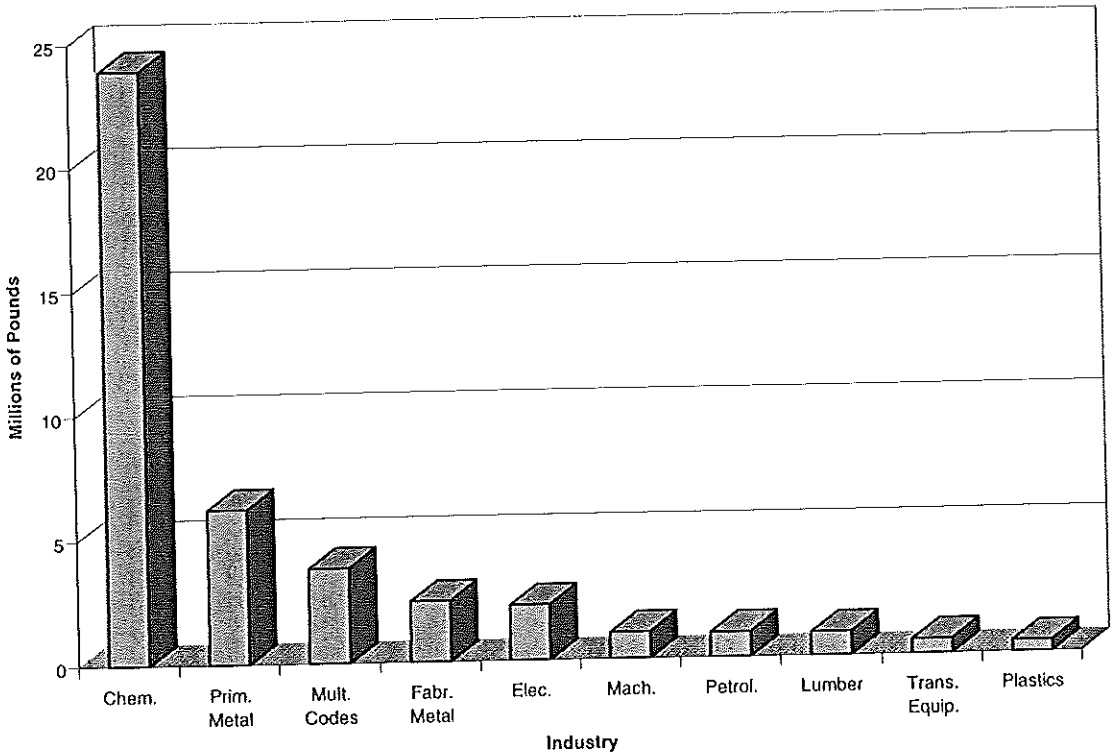


Figure 3.4. Top Ten Texas Industries for Carcinogenic Transfers, 1994



PART 4

TRI PROFILES FOR 33/50 PROGRAM CHEMICALS, 1994

The 33/50 Program is an EPA voluntary pollution reduction initiative that targets 17 high-priority TRI chemicals (shown below) for reductions in releases and transfers. It is one of a broad group of EPA activities designed to encourage source reduction, or pollution prevention, as the best means of reducing pollution. The program derives its name from its national goals: an interim reduction of 33 percent in 1992 and an ultimate reduction of 50 percent in 1995, using 1988 TRI reporting as a baseline. These goals translate nationwide to a reduction of nearly 750 million pounds of pollution from the nearly 1.5 billion pounds reported to TRI for 1988 (the program excludes transfers to recycling and energy recovery, which were not reported to TRI until 1991). Source reduction activities decrease the amount of a toxic chemical entering a waste stream and therefore prevent pollution before it occurs. Waste management activities such as recycling are not considered source reduction because they manage toxic chemicals after they enter waste streams.

Seventeen High-Priority TRI Chemicals

Benzene
Cadmium and compounds
Carbon tetrachloride
Chloroform
Chromium and compounds
Cyanide compounds
Dichloromethane
Lead and compounds
Mercury and compounds
Methyl ethyl ketone
Methyl isobutyl ketone
Nickel and compounds
Tetrachloroethylene
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Xylene

33/50 Progress

The 33/50 Program has proven to be successful nationally. Led by the efforts of 1,300 corporate participants (which own more than 6,000 TRI facilities) nationwide, 33/50 surpassed its ultimate goal of 50 percent reduction in 1994, a year ahead of schedule. Releases and transfers of 33/50's 17 target chemicals were reduced by an additional 62 million pounds (7.8%) in 1994, bringing total reductions since 1988 to 757 million pounds and exceeding the program's 50 percent national pollution reduction goal by more than 10 million pounds. The 33/50's interim 1992 reduction goal of 33 percent was also achieved a year early and ultimately exceeded by more than 100 million pounds.

As shown in Figure 4.1 for Texas, the program produced a decline from 100.8 million pounds of combined total releases and transfers in 1988 to 56.9 million pounds (-43.6%) in 1994. Reductions in the volume of chemical releases were the most evident, as they declined 35.5

million pounds (-42.5%) since 1988. The transfers of 33/50 chemicals declined 8.4 million pounds (-48.6%) over the six-year period.

33/50 Program Reductions by County. In Texas, TRI facilities in 119 counties released or transferred 33/50 Program chemicals. Figure 4.2 shows the percentages of change by county in 33/50 program chemicals released and transferred from 1988 to 1994. Forty-four counties had increases in the volume of releases and transfers; all but two counties experienced increases equal to or greater than 25 percent. Among these counties, 23 counties reported net increases greater than 1,000 percent, or 1.1 million pounds of toxic chemicals. Kaufman, Wichita, and Angelina Counties had the largest increases (> 300 thousand pounds). Seventy counties with 33/50 companies reported reductions in the volume of program chemicals; 89 percent (n = 62) had reductions equal to or greater than 25 percent. Jefferson, Brown, Dallas, Harris, Tarrant, and Brazoria Counties had the most reductions (> 3 million pounds). Tyler, Ward, and Wilson Counties had no 33/50 chemical releases or transfers during the six-year period.

33/50 Program Summary

Industries' efforts to meet 33/50's challenges have concluded in many cases, though many companies set environmental goals that extend years into the future and others are drawing on momentum established through their Program participation to continue their voluntary reduction efforts on their own. To recognize such efforts, the EPA co-sponsored a national conference in September, 1996, to celebrate the success of 33/50 and to explore ways of building even more successful partnerships in the future. It has started also to compile "33/50 Program Success Stories," written by participants and featuring reduction projects they implemented to achieve 33/50 reductions. According to the EPA, "Success Stories" will be distributed in hard copy and electronic format via the Internet as an entire compendium and in custom groups based on readers' interests in chemicals, processes, sectors, and pollution reduction techniques.

Figure 4.1. 33/50 Program Progress in Texas, 1988-1994

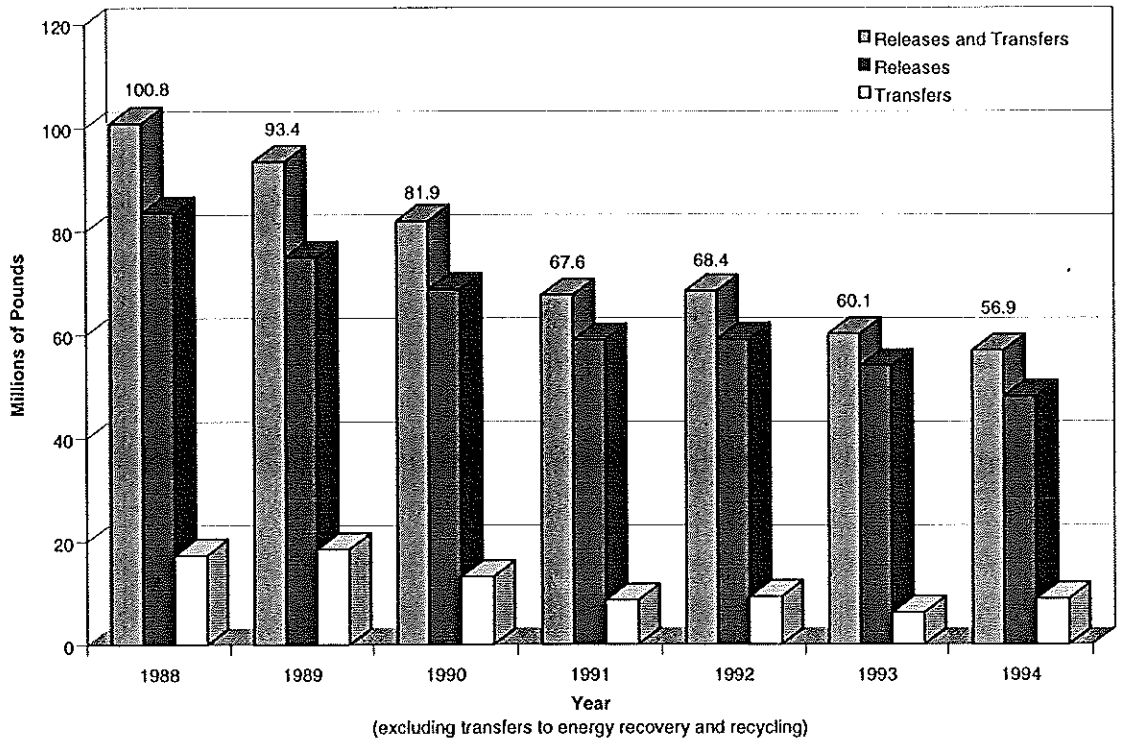
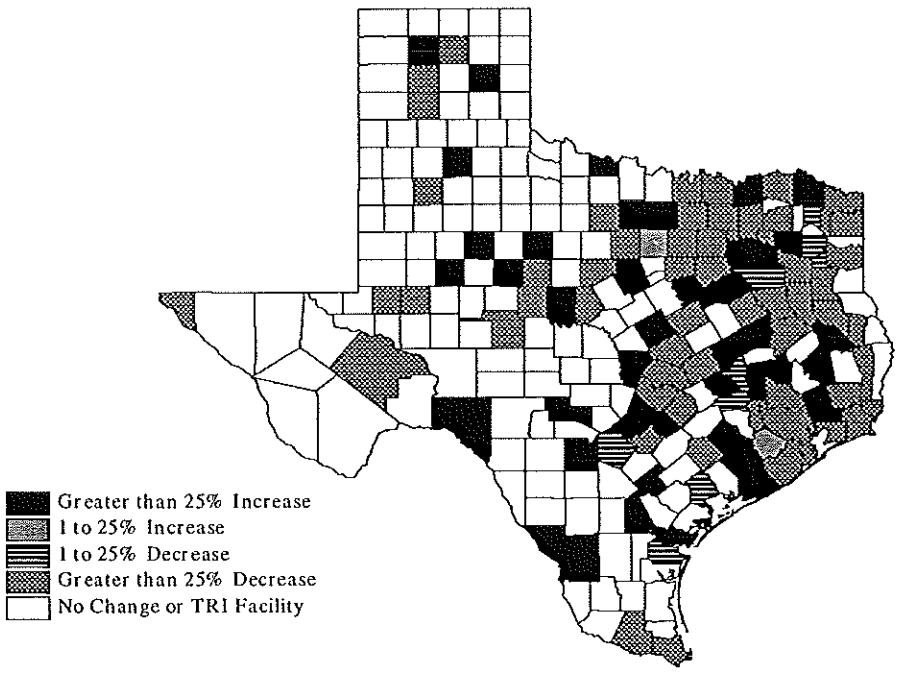


Figure 4.2. Percent Change in 33/50 Program Chemicals, 1988-1994



PART 5

TRI PROFILES FOR FEDERAL FACILITIES IN TEXAS, 1994

Federal facilities were required by Presidential Executive Order 12856 to report to the TRI for the first time in 1994. A total of 191 Federal facilities filed 686 TRI reports nationwide, which accounted for 9.8 million pounds of toxic chemical releases and 10.4 million pounds of toxic chemical transfers. Thirteen of these reporting facilities are located in Texas.

Releases and transfers reported by Federal facilities in Texas totaled 532,107 and 405,937 pounds, respectively, in 1994. These facilities accounted for less than 0.3 percent of all releases and transfers by all TRI reporting facilities in Texas. As shown in Tables 5.1 and 5.2, the U.S. Air Force Base in Bexar County had the largest volume of releases (278,544 pounds) and the second largest volume of transfers (94,921 pounds). The U.S. Army's Red River Army Depot transferred the most toxic chemicals off-site (159,781 pounds).

The two tables also show the distributions of Federal facility releases and transfers by medium. Air emissions constituted over 99 percent of all releases (532,107 pounds) from Federal facilities in 1994. These emissions were 0.4 percent of the air emissions from all TRI facilities in Texas. Less than 5,000 pounds of releases by Federal facilities were to water and only 32 pounds of chemicals were released to land.

Transfers by Federal facilities represented 0.1 percent of all transfers statewide in 1994. Off-site transfers for disposal or treatment totaled 195,605 pounds (48.2 %). Transfers for energy recovery totaled 162,289 pounds, or nearly 40 percent of all transfers by Federal facilities. Recycling accounted for 11.8 percent of Federal facility transfers. Transfers to POTW facilities were negligible (250 pounds).

Table 5.1. Texas Federal Facilities' Total TRI Chemcial Releases, 1994

Facility	County	Air	Surface Water	Land	Total
U.S. Air Force	Bexar	278,459	85	0	278,544
U.S. Army-Red River Army Depot	Bowie	106,411	4,173	32	110,616
U.S. Army-Fort Hood	Bell	56,315	0	0	56,315
U.S. Air Force-Plant 04 Tx	Tarrant	37,550	0	0	37,550
NASA-Lyndon B. Johnson	Harris	15,900	0	0	15,900
U.S. Air Force-Randolph	Bexar	15,754	0	0	15,754
U.S. Army-Lone Star Army	Bowie	10,000	0	0	10,000
U.S. Army-Longhorn Ammunition	Harrison	6,921	0	0	6,921
U.S. Air Force	Wichita	250	0	0	250
U.S. Bureau of Engraving	Tarrant	250	0	0	250
U.S. Navy-Corpus Christi	Nueces	7	0	0	7
U.S. Department of Energy	Potter	0	0	0	0
U.S. Navy-Naval Air Station	(---)	0	0	0	0
All Federal Facilities		**527,817**	**4,258**	**32**	**532,107**

Table 5.2. Texas Federal Facilities' Total TRI Chemical Transfers, 1994

Facility	County	POTW	Recycling	Energy Recovery	Disposal/ Treatment	Total
U.S. Army-Red River Army Depot	Bowie	0	7,881	118,967	32,933	159,781
U.S. Air Force	Bexar	0	21,675	5,685	67,561	94,921
U.S. Air Force-Plant 04 Tx	Tarrant	250	14,100	32,700	33,155	80,205
U.S. Army-Longhorn Ammunition	Harrison	0	0	0	37,144	37,114
U.S. Navy-Corpus Christi	Nueces	0	887	0	19,210	20,097
U.S. Army-Fort Hood	Bell	0	250	4,937	1,250	6,437
U.S. Air Force-Randolph	Bexar	0	0	0	4,382	4,382
NASA-Lyndon B. Johnson	Harris	0	3,000	0	0	3,000
U.S. Army-Lone Star Army	Bowie	0	0	0	0	0
U.S. Air Force	Wichita	0	0	0	0	0
U.S. Bureau of Engraving	Tarrant	0	0	0	0	0
U.S. Department of Energy	Potter	0	0	0	0	0
U.S. Navy-Naval Air Station	(---)	0	0	0	0	0
All Federal Facilities		**250**	**47,793**	**162,289**	**195,605**	**405,937**

Figure 5.1. Texas Federal Facilities Distribution of Releases, 1994

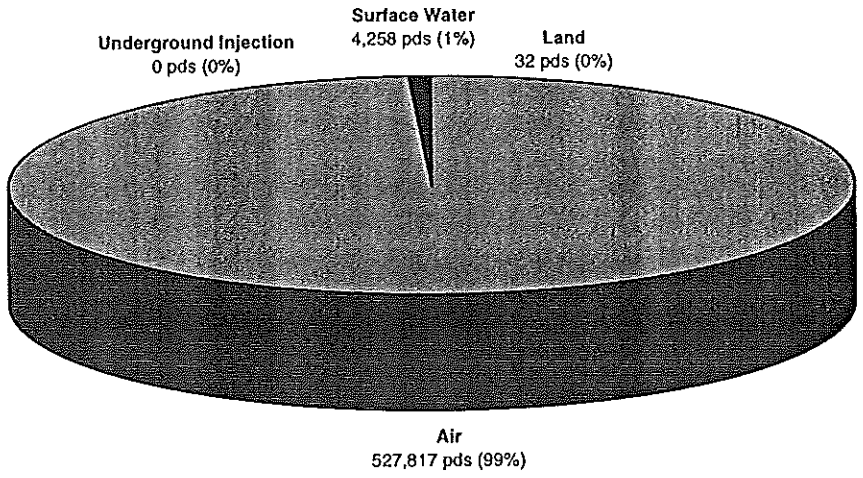
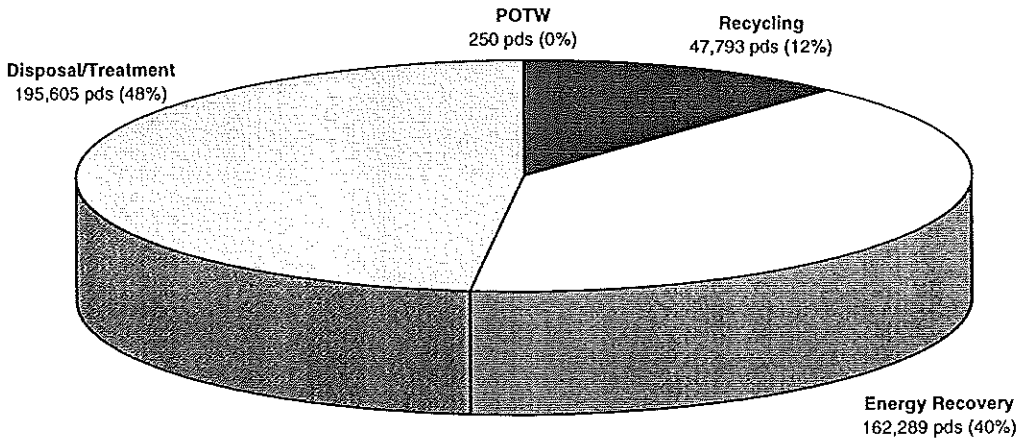


Figure 5.2. Texas Federal Facilities Distribution of Transfers, 1994



SUMMARY

The Toxics Release Inventory is a dynamic data base that periodically changes according to the toxic chemicals identified by the EPA and the corresponding release and transfer activities of reporting facilities. According to the TRI, Texas is one of the leading sources of toxic chemical wastes in the nation. It had 138 counties with 1,215 manufacturers who released 250.0 million pounds and transferred off-site 273.2 million pounds of toxic chemicals in 1994. This report overviewed the status of these releases and transfers statewide by county, industry, and toxic chemical. It also described release and transfer trends from 1988 to 1994 for a standardized group of toxic chemicals reported to the TRI. Highlights are listed below.

o *Although counties with manufacturers who reported releases and transfers to the EPA were widely distributed throughout the state, a majority of the counties that had the largest volumes of releases and transfers were clustered east of Interstate 35, and particularly along the Gulf Coast. Harris, Jefferson, Nueces, Brazoria, Calhoun, Galveston, and Orange Counties were the most prominent locations of releases (underground injection included) and transfers in 1994 and during the six-year comparison.*

o *The chemical industry was by far the source of the largest volume of releases and transfers of toxic chemicals in Texas. It also released the most carcinogenic chemicals in 1994.*

o *In 1994, air emissions totaled 127 million pounds (50.8%), releases to land were 13.9 million pounds (5.6%), releases to water were 2.7 million pounds (1.1%,), and 106.4 million pounds (42.5%) were injected in special underground wells.*

o *Ethylene, propylene, methanol, chromium compounds, and ammonia were the most released chemicals by volume to air, land, and water in 1994. Ammonium nitrate (solution), ammonia, and nitric acid had the largest volumes injected underground in 1994.*

o *Since 1988, substantial reductions have occurred in the volumes of releases to air (-39.5%) and land (-60.2%) and in the volumes of transfers to POTWs (-52.5%) and to disposal/treatment facilities (-33.8%). Releases to water increased, however, 266.3 percent since 1993 and 28.2 percent since 1988.*

o *Recycling (47.1%) and energy recovery (27.5%) of toxic chemicals were the most prevalent forms of transfers in 1994. Recycling increased 13.9 percent, but energy recovery declined 9.2 percent from 1993 to 1994.*

o *The 33/50 Program in Texas has successfully reduced (-43.6%) the releases of 17 high-priority TRI chemicals since 1988.*

o *Federal facilities in Texas accounted for less than .3 percent of all releases and transfers of TRI chemicals during 1994.*

These findings have at least two important implications. The first implication is the potential exposure risks posed by these chemicals to an increasing Texas population. Although other studies are needed to determine what effects, if any, these chemicals have and will have on exposed individuals, the fact remains that a larger population increases the likelihood of exposure. From 1950 to 1990, the state population annually increased an average of 21.6 percent. In 1995, its estimated size of population was 18.7 million, which was a 10.2 percent increase since 1990 (Murdock et al 1997). Much of this growth has occurred and is projected to continue to increase, particularly among people of color, in the state's metropolitan areas and counties where TRI industries and their facilities operate. The second implication involves the real and perceived impacts of past and future released toxic chemical wastes on environmental quality and on the viability of Texas' many ecosystems. The public and media are increasingly concerned about the known and unknown threats posed by toxic wastes to clean air, safe water for drinking and recreational uses, and safe workplaces and neighborhoods.

Manufacturing facilities contribute important jobs and incomes to the Texas economy. The facilities that report to the TRI have made significant improvements in their ability to reduce the volume of toxic releases and transfers in Texas since 1988. They must continue, however, to develop and implement new technologies and procedures to minimize the use of toxic chemicals in the production process and in the output of these chemicals in the wastestream.

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APPENDICES

Appendix A
Total Releases to Air, Water, Underground Injection, and Land by County, 1994

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
ANDREWS	311,917	0	0	0	311,917
ANGELINA	1,608,589	16,430	0	10,434	1,635,453
ARANSAS	256,500	0	0	0	256,500
AUSTIN	250	0	0	0	250
BASTROP	1,000	0	0	319	1,319
BELL	446,885	20	0	0	446,905
BEXAR	1,190,992	85	0	255	1,191,332
BOWIE	229,383	4,293	0	32	233,708
BRAZORIA	11,175,923	297,014	9,293,684	247,333	21,013,954
BRAZOS	137,124	5	0	0	137,129
BROWN	946,403	342	0	8,325	955,070
BURLESON	19,122	0	0	0	19,122
BURNET	3,276	0	0	0	3,276
CALDWELL	100,107	0	0	0	100,107
CALHOUN	2,735,297	21,873	11,247,640	117,168	14,121,978
CAMERON	68,603	0	0	0	68,603
CAMP	0	0	0	0	0
CASS	2,293,753	5,746	0	0	2,299,499
CASTRO	31,730	0	0	0	31,730
CHAMBERS	471,165	17,635	0	0	488,800
CHEROKEE	15,229	0	0	0	15,229
COLEMAN	510	0	0	0	510
COLLIN	194,412	8	0	479,100	673,520
COLORADO	259,561	0	0	0	259,561
COMAL	79,253	750	0	0	80,003
COMANCHE	10	0	0	0	10
COOKE	51,132	0	0	0	51,132
CORYELL	26,750	0	0	0	26,750
DALLAS	3,264,426	1,724	5	140,782	3,406,937
DEAF SMITH	2,415	0	0	0	2,415
DENTON	344,856	0	0	0	344,856
ECTOR	2,834,081	0	117,076	12,993	2,964,150
EL PASO	377,386	1,505	0	13,771	392,662
ELLIS	649,206	1	0	33,000	682,207
ERATH	158,355	0	0	0	158,355

Appendix A
(cont.)

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
FANNIN	5,165	0	0	0	5,165
FAYETTE	0	0	0	0	0
FLOYD	49,000	0	0	0	49,000
FORT BEND	368,480	15,015	0	227,870	611,365
FREESTONE	0	0	0	0	0
FT BEND & HARRIS	4,857	0	15,431	0	20,288
GALVESTON	4,623,263	129,422	10,779,837	85,144	15,617,666
GONZALES	770	0	0	0	770
GRAY	994,846	255	0	101,220	1,096,321
GRAYSON	159,899	70	0	30	159,999
GREGG	885,540	19,654	0	0	905,194
GRIMES	13,550	0	0	0	13,550
GUADALUPE	229,655	5	0	0	229,660
HALE	36,495	0	0	118,488	154,983
HARDEMAN	0	0	0	0	0
HARDIN	62,210	0	0	0	62,210
HARRIS	37,384,680	1,811,335	14,395,337	972,475	54,563,827
HARRISON	4,393,766	8,499	137,900	98,208	4,638,373
HAYS	65,251	0	0	0	65,251
HENDERSON	108,141	0	0	0	108,141
HIDALGO	67,270	0	0	0	67,270
HILL	134,805	0	0	0	134,805
HOPKINS	250	0	0	0	250
HOUSTON	5,000	250	0	0	5,250
HOWARD	1,880,764	0	0	42,700	1,923,464
HUNT	150,297	0	0	0	150,297
HUTCHINSON	2,687,354	50,546	700,005	11,124	3,449,029
JACK	46,500	0	0	0	46,500
JACKSON	0	0	0	0	0
JASPER	1,076,867	4,768	0	13,610	1,095,245
JEFFERSON	14,427,591	145,223	32,548,015	123,221	47,244,050
JOHNSON	632,746	10	0	0	632,756
JONES	136,840	0	0	0	136,840
KARNES	58,949	0	0	0	58,949
KAUFMAN	732,019	0	0	0	732,019

Appendix A
(cont.)

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
KERR	53,710	0	0	0	53,710
LAMAR	115,013	0	0	0	115,013
LAMB	500	0	0	0	500
LAVACA	135,638	0	0	0	135,638
LEE	8,289	0	0	0	8,289
LEON	41,197	0	0	0	41,197
LIBERTY	41,809	652	0	55	42,516
LIVE OAK	199,104	73	0	91,797	290,974
LUBBOCK	15,250	0	0	0	15,250
MATAGORDA	1,067,776	1,046	893,760	0	1,962,582
MAVERICK	0	0	0	0	0
MC LENNAN	260,758	25	0	0	260,783
MEDINA	62,010	0	0	0	62,010
MIDLAND	59,562	0	0	0	59,562
MILAM	1,174,274	0	0	3,000	1,177,274
MONTGOMERY	565,001	1,413	0	0	566,414
MOORE	1,584,645	0	89,425	4,997	1,679,067
MORRIS	153,365	11,490	0	441	165,296
NACOGDOCHES	586,599	10	0	0	586,609
NAVARRO	26,600	0	316,339	0	342,939
NOLAN	5,144	0	0	0	5,144
NUECES	2,643,641	87,806	3,331,500	10,036,046	16,098,993
ORANGE	7,216,107	55,842	1,791,727	427,120	9,490,796
PALO PINTO	2,340	0	0	0	2,340
PANOLA	9,020	0	0	0	9,020
PARKER	111,401	0	0	255	111,656
PARMER	117,104	0	0	504,056	621,160
POLK	15,941	0	0	0	15,941
POTTER	190,510	0	238,120	250	428,880
RANDALL	619,980	0	0	250	620,230
RED RIVER	16,267	0	0	0	16,267
ROBERTSON	19,139	0	0	0	19,139
ROCKWALL	510	0	0	0	510
RUNNELS	27,361	0	0	0	27,361
RUSK	67,977	5	0	250	68,232

Appendix A
(cont.)

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
SABINE	750	0	0	0	750
SAN AUGUSTINE	0	0	0	0	0
SAN PATRICIO	246,120	52	0	190	246,362
SCURRY	2,745	0	0	0	2,745
SHELBY	45,947	0	0	0	45,947
SMITH	741,229	605	0	1,250	743,084
TARRANT	2,493,547	532	0	4,700	2,498,779
TAYLOR	447,713	0	0	0	447,713
TITUS	69,842	4,711	0	0	74,553
TOM GREEN	233,750	0	0	0	233,750
TRAVIS	322,659	26	0	1,850	324,535
TYLER	0	0	0	0	0
UPSHUR	107,777	0	0	0	107,777
VAL VERDE	166,542	0	0	0	166,542
VAN ZANDT	11,642	0	0	0	11,642
VICTORIA	709,996	1,849	20,514,642	24,085	21,250,572
WALKER	21,255	0	0	0	21,255
WALLER	540	0	0	0	540
WARD	0	0	0	0	0
WASHINGTON	525,411	0	0	0	525,411
WEBB	13,817	5	0	0	13,822
WHARTON	27,150	755	0	0	27,905
WICHITA	1,713,615	106	0	0	1,713,721
WILBARGER	27,654	0	0	0	27,654
WILLIAMSON	66,020	0	0	1,980	68,000
WILSON	0	0	0	0	0
WISE	39,766	0	0	0	39,766
WOOD	9,900	26	0	0	9,926
YOUNG	68,350	0	0	0	68,350
Total	**127,035,700**	**2,719,512**	**106,410,443**	**13,960,174**	**250,125,829**

*Counties without a TRI reporting facility are not listed.

Appendix B
Transfers to POTW, Recycling, Energy Recovery, and Disposal/Treatment by County, 1994

Pounds Transferred

County*	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
ANDREWS	0	0	0	0	0
ANGELINA	92,090	0	98,950	236,804	427,844
ARANSAS	0	0	0	0	0
AUSTIN	0	0	0	0	0
BASTROP	0	0	0	0	0
BELL	2,465	14,819	48,558	4,588	70,430
BEXAR	12,049	2,570,405	335,917	144,324	3,062,695
BOWIE	524	37,881	139,217	683,177	860,799
BRAZORIA	0	2,144,484	488,698	2,964,349	5,597,531
BRAZOS	23,385	8,000	54,335	83,870	169,590
BROWN	82	3,244,232	20,400	328,976	3,593,690
BURLESON	5	0	0	268,532	268,537
BURNET	0	0	0	500	500
CALDWELL	0	0	0	0	0
CALHOUN	0	10,283,776	771,753	76,273	11,131,802
CAMERON	1,500	351,305	8,000	5,924	366,729
CAMP	0	0	0	0	0
CASS	0	0	0	1,500	1,500
CASTRO	0	0	0	98,900	98,900
CHAMBERS	0	0	535,000	1,688,955	2,223,955
CHEROKEE	0	0	0	0	0
COLEMAN	0	0	0	8,805	8,805
COLLIN	12,195	1,069,525	47,054	47,441	1,176,215
COLORADO	0	0	0	0	0
COMAL	15,778	0	0	3,613	19,391
COMANCHE	0	0	0	0	0
COOKE	0	0	0	1,380	1,380
CORYELL	0	0	2,204	0	2,204
DALLAS	330,965	15,810,456	1,413,027	681,424	18,235,872
DEAF SMITH	0	0	0	500	500
DENTON	0	29,462	224,410	7,281	261,153
ECTOR	47,862	39,068	242,412	121,804	451,146
EL PASO	32,844	18,217,675	106,646	21,631	18,378,796
ELLIS	5	10,655,298	362,756	46,766	11,064,825
ERATH	1	1,348	12,865	30,250	44,464

Appendix B
(cont.)

Pounds Transferred

County	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
FANNIN	0	2,390,228	0	2,092	2,392,320
FAYETTE	0	0	0	0	0
FLOYD	0	0	0	0	0
FORT BEND	4,792	286,341	188,287	53,635	533,055
FREESTONE	0	0	0	0	0
FT BEND & HARRIS	0	0	0	0	0
GALVESTON	743,862	935,461	689,547	750,547	3,119,417
GONZALES	0	0	0	505	505
GRAY	0	0	0	2,020	2,020
GRAYSON	63,364	5,183,569	2,580	109,612	5,359,125
GREGG	255	484,161	31,931	158,367	674,714
GRIMES	0	618,407	0	0	618,407
GUADALUPE	0	5,639,250	0	373,957	6,013,207
HALE	0	0	0	0	0
HARDEMAN	0	0	0	0	0
HARDIN	0	0	0	582	582
HARRIS	18,170,709	22,611,859	52,889,519	24,250,572	117,922,659
HARRISON	17,511	295,237	57,821	399,535	770,104
HAYS	1	133,600	250	250	134,101
HENDERSON	0	3,333	0	3,938	7,271
HIDALGO	15,310	19,662	0	1,638	36,610
HILL	0	0	4,000	0	4,000
HOPKINS	15,957	24,050	0	0	40,007
HOUSTON	0	0	0	2,750	2,750
HOWARD	0	420	67	18,977	19,464
HUNT	3,955	6,750	50,679	3,350	64,734
HUTCHINSON	0	331,726	0	68,000	399,726
JACK	0	0	0	0	0
JACKSON	0	0	0	0	0
JASPER	5	0	5	280,505	280,515
JEFFERSON	1,320	2,220,327	1,044,938	4,994,381	8,260,966
JOHNSON	10	5,311	33,520	8,465	47,306
JONES	12,685	15	0	55	12,755
KARNES	0	0	0	0	0
KAUFMAN	1	91,367	211,948	204,722	508,038

Appendix B
(cont.)

Pounds Transferred

County	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
KERR	0	4,700	0	0	4,700
LAMAR	79	432,308	0	5,750	438,137
LAMB	0	0	0	0	0
LAVACA	21	844	0	45,714	46,579
LEE	0	0	0	0	0
LEON	0	5,387,957	0	396,026	5,783,983
LIBERTY	0	0	2,353	4,568	6,921
LIVE OAK	0	0	138	133	271
LUBBOCK	760	159,063	24,038	2,255	186,116
MATAGORDA	0	352,883	262,999	886,535	1,502,417
MAVERICK	0	0	0	0	0
MC LENNAN	7,852	383,325	18,977	164,754	574,908
MEDINA	0	0	0	0	0
MIDLAND	0	0	5,990	10,611	16,601
MILAM	0	0	0	0	0
MONTGOMERY	20	149,864	7,910	20,967	178,761
MOORE	535,288	20	4,303	15	539,626
MORRIS	0	2,048,000	0	91,526	2,139,526
NACOGDOCHES	254	45,132	176,000	19,316	240,702
NAVARRO	161,307	0	5,070	38	166,415
NOLAN	0	0	0	0	0
NUECES	8,800	1,004,006	35,796	752,575	1,801,177
ORANGE	0	4,360,904	4,334,248	533,311	9,228,463
PALO PINTO	0	0	0	0	0
PANOLA	5	0	0	0	5
PARKER	0	83,974	77,762	60,291	222,027
PARMER	0	0	0	0	0
POLK	0	0	0	1,968	1,968
POTTER	0	5,989	0	2,625,000	2,630,989
RANDALL	15,805	335	2,676	2,473	21,289
RED RIVER	0	0	0	0	0
ROBERTSON	0	225,701	1,714	20,222	247,637
ROCKWALL	0	358	0	0	358
RUNNELS	5,610	0	0	0	5,610
RUSK	0	0	1,822	5	1,827

Appendix B
(cont.)

Pounds Transferred

County	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
SABINE	0	0	0	0	0
SAN AUGUSTINE	0	0	0	0	0
SAN PATRICIO	0	0	0	603,471	603,471
SCURRY	0	0	0	0	0
SHELBY	0	0	0	0	0
SMITH	16,721	572,268	97,194	211,451	897,634
TARRANT	443,792	1,676,535	802,854	744,126	3,667,307
TAYLOR	804	2,106,573	0	24,157	2,131,534
TITUS	0	0	0	11,750	11,750
TOM GREEN	0	0	0	33,000	33,000
TRAVIS	206,289	1,873,711	1,225,269	803,510	4,108,779
TYLER	0	28,009	0	0	28,009
UPSHUR	0	35,200	57,916	158,368	251,484
VAL VERDE	0	0	0	0	0
VAN ZANDT	0	0	250	0	250
VICTORIA	0	0	7,730,180	808,476	8,538,656
WALKER	0	0	2,764	2,725	5,489
WALLER	0	7,260	0	250	7,510
WARD	0	0	0	0	0
WASHINGTON	1	150,250	0	14,511	164,762
WEBB	0	1,704,091	0	16,860	1,720,951
WHARTON	0	0	1,937	17,755	19,692
WICHITA	1,531	204,349	750	28,837	235,467
WILBARGER	0	0	0	0	0
WILLIAMSON	195	66,769	10,100	10,248	87,312
WILSON	0	0	0	0	0
WISE	0	0	9,136	0	9,136
WOOD	0	0	0	1,500	1,500
YOUNG	0	0	4,692	10,524	15,216
Total	**21,026,621**	**128,829,186**	**75,022,132**	**48,391,594**	**273,269,533**

*Counties without TRI reporting facilities are not listed.

Appendix C. TRI Chemical Lists

Chemicals Included for 1994[a]

Acetaldehyde*
Acetamide*
Acetonitrile
Acetophenone
2-Acetylaminofluorene*
Acrolein
Acrylamide*
Acrylic acid
Acrylonitrile*
Aldrin
Allyl alcohol
Allyl chloride
Aluminum (fume or dust)
Aluminum oxide (fibrous forms)
2-Aminoanthraquinone*
4-Aminoazobenzene*
4-Aminobiphenyl*
1-Amino-2-methylanthraquinone*
Amitrole
Ammonia
Ammonium nitrate (solution)
Ammonium sulfate (solution)
Aniline
o-Anisidine*
p-Anisidine
o-Anisidine hydrochloride*
Anthracene
Antimony
Antimony compounds
Arsenic*
Arsenic compounds*[b]
Asbestos (friable)*
Barium
Barium compounds
Benzal chloride
Benzamide
Benzene*
Benzidine*
Benzoic trichloride*
Benzoyl chloride
Benzoyl peroxide
Benzyl chloride
Beryllium*
Beryllium compounds
Biphenyl
Bis(2-chloroethoxy) methane
Bis(2-chloroethyl) ether
Bis(chloromethyl) ether*
Bis(2-chloro-1-methylethyl) ether
Bis(2-ethylhexyl) adipate
Bromochlorodifluoromethane (Halon 1211)
Bromoform
Bromomethane
Bromotrifluoromethane (Halon 1301)
1,3-Butadiene*
Butyl acrylate
n-Butyl alcohol
sec-Butyl alcohol
tert-Butyl alcohol
1,2-Butylene oxide
Butyraldehyde
C.I. Acid Green 3
C.I. Basic Green 4
C.I. Basic Red 1
C.I. Direct Black 38*
C.I. Direct Blue 6*
C.I. Direct Brown 95*
C.I. Disperse Yellow 3
C.I. Food Red 5*
C.I. Food Red 15
C.I. Solvent Orange 7
C.I. Solvent Yellow 3
C.I. Solvent Yellow 14
C.I. Solvent Yellow 34*
C.I. Vat Yellow 4
Cadmium*
Cadmium compounds
Calcium cyanamide
Captan
Carbaryl
Carbon disulfide
Carbon tetrachloride*
Carbonyl sulfide
Catechol
Chloramben
Chlordane
Chlorine
Chlorine dioxide
Chloroacetic acid
2-Chloroacetophenone
Chlorobenzene
Chlorobenzilate
1-Chloro-1,1-difluoroethane
Chlorodifluoromethane
Chloroethane
Chloroform*
Chloromethane
Chloromethyl methyl ether*
Chlorophenols*
Chloroprene
2-Chloro-1,1,1,2-tetrafluoroethane
1-Chloro-1,1,2,2-tetrafluoroethane
Chlorotetrafluoroethane
Chlorothalonil
Chromium*
Chromium compounds*[b]
Cobalt
Cobalt compounds*
Copper
Copper compounds
Creosote*
p-Cresidine*
Cresol (mixed isomers)
m-Cresol
o-Cresol
p-Cresol
Cumene
Cumene hydroperoxide
Cupferron*
Cyanide compounds
Cyclohexane
2,4-D (acetic acid)*
Decabromodiphenyl oxide
Diallate
2,4-Diaminoanisole*
2,4-Diaminoanisole sulfate*
4,4'-Diaminodiphenyl ether*
Diaminotoluene (mixed isomers)*
2,4-Diaminotoluene*
Diazomethane
Dibenzofuran
1,2-Dibromo-3-chloropropane*
1,2-Dibromoethane*
Dibromotetrafluoroethane (Halon 2402)
Dibutyl phthalate
Dichlorobenzene (mixed isomers)*
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene*
3,3'-Dichlorobenzidine*
Dichlorobromomethane
4,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,2-Dichloroethane*
1,2-Dichloroethylene
1,1-Dichloro-1-fluoroethane
Dichloromethane*
2,4-Dichlorophenol
1,2-Dichloropropane
2,3-Dichloropropene
1,3-Dichloropropylene*
Dichlorotetrafluoroethane
Dichlorotrifluoroethane
1,1-Dichloro-1,2,2-trifluoroethane
1,2-Dichloro-1,1,2-trifluoroethane
Dichloro-1,1,2-trifluoroethane
1,1-Dichloro-1,2,2-trifluoroethane
Dichlorvos
Dicofol
Diepoxybutane*
Diethanolamine
Di-(2-ethylhexyl) phthalate*
Diethyl phthalate
Diethyl sulfate*
Dihydrosafrole
3,3'-Dimethoxybenzidine*
4-Dimethylaminoazobenzene*
3,3'-Dimethylbenzidine*
Dimethylcarbamyl chloride*
1,1-Dimethyl hydrazine*
2,4-Dimethylphenol
Dimethyl phthalate
Dimethyl sulfate*
m-Dinitrobenzene
o-Dinitrobenzene
p-Dinitrobenzene
4,6-Dinitro-o-cresol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Dinitrotoluene (mixed isomers)
1,4-Dioxane*
1,2-Diphenylhydrazine*
Epichlorohydrin*
2-Ethoxyethanol
Ethyl acrylate*
Ethylbenzene
Ethyl chloroformate
Ethylene
Ethylene bisdithiocarbamic (acid, salts and esters)
Ethylene glycol
Ethyleneimine*
Ethylene oxide*
Ethylene thiourea*
Ethylidene dichloride
Fluometuron
Formaldehyde*
Formic acid
Freon 113
Glycol ethers
Heptachlor
Hexachlorobenzene*
Hexachloro-1,3-butadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloronaphthalene
Hexachlorophene
Hexamethylphosphoramide*
Hydrazine*
Hydrazine sulfate*
Hydrochloric acid
Hydrogen cyanide
Hydrogen fluoride

Hydroquinone
Isobutyraldehyde
Isopropyl alcohol (manufacturing)
4,4'-Isopropylidenediphenol
Isosafrole
Lead*
Lead compounds
Lindane*
Maleic anhydride
Malononitrile
Maneb
Manganese
Manganese compounds
Mercury
Mercury compounds
Methacrylonitrile
Methanol
Methoxychlor
2-Methoxyethanol
Methyl acrylate
Methyl chlorocarbonate
2-Methylpyridine
Methyl tert-butyl ether
4,4'-Methylenebis (2-chloroaniline)*
4,4'-Methylenebis (N,Ndimethyl) benzeneamine*
Methylenebis (phenylisocyanate)
Methylene bromide
4,4'-Methylenedianiline*
Methyl ethyl ketone
Methyl hydrazine
Methyl iodide
Methyl isobutyl ketone
Methyl isocyanate
Methyl methacrylate
Michler's ketone*
Molybdenum trioxide
Monochloropentafluoroethane (CFC-115)
Mustard gas*
Naphthalene
alpha-Naphthylamine*
beta-Naphthylamine*
Nickel*
Nickel compounds*
Nitric acid
Nitrilotriacetic acid*
5-Nitro-o-anisidine
5-Nitro-o-toluidine
Nitrobenzene
4-Nitrobiphenyl*
Nitrofen*
Nitrogen mustard*
Nitroglycerin
2-Nitrophenol
4-Nitrophenol
2-Nitropropane*
p-Nitrosodiphenylamine
N,N-Dimethylaniline
N-Nitrosodi-n-butylamine*
N-Nitrosodiethylamine*
N-Nitrosodimethylamine*
N-Nitrosodiphenylamine
N-Nitrosodi-n-propylamine*
N-Nitrosomethylvinylamine*
N-Nitrosomorpholine*
N-Nitroso-N-ethylurea*
N-Nitroso-N-methylurea*
N-Nitrosonornicotine*
N-Nitrosopiperidine*
Octochloronaphthalene
Osmium tetroxide
Paraldehyde
Parathion
Pentachloroethane
Pentachlorophenol
Peracetic acid
Phenol
p-Phenylenediamine
2-Phenylphenol
Phosgene
Phosphoric acid
Phosphorus (yellow or white)
Phthalic anhydride
Picric acid
Polybrominated biphenyls*
Polychlorinated biphenyls (PCBs)*
Pronamide
Propane sultone*
beta-Propiolactone*
Propionaldehyde
Propoxur
Propylene
Propyleneimine*
Propylene oxide*
Pyridine
Quinoline
Quinone
Quintozene
Saccharin (manufacturing)*
Safrole*
Selenium
Selenium compounds
Silver
Silver compounds
Styrene*
Styrene oxide*
Sulfuric acid (acid aerosols)
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene*
Tetrachlorvinphos
Thallium
Thioacetamide*
4,4'-Thiodianiline*
Thiourea*
Thiram
Thorium dioxide
Titanium tetrachloride
Toluene
Toluene-2,4-diisocyanate*
Toluene-2,6-diisocyanate*
Toluenediisocyanate (mixed isomers)*
o-Toluidine*
o-Toluidine hydrochloride*
Toxaphene*
Triaziquone
Trichlorfon
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Trichlorofluoromethane (CFC-11)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol*
Trifluralin
1,2,4-Trimethylbenzene
Tris (2,3-dibromopropyl) phosphate*
Trypan blue
Urethane*
Vanadium (fume or dust)
Vinyl acetate
Vinyl bromide*
Vinyl chloride*
Vinylidene chloride
Warfarin and salts
Xylene (mixed isomers)
m-Xylene
o-Xylene
p-Xylene
2,6-Xylidine
Zinc (fume or dust)
Zinc compounds
Zineb

Chemicals Excluded from 1993-1994 Trend Analysis

Modified Chemicals[c]:
Ammonia
Sulfuric acid

Chemicals added in 1994:
Chlorodifluoromethane (CFC-22)
Dichlorotrifluoroethane (CFC-123) and isomers
1,1-Dichloro-1,2,2-trifluoroethane
1,2-Dichloro-1,1,2-trifluoroethane
Dichloro-1,1,2-trifluorethane
1,1-Dichlor-1,2,2-trifluoroethane
Chlorotetrafluoroethane (CFC-124) and isomers
2-Chloro-1,1,1,2-tetrafluoroethane
1-Chloro-1,1,2,2-tetrafluoroethane
1,1-Dichloro-1-fluoroethane (CFC-141b) and isomers
1-Chloro-1,1-difluoroethane (CFC-142b)
Acetophenone
Amitrole
Bis(2-chloroethoxy)methane
4,4-Dichloro-2-butene
Dihydrosafrole
Ethylenebisdithiocarbamic (acid, salts and esters)
Ethylidene dichloride
Formic acid
Hexachlorophene
Hydrogen sulfide[d]
Malononitrile
Methacrylonitrile
Methyl chlorocarbonate
Methyl mercaptan[d]
2-Methylpyridine
5-Nitro-o-toluidine
Paraldehyde
Pentachloroethane
Pronamide
1,1,1,2-Tetrachloroethane
Thiram
Trypan blue
Warfarin and salts

Chemicals Excluded from 1988-1994 Trend Analysis

Modified Chemicals[c]:
Aluminum oxide
Ammonia
Sulfuric acid

Chemicals added in 1990:
Allyl alcohol
Creosote
2,3-Dichloropropene
m-Dinitrobenzene
o-Dinitrobenzene
p-Dinitrobenzene
Dinitrotoluene (mixed isomers)
Isosafrole
Toluenediisocyanate (mixed isomers)

Chemicals added in 1991:
Bromochlorodifluoromethane (Halon 1211)
Bromotrifluoromethane (Halon 1301)
Dibromotetrafluoroethane (Halon 2402)
Dichlorodifluoromethane (CFC-12)
Dichlorotetrafluoroethane (CFC-114)
Monochloropentafluoroethane (CFC-115)
Trichlorofluoromethane (CFC-11)

Chemicals added in 1994:
Chlorodifluoromethane (CFC-22)
Dichlorotrifluoroethane (CFC-123) and isomers
1,1-Dichloro-1,2,2-trifluoroethane
1,2-Dichloro-1,1,2-trifluoroethane
Dichloro-1,1,2-trifluorethane
1,1-Dichlor-1,2,2-trifluoroethane
Chlorotetrafluoroethane (CFC-124) and isomers
2-Chloro-1,1,1,2-tetrafluoroethane
1-Chloro-1,1,2,2-tetrafluoroethane
1,1-Dichloro-1-fluoroethane (CFC-141b) and isomers
1-Chloro-1,1-difluoroethane (CFC-142b)
Acetophenone
Amitrole
Bis(2-chloroethoxy)methane
4,4-Dichloro-2-butene
Dihydrosafrole
Ethylenebisdithiocarbamic (acid, salts and esters)
Ethylidene dichloride
Formic acid
Hexachlorophene
Hydrogen sulfide[d]
Malononitrile
Methacrylonitrile
Methyl chlorocarbonate
Methyl mercaptan[d]
2-Methylpyridine
5-Nitro-o-toluidine
Paraldehyde
Pentachloroethane
Pronamide
1,1,1,2-Tetrachloroethane
Thiram
Trypan blue
Warfarin and salts

Source: Environmental Assistance Division, U.S. Environmental Protection Agency, Washington D.C., 11-4-96.
[a]Carcinogenic chemicals marked with an asterisk.
[b]Category contains both carcinogenic and non-carcinogenic compounds; not included in carcinogenic analysis.
[c]Modification to the reporting requirements for these chemicals.
[d]Reporting for these chemicals has been suspended.

Appendix D
Volume and Percent Change in TRI Releases by County, 1993-94*

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
ANDREWS	-94,428	-23.24	0	0.00	0	0.00	0	0.00	-94,428	-23.24
ANGELINA	516,224	54.54	-252	-1.59	0	0.00	3,277	751.61	519,249	53.93
ARANSAS	13,500	5.56	0	0.00	0	0.00	0	0.00	13,500	5.56
AUSTIN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
BASTROP	0	0.00	0	0.00	0	0.00	-681	-68.10	-681	-34.05
BELL	-82,789	-17.49	5	33.33	0	0.00	0	0.00	-82,784	-17.49
BEXAR	53,444	6.52	0	0.00	0	0.00	0	0.00	53,444	6.52
BOWIE	-18,354	-13.98	-866	-87.83	0	0.00	-5,000	-100.00	-24,220	-17.64
BRAZORIA	-1,090,969	-9.56	-47,408	-36.64	90,850	2.18	111,887	82.78	-935,640	-5.91
BRAZOS	-45,553	-24.94	0	0.00	0	0.00	0	0.00	-45,553	-24.94
BROWN	-74,442	-7.29	342	1,000.00	0	0.00	-1,102	-11.69	-75,202	-7.30
BURLESON	-13,581	-41.53	0	0.00	0	0.00	0	0.00	-13,581	-41.53
BURNET	544	19.91	0	0.00	0	0.00	0	0.00	544	19.91
CALDWELL	27,017	36.96	0	0.00	0	0.00	0	0.00	27,017	36.96
CALHOUN	-85,742	-3.13	1,054	55.30	2,152,394	33.32	95,324	436.39	2,163,030	23.45
CAMERON	-10,089	-13.28	0	0.00	0	0.00	0	0.00	-10,089	-13.28
CAMP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
CASS	150,653	8.24	841	22.10	0	0.00	0	0.00	151,494	8.27
CASTRO	500	100.00	0	0.00	0	0.00	0	0.00	500	100.00
CHAMBERS	-61,119	-11.61	-1,235	-15.04	0	0.00	-255	-100.00	-62,609	-11.71
CHEROKEE	-18,190	-54.43	0	0.00	0	0.00	0	0.00	-18,190	-54.43
COLEMAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
COLLIN	-92,640	-35.19	0	0.00	0	0.00	-980	-0.20	-93,620	-12.59
COLORADO	-9,393	-3.49	0	0.00	0	0.00	0	0.00	-9,393	-3.49
COMAL	17,972	49.73	-1,000	-57.14	0	0.00	-750	-100.00	16,222	41.98
COMANCHE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
COOKE	14,688	40.30	0	0.00	0	0.00	0	0.00	14,688	40.30
CORYELL	2,650	11.00	0	0.00	0	0.00	0	0.00	2,650	11.00
DALLAS	-543,588	-15.02	553	53.07	0	0.00	-183,274	-56.56	-726,309	-18.42
DEAF SMITH	-245	-9.21	0	0.00	0	0.00	0	0.00	-245	-9.21

Appendix D
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
DENTON	-261,197	-52.95	0	0.00	0	0.00	0	0.00	-261,197	-52.95
ECTOR	-47,627	-1.71	0	0.00	-1,852	-1.56	-6,228	-32.66	-55,707	-1.90
EL PASO	-672,526	-65.24	500	49.75	0	0.00	-1,088	-7.32	-673,114	-64.31
ELLIS	-4,975	-1.67	0	0.00	0	0.00	32,707	1,000.00	27,732	9.27
ERATH	30,032	23.40	0	0.00	0	0.00	0	0.00	30,032	23.40
FANNIN	-5,857	-53.14	0	0.00	0	0.00	0	0.00	-5,857	-53.14
FAYETTE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FLOYD	-2,000	-3.92	0	0.00	0	0.00	0	0.00	-2,000	-3.92
FORT BEND	-96,643	-20.85	4,855	47.79	0	0.00	-18,146	-7.38	-109,934	-15.27
FREESTONE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FT BEND & HARRIS	-85	-1.85	0	0.00	-2,942	-16.09	0	0.00	-3,027	-13.23
GALVESTON	-62,617	-1.44	-1,354	-1.90	-1,351,810	-17.89	-69,791	-45.05	-1,485,572	-12.23
GONZALES	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
GRAY	-412,468	-29.79	0	0.00	-250	-100.00	11,273	12.53	-401,445	-27.22
GRAYSON	-21,860	-25.14	30	1,000.00	0	0.00	0	0.00	-21,830	-25.10
GREGG	49,176	6.28	1,500	17.14	0	0.00	0	0.00	50,676	6.40
GRIMES	13,326	1,000.00	0	0.00	0	0.00	0	0.00	13,326	1,000.00
GUADALUPE	50,995	28.54	-265	-98.15	0	0.00	0	0.00	50,730	28.35
HALE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDEMAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDIN	-611	-0.97	0	0.00	0	0.00	0	0.00	-611	-0.97
HARRIS	-4,174,436	-10.63	1,552,117	1,000.00	-187,404	-1.31	-193,825	-17.22	-3,003,548	-5.48
HARRISON	-416,195	-8.76	1,659	136.54	-14,200	-9.34	40,625	73.04	-388,111	-7.83
HAYS	17,796	37.50	0	0.00	0	0.00	0	0.00	17,796	37.50
HENDERSON	-32,374	-23.04	0	0.00	0	0.00	0	0.00	-32,374	-23.04
HIDALGO	-38,285	-67.58	0	0.00	0	0.00	0	0.00	-38,285	-67.58
HILL	-23,316	-14.75	0	0.00	0	0.00	0	0.00	-23,316	-14.75
HOPKINS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HOUSTON	2,250	100.00	0	0.00	0	0.00	0	0.00	2,250	100.00
HOWARD	642,525	51.90	0	0.00	0	0.00	40,018	1,000.00	682,543	55.02

Appendix D
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
HUNT	-115,475	-43.45	0	0.00	0	0.00	0	0.00	-115,475	-43.45
HUTCHINSON	2,260	0.12	-194	-1.41	-11,606	-22.49	-4,606	-29.28	-14,146	-0.73
JACK	7,700	19.85	0	0.00	0	0.00	0	0.00	7,700	19.85
JACKSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
JASPER	-369,978	-29.34	213	4.68	0	0.00	13,110	1,000.00	-356,655	-28.17
JEFFERSON	-1,284,921	-9.15	-19,941	-16.93	9,232,352	48.61	-97,563	-46.53	7,829,927	23.46
JOHNSON	19,389	8.49	-5	-50.00	0	0.00	-260	-100.00	19,124	8.37
JONES	14,920	12.24	0	0.00	0	0.00	0	0.00	14,920	12.24
KARNES	-234	-0.40	0	0.00	0	0.00	0	0.00	-234	-0.40
KAUFMAN	206,107	39.19	0	0.00	0	0.00	0	0.00	206,107	39.19
KERR	5,890	12.32	0	0.00	0	0.00	0	0.00	5,890	12.32
LAMAR	-62,679	-35.27	0	0.00	0	0.00	0	0.00	-62,679	-35.27
LAMB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LAVACA	2,607	1.96	0	0.00	0	0.00	0	0.00	2,607	1.96
LEE	8,289	1,000.00	0	0.00	0	0.00	0	0.00	8,289	1,000.00
LEON	2,658	6.90	0	0.00	0	0.00	0	0.00	2,658	6.90
LIBERTY	-81,964	-66.22	-5	-100.00	0	0.00	-200	-78.43	-82,169	-66.25
LIMESTONE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LIVE OAK	72,081	86.10	5	500.00	0	0.00	2,082	192.07	74,168	87.46
LUBBOCK	-29,131	-66.77	0	0.00	0	0.00	0	0.00	-29,131	-66.77
MATAGORDA	-188,130	-14.98	-1,395	-60.44	-1,329,918	-59.86	-36	-100.00	-1,519,479	-43.66
MAVERICK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MC LENNAN	-137,680	-35.49	0	0.00	0	0.00	0	0.00	-137,680	-35.48
MEDINA	-8,000	-11.43	0	0.00	0	0.00	0	0.00	-8,000	-11.43
MIDLAND	5,449	10.07	0	0.00	0	0.00	0	0.00	5,449	10.07
MILAM	397,747	51.22	0	0.00	0	0.00	-1,400	-31.82	396,347	50.75
MONTAGUE	-12,197	-100.00	0	0.00	0	0.00	0	0.00	-12,197	-100.00
MONTGOMERY	-36,399	-6.39	-3,750	-99.73	0	0.00	0	0.00	-40,149	-7.01
MOORE	406,596	58.44	0	0.00	-14,057	-18.89	1,534	44.89	394,073	50.94
MORRIS	-56,173	-56.43	2,550	28.52	0	0.00	29	7.04	-53,594	-49.22

Appendix D
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
NACOGDOCHES	7,563	1.35	-1,940	-99.49	0	0.00	0	0.00	5,623	1.00
NAVARRO	2,206	12.75	-5,600	-100.00	-298,486	-50.61	0	0.00	-301,880	-49.27
NOLAN	-197	-8.79	0	0.00	0	0.00	0	0.00	-197	-8.79
NUECES	-2,205,860	-48.93	39,464	425.58	-71,000	-5.09	-1,980,242	-16.48	-4,217,638	-23.53
ORANGE	-205,637	-2.89	-10,088	-64.29	45,216	4.14	353,975	483.94	183,466	2.21
PALO PINTO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
PARKER	-3,663	-3.24	-5	-100.00	0	0.00	-1,255	-83.11	-4,923	-4.29
PARMER	-2	-15.38	0	0.00	0	0.00	0	0.00	-2	-15.38
POLK	-7,768	-32.76	0	0.00	0	0.00	0	0.00	-7,768	-32.76
POTTER	-13,015	-11.39	0	0.00	27,235	20.50	-12,100	-100.00	2,120	0.82
RANDALL	121,600	24.41	0	0.00	0	0.00	245	1,000.00	121,845	24.46
RED RIVER	16,263	1,000.00	0	0.00	0	0.00	0	0.00	16,263	1,000.00
ROBERTSON	-5,775	-23.18	0	0.00	0	0.00	0	0.00	-5,775	-23.18
ROCKWALL	-1,747	-77.40	0	0.00	0	0.00	0	0.00	-1,747	-77.40
RUNNELS	-8,082	-22.80	0	0.00	0	0.00	0	0.00	-8,082	-22.80
RUSK	-75,685	-52.68	-5	-50.00	0	0.00	-750	-75.00	-76,440	-52.84
SABINE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SAN AUGUSTINE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SAN PATRICIO	-96,362	-30.16	14	36.84	-4	-100.00	-512	-73.99	-96,864	-30.25
SCURRY	72	2.69	0	0.00	0	0.00	0	0.00	72	2.69
SHELBY	697	278.80	0	0.00	0	0.00	0	0.00	697	278.80
SMITH	-85,775	-13.31	-662	-52.25	0	0.00	0	0.00	-86,437	-13.36
TARRANT	-29,341	-1.23	265	99.25	0	0.00	2,700	135.00	-26,376	-1.10
TAYLOR	32,544	7.84	-100	-100.00	0	0.00	0	0.00	32,444	7.81
TITUS	-48,783	-45.54	0	0.00	0	0.00	0	0.00	-48,783	-45.43
TOM GREEN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
TRAVIS	-77,062	-24.09	-24	-48.00	0	0.00	1,850	1,000.00	-75,236	-23.52
TRINITY	-10	-100.00	0	0.00	0	0.00	0	0.00	-10	-100.00
TYLER	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
UPSHUR	-29,004	-21.20	0	0.00	0	0.00	0	0.00	-29,004	-21.20

Appendix D
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
VAL VERDE	-7,867	-4.51	0	0.00	0	0.00	0	0.00	-7,867	-4.51
VAN ZANDT	11,642	1,000.00	0	0.00	0	0.00	0	0.00	11,642	1,000.00
VICTORIA	191,270	41.30	-61	-3.19	-1,552,540	-8.50	3,099	15.54	-1,358,232	-7.24
WALKER	-2,095	-8.97	0	0.00	0	0.00	0	0.00	-2,095	-8.97
WALLER	-2,777	-83.72	0	0.00	0	0.00	0	0.00	-2,777	-83.72
WARD	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WASHINGTON	-34,797	-6.21	0	0.00	0	0.00	0	0.00	-34,797	-6.21
WEBB	1,397	11.25	-260	-98.11	0	0.00	0	0.00	1,137	8.96
WHARTON	19,847	271.77	-5	-0.66	0	0.00	0	0.00	19,842	246.09
WICHITA	181,692	11.86	98	1,000.00	0	0.00	0	0.00	181,790	11.87
WILBARGER	-9,952	-26.46	0	0.00	0	0.00	0	0.00	-9,952	-26.46
WILLIAMSON	-38,038	-36.72	0	0.00	0	0.00	-6,600	-76.92	-44,638	-39.79
WILSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WISE	-12,472	-23.88	0	0.00	0	0.00	0	0.00	-12,472	-23.88
WOOD	0	0.00	16	160.00	0	0.00	0	0.00	16	160.00
YOUNG	-30,811	-31.07	0	0.00	0	0.00	0	0.00	-30,811	-31.07
ZAVALA	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
TOTAL										
INCREASE	**3,341,778**	**(---)**	**1,606,081**	**(---)**	**11,548,047**	**(---)**	**713,735**	**(---)**	**13,381,639**	**(---)**
DECREASE	**-13,929,732**	**(---)**	**-96,420**	**(---)**	**-4,836,069**	**(---)**	**-2,586,644**	**(---)**	**-17,620,863**	**(---)**
NET	**-10,587,954**	**(---)**	**1,509,661**	**(---)**	**6,711,978**	**(---)**	**-1,872,909**	**(---)**	**-4,239,224**	**(---)**

*Only counties with facilities that reported TRI transfers are listed. Changes > 1,000% are reported as 1,000%.

Appendix E
Volume and Percent Change in TRI Transfers by County, 1993-94*

County	POTW		Recycle		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
ANDREWS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ANGELINA	0	0.00	0	0.00	84,745	596.59	55,813	30.84	140,558	71.73
ARANSAS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
AUSTIN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
BASTROP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
BELL	147	6.34	-925	-5.97	-14,865	-25.42	-7,277	-68.55	-22,920	-26.37
BEXAR	9,021	297.92	597,010	30.59	17,178	5.49	-74,382	-50.68	548,827	22.73
BOWIE	140	36.46	-10,170	-25.32	12,482	160.68	644,865	1,000.00	647,317	1,000.00
BRAZORIA	0	0.00	-1,012,323	-32.08	65,256	15.41	2,579,092	676.29	1,632,025	41.20
BRAZOS	0	0.00	5,200	185.71	6,415	13.39	-404,400	-82.82	-392,785	-70.58
BROWN	54	192.86	219,480	7.26	9,440	86.13	167,425	103.64	396,399	12.40
BURLESON	0	0.00	0	0.00	0	0.00	245,275	1,000.00	245,275	1,000.00
BURNET	0	0.00	-48,000	-100.00	0	0.00	500	1,000.00	-47,500	-98.96
CALDWELL	0	0.00	0	0.00	0	0.00	-5	-100.00	-5	-100.00
CALHOUN	0	0.00	1,378,427	15.48	-203,972	-20.90	-75,827	-52.01	1,098,628	10.96
CAMERON	500	200.00	-193,115	-35.47	-58,900	-88.04	3,542	148.70	-247,973	-40.39
CAMP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
CASS	0	0.00	0	0.00	0	0.00	750	100.00	750	100.00
CASTRO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
CHAMBERS	0	0.00	0	0.00	15,050	2.89	68,021	4.20	83,071	3.88
CHEROKEE	0	0.00	-4,000	-100.00	-14,528	-100.00	0	0.00	-18,528	-100.00
COLEMAN	0	0.00	0	0.00	0	0.00	6,694	317.10	6,694	317.10
COLLIN	-20,685	-83.51	862,491	416.59	-17,241	-26.82	-37,552	-51.33	787,013	213.13
COLORADO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
COMAL	15,778	1,000.00	0	0.00	0	0.00	-3,774	-56.45	12,004	179.57
COMANCHE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
COOKE	-22	-100.00	-330	-100.00	0	0.00	1,380	1,000.00	1,028	292.05
CORYELL	0	0.00	0	0.00	944	74.92	0	0.00	944	74.92
DALLAS	27,207	15.83	2,879,304	22.63	4,839	0.34	-58,932	-8.21	2,852,418	18.99
DEAF SMITH	0	0.00	0	0.00	0	0.00	250	100.00	250	100.00

Appendix E
(cont.)

County	POTW		Recycle		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
DENTON	-250	-100.00	8,964	43.73	2,003	0.90	-4,018	-36.37	6,699	2.64
ECTOR	235	1,000.00	-1,558,492	-97.55	220,985	1000.00	7,618	6.67	-1,329,654	-76.72
EL PASO	-6,603	-78.17	12,391,911	212.71	89,977	539.79	-14,368	-39.98	12,460,917	211.67
ELLIS	0	0.00	1,002,320	10.38	23,897	7.05	-53,866	-57.70	972,351	9.64
ERATH	0	0.00	266	24.58	4,138	47.42	2,175	7.75	6,579	17.37
FANNIN	0	0.00	104,556	4.57	0	0.00	-6,746	-76.33	97,810	4.26
FAYETTE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FLOYD	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FORT BEND	3,213	203.61	84,336	43.11	131,006	228.71	-104,175	-66.01	114,380	27.74
FREESTONE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FT BEND & HARRIS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
GALVESTON	216,224	42.38	538,174	141.52	-420,534	-37.89	-65,817	-8.07	268,047	9.52
GONZALES	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
GRAY	0	0.00	0	0.00	-4,335	-100.00	-11,560	-85.13	-15,895	-88.72
GRAYSON	-1,629	-2.64	-717,322	-12.16	-570	-18.10	47,106	75.36	-672,415	-11.15
GREGG	0	0.00	313,402	183.53	2,860	9.84	95,371	322.24	411,633	179.22
GRIMES	0	0.00	118,716	23.76	0	0.00	0	0.00	118,716	23.76
GUADALUPE	0	0.00	145,500	2.65	-900	-100.00	285,312	321.86	429,912	7.70
HALE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDEMAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDIN	0	0.00	0	0.00	0	0.00	-168	-22.40	-168	-22.40
HARRIS	1,528,085	10.05	-1,861,585	-7.62	-5,871,724	-10.02	91,568	0.39	-6,113,656	-5.01
HARRISON	4,109	30.66	52,893	21.83	16,029	38.35	165,384	83.94	238,415	48.21
HAYS	1	100.00	128,000	1,000.00	0	0.00	250	1,000.00	128,251	1,000.00
HENDERSON	-5	-100.00	-6,395	-65.74	0	0.00	1,718	77.39	-4,682	-39.17
HIDALGO	14,320	1,000.00	-83,197	-82.19	0	0.00	0	0.00	-68,877	-67.39
HILL	0	0.00	0	0.00	4,000	1000.00	0	0.00	4,000	1,000.00
HOPKINS	13,214	481.74	3,850	19.06	0	0.00	0	0.00	17,064	74.38
HOUSTON	0	0.00	0	0.00	0	0.00	2,245	444.55	2,245	444.55
HOWARD	0	0.00	420	1,000.00	49	272.22	13,396	240.03	13,865	247.63

Appendix E
(cont.)

County	POTW		Recycle		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
HUNT	0	0.00	-50,803	-88.27	27,279	116.58	356	11.89	-23,168	-26.36
HUTCHINSON	0	0.00	87,122	35.62	0	0.00	1,000	1.49	88,122	28.28
JACK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
JACKSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
JASPER	5	500.00	0	0.00	-42,158	-99.99	-68,616	-19.65	-110,769	-28.31
JEFFERSON	1,320	1,000.00	-173,789	-7.26	-238,678	-18.60	524,775	11.79	113,628	1.40
JOHNSON	0	0.00	-1,535	-22.42	9,410	39.03	7,838	1,000.00	15,713	49.74
JONES	-1,930	-15.41	0	0.00	0	0.00	40	266.67	-1,890	-15.05
KARNES	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
KAUFMAN	0	0.00	-41,474	-31.22	162,128	325.43	-65,605	-24.27	55,049	12.15
KERR	0	0.00	-6,700	-58.77	0	0.00	0	0.00	-6,700	-58.77
LAMAR	-827	-91.28	-91,593	-17.48	-700	-100.00	-58,371	-91.03	-151,491	-25.69
LAMB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LAVACA	-4	-16.00	161	23.57	0	0.00	31,715	226.55	31,872	216.71
LEE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LEON	0	0.00	404,829	8.12	0	0.00	75,482	23.55	480,311	9.06
LIBERTY	0	0.00	0	0.00	-7,336	-75.71	-1,833	-35.25	-9,169	-61.58
LIMESTONE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
LIVE OAK	0	0.00	0	0.00	-1,409	-91.32	-1,240	-90.71	-2,649	-91.03
LUBBOCK	-750	-59.52	-22,761	-12.52	-10,908	-31.21	-2,253	-49.98	-36,672	-16.48
MATAGORDA	0	0.00	338,029	1,000.00	172,090	189.30	-364,431	-29.13	145,688	10.74
MAVERICK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MC LENNAN	1,200	1,000.00	49,498	14.83	-27,306	-59.00	61,184	59.08	84,576	17.48
MEDINA	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MIDLAND	0	0.00	0	0.00	5,990	1000.00	10,255	1,000.00	16,245	1,000.00
MILAM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MONTAGUE	0	0.00	-767	-100.00	0	0.00	0	0.00	-767	-100.00
MONTGOMERY	-21	-51.22	8,069	5.69	4,465	129.61	-1,351	-6.05	11,162	6.66
MOORE	9,109	328.84	9	900.00	1,459	51.81	-1,394	-98.94	9,183	131.28
MORRIS	0	0.00	271,050	15.25	0	0.00	8,474	10.20	279,524	15.03

Appendix E
(cont.)

County	POTW		Recycle		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
NACOGDOCHES	-2,000	-88.73	12,332	37.60	-43,000	-19.63	-12,174	-38.66	-44,842	-15.70
NAVARRO	146,271	975.14	-18,000	-100.00	-982	-16.23	-30	-44.12	127,259	325.30
NOLAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
NUECES	3,850	77.78	760,952	314.23	-140,962	-79.75	-706,551	-50.11	-82,711	-4.51
ORANGE	0	0.00	-563,399	-11.44	64,815	1.52	103,448	24.07	-395,136	-4.11
PALO PINTO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
PARKER	-5	-100.00	50,280	149.23	49,056	170.89	22,034	111.25	121,365	147.63
PARMER	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
POLK	0	0.00	0	0.00	0	0.00	-43	-2.14	-43	-2.14
POTTER	0	0.00	-1,550	-31.57	0	0.00	193,770	1,000.00	192,220	1,000.00
RANDALL	-5,800	-26.85	335	1,000.00	2,200	462.18	-2,569	-50.95	-5,834	-21.51
RED RIVER	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ROBERTSON	0	0.00	159,981	243.43	-112	-6.13	983	5.11	160,852	185.35
ROCKWALL	0	0.00	-374	-51.09	0	0.00	0	0.00	-374	-51.09
RUNNELS	2,629	88.19	0	0.00	0	0.00	0	0.00	2,629	88.19
RUSK	0	0.00	0	0.00	-3,676	-66.86	-5	-50.00	-3,681	-66.83
SABINE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SAN AUGUSTINE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SAN PATRICIO	0	0.00	0	0.00	0	0.00	284,117	88.97	284,117	88.97
SCURRY	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SHELBY	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SMITH	3,261	24.23	-52,046	-8.47	45,786	89.06	34,667	19.68	31,668	3.70
TARRANT	-63,316	-48.93	321,844	24.01	100,227	14.96	-33,336	-5.36	325,419	11.78
TAYLOR	751	1,000.00	-834,657	-28.38	0	0.00	-1,931	-7.40	-835,837	-28.17
TITUS	0	0.00	0	0.00	0	0.00	7,550	179.76	7,550	179.76
TOM GREEN	-1,900	-100.00	0	0.00	0	0.00	3,000	10.00	1,100	3.45
TRAVIS	100,737	155.62	461,367	32.76	-54,034	-4.22	-225,856	-22.77	282,214	7.54
TRINITY	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
TYLER	0	0.00	-152,616	-84.49	0	0.00	0	0.00	-152,616	-84.49
UPSHUR	0	0.00	35,200	1,000.00	47,702	467.03	128,778	435.21	211,680	531.81

Appendix E
(cont.)

County	POTW		Recycle		Energy Recovery		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
VAL VERDE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
VAN ZANDT	0	0.00	0	0.00	250	1000.00	0	0.00	250	1,000.00
VICTORIA	0	0.00	0	0.00	-1,787,878	-18.78	494,899	163.16	-1,292,979	-13.16
WALKER	0	0.00	0	0.00	0	0.00	289	11.86	289	5.56
WALLER	0	0.00	7,260	1000.00	0	0.00	-19,148	-98.71	-11,888	-61.28
WARD	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WASHINGTON	0	0.00	30,500	25.47	0	0.00	3,362	30.16	33,862	25.87
WEBB	0	0.00	-224,328	-11.63	0	0.00	-39	-0.23	-224,367	-11.53
WHARTON	0	0.00	0	0.00	1,937	1000.00	10,000	128.95	11,937	153.93
WICHITA	-6,414	-86.15	45,463	28.61	-3,310	-81.53	-1,855	-6.04	33,884	16.85
WILBARGER	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WILLIAMSON	-60	-23.53	-117,628	-63.79	-500	-4.72	-3,405	-24.94	-121,593	-58.20
WILSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WISE	0	0.00	0	0.00	5,764	170.94	0	0.00	5,764	170.94
WOOD	0	0.00	0	0.00	0	0.00	-750	-33.33	-750	-33.33
YOUNG	0	0.00	0	0.00	-1,711	-26.72	124	1.19	-1,587	-9.44
ZAVALA	0	0.00	-339,260	-100.00	0	0.00	-5	-100.00	-339,265	-100.00
TOTAL										
INCREASE	**2,101,381**	(---)	**23,879,501**	(---)	**1,411,851**	(---)	**6,493,890**	(---)	**26,909,217**	(---)
DECREASE	**-112,221**	(---)	**-8,189,134**	(---)	**-8,972,229**	(---)	**-2,495,658**	(---)	**-12,791,836**	(---)
NET	**1,989,160**	(---)	**15,690,367**	(---)	**-7,560,378**	(---)	**3,998,232**	(---)	**14,117,381**	(---)

*Only counties with facilities that reported TRI transfers are listed. Changes > 1,000% are reported as 1,000%.

Appendix F
Volume and Percent Change in TRI Releases by County, 1988-94*

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
ANDERSON	-170,001	-100.00	0	0.00	0	0.00	0	0.00	-170,001	-100.00
ANDREWS	311,917	1,000.00	0	0.00	0	0.00	0	0.00	311,917	1,000.00
ANGELINA	595,702	68.71	10,651	213.49	0	0.00	-394,907	-99.07	211,446	16.64
ARANSAS	48,500	23.32	0	0.00	0	0.00	0	0.00	48,500	23.32
AUSTIN	0	0.00	0	0.00	0	0.00	-250	-100.00	-250	-50.00
BASTROP	-250	-20.00	0	0.00	0	0.00	-138,681	-99.77	-138,931	-99.06
BELL	-477,715	-55.05	-230	-92.00	0	0.00	-2,105	-100.00	-480,050	-55.17
BEXAR	124,148	16.57	0	0.00	0	0.00	-292,896	-99.91	-168,748	-16.19
BOWIE	-154,275	-62.25	-62	-100.00	0	0.00	0	0.00	-154,337	-62.26
BRAZORIA	-9,842,911	-49.24	-284,290	-77.69	1,121,950	35.80	50,231	25.52	-8,955,020	-37.81
BRAZOS	-35,631	-20.63	5	500.00	0	0.00	0	0.00	-35,626	-20.62
BROWN	-6,953,229	-88.02	342	1,000.00	0	0.00	6,825	455.00	-6,946,062	-87.91
BURLESON	-5,534	-25.59	0	0.00	0	0.00	0	0.00	-5,534	-25.59
BURNET	3,276	1,000.00	0	0.00	0	0.00	0	0.00	3,276	1,000.00
CALDWELL	100,107	1,000.00	0	0.00	0	0.00	0	0.00	100,107	1,000.00
CALHOUN	-1,581,751	-37.41	-3,395	-53.42	-3,789,610	-30.56	59,435	102.95	-5,315,321	-31.84
CAMERON	-70,846	-51.82	-250	-100.00	0	0.00	-4,000	-100.00	-75,096	-53.28
CAMP	-33,662	-100.00	0	0.00	0	0.00	0	0.00	-33,662	-100.00
CASS	836,503	73.18	-109,854	-95.94	0	0.00	0	0.00	726,649	57.79
CASTRO	250	33.33	0	0.00	0	0.00	0	0.00	250	33.33
CHAMBERS	-561,318	-56.16	-5,703	-45.00	0	0.00	-232	-100.00	-567,253	-56.03
CHEROKEE	-228,392	-93.75	0	0.00	0	0.00	0	0.00	-228,392	-93.75
COLEMAN	510	1,000.00	0	0.00	0	0.00	0	0.00	510	1,000.00
COLLIN	-144,431	-45.85	-242	-96.80	0	0.00	-723,655	-60.17	-868,328	-57.20
COLORADO	109,561	73.04	0	0.00	0	0.00	0	0.00	109,561	73.04
COMAL	12,063	28.69	750	1,000.00	0	0.00	0	0.00	12,813	30.47
COMANCHE	-490	-98.00	0	0.00	0	0.00	0	0.00	-490	-98.00
COOKE	-68,137	-57.13	0	0.00	0	0.00	0	0.00	-68,137	-57.13
CORYELL	26,750	1,000.00	0	0.00	0	0.00	0	0.00	26,750	1,000.00
DALLAS	-4,234,494	-58.01	-26,348	-94.29	5	500.00	138,765	1,000.00	-4,122,072	-56.23

Appendix F
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
DEAF SMITH	915	61.00	0	0.00	0	0.00	0	0.00	915	61.00
DENTON	-294,951	-55.96	0	0.00	0	0.00	-56,880	-100.00	-351,831	-60.25
EASTLAND	-1,174,148	-100.00	0	0.00	0	0.00	0	0.00	-1,174,148	-100.00
ECTOR	-1,978,922	-41.94	0	0.00	-1,765,124	-93.78	-5,792	-31.09	-3,749,838	-56.65
EL PASO	-1,035,259	-74.29	1,505	1,000.00	0	0.00	-10,129	-42.38	-1,043,883	-73.65
ELLIS	-308,076	-51.19	1	100.00	0	0.00	-6,166,692	-99.47	-6,474,767	-95.20
ERATH	110,105	228.20	0	0.00	0	0.00	0	0.00	110,105	228.20
FANNIN	5,165	1,000.00	0	0.00	0	0.00	0	0.00	5,165	1,000.00
FAYETTE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FLOYD	49,000	1,000.00	0	0.00	0	0.00	0	0.00	49,000	1,000.00
FORT BEND	-241,928	-39.74	14,419	1,000.00	0	0.00	208,389	1,000.00	-19,120	-3.04
FREESTONE	0	0.00	0	0.00	0	0.00	-1	-100.00	-1	-100.00
FT BEND & HARRIS	-1,236	-21.54	0	0.00	783	5.38	0	0.00	-453	-2.23
GAINES	-450	-100.00	0	0.00	0	0.00	0	0.00	-450	-100.00
GALVESTON	-3,320,727	-43.61	56,128	404.03	-862,887	-12.21	-67,902	-44.37	-4,195,388	-28.25
GONZALES	770	1,000.00	0	0.00	0	0.00	0	0.00	770	1,000.00
GRAY	-250,524	-20.49	-2,745	-91.50	0	0.00	59,770	144.20	-193,499	-15.27
GRAYSON	-148,510	-69.53	30	1,000.00	0	0.00	-93,170	-99.97	-241,650	-78.77
GREGG	-343,465	-29.74	-8,300	-44.74	0	0.00	0	0.00	-351,765	-29.98
GRIMES	12,800	1,000.00	0	0.00	0	0.00	0	0.00	12,800	1,000.00
GUADALUPE	-420,934	-64.70	-10,245	-99.95	0	0.00	-7,646,000	-100.00	-8,077,179	-97.24
HALE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDEMAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
HARDIN	3,758	6.43	0	0.00	0	0.00	0	0.00	3,758	6.43
HARRIS	-12,388,661	-26.23	1,353,119	421.08	-5,350,479	-27.73	-74,855	-7.44	-16,460,876	-24.26
HARRISON	-7,088,113	-62.05	1,202	71.89	-87,143	-38.72	1,123	1.18	-7,172,931	-61.07
HAYS	55,001	536.60	0	0.00	0	0.00	0	0.00	55,001	536.60
HENDERSON	-47,896	-30.70	0	0.00	0	0.00	-2,707	-100.00	-50,603	-31.88
HIDALGO	-65,157	-78.01	0	0.00	0	0.00	0	0.00	-65,157	-78.01
HILL	16,209	13.67	-500	-100.00	0	0.00	-500	-100.00	15,209	12.72

Appendix F
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
HOCKLEY	-87,000	-100.00	0	0.00	0	0.00	0	0.00	-87,000	-100.00
HOPKINS	-30,528	-99.19	0	0.00	0	0.00	0	0.00	-30,528	-99.19
HOUSTON	-24,950	-84.72	0	0.00	0	0.00	0	0.00	-24,950	-84.72
HOWARD	863,369	84.89	0	0.00	0	0.00	28,079	192.05	891,448	86.41
HUNT	-134,658	-47.26	0	0.00	0	0.00	0	0.00	-134,658	-47.26
HUTCHINSON	-1,347,602	-42.05	-1,981	-12.77	25,145	169.21	-1,095,895	-99.00	-2,420,333	-55.74
JACK	46,500	1,000.00	0	0.00	0	0.00	0	0.00	46,500	1,000.00
JACKSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
JASPER	-3,313,035	-80.47	3,362	239.97	0	0.00	13,110	1,000.00	-3,296,563	-80.04
JEFFERSON	-7,765,960	-37.84	-514,186	-84.46	19,385,054	219.30	-596,045	-84.17	10,508,863	34.26
JOHNSON	-157,988	-38.94	5	500.00	0	0.00	0	0.00	-157,983	-38.94
JONES	117,056	591.67	0	0.00	0	0.00	0	0.00	117,056	591.67
KARNES	-30,601	-34.17	0	0.00	0	0.00	0	0.00	-30,601	-34.17
KAUFMAN	559,579	325.45	0	0.00	0	0.00	0	0.00	559,579	325.45
KERR	18,710	53.46	0	0.00	0	0.00	0	0.00	18,710	53.46
LAMAR	-294,787	-71.93	0	0.00	0	0.00	0	0.00	-294,787	-71.93
LAMB	500	1,000.00	0	0.00	0	0.00	0	0.00	500	1,000.00
LAVACA	-169,862	-55.60	0	0.00	0	0.00	0	0.00	-169,862	-55.60
LEE	8,289	1,000.00	0	0.00	0	0.00	0	0.00	8,289	1,000.00
LEON	39,697	1,000.00	0	0.00	0	0.00	-178,400	-100.00	-138,703	-77.10
LIBERTY	21,136	102.24	0	0.00	0	0.00	-445	-89.00	20,691	97.72
LIVE OAK	96,459	162.54	6	600.00	0	0.00	2,020	176.27	98,485	162.81
LUBBOCK	-80,853	-84.79	0	0.00	0	0.00	0	0.00	-80,853	-84.79
MATAGORDA	-577,514	-35.10	-275	-23.15	-774,559	-46.48	-64,493	-100.00	-1,416,841	-41.95
MAVERICK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MC LENNAN	-317,378	-55.91	25	1,000.00	0	0.00	-18,250	-100.00	-335,603	-57.28
MEDINA	62,000	1,000.00	0	0.00	0	0.00	0	0.00	62,000	1,000.00
MIDLAND	-44,374	-42.69	0	0.00	0	0.00	0	0.00	-44,374	-42.69
MILAM	-638,876	-35.24	0	0.00	0	0.00	3,000	1,000.00	-635,876	-35.07
MONTGOMERY	89,127	20.08	10	1,000.00	0	0.00	-42,200	-100.00	46,937	9.66

Appendix F
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
MOORE	231,395	26.57	-250	-100.00	-166,828	-73.44	-12,808	-72.12	51,509	4.61
MORRIS	-437,087	-91.53	-27,460	-70.50	0	0.00	-290,987	-99.85	-755,534	-93.52
NACOGDOCHES	90,537	19.03	10	1,000.00	0	0.00	0	0.00	90,547	19.03
NAVARRO	-3,374	-14.74	0	0.00	-172,201	-37.15	0	0.00	-175,575	-36.10
NEWTON	-6,960	-100.00	0	0.00	0	0.00	-500	-100.00	-7,460	-100.00
NOLAN	1,795	718.00	-19	-100.00	0	0.00	-6,227	-100.00	-4,451	-68.52
NUECES	-1,277,581	-35.69	22,141	83.25	-4,658,370	-77.87	-2,379,670	-19.17	-8,293,480	-37.69
ORANGE	-3,338,692	-32.58	-2,894	-34.06	-1,126,183	-49.76	422,947	1,000.00	-4,044,822	-32.30
PALO PINTO	-198,861	-100.00	0	0.00	0	0.00	0	0.00	-198,861	-100.00
PARKER	21,152	23.94	0	0.00	0	0.00	5	2.00	21,157	23.87
PARMER	-2	-15.38	0	0.00	0	0.00	0	0.00	-2	-15.38
PECOS	-750	-100.00	0	0.00	0	0.00	0	0.00	-750	-100.00
POLK	8,003	100.82	0	0.00	0	0.00	-500	-100.00	7,503	88.92
POTTER	10,191	11.32	0	0.00	111,730	230.89	-5,000	-100.00	116,921	81.53
RAINS	-17,809	-100.00	0	0.00	0	0.00	0	0.00	-17,809	-100.00
RANDALL	-138,421	-18.26	0	0.00	0	0.00	250	1,000.00	-138,171	-18.23
RED RIVER	16,267	1,000.00	0	0.00	0	0.00	0	0.00	16,267	1,000.00
ROBERTSON	14,398	303.69	0	0.00	0	0.00	0	0.00	14,398	303.69
ROCKWALL	-18,446	-97.31	0	0.00	0	0.00	0	0.00	-18,446	-97.31
RUNNELS	-43,776	-61.54	0	0.00	0	0.00	0	0.00	-43,776	-61.54
RUSK	-167,912	-71.18	5	500.00	0	0.00	-1,500	-85.71	-169,407	-71.29
SABINE	750	1,000.00	0	0.00	0	0.00	0	0.00	750	1,000.00
SAN AUGUSTINE	-750	-100.00	0	0.00	0	0.00	0	0.00	-750	-100.00
SAN PATRICIO	-33,730	-13.87	-678	-92.88	-5,965	-100.00	-454	-71.61	-40,827	-16.29
SCURRY	2,745	1,000.00	0	0.00	0	0.00	0	0.00	2,745	1,000.00
SHELBY	697	278.80	-250	-100.00	0	0.00	0	0.00	447	89.40
SMITH	-40,602	-6.78	105	21.00	-1,750	-100.00	-288,200	-99.57	-330,447	-37.09
TARRANT	-4,420,872	-65.79	-849	-61.48	0	0.00	-9,836	-67.67	-4,431,557	-65.79
TAYLOR	214,521	91.99	0	0.00	0	0.00	0	0.00	214,521	91.99
TITUS	-32,463	-35.75	-4,750	-95.00	0	0.00	0	0.00	-37,213	-38.84

Appendix F
(cont.)

County	Air		Water		Underground Injection		Land		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
TOM GREEN	-82,080	-97.91	0	0.00	0	0.00	0	0.00	-82,080	-97.91
TRAVIS	-585,008	-70.69	26	1,000.00	0	0.00	1,850	1,000.00	-583,132	-70.46
TRINITY	-250	-100.00	0	0.00	0	0.00	0	0.00	-250	-100.00
TYLER	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
UPSHUR	-24,363	-18.44	0	0.00	0	0.00	0	0.00	-24,363	-18.44
VAL VERDE	80,882	1,000.00	0	0.00	0	0.00	0	0.00	80,882	1,000.00
VAN ZANDT	11,642	1,000.00	0	0.00	0	0.00	0	0.00	11,642	1,000.00
VICTORIA	-1,675,360	-71.91	-1,874	-50.34	-5,744,709	-25.58	-279,927	-92.39	-7,701,870	-30.69
WALKER	-2,421	-10.23	0	0.00	0	0.00	-500	-100.00	-2,921	-12.08
WALLER	-16,662	-96.86	0	0.00	0	0.00	0	0.00	-16,662	-96.86
WARD	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WASHINGTON	-68,550	-11.55	0	0.00	0	0.00	0	0.00	-68,550	-11.55
WEBB	13,817	1,000.00	5	500.00	0	0.00	0	0.00	13,822	1,000.00
WHARTON	18,566	216.29	-745	-49.67	0	0.00	0	0.00	17,821	176.73
WICHITA	1,268,495	285.30	106	1,000.00	0	0.00	0	0.00	1,268,601	285.32
WILBARGER	-15,313	-35.64	0	0.00	0	0.00	0	0.00	-15,313	-35.64
WILLIAMSON	-59,382	-47.53	0	0.00	0	0.00	1,980	1,000.00	-57,402	-45.94
WILSON	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WISE	32,186	424.62	0	0.00	0	0.00	0	0.00	32,186	424.62
WOOD	0	0.00	26	1,000.00	0	0.00	0	0.00	26	1,000.00
YOUNG	-58,838	-46.26	0	0.00	0	0.00	0	0.00	-58,838	-46.26
ZAVALA	0	0.00	0	0.00	0	0.00	-250	-100.00	-250	-100.00
TOTAL										
INCREASE	**6,383,471**	**(---)**	**1,463,984**	**(---)**	**20,644,667**	**(---)**	**997,779**	**(---)**	**16,145,305**	**(---)**
DECREASE	**-81,454,305**	**(---)**	**-1,008,375**	**(---)**	**-24,505,808**	**(---)**	**-20,953,441**	**(---)**	**-114,577,333**	**(---)**
NET	**-75,070,834**	**(---)**	**455,609**	**(---)**	**-3,861,141**	**(---)**	**-19,955,662**	**(---)**	**-98,432,028**	**(---)**

*Changes > 1,000% are reported as 1,000%.

Appendix G
Volume and Percent Change in TRI Transfers by County, 1988-94*

County	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
ANDERSON	0	0.00	0	0.00	0	0.00
ANDREWS	0	0.00	0	0.00	0	0.00
ANGELINA	-2,290	-74.91	101,564	75.10	99,274	71.78
ARANSAS	0	0.00	0	0.00	0	0.00
AUSTIN	0	0.00	0	0.00	0	0.00
BASTROP	0	0.00	0	0.00	0	0.00
BELL	1,190	93.33	-56,340	-98.33	-55,150	-94.16
BEXAR	-969	-7.44	-161,348	-69.03	-162,317	-65.78
BOWIE	-9	-64.29	-172,695	-92.25	-172,704	-92.24
BRAZORIA	0	0.00	-558,341	-15.87	-558,341	-15.87
BRAZOS	-587,475	-97.11	31,447	59.99	-556,028	-84.58
BROWN	-788	-90.57	-251,772	-43.35	-252,560	-43.42
BURLESON	-131	-96.32	253,208	1000.00	253,077	1000.00
BURNET	0	0.00	500	1000.00	500	1000.00
CALDWELL	0	0.00	0	0.00	0	0.00
CALHOUN	0	0.00	7,409	11.84	7,409	11.84
CAMERON	250	50.00	-139,121	-95.92	-138,871	-95.41
CAMP	0	0.00	-24,816	-100.00	-24,816	-100.00
CASS	0	0.00	-2,500	-62.50	-2,500	-62.50
CASTRO	0	0.00	0	0.00	0	0.00
CHAMBERS	0	0.00	152,685	9.98	152,685	9.98
CHEROKEE	0	0.00	0	0.00	0	0.00
COLEMAN	0	0.00	8,805	1000.00	8,805	1000.00
COLLIN	2,945	258.33	-72,790	-67.15	-69,845	-63.76
COLORADO	0	0.00	0	0.00	0	0.00
COMAL	15,778	1000.00	2,911	1000.00	18,689	1000.00
COMANCHE	0	0.00	0	0.00	0	0.00
COOKE	0	0.00	-2,769	-66.74	-2,769	-66.74
CORYELL	0	0.00	0	0.00	0	0.00
DALLAS	-149,003	-42.81	-1,560,954	-70.32	-1,709,957	-66.59

Appendix G
(cont.)

County	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
DEAF SMITH	0	0.00	500	1000.00	500	1000.00
DENTON	-93,174	-100.00	-317,032	-97.83	-410,206	-98.31
EASTLAND	0	0.00	0	0.00	0	0.00
ECTOR	235	1000.00	94,492	565.41	94,727	566.82
EL PASO	-67,900	-97.36	-97,946	-83.69	-165,846	-88.80
ELLIS	0	0.00	-146,892	-78.81	-146,892	-78.81
ERATH	-8,949	-99.99	4,150	15.90	-4,799	-13.69
FANNIN	-250	-100.00	2,092	1000.00	1,842	736.80
FAYETTE	0	0.00	0	0.00	0	0.00
FLOYD	0	0.00	0	0.00	0	0.00
FORT BEND	-15,958	-76.91	-343,688	-86.50	-359,646	-86.02
FREESTONE	0	0.00	0	0.00	0	0.00
FT BEND & HARRIS	0	0.00	0	0.00	0	0.00
GAINES	0	0.00	0	0.00	0	0.00
GALVESTON	-1,724,387	-70.36	-201,224	-21.16	-1,925,611	-56.60
GONZALES	0	0.00	505	1000.00	505	1000.00
GRAY	0	0.00	-1,840	-47.67	-1,840	-47.67
GRAYSON	-10,337	-14.69	-247,713	-69.32	-258,050	-60.34
GREGG	-250	-50.00	-64,087	-33.90	-64,337	-33.94
GRIMES	0	0.00	0	0.00	0	0.00
GUADALUPE	0	0.00	368,707	1000.00	368,707	1000.00
HALE	0	0.00	0	0.00	0	0.00
HARDEMAN	0	0.00	0	0.00	0	0.00
HARDIN	0	0.00	-1,418	-70.90	-1,418	-70.90
HARRIS	-17,219,370	-50.93	-5,548,160	-19.61	-22,767,530	-36.66
HARRISON	16,261	1000.00	-40,565	-10.07	-24,304	-6.01
HAYS	1	100.00	-250	-50.00	-249	-49.80
HENDERSON	0	0.00	-1,362	-25.70	-1,362	-25.70
HIDALGO	15,060	1000.00	-13,056	-100.00	2,004	15.06
HILL	0	0.00	0	0.00	0	0.00

Appendix G
(cont.)

County	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
HOCKLEY	0	0.00	0	0.00	0	0.00
HOPKINS	15,583	1000.00	0	0.00	15,583	1000.00
HOUSTON	0	0.00	-24,500	-89.91	-24,500	-89.91
HOWARD	0	0.00	7,584	66.57	7,584	66.57
HUNT	-11,895	-75.05	-254,093	-98.70	-265,988	-97.33
HUTCHINSON	0	0.00	-14,550	-17.63	-14,550	-17.63
JACK	0	0.00	0	0.00	0	0.00
JACKSON	0	0.00	0	0.00	0	0.00
JASPER	-3,203	-100.00	0	0.00	-3,203	-100.00
JEFFERSON	1,070	428.00	-4,023,298	-44.71	-4,022,228	-44.70
JOHNSON	-112	-91.80	-5,801	-40.66	-5,913	-41.10
JONES	10,595	1000.00	55	1000.00	10,650	1000.00
KARNES	0	0.00	0	0.00	0	0.00
KAUFMAN	-9,049	-99.99	39,492	73.64	30,443	48.57
KERR	0	0.00	-7,700	-100.00	-7,700	-100.00
LAMAR	-341	-81.19	-61,550	-91.46	-61,891	-91.39
LAMB	0	0.00	0	0.00	0	0.00
LAVACA	21	1000.00	26,914	143.16	26,935	143.27
LEE	0	0.00	0	0.00	0	0.00
LEON	0	0.00	396,026	1000.00	396,026	1000.00
LIBERTY	0	0.00	2,367	236.70	2,367	236.70
LIVE OAK	0	0.00	-26	-16.99	-26	-16.99
LUBBOCK	-2,990	-85.43	-219,317	-98.98	-222,307	-98.77
MATAGORDA	0	0.00	337,082	61.35	337,082	61.35
MAVERICK	0	0.00	0	0.00	0	0.00
MC LENNAN	739	142.39	-152,768	-48.11	-152,029	-47.80
MEDINA	0	0.00	0	0.00	0	0.00
MIDLAND	0	0.00	-36,319	-77.39	-36,319	-77.39
MILAM	0	0.00	-250	-100.00	-250	-100.00
MONTGOMERY	-23,105	-99.91	-16,291	-43.72	-39,396	-65.24

Appendix G
(cont.)

County	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
MOORE	-7,243	-37.88	15	1000.00	-7,228	-37.80
MORRIS	-4,698	-100.00	-212,706	-69.92	-217,404	-70.37
NACOGDOCHES	-6,839	-96.42	-408,593	-95.49	-415,432	-95.50
NAVARRO	161,271	1000.00	-29,410	-99.87	131,861	447.78
NEWTON	0	0.00	0	0.00	0	0.00
NOLAN	0	0.00	0	0.00	0	0.00
NUECES	-14,824	-62.75	-575,243	-44.99	-590,067	-45.31
ORANGE	0	0.00	-6,996,702	-92.92	-6,996,702	-92.92
PALO PINTO	-250	-100.00	0	0.00	-250	-100.00
PARKER	-2,250	-100.00	-37,687	-47.39	-39,937	-48.84
PARMER	0	0.00	0	0.00	0	0.00
PECOS	0	0.00	-54,925	-100.00	-54,925	-100.00
POLK	0	0.00	1,968	1000.00	1,968	1000.00
POTTER	0	0.00	197,282	1000.00	197,282	1000.00
RAINS	-5	-100.00	-320	-100.00	-325	-100.00
RANDALL	-123,195	-88.63	-5,249	-67.97	-128,444	-87.54
RED RIVER	0	0.00	0	0.00	0	0.00
ROBERTSON	0	0.00	-10,142	-33.40	-10,142	-33.40
ROCKWALL	0	0.00	0	0.00	0	0.00
RUNNELS	5,610	1000.00	0	0.00	5,610	1000.00
RUSK	0	0.00	-3,445	-99.86	-3,445	-99.86
SABINE	0	0.00	0	0.00	0	0.00
SAN AUGUSTINE	0	0.00	0	0.00	0	0.00
SAN PATRICIO	0	0.00	376,180	166.66	376,180	166.66
SCURRY	0	0.00	0	0.00	0	0.00
SHELBY	0	0.00	0	0.00	0	0.00
SMITH	11,632	228.57	-61,971	-22.71	-50,339	-18.11
TARRANT	-268,650	-80.26	-876,771	-59.82	-1,145,421	-63.62
TAYLOR	-11,351	-93.39	-13,951	-36.61	-25,302	-50.34
TITUS	0	0.00	11,000	1000.00	11,000	1000.00

Appendix G
(cont.)

County	POTW		Disposal/Treatment		Total	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
TOM GREEN	-6,600	-100.00	-2,180	-6.20	-8,780	-21.01
TRAVIS	94,026	131.61	-776,289	-50.33	-682,263	-42.27
TRINITY	0	0.00	-1,200	-100.00	-1,200	-100.00
TYLER	0	0.00	0	0.00	0	0.00
UPSHUR	-500	-100.00	155,283	1000.00	154,783	1000.00
VAL VERDE	0	0.00	0	0.00	0	0.00
VAN ZANDT	0	0.00	0	0.00	0	0.00
VICTORIA	0	0.00	798,216	1000.00	798,216	1000.00
WALKER	0	0.00	-1,615	-37.21	-1,615	-37.21
WALLER	0	0.00	-18,544	-98.67	-18,544	-98.67
WARD	0	0.00	0	0.00	0	0.00
WASHINGTON	-249	-99.60	-30,760	-67.95	-31,009	-68.12
WEBB	0	0.00	16,860	1000.00	16,860	1000.00
WHARTON	0	0.00	11,953	206.02	11,953	206.02
WICHITA	-18,701	-94.77	-281,157	-90.70	-299,858	-90.94
WILBARGER	0	0.00	0	0.00	0	0.00
WILLIAMSON	-55	-22.00	-16,806	-62.12	-16,861	-61.75
WILSON	0	0.00	0	0.00	0	0.00
WISE	0	0.00	0	0.00	0	0.00
WOOD	0	0.00	1,500	1000.00	1,500	1000.00
YOUNG	0	0.00	-6,860	-39.46	-6,860	-39.46
ZAVALA	0	0.00	0	0.00	0	0.00
TOTAL						
INCREASE	**352,267**	**(---)**	**3,408,752**	**(---)**	**3,542,607**	**(---)**
DECREASE	**-20,397,345**	**(---)**	**-25,267,668**	**(---)**	**-45,446,601**	**(---)**
NET	**-20,045,078**	**(---)**	**-21,858,916**	**(---)**	**-41,903,994**	**(---)**

*Changes > 1,000% are reported as 1,000%.

Appendix H
Carcinogenic Releases to Air, Water, Underground Injection, and Land by County, 1994

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
ANDREWS	311,917	0	0	0	311,917
ANGELINA	548,087	5,600	0	3,644	557,331
BELL	95,211	5	0	0	95,216
BEXAR	251,567	0	0	0	251,567
BOWIE	19,486	120	0	0	19,606
BRAZORIA	1,908,674	5,930	1,774,200	26,129	3,714,933
BROWN	113,700	0	0	0	113,700
BURLESON	3,030	0	0	0	3,030
BURNET	3,271	0	0	0	3,271
CALHOUN	370,885	1,011	2,579,200	69,197	3,020,293
CAMERON	6,736	0	0	0	6,736
CASS	161,020	3,316	0	0	164,336
CHAMBERS	24,640	2,005	0	0	26,645
CHEROKEE	14,974	0	0	0	14,974
COLLIN	255	1	0	2,400	2,656
COOKE	20,919	0	0	0	20,919
CORYELL	13,750	0	0	0	13,750
DALLAS	365,108	282	0	96,232	461,622
DENTON	38,090	0	0	0	38,090
ECTOR	323,674	0	14	10,854	334,542
EL PASO	41,597	0	0	5,887	47,484
ELLIS	177,425	0	0	0	177,425
ERATH	58,544	0	0	0	58,544
FORT BEND	7,539	510	0	14,516	22,565
FT BEND & HARRIS	1,424	0	0	0	1,424
GALVESTON	602,889	183	1,300,514	6,489	1,910,075
GRAY	318,610	0	0	23,478	342,088
GRAYSON	2,300	0	0	0	2,300
GREGG	111,819	254	0	0	112,073
GRIMES	500	0	0	0	500
GUADALUPE	153,000	0	0	0	153,000
HARDIN	58,412	0	0	0	58,412
HARRIS	5,061,701	8,678	522,987	37,970	5,631,336
HARRISON	302,061	100	0	9,100	311,261
HAYS	500	0	0	0	500

Appendix H
(cont.)

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
HOUSTON	500	0	0	0	500
HOWARD	191,593	0	0	1,500	193,093
HUNT	95,280	0	0	0	95,280
HUTCHINSON	305,116	1,625	3,143	7,814	317,698
JASPER	159,542	1,528	0	4,140	165,210
JEFFERSON	1,736,408	38,230	274,400	35,439	2,084,477
JOHNSON	53,921	5	0	0	53,926
JONES	24,550	0	0	0	24,550
KARNES	57,532	0	0	0	57,532
KAUFMAN	292,129	0	0	0	292,129
LAMAR	500	0	0	0	500
LAVACA	0	0	0	0	0
LEE	8,289	0	0	0	8,289
LEON	500	0	0	0	500
LIBERTY	8,182	0	0	0	8,182
LIVE OAK	8,361	0	0	2,248	10,609
LUBBOCK	0	0	0	0	0
MATAGORDA	121,408	207	261,226	0	382,841
MC LENNAN	50,750	0	0	0	50,750
MEDINA	62,010	0	0	0	62,010
MIDLAND	46,206	0	0	0	46,206
MILAM	451	0	0	0	451
MONTGOMERY	131,535	0	0	0	131,535
MOORE	18,054	0	2,593	5	20,652
MORRIS	3,831	0	0	85	3,916
NACOGDOCHES	69,222	0	0	0	69,222
NAVARRO	10	0	1,130	0	1,140
NOLAN	1,295	0	0	0	1,295
NUECES	652,932	9,417	797,200	67	1,459,616
ORANGE	407,607	1,056	108,996	750	518,409
PARKER	12,285	0	0	0	12,285
POLK	15,911	0	0	0	15,911
POTTER	1,370	0	12,210	0	13,580
RANDALL	413,000	0	0	0	413,000
RUSK	67,727	0	0	0	67,727

Appendix H
(cont.)

Pounds Released

County*	Air	Surface Water	Underground Injection	Land	Total
SABINE	750	0	0	0	750
SAN PATRICIO	89,754	49	0	0	89,803
SMITH	57,177	250	0	250	57,677
TARRANT	210,903	10	0	2,700	213,613
TAYLOR	0	0	0	0	0
TOM GREEN	1,250	0	0	0	1,250
TRAVIS	27,836	22	0	1,850	29,708
TYLER	0	0	0	0	0
VICTORIA	44,166	0	33,974	6,119	84,259
WALKER	5,757	0	0	0	5,757
WALLER	290	0	0	0	290
WASHINGTON	431,160	0	0	0	431,160
WEBB	505	0	0	0	505
WHARTON	929	5	0	0	934
WICHITA	78,555	55	0	0	78,610
WILBARGER	27,654	0	0	0	27,654
WILLIAMSON	0	0	0	0	0
TOTAL	**17,488,008**	**80,454**	**7,671,787**	**368,863**	**25,609,112**

*Only counties with carcinogenic releases or transfers are listed.

Appendix I
Carcinogenic Transfers to POTW, Recycling, Energy Recovery, and Disposal/Treatment by County, 1994

Pounds Transferred

County*	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
ANDREWS	0	0	0	0	0
ANGELINA	0	0	0	2,250	2,250
BELL	2,465	14,569	7,045	2,689	26,768
BEXAR	255	1,733,746	578	43,579	1,778,158
BOWIE	524	30,000	0	638,729	669,253
BRAZORIA	0	1,672,396	174,374	831,659	2,678,429
BROWN	0	0	0	0	0
BURLESON	0	0	0	15,324	15,324
BURNET	0	0	0	250	250
CALHOUN	0	6,422,483	47,728	3,039	6,473,250
CAMERON	0	175,755	5,000	5,674	186,429
CASS	0	0	0	1,000	1,000
CHAMBERS	0	0	38,650	289,005	327,655
CHEROKEE	0	0	0	0	0
COLLIN	259	60,626	0	6	60,891
COOKE	0	0	0	0	0
CORYELL	0	0	1,954	0	1,954
DALLAS	27,722	610,332	10,805	266,740	915,599
DENTON	0	0	0	0	0
ECTOR	235	32,371	212,966	69,130	314,702
EL PASO	526	3,397,341	0	15,526	3,413,393
ELLIS	0	1,020,874	3,417	2,338	1,026,629
ERATH	0	0	0	30,000	30,000
FORT BEND	451	179,616	0	2,920	182,987
FT BEND & HARRIS	0	0	0	0	0
GALVESTON	148,495	196,782	91,817	125,714	562,808
GRAY	0	0	0	0	0
GRAYSON	5	131,773	0	2,411	134,189
GREGG	5	265,046	4,890	86,349	356,290
GRIMES	0	462,029	0	0	462,029
GUADALUPE	0	36,000	0	0	36,000
HARDIN	0	0	0	0	0
HARRIS	752,732	10,326,208	2,423,205	4,762,572	18,264,717
HARRISON	0	74,960	11,001	116,560	202,521
HAYS	1	128,000	250	250	128,501

Appendix I
(cont.)

Pounds Transferred

County*	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
HOUSTON	0	0	0	0	0
HOWARD	0	420	14	18,977	19,411
HUNT	5	0	0	500	505
HUTCHINSON	0	180,171	0	0	180,171
JASPER	5	0	5	280,505	280,515
JEFFERSON	0	421,283	37,112	333,863	792,258
JOHNSON	0	2,700	0	750	3,450
JONES	2,900	0	0	15	2,915
KARNES	0	0	0	0	0
KAUFMAN	0	0	0	150,100	150,100
LAMAR	0	18,465	0	0	18,465
LAVACA	21	844	0	73	938
LEE	0	0	0	0	0
LEON	0	0	0	0	0
LIBERTY	0	0	0	0	0
LIVE OAK	0	0	99	39	138
LUBBOCK	0	5,527	0	0	5,527
MATAGORDA	0	60,690	51,717	30,246	142,653
MC LENNAN	263	91,078	7,519	11,956	110,816
MEDINA	0	0	0	0	0
MIDLAND	0	0	0	0	0
MILAM	0	0	0	0	0
MONTGOMERY	5	33,054	2,260	6,175	41,494
MOORE	0	0	48	4	52
MORRIS	0	31,350	0	38,085	69,435
NACOGDOCHES	0	0	0	0	0
NAVARRO	790	0	0	38	828
NOLAN	0	0	0	0	0
NUECES	0	112,548	7,449	342,939	462,936
ORANGE	0	432,288	40,000	313,795	786,083
PARKER	0	22,032	0	1,505	23,537
POLK	0	0	0	0	0
POTTER	0	0	0	3,200	3,200
RANDALL	9,300	0	2,676	0	11,976
RUSK	0	0	1,822	0	1,822

Appendix I
(cont.)

Pounds Transferred

County*	POTW	Recycling	Energy Recovery	Disposal/Treatment	Total
SABINE	0	0	0	0	0
SAN PATRICIO	0	0	0	63,584	63,584
SMITH	2,205	11,618	0	1,845	15,668
TARRANT	964	312,891	16,911	73,568	404,334
TAYLOR	24	52,553	0	7,279	59,856
TOM GREEN	0	0	0	0	0
TRAVIS	3,489	474,591	3,206	1,160	482,446
TYLER	0	25,731	0	0	25,731
VICTORIA	0	0	0	299,828	299,828
WALKER	0	0	0	0	0
WALLER	0	7,260	0	0	7,260
WASHINGTON	0	80,250	0	260	80,510
WEBB	0	8,101	0	500	8,601
WHARTON	0	0	0	5	5
WICHITA	625	139,481	750	3,746	144,602
WILBARGER	0	0	0	0	0
WILLIAMSON	5	4,036	0	0	4,041
TOTAL	**954,276**	**29,499,869**	**3,205,268**	**9,298,254**	**42,957,667**

*Only counties with carcinogenic releases or transfers are listed.

Appendix J
Public Contacts and Access to the Toxics Release Inventory

PUBLIC CONTACTS

Section 313 EPA Regional Contacts: U.S. EPA Region 6 (6PDT) - Pesticides and Toxic Substances Branch 1445 Ross Avenue, Suite 1200 Dallas, TX 75202-2733	Warren Layne (214) 665-8013 Fax: (214) 665-7263
Texas TRI Public Contact: Texas Natural Resources Conservation Commission Office of Pollution Prevention and Recycling P.O. Box 13087 (MC112) 12015 Park, 35 Circle Bldg. F Austin, TX 78711-3087	Becky Kurka, Supervisor (512) 239-3100 David James (512) 239-3100

TRI REPORTS AND DATA PRODUCTS

Product		Supplier	Contact Information	Order Information
1994 TRI Executive Summary		U.S. EPA EPCRA Hotline	(800) 535-0202 Fax Document Requests Only: (703) 412-3333	EPA 745/S-96-001 (Free)
1994 TRI Public Data Release (annual report)				EPA 745/R-96-002 (Free)
1994 State Fact Sheets				EPA 745/F-96-001 (Free)
1987-1993 TRI CD-ROM		U.S. GPO	(202) 512-1800	S/N 055-000-00508-7 ($38)
		NTIS	(703) 487-4650	PB 95503793 ($45)
1994 State Data	dBase Lotus	U.S. GPO	(202) 512-1530	$15-$17 / state Up to 67 disks for all states
1994 Federal Facilities Disk	dBase Lotus	U.S. GPO	(202) 512-1530	$15-$17. Call for quote.
TRI Information Kit		NCEPI	(513) 489-8180 Fax: (513) 489-8190	EPA 749-F-94-002 (Free)

ACCESSING TRI DATA ONLINE

Data from Online Providers	Internet Address	Special Notes
Right to Know Network (RTKNET) - Provides public access to TRI and related environmental data bases to community groups concerned about toxics. For more information, call (202) 797-7200.	ftp://ftp.rtknet.org gopher://gopher.rtknet.org http://www.rtk.net	Set computer parameters to 8,N,1 and log in as "public". No charge for Internet access. Direct access by modem at (202) 234-8570; phone charge may apply.
National Library of Medicine (NLM) - Offers state of the art, user friendly searching of complete TRI data base. For more information, call (301) 496-6531.	toxnet.nlm.nih.gov	$18-$20 per hour charge. Password required.
U.S. EPA Internet Server - Access a variety of reports, data files, and TRI information from EPA. For more information, call TRI-US at (202) 260-1531.	ftp://ftp.epa.gov gopher://gopher.epa.gov http://www.epa.gov	\pub\gopher\TRI_Chem EPA/OPPTS/TS/TRI