



THE COMMUNITY RIGHT TO KNOW ANNUAL REPORT FOR SURVEY YEAR 1993



NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Bureau of Hazardous Substances Information

Christine Todd Whitman, Governor
Robert C. Shinn, Jr., Commissioner

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THE COMMUNITY RIGHT TO KNOW ANNUAL REPORT
for Reporting Year 1993

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THE COMMUNITY RIGHT TO KNOW ANNUAL REPORT

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State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Dear Reader,

The Department of Environmental Protection (DEP) is pleased to present the Community Right to Know Annual Report for the 1993 survey year. This report summarizes the information submitted in 1994 by New Jersey businesses covered by state and federal Community Right to Know laws concerning chemical inventories, environmental releases, facility throughput, waste transfer and pollution prevention activities for calendar year 1993.

Under the New Jersey Worker and Community Right to Know Act, employers having certain Standard Industrial Classification (SIC) codes are required to report their inventories of environmental hazardous substances used, stored or manufactured during the survey year by March 1st of the following year. Over 32,000 employers were sent surveys for the 1993 reporting year. The information collected is discussed in this report. State and federal Community Right to Know laws also require certain manufacturers to submit information about their environmental releases and pollution prevention activities by July 1st of the year following the survey year. Summarized in this annual report are the data collected from over 700 manufacturers required to report on the New Jersey Release and Pollution Prevention Report and the federal Toxic Chemical Release Inventory (TRI) forms (Form R's) required by Section 313 of the federal Emergency Planning and Community Right to Know Act of 1986 (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act (SARA).

Amendments were recently made to the Community Right to Know regulations to streamline reporting requirements and make the processing and dissemination of the collected data more efficient. The establishment of a threshold for chemical inventory reporting and the revision of the list of environmental hazardous substances subject to reporting are the most significant changes affecting the program. These changes were made to simplify reporting and make the information more meaningful to those who use it, by focusing resources on substances that present the greatest potential risk. Future annual reports will reflect the new reporting requirements.

I hope you find this report to be interesting and informative. Knowledge of hazardous substances in our communities will help us to make New Jersey a safer place to live and work.

Sincerely,

Robert C. Shinn, Jr.
Commissioner

The Community Right to Know Annual Report

Introduction

New Jersey employers whose businesses are regulated by the New Jersey Worker and Community Right to Know (W&CRTK) Act and/or the federal Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), are required to report inventories of the hazardous substances used, stored or manufactured at their facilities. Certain manufacturing sector facilities are also mandated under these laws to report environmental release and off-site transfer data as well as information on pollution prevention activities for more than 300 specific toxic chemicals plus chemicals in 20 chemical categories.

This information is reported on the department's Community Right to Know Survey (DEQ-094) and Release and Pollution Prevention Report (DEQ-114), and on the federal Toxic Chemical Release Inventory Reporting Form (Form R). This report summarizes the data collected by the department on these forms in March and July of 1994 for calendar year 1993.

Hazardous Substances Inventory

Businesses covered under the federal and/or the state Right to Know laws are required to report to the New Jersey Department of Environmental Protection (NJDEP) their hazardous substances inventories on the Community Right to Know Survey (DEQ-094) by March 1 of each year. The inventory data summarized in this report were due on March 1, 1994 for calendar year 1993. The New Jersey Worker and Community Right to Know Act regulates employers by business activity, designated by a Standard Industrial Classification (SIC) code (see Appendix A). These businesses are likely to maintain inventories of hazardous substances.

Businesses not covered under the state law may still be required under EPCRA, Section 312, to report chemical inventories if quantities of hazardous substances manufactured, used or stored on site exceed federal reporting thresholds. These businesses would also be required to file the state inventory reporting forms (DEQ-094).

Emergency Planning

The federal Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), emergency planning sections (§ 301 - 303), were designed to develop state and local governments' emergency response and preparedness capabilities through better coordination and planning, especially within the local community. A pivotal step in the process is identifying facilities subject to the emergency planning provisions. All facility owners/operators, whether public or private, are required to notify the NJDEP if any chemical on the United States Environmental Protection Agency (USEPA) List of Extremely Hazardous Substances (approximately 360 chemicals) is present at the facility in excess of the chemical's threshold planning quantity (TPQ). Extremely Hazardous Substances are those chemicals likely to result in serious, irrevocable health effects if a release were to occur. Facilities that meet this requirement must notify the NJDEP and the Local Emergency Planning Committee (LEPC) that they are subject to these requirements within 60 days after they begin to manufacture, use or store any Extremely Hazardous Substance at or above the TPQ.

Toxic Chemical Release Inventory (TRI)

Section 313 of EPCRA requires manufacturers classified in SIC codes 20 through 39, with 10 or more full-time employees, meeting the established thresholds for the manufacture (including import), process or otherwise use of any of the EPCRA Section 313 toxic chemicals to annually submit the Toxic Chemical Release Inventory Reporting Form (Form R). Facilities must submit the completed original Form R to the USEPA and a copy to the NJDEP. The Form R is due July 1 of each year following the reporting year and contains information for the previous calendar year. This information is presented in the TRI section of this report. Although the 1993 Form R environmental release, off-site transfer and recycling data are not presented in detail in this report, similar information on the same chemicals is provided on the New Jersey Release and Pollution Prevention Report (RPPR) which is summarized in that section of this report.

Release and Pollution Prevention Report

Facilities mandated to complete the federal Form R must also provide additional information to NJDEP regarding the EPCRA Section 313 chemicals that are reported on Form R. These facilities are required to submit the New Jersey Release and Pollution Prevention Report (RPPR), as well as the Form R, by July 1 of every year. The RPPR is used to collect information for the Right to Know program and the Pollution Prevention program and contains information for the previous calendar year. In addition to environmental release and off-site transfer data collected on Form R, the RPPR collects chemical throughput data and pollution prevention activity information. The NJDEP's Office of Pollution Prevention evaluates the data for potential applications to its goal, i.e., to work toward decreasing, whenever possible, the amount of toxic chemicals produced and used in the state. The Office of Pollution Prevention then develops its own reports from the data and can be reached at 609-777-0518.

General Discussion

New Jersey was one of the first states in the nation to mandate the collection of chemical inventory and environmental release data and to establish a mechanism for the promotion of public awareness of the information when the Worker and Community Right to Know Act was enacted in 1983. The state's goal is to assemble and disseminate information that will help the citizens, government, and industry of the state plan for and work toward a safer, cleaner New Jersey. To help accomplish this goal, the department, in cooperation with the New Jersey Department of Health and the New Jersey State Police, established the Right to Know Public Access System (RTKPAS) which provides direct access to the Right to Know (RTK) database via personal computer and modem. The RTKPAS can be accessed by dialing 609-633-6099. A manual is available to instruct users on how to access the database. Copies of the manual can be obtained by calling 609-984-3219.

The Community Right to Know (CRTK) Survey for 1993 was sent to more than 32,000 regulated employers in the state. For the 1993 reporting year there was essentially no change in compliance for return of the CRTK Survey (92%) compared to 1992. At the same time, the number of facilities reporting the presence of hazardous substances on site increased slightly from 22,302 to 22,690.

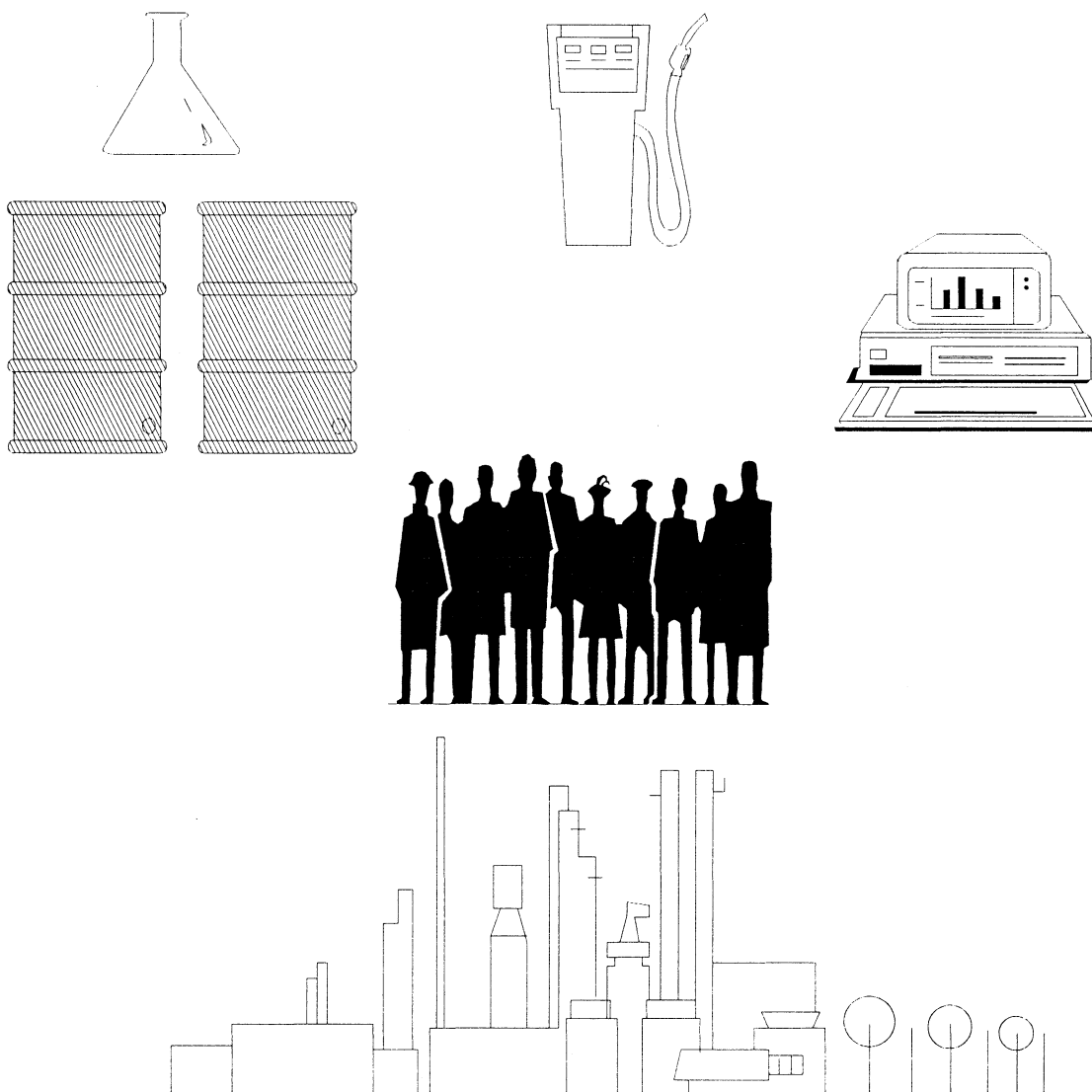
The department adopted, in 1994, new rules that changed the reporting thresholds and the list of reportable environmental hazardous substances (EHSs) for inventory reporting. Beginning with calendar year 1994, covered employers will report based on a threshold of 500 pounds or the Threshold Planning Quantity (TPQ), whichever is less. The most significant changes to the list of substances subject to reporting were the removal of the US Department of Transportation Hazardous Materials Table and the addition of the substances defined at Section 112(r) of the federal Clean Air Act Amendments. X

Estimates of annual quantities of on-site releases to the environment and off-site transfers of select toxic chemicals found on the section 313 list of EPCRA were reported on the Form R by 700 facilities for the 1993 reporting year. These facilities reported approximately 19.4 million pounds of on-site releases and 181 million pounds of off-site transfers for 1993 (according to Form R data). For 1992, 763 facilities reported more than 24.5 million pounds of releases and more than 191.7 million pounds of transfers.

Annual reports enable citizens of New Jersey to become aware of the hazardous chemicals that are manufactured, processed, used, stored and released in the state. It is important to note that the data should not be used as an indicator of exposure, if any, of the public to the chemicals.

The department appreciates your comments and recommendations regarding this report and the Community Right to Know program. Your comments and suggestions will enable us to present the information in a manner that is most useful to the public. Comments may be submitted to the Bureau of Chemical Release Information and Prevention, CN-405, Trenton, New Jersey 08625-0405. The bureau can also be contacted directly at 609-292-6714 for further information about the RTK program or how to obtain information from the Public Access System. If you would like information about a specific facility, municipality, county, chemical, etc., please use the request form found in Appendix B of this report.

COMMUNITY RIGHT TO KNOW SURVEY
FOR 1993
HAZARDOUS SUBSTANCES INVENTORY SUMMARY



HAZARDOUS SUBSTANCES INVENTORY SUMMARY FOR 1993

As required by the New Jersey Worker and Community Right to Know (W&CRTK) Act, the 1993 New Jersey Community Right to Know Survey (DEQ-094) was mailed to approximately 32,400 employers to collect information about their chemical inventories during 1993. Surveys for approximately 92% of the facilities were accounted for, representing the same compliance rate as for the previous reporting year.

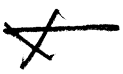
Figure 1 presents the number of facilities, by county, reporting any inventories of hazardous substances for the 1993 reporting year. Compared to 1992 reporting, there was an increase in the number of facilities that reported chemical inventories in every county except Essex and Union. Once again, the fewest facilities reporting hazardous substance inventories (162) were found in Salem County while Bergen had the highest number of facilities (3,111) reporting inventories. 

Figure 2 depicts, by county, the number of facilities that reported one or more hazardous substances at a maximum daily amount above 50,000 pounds. For hazardous substances contained in a mixture, the reportable hazardous substance had to compose at least 50% of the mixture to be included in the summary data.

The data presented in Figures 1 and 2 may be used to identify areas of the state where industry density, as well as chemical usage by industry, is the heaviest. Please note that these data do not necessarily indicate increased health risks or greater individual exposures to hazardous substances compared to any other region in the state.

For reporting year 1993, hazardous substance inventory data were submitted by approximately 22,700 facilities that reported more than 712,000 substance records, where a record represents a substance entry on the DEQ-094. Selected information has been extracted to produce two profiles of the data. Table 1 presents the top 30 most frequently reported substances (at any inventory level), while Table 2 presents the top 30 most frequently reported substances in inventory quantities greater than 10,000 pounds.

In Table 1, the substances have been ranked in descending order by the number of times each substance was reported. These substances occur at any quantity, and may have been reported in pure form or in a mixture, as a raw material, as a finished product, as a waste, or used by a facility in its day-to-day operations, including heating or building maintenance. This table represents those substances that have a greater chance of being encountered in a facility covered by the NJ W&CRTK Act or the federal Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

In Table 2, the substances have been ranked in descending order by the number of times each substance was reported in inventories exceeding 10,000 pounds, either in a pure form or in a mixture. As with the data summary presented in Figure 1, for hazardous substances contained in a mixture, the reported hazardous substance had to make up at least 50% of the mixture to be included in this table. Table 2 indicates that the top 30 substances were reported at least 10,677 times at an inventory of greater than 10,000 pounds. Approximately 110,000 substance records were reported without specific identifying numbers and, therefore, could not be included in these analyses.

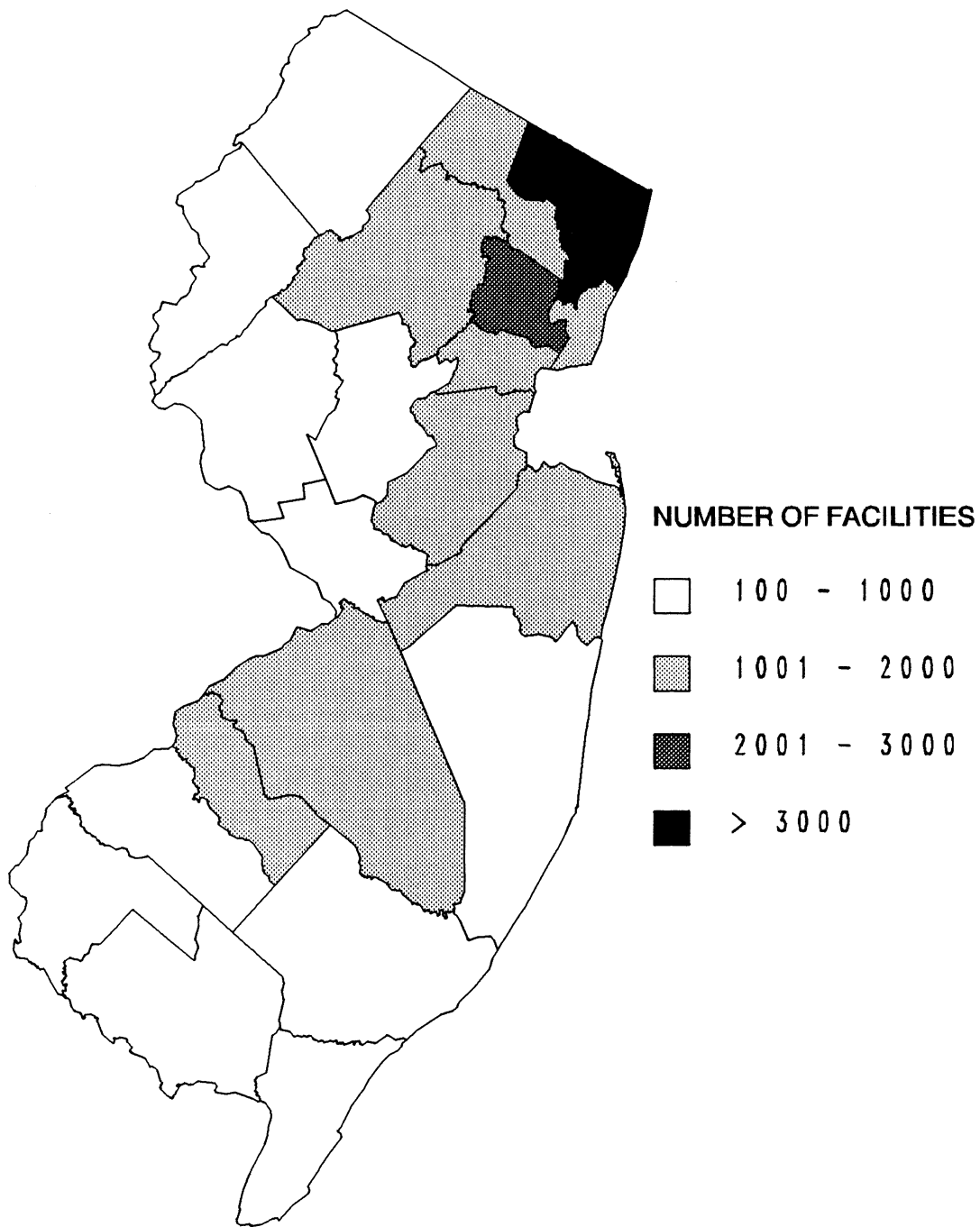
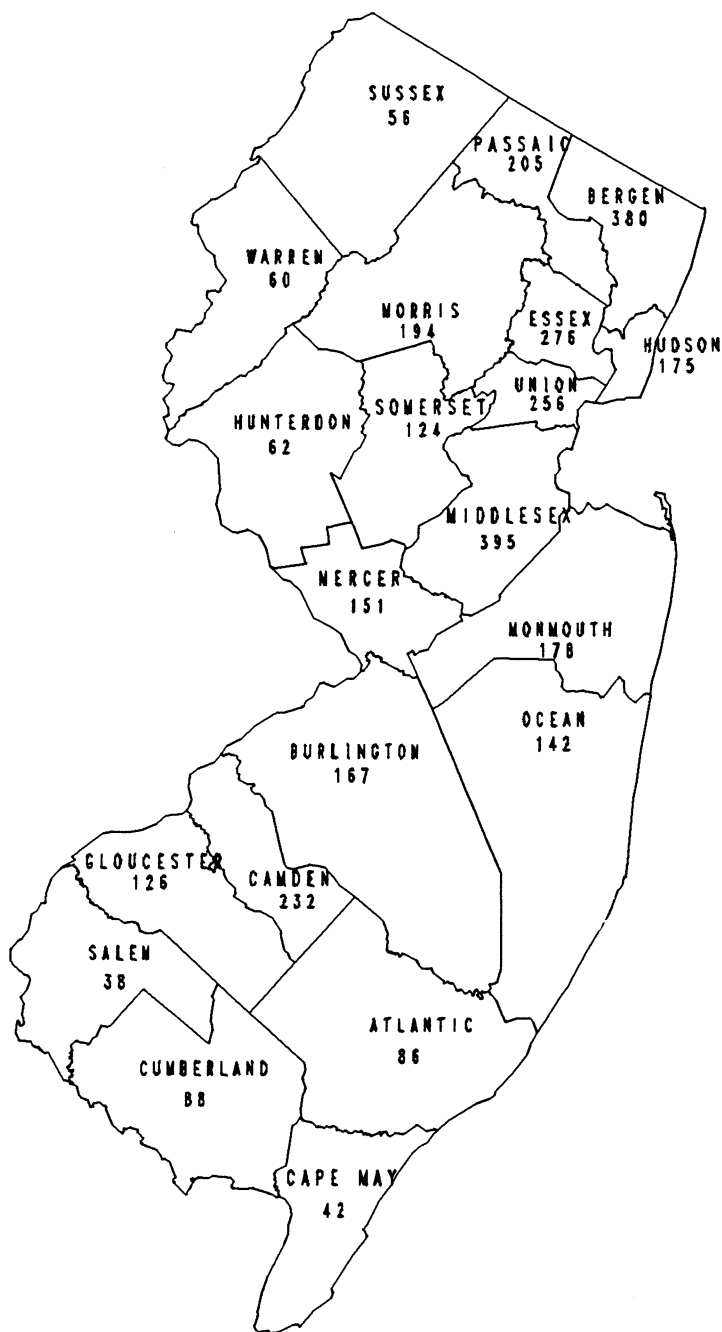


Figure1. Number of Facilities Reporting Chemical Inventories on the CRTK Survey for 1993 by County



COUNTY	NUMBER OF FACILITIES	NUMBER OF SUBSTANCES
ATLANTIC	86	152
BERGEN	380	836
BURLINGTON	167	397
CAMDEN	232	444
CAPE MAY	42	71
CUMBERLAND	88	197
ESSEX	276	924
GLOUCESTER	126	547
HUDSON	175	782
HUNTERDON	62	158
MERCER	151	293
MIDDLESEX	395	2210
MONMOUTH	178	387
MORRIS	194	481
OCEAN	142	228
PASSAIC	205	465
SALEM	38	214
SOMERSET	124	471
SUSSEX	56	85
UNION	256	1198
WARREN	60	262
TOTAL =	3,433	10,802

*mixtures greater than 50% substance

Figure 2. Number of Facilities Reporting Greater than 50,000 Pounds of Maximum Daily Inventory for Individual Substances* on the CRTK Survey for 1993

Table 1. The Top 30 Most Frequently Reported Substances¹ on the 1993 Community Right To Know Survey

<u>Substance Number</u>	<u>Substance Name</u>	<u>Number of Records²</u>
2651	Petroleum Oil	17,446
1076	Isopropyl Alcohol	16,345
1866	Toluene	13,606
1594	Propane	11,977
2014	Xylene	11,581
1222	Methanol	11,248
1237	1,1,1-Trichloroethane	10,745
0006	Acetone	9,584
0275	2-Butoxy Ethanol	9,260
0844	Ethyl Alcohol	9,064
1706	Sodium Hydroxide	8,818
2628	Paint, flammable liquid	7,764
2648	Petroleum Distillates, n.o.s. ³	7,753
1258	Methyl Ethyl Ketone	7,322
1448	Oxygen	7,183
0343	Carbon Dioxide	7,124
1736	Stoddard Solvent	7,004
0015	Acetylene	6,913
1040	Isobutane	6,693
1255	Dichloromethane	6,681
2444	Fuel Oil	5,994
0957	Gasoline	5,645
1761	Sulfuric Acid	5,396
0878	Ethylene Glycol	5,165
2267	Combustible Liquid, n.o.s.	4,960
2131	Anti-Freeze	4,951
0206	Petroleum Spirits (Benzine)	4,862
1091	Kerosene	4,826
0103	Ammonium Hydroxide	4,806
1012	Hydrogen Chloride	<u>4,680</u>
Total Number of Records:		245,396

Footnotes:

1. The numbers reported can represent multiple substance records (i.e., the substance was reported more than once) for a single facility.
2. The number of records reported, or the number of times the substance was reported, under the listed substance number.
3. "n.o.s." means not otherwise specified.

Table 2. The Top 30 Most Frequently Reported Substances¹ on the 1993 Community Right To Know Survey at an Inventory of 10,000 Pounds or More²

<u>Substance Number</u>	<u>Substance Name</u>	<u>Number of Records³</u>
0957	Gasoline	2,372
2444	Fuel Oil	2,113
2651	Petroleum Oil	898
1706	Sodium Hydroxide	424
1375	Nitrogen (compressed or liquified)	293
1091	Kerosene	288
2267	Combustible Liquid, n.o.s. ⁴	277
1761	Sulfuric Acid	272
	Lead and compounds	230
2648	Petroleum Distillates, n.o.s.	224
	Aluminum and compounds	222
	Copper and compounds	216
2461	Hazardous Waste	215
1437	Mineral Oil	189
1222	Methanol	186
0844	Ethyl Alcohol	185
2628	Paint	183
1076	Isopropyl Alcohol	179
0878	Ethylene Glycol	174
1866	Toluene	174
	Zinc and compounds	165
1448	Oxygen	161
1594	Propane	152
0170	Asphalt (petroleum derived)	145
2014	Xylene	139
3131	Mineral Spirits	133
0006	Acetone	125
0343	Carbon Dioxide	118
0004	Acetic Acid	117
1255	Dichloromethane	<u>108</u>
Total Number of Records:		10,677

Footnotes:

1. The numbers reported can represent multiple substance records (i.e., the substance was reported more than once) for a single facility.
2. The reported substance must compose at least 50% composition if in a mixture.
3. The number of records reported, or the number of times the substance was reported, under the listed substance number.
4. "n.o.s." means not otherwise specified.

THE RIGHT TO KNOW PUBLIC ACCESS SYSTEM



THE RIGHT TO KNOW PUBLIC ACCESS SYSTEM

As part of the ongoing effort to make Right to Know data more accessible to the public, emergency responders and governmental agencies, the department, in cooperation with the New Jersey Department of Health (DOH) and the State Police Office of Emergency Management, developed the Right to Know Public Access System (RTKPAS). The RTKPAS provides direct access to public and private sector chemical inventory data via personal computer and modem. Anyone with a personal computer and modem may access this information directly from the DEP Right to Know computer system as long as one of the following communication software packages is used: PC Anywhere (preferred), ProComm, Carbon Copy, Terminal Applet, or Cross Talk for Windows.

The RTKPAS is a comprehensive database of information collected from private employers on the DEP Community Right To Know Survey and from public employers on the DOH Right To Know Survey. The RTKPAS also contains the DOH Hazardous Substance Fact Sheets, which provide information on the health effects of approximately 1,100 substances and how they can be handled and stored in a safe manner. Brief descriptions of pertinent state and federal laws are also contained in the RTKPAS.

In 1994, hardware and software enhancements were made to increase the speed and efficiency of search and retrieval programs in the Right to Know Public Access System. The RTKPAS was accessed approximately 4,500 times by 2,126 users during the past year. Figure 3 shows the users by category type and the usage by each type.

The department developed an RTKPAS module to enable facilities to submit Community Right to Know (CRTK) survey information electronically on a pilot basis. The program allows users to download screens to input CRTK inventory data and to electronically submit that data to the department. Facilities using their own software to track facility and chemical information successfully uploaded chemical inventory data electronically during the testing period. A guidance document containing the facility and chemical database formats is available to any company that may be interested in this project. The electronic data entry module will be available for the 1995 reporting year.

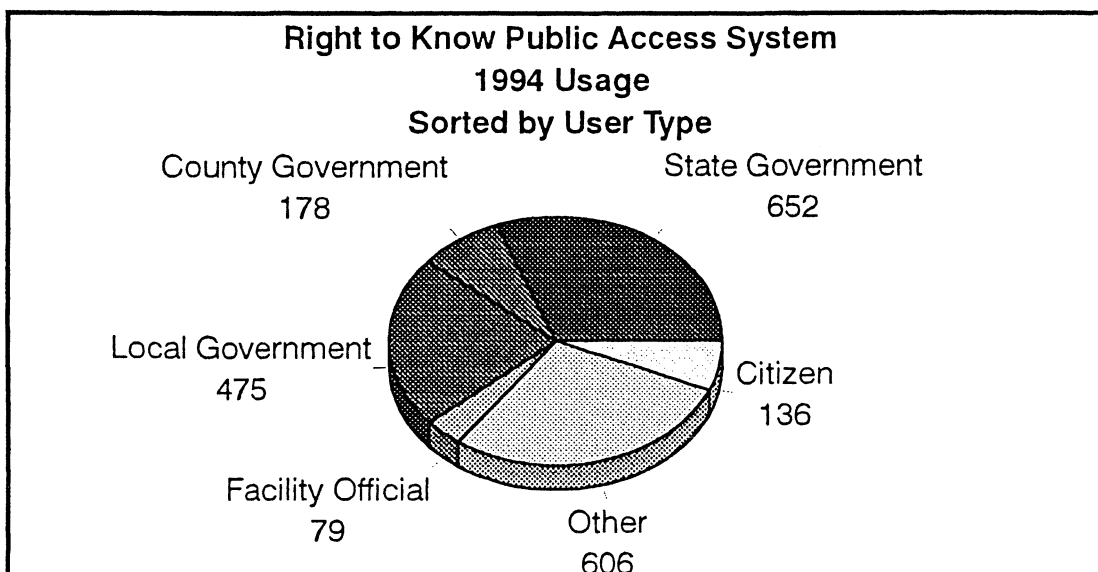
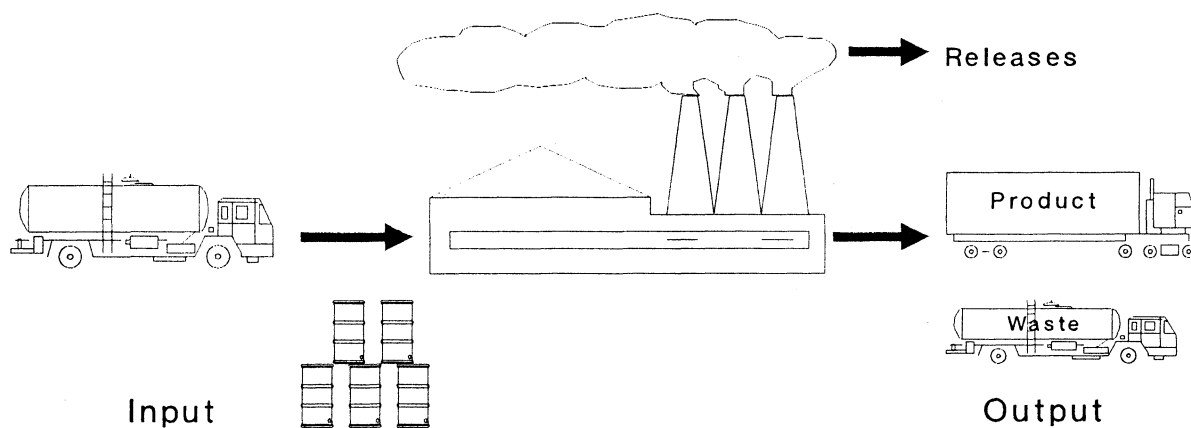


Figure 3. Number of RTKPAS Users by Category in 1994.

NJ RELEASE & POLLUTION PREVENTION REPORT
ENVIRONMENTAL RELEASE & OFF-SITE TRANSFER
AND
MATERIALS ACCOUNTING DATA SUMMARY
FOR 1993



NEW JERSEY RELEASE AND POLLUTION PREVENTION REPORT

Environmental Release, Off-Site Transfer, and Materials Accounting Data Summary for 1993

Introduction

In New Jersey those facilities mandated to complete the federal Toxic Chemical Release Inventory (TRI) Reporting Form (Form R) pursuant to EPCRA Section 313 are required to submit additional information. The information must be reported on the New Jersey Release and Pollution Prevention Report (DEQ-114) for every TRI toxic chemical reported on the Form R. The Form R and DEQ-114 must be filed by owners and operators of facilities that meet all three of the following criteria:

- ▶ the facility's business activity is included in the manufacturing Standard Industrial Classification codes 20 through 39; and
- ▶ the facility has 10 or more full-time employees; and
- ▶ the facility manufactured (defined to include imported) or processed any listed toxic chemical in quantities equal to or greater than 25,000 pounds or otherwise used any listed chemical in quantities equal to or greater than 10,000 pounds.

New Jersey facilities that are subject to submitting Form R are required to report on the Release and Pollution Prevention Report all EPCRA Section 313 toxic chemicals that are manufactured, processed or otherwise used in excess of 10,000 pounds. The 1993 DEQ-114 was a two-part reporting form. Section A provided information pertinent to the facility site and its overall operations. Section B contained the substance specific information for each toxic chemical reported on Form R including: beginning and ending inventories for the calendar year; the quantity of the toxic chemical produced on site, brought on site, consumed on site, and shipped off site as (or in) product; and on-site releases to the environment and off-site transfers. New Jersey also requires companies to report the quantities of a chemical shipped off site for recycling or re-use activities and energy recovery as well as source reduction/pollution prevention data, if applicable, for each chemical.

As with the Form R, materials accounting is often based on best estimates rather than actual quantities. Facilities submitting the Release and Pollution Prevention Report are not required to monitor, measure or sample their waste streams to any extent beyond that required by existing federal or state laws, permits, etc., governing the covered chemicals and the media to which they are discharged. Also, different methods of accounting for or tracking materials through the various processing operations within a plant may be applied. Different methods of calculating releases and transfers that affect the final estimates may also be employed. Similar to Form R reporting, these estimated figures may be rounded to two significant integers, although the NJDEP does not encourage this practice in the accounting process.

General Findings

The information presented here is a summary of the 1993 data as received on the Release and Pollution Prevention Report (DEQ-114) by the NJDEP through March 31, 1995. As of that date, 687 New Jersey facilities reported on 192 of the 336 listed chemicals and compound categories, plus a generic group reported as "mixture," resulting in the reporting of 193 unique

substance listings. Toxic chemical reporting under the heading of mixture occurs when a facility processes or uses a mixture that contains a TRI-listed chemical but does not know the specific identity of the chemical. The manufacturer of the mixture has claimed confidentiality as to the specific identity of the regulated chemical, but must notify its customers that a TRI toxic chemical is present in certain quantities.

Of the reporting facilities, 684 were in the manufacturing sector and 3 were identified as unregulated non-manufacturing facilities. Currently, non-manufacturing sector facilities are not required to submit DEQ-114s, however, as in past years, a few always do. In total, 2,718 DEQ-114 Section B chemical-specific reports were submitted (one for each toxic chemical that was manufactured, processed or otherwise used in excess of the thresholds). For 1993, as in 1992, 220 facilities reported only one toxic chemical (DEQ-114 Section B); 64 facilities reported 10 or more toxic chemicals compared to 45 facilities in 1992 - this is in part due to the 10,000 pound threshold that went into affect for the 1993 reporting year. The highest number of toxic chemicals reported by any facility was 60. Figure 4 shows a map of New Jersey indicating the number of facilities that reported in each county.

New Jersey allows facilities to claim materials throughput data as trade secret information if certain criteria are met. Environmental release and off-site transfer data may not be claimed as confidential. Five facilities claimed throughput confidentiality for 34 of their reported toxic chemicals. Therefore, the materials accounting data summaries exclude data from these five facilities and 34 chemical reports. However, the on-site release and off-site transfer data from those chemical reports are included in the summaries immediately following.

Environmental Releases and Off-Site Transfers

The data elements for on-site releases vary slightly from those covered by the USEPA Form R. Reporting facilities are required to provide estimated quantities of the following on-site releases and off-site transfers on the DEQ-114 for each toxic chemical meeting the 10,000 pound threshold:

- air emissions (fugitive/nonpoint and stack/point);
- surface water discharges;
- ground water discharges;
- on-site land releases (at the facility);
- discharges to publicly owned treatment works (POTW); and
- transfers to other off-site locations for further waste management (including recycling, energy recovery, treatment and disposal).

Total Statewide Releases: More than 220 million pounds of toxic chemical releases and off-site transfers were reported for 1993. About 19 million pounds were reported released into the environment and 201 million pounds were transferred off site for recycling, energy recovery, treatment or disposal. Figure 5 depicts the 1993 on-site releases and off-site transfers by reporting media. Table 3 summarizes the on-site releases and off-site transfers reported for each individual toxic chemical, listed alphabetically by chemical name.

County Summary: Table 4 presents a detailed summary, by county, of the 1993 quantities. Middlesex County had the highest total quantity for both on-site releases and off-site transfers, approximately 59.1 million pounds combined (nearly 27% of the total). Atlantic County had the lowest quantity of on-site releases while Ocean County had the lowest quantity of off-site transfers, for counties with reporting facilities.

Manufacturing Industry Summary: Table 5 and Figure 6 present the reported 1993 data by Standard Industrial Classification (SIC) code. The Chemicals and Allied Products industry (SIC 28xx) reported the largest quantities for both on-site chemical releases and off-site transfers, approximately 111.3 million pounds combined, a reduction of 9.4 million pounds from the 1992 approximate figure of 120.7 million pounds. Of this amount, 53.2 million pounds (47.8%) of the transfers were shipped off site for recycling or energy recovery. This represents an increase of 3.8% from the 1992 figure of 49.3 million pounds. The Leather & Leather Products industry (SIC 31xx) reported the least total amount of on-site releases to the environment for manufacturing industry groups with reporting facilities. The Furniture & Fixtures industry (SIC 25xx) reported the smallest quantity of off-site transfers for manufacturing industry groups with reporting facilities. Note that Tables 3, 4, and 5 include data reported by three unregulated non-manufacturing sector facilities that submitted a total of eight DEQ-114 Section B chemical-specific reports.

Tables 6 through 17 present a summary of the reported data for each on-site release category and for each off-site transfer category except for groundwater discharges and for off-site transfers reported with no waste management codes or invalid codes. As evidenced in Table 3, groundwater discharges totalled 11 pounds. Off-site transfers that were reported without valid waste management codes or invalid codes are not ranked since this is not a valid reporting category. In addition to the individual categories, a combined total for air emissions, a combined total for on-site releases, and a combined total for off-site transfers are presented in summary (Tables 8, 11 and 17, respectively). Each table lists the top 10 toxic chemicals by total quantity reported, the top 10 quantities for any single toxic chemical record, and the top 10 facilities for total quantity reported.

Tables 6 through 12 also present a comparison of the 1993 top 10 rankings with the appropriate 1992 ranking for each category. The footnotes in each of these tables present some interesting information with respect to reporting and rankings of some chemicals and some facilities.

On-Site Releases

Chemical Emissions to Air: The DEQ-114 contains reported releases to the air for both stack (point) and fugitive (nonpoint) emissions. Tables 6 and 7 list the top 10 toxic chemicals by quantity emitted as stack and fugitive air releases, respectively, along with the percent each chemical contributed to the total amount. The 10 facilities reporting the largest stack and fugitive emissions for any single toxic chemical are presented, as well as the top 10 facilities for total stack air emissions and total fugitive air emissions. Table 8 lists the top 10 toxic chemicals for combined stack and fugitive air releases, the 10 facilities reporting the largest total air emissions of a single chemical, and the top 10 facilities for total air emissions.

Discharges to Surface Waters: The DEQ-114 covers point source releases as well as storm water runoff of toxic chemicals to surface waters. Table 9 lists the top 10 toxic chemicals by largest quantities of releases to surface waters, the top 10 facilities discharging the largest quantities of a single chemical, and the top 10 facilities for total surface water discharges.

Discharges to Ground Water: The DEQ-114 covers point source releases of toxic chemicals to ground water. For the 1993 reporting year, nine Section B forms were submitted with the total of only 11 pounds reported as discharges to ground water. This data field is not found on the USEPA Form R; however, the facilities that report ground water discharges on the DEQ-114 most likely report this information under on-site land releases on Form R. (As stated previously, there is no top 10 table for this category.)

On-Site Releases to Land: Releases to on-site landfills, land treatment or application farming, surface impoundments, and "other" types of land disposal at the reporting facility's site are reported on the DEQ-114. Table 10 lists the top 10 toxic chemicals by largest quantities of on-site releases to land, the 10 facilities that released to on-site land disposal the largest quantities of a single chemical, and the top 10 facilities for total on-site land releases. This type of waste management was dominated by the "metals and compounds" categories of toxic chemicals.

Total On-Site Releases: Table 11 lists the top 10 toxic chemicals by largest quantities of total on-site releases to all media (air, surface and ground water, and land), the top 10 facilities releasing the largest quantities of a single toxic chemical on site, and the top 10 facilities for total on-site releases. This group of toxic chemicals and facilities correlates closely to those reported on Table 8 (total air emissions) except for the influence of E M Industries' surface water discharges and U.S. Pipe and Foundry's on-site land releases. Du Pont Chambers Works is the #1 facility for total on-site releases due to both large air emissions and surface water discharges.

Off-Site Transfers

The Release and Pollution Prevention Report (DEQ-114), Section B collects information on the amount of substances transferred to other off-site locations, i.e. publicly owned treatment works and other treatment facilities. Specifically, the amount of the reportable substance within the total waste transferred and the management method employed (e.g. recycling, energy recovery, etc.) is reported. Beginning with this annual report, the department will present the top 10 substances transferred off-site by management method. The annual report for survey year 1992 did present the POTW rankings, however other off-site transfers were not presented. For the 1993 reporting year, the department has implemented changes in data management procedures to make this information available in a more useful format. In this annual report, the information is listed in Tables 12 through 17.

Discharges to Publicly Owned Treatment Works: Table 12 lists the DEQ-114 data for toxic chemicals transferred in wastewater to publicly owned treatment works (POTW), also known as municipal sewage or wastewater treatment facilities. The top 10 toxic chemicals by largest quantities of POTW transfers, the top 10 facilities transferring the largest quantities of a single toxic chemical, and the top 10 facilities for total POTW discharges are listed. As in previous years, methanol continues to dominate this group of waste transfers, accounting for 54.3% of this category.

Off-Site Transfers for Recycling: Table 13 lists the top 10 chemicals by largest quantities transferred off-site for recycling, the top 10 facilities transferring the largest quantities of a single chemical, and the top 10 facilities for total off-site transfers for recycling. This category is dominated by sulfuric acid, which was sent off site for acid regeneration.

Off-Site Transfers for Energy Recovery: Table 14 lists the top 10 chemicals by largest quantities transferred off-site for energy recovery, the top 10 facilities transferring the largest quantities of a single chemical, and the top 10 facilities for total off-site transfers for energy recovery. A toxic chemical must have a heating value high enough to sustain combustion and must be combusted in an energy recovery unit in order for the chemical to be reported in this category. Note that many of the metals and metal compounds are reported incorrectly in this category (e.g. see Table 3, nickel and compounds).

Off-Site Transfers for Treatment: Table 15 lists the top 10 chemicals by largest quantities transferred for off-site treatment, the top 10 facilities transferring the largest quantities of a single chemical, and the top 10 facilities for total off-site transfers for treatment.

Off-Site Transfers for Disposal: Table 16 lists the top 10 chemicals by largest quantities transferred for off-site disposal, the top 10 facilities transferring the largest quantities of a single chemical, and the top 10 facilities for total off-site transfers for disposal.

Total Off-Site Transfers: Table 17 presents the top 10 chemicals by largest quantities of total off-site transfers by all management methods reported, the top 10 facilities transferring the largest quantities of a single chemical, and the top 10 facilities for total off-site transfers.

Uses and Health Effects of Reported Chemicals

The toxic effects on human health and the environment of the reported chemicals vary widely. Appendix C presents a summary of the more common uses and the potential hazards presented by the chemicals found in the "Top 10" lists in Tables 6 through 17. Readers are encouraged to consult chemical or toxicology references when there is interest in knowing more about any of the substances presented in this report.

Observed Differences between DEQ-114 and Form R Data

As mentioned previously, there are inherent differences between the federal and state Right to Know programs for the reporting of environmental releases and off-site transfers of toxic chemicals. Table 25 (on page 81 of this report) presents a summary and a comparison of the data reported by New Jersey facilities for 1993. Two factors account for the largest discrepancies observed in Table 25; they are:

- 1) number of forms: New Jersey's reporting threshold of 10,000 pounds for manufacture, process or use of a chemical results in more forms submitted; and
- 2) off-site recycling (and, therefore, total off-site transfer quantities): Coastal Eagle Refinery reported 29,501,180 pounds of sulfuric acid on the DEQ-114 and not on the Form R, asserting that it was not a waste according to solid waste rules and did not need to be reported on Form R. The department is looking into this matter.

Some other observed factors that account, to a lesser extent, for differences in the release and transfer quantities (noted in Table 25) include:

- toxic chemicals reported on Form R but not on DEQ-114;
- releases or transfers reported on Form R but not on DEQ-114, or vice versa;
- quantities of transfers reported as off-site recycling or energy recovery on Form R but are reported as shipped off site as (or in) product on the DEQ-114; this latter approach, while accounting for the material in a mass balance sense, incorrectly removes the quantity from the release/transfer category; and
- Form R allows estimated release quantities less than 1,000 pounds to be reported as a range, i.e., "1 - 10" pounds, "11 -499" pounds, and "500 - 999" pounds; for data management purposes the midpoint of each range, "5," "250," and "750," respectively, are entered when a range is reported on Form R; quantitative estimates, not ranges, are requested on the DEQ-114; while this factor is probably the least significant, it does have some effect when considering impacts on the database as a whole.

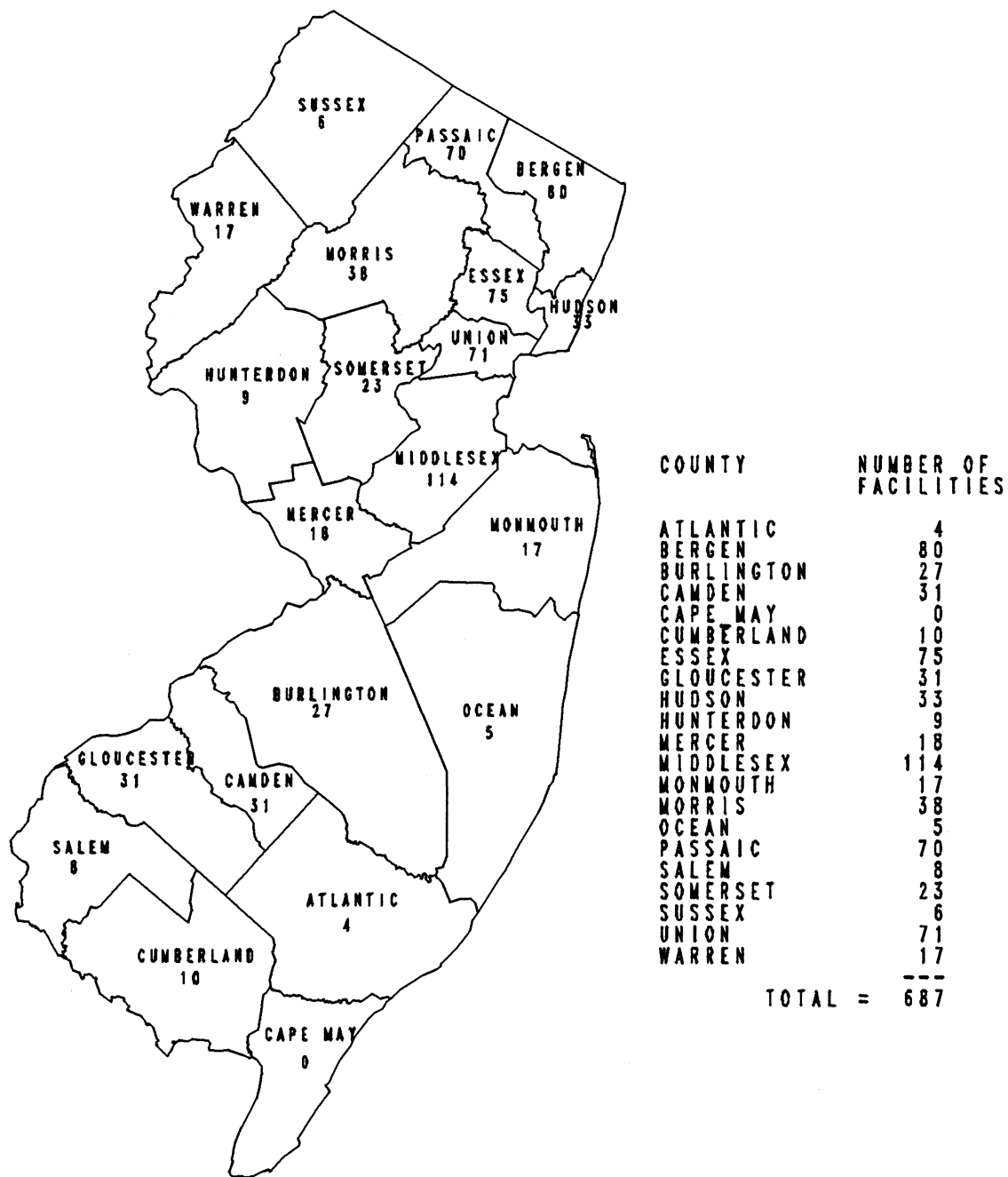


Figure 4. Number of Facilities Submitting the NJ Release and Pollution Prevention Report for 1993 by County

1993 RPPR Releases & Transfers = 220,154,501 Pounds

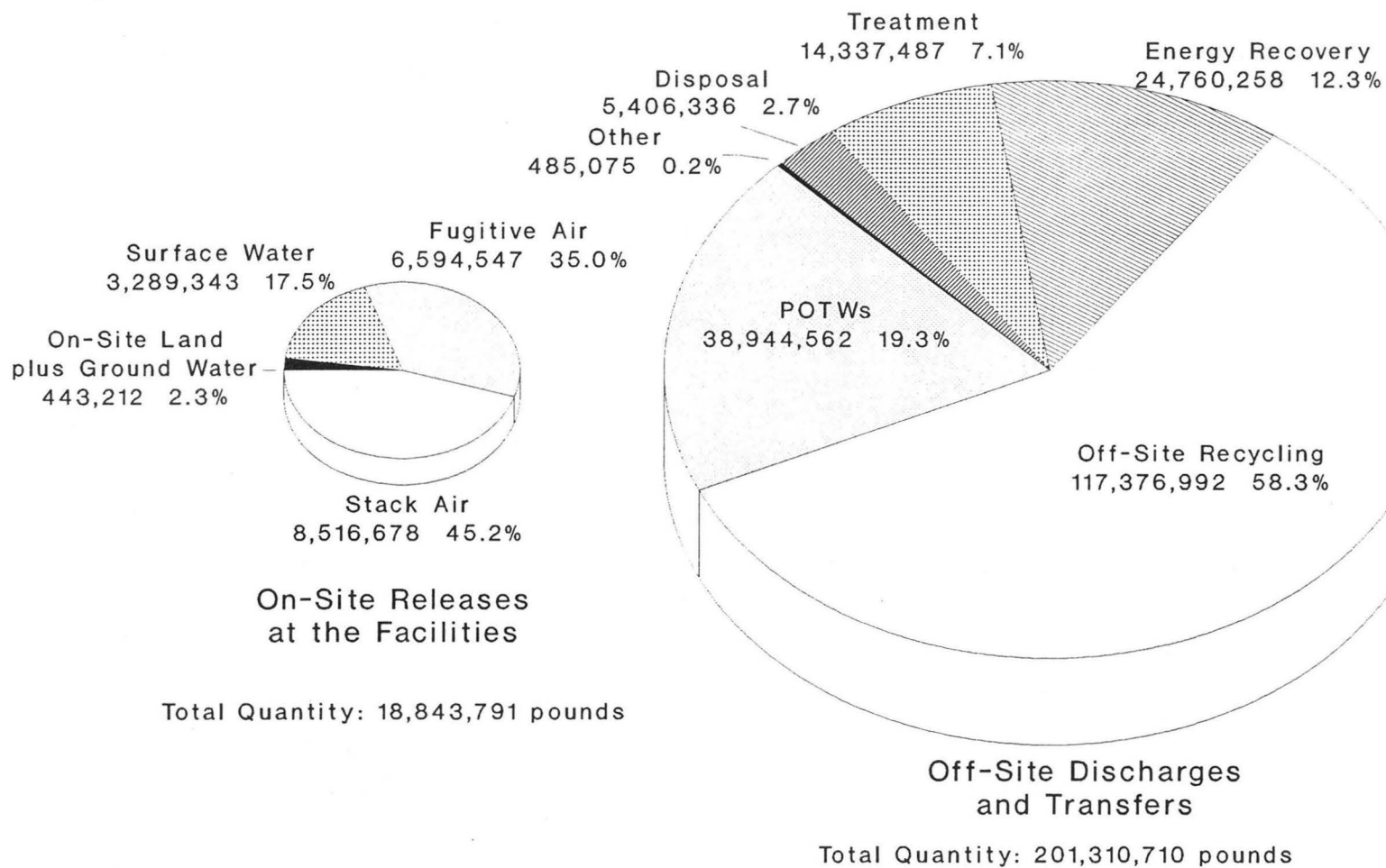


Figure 5. 1993 RPPR Releases & Transfers (distributed by Reporting Media)

Table 3. 1993 RPPR On-Site Releases and Off-Site Transfers Reported by New Jersey Facilities¹
(ordered alphabetically by chemical name; releases and transfers reported in pounds per year)

CAS #	Chemical Name	Stack Air Emissions	Fugitive Air Emissions	Discharges to Surface Water	Discharges to Ground Water	On-Site Land Disposal	Total On-Site Releases ²
75-07-0	Acetaldehyde	3,811	15	0	0	0	3,826
67-64-1	Acetone	698,923	979,997	517	0	0	1,679,437
75-05-8	Acetonitrile	4,180	3,058	0	0	0	7,238
79-06-1	Acrylamide	8	126	0	0	0	134
79-10-7	Acrylic acid	262	4,476	0	0	0	4,738
107-13-1	Acrylonitrile	996	355	120	0	0	1,471
107-18-6	Allyl alcohol	41	1	0	0	0	42
107-05-1	Allyl chloride	744	104	0	0	0	848
7429-90-5	Aluminum (fume or dust)	10,326	3,026	0	0	0	13,352
1344-28-1	Aluminum oxide (fibrous forms only)	0	593	0	0	0	593
60-09-3	4-Aminoazobenzene	0	0	0	0	0	0
7664-41-7	Ammonia	832,704	245,201	1,754,326	0	0	2,832,231
6484-52-2	Ammonium nitrate (solution)	0	0	593,530	0	0	593,530
7783-20-2	Ammonium sulfate (solution)	0	1,843	788,341	0	0	790,184
62-53-3	Aniline	948	297	541	0	0	1,786
90-04-0	o-Anisidine	14	3	0	0	0	17
120-12-7	Anthracene	145	233	5	0	0	383
7440-36-0	Antimony	17	1,159	273	0	0	1,449
	Antimony compounds	258	728	1	1	0	988
7440-38-2	Arsenic	2	2	0	0	0	4
	Arsenic compounds	1	1	0	0	0	2
1332-21-4	Asbestos (friable)	17	369	0	0	0	386
7440-39-3	Barium	6	8,807	0	0	0	8,813
	Barium compounds	3,371	2,253	376	1	0	6,001
98-87-3	Benzal chloride	5	5	0	0	0	10
71-43-2	Benzene	22,522	106,794	2,430	0	10	131,756
98-07-7	Benzoic trichloride	0	0	0	0	0	0
98-88-4	Benzoyl chloride	6	0	0	0	0	6
94-36-0	Benzoyl peroxide	0	82	0	0	0	82
100-44-7	Benzyl chloride	2,418	1,829	33	0	0	4,280
92-52-4	Biphenyl	10,468	3,235	1,232	0	0	14,935
111-44-4	Bis(2-chloroethyl) ether	0	2	0	0	0	2
542-88-1	Bis(chloromethyl) ether	288	1	0	0	0	289
103-23-1	Bis (2-ethylhexyl) adipate	173	12,464	0	0	0	12,637
74-83-9	Bromomethane	0	15,300	0	0	0	15,300
75-63-8	Bromotrifluoromethane (Halon 1301)	0	216	0	0	0	216
106-99-0	1,3-Butadiene	0	262	0	0	0	262
141-32-2	Butyl acrylate	2,954	5,999	0	0	0	8,953
71-36-3	n-Butyl alcohol	416,109	168,440	1,201	0	0	585,750
78-92-2	sec-Butyl alcohol	4,676	4,421	2,185	0	0	11,282
75-65-0	tert-Butyl alcohol	3,300	15,111	0	0	0	18,411
85-68-7	Butyl benzyl phthalate	14,004	3,565	104	0	0	17,673
123-72-8	Butyraldehyde	2	255	0	0	0	257
569-64-2	C.I. Basic green 4	0	0	0	0	0	0
989-38-8	C.I. Basic red 1	24	0	0	0	0	24
2832-40-8	C.I. Disperse yellow 3	12	0	0	0	0	12
81-88-9	C.I. Food red 15	0	0	0	0	0	0
3118-97-6	C.I. Solvent orange 7	1	1	0	0	0	2
842-07-9	C.I. Solvent yellow 14	0	0	0	0	0	0
97-56-3	C.I. Solvent yellow 3	0	0	0	0	0	0

Footnotes:
see pages 26 and 27

1993 RPPR On-Site Releases/Off-Site Transfers by Chemical

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers	Total Off-Site Transfers	Number of Forms	Chemical Name
0	0	0	249	0	0	249	4	Acetaldehyde
879,933	1,307,965	3,571,614	970,287	104,671	0	6,834,470	88	Acetone
15,457	107,238	141,433	35,814	18,612	0	318,554	7	Acetonitrile
60	0	1	19,405	3	0	19,469	3	Acrylamide
1,128	2,094	0	214	3	0	3,439	15	Acrylic acid
0	0	0	2,000	17	0	2,017	6	Acrylonitrile
732	0	5,085	0	1,099	0	6,916	3	Allyl alcohol
0	0	0	8,121	0	0	8,121	1	Allyl chloride
0	1,799,089	0	13	180	0	1,799,282	9	Aluminum (fume or dust)
0	1,514,153	0	983	0	0	1,515,136	2	Aluminum oxide (fibrous forms only)
0	0	0	0	0	0	0	1	4-Aminoazobenzene
3,048,025	1,452	9	51,476	2,619	0	3,103,581	89	Ammonia
88,034	0	0	0	0	0	88,034	6	Ammonium nitrate (solution)
6,779,552	0	0	394,588	1,283	0	7,175,423	12	Ammonium sulfate (solution)
4,286	3,400	0	2,493	2	0	10,181	9	Aniline
1,500	0	0	0	1	0	1,501	3	o-Anisidine
0	2	4	5	821	0	832	3	Anthracene
89	17,709	0	25	0	0	17,823	6	Antimony
18	11,575	268	4,040	695,997	0	711,898	27	Antimony compounds
1	665	0	0	247	0	913	2	Arsenic
1	4	5	0	10,757	3,034	13,801	6	Arsenic compounds
0	0	0	0	668	0	668	3	Asbestos (friable)
0	0	0	0	9,110	0	9,110	3	Barium
18,793	8,831	467	20,186	168,083	1,178	217,538	49	Barium compounds
0	0	44,458	0	0	0	44,458	1	Benzal chloride
75,049	163,693	14,535	27,026	1,079	0	281,382	12	Benzene
0	0	231	0	0	0	231	1	Benzoic trichloride
0	0	0	0	0	0	0	3	Benzoyl chloride
0	0	0	0	40	0	40	2	Benzoyl peroxide
128	0	305,715	539	0	0	306,382	9	Benzyl chloride
29,220	288	0	3,019	370	0	32,897	6	Biphenyl
0	0	0	0	0	0	0	1	Bis(2-chloroethyl) ether
0	0	0	0	2	0	2	1	Bis(chloromethyl) ether
0	0	2,115	0	408	0	2,523	10	Bis (2-ethylhexyl) adipate
0	0	0	0	0	0	0	1	Bromomethane
0	0	0	0	0	0	0	1	Bromotrifluoromethane (Halon 1301)
0	0	0	0	0	0	0	3	1,3-Butadiene
63	80	3,410	5,192	2,617	0	11,362	14	Butyl acrylate
202,002	251,764	535,841	208,221	7,557	0	1,205,385	57	n-Butyl alcohol
291	0	238,170	1,682	0	0	240,143	5	sec-Butyl alcohol
65,237	13,000	106,280	0	1	0	184,518	5	tert-Butyl alcohol
31	0	37,083	1,599,329	700	0	1,637,143	15	Butyl benzyl phthalate
0	0	0	0	0	0	0	1	Butyraldehyde
78	0	0	0	0	0	78	1	C.I. Basic Green 4
24	0	0	0	0	0	24	1	C.I. Basic Red 1
2	0	0	0	0	0	2	1	C.I. Disperse Yellow 3
0	0	0	0	0	0	0	1	C.I. Food Red 15
232	0	0	0	0	0	232	2	C.I. Solvent Orange 7
0	0	0	0	0	0	0	1	C.I. Solvent Yellow 14
0	0	0	0	0	0	0	1	C.I. Solvent Yellow 3

Footnotes:

see pages 26 and 27

Table 3. 1993 RPPR On-Site Releases and Off-Site Transfers Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; releases and transfers reported in pounds per year)

CAS #	Chemical Name	Stack Air Emissions	Fugitive Air Emissions	Discharges to Surface Water	Discharges to Ground Water	On-Site Land Disposal	Total On-Site Releases ²
	Cadmium compounds	455	55	0	1	0	511
133-06-2	Captan	0	1	0	0	0	1
63-25-2	Carbaryl	0	128	0	0	0	128
75-15-0	Carbon disulfide	22,666	2,910	11	0	0	25,587
120-80-9	Catechol	0	0	0	0	0	0
7782-50-5	Chlorine	19,289	19,727	17,709	0	0	56,725
79-11-8	Chloroacetic acid	32	12	0	0	0	44
108-90-7	Chlorobenzene	2,149	284	0	0	0	2,433
75-00-3	Chloroethane	15,421	52,217	0	0	0	67,638
67-66-3	Chloroform	2,539	32,671	439	0	0	35,649
74-87-3	Chloromethane	17,922	880	17,823	0	0	36,625
107-30-2	Chloromethyl methyl ether	2,220	2	10	0	0	2,232
	Chlorophenols	6	2	0	0	0	8
7440-47-3	Chromium	1,802	152	13	0	0	1,967
	Chromium compounds	1,119	1,094	7	1	622	2,843
7440-48-4	Cobalt	303	32	0	0	0	335
	Cobalt compounds	68	36	40	0	0	144
7440-50-8	Copper	7,270	1,764	236	0	0	9,270
	Copper compounds	2,696	1,800	102	0	30,948	35,546
8001-58-9	Creosote	3,900	5,500	0	0	0	9,400
95-48-7	o-Cresol	25	3	0	0	0	28
106-44-5	p-Cresol	357	350	0	0	0	707
1319-77-3	Cresol (mixed isomers)	839	2,415	0	0	0	3,254
98-82-8	Cumene	117,865	37,970	11	0	10	155,856
80-15-9	Cumene hydroperoxide	93	19	0	0	3	115
	Cyanide compounds	2,511	75	0	0	0	2,586
110-82-7	Cyclohexane	13,051	17,817	295	0	0	31,163
1163-19-5	Decabromodiphenyl oxide	13	5	0	0	0	18
101-80-4	4,4'-Diaminodiphenyl ether	91	3	1,921	0	5	2,020
95-80-7	2,4-Diaminotoluene	1	1	0	0	0	2
117-81-7	Di(2-ethylhexyl) phthalate	16,016	33,337	613	1	0	49,967
132-64-9	Dibenzofuran	334	379	0	0	0	713
106-93-4	1,2-Dibromoethane	4,963	11	0	0	0	4,974
84-74-2	Dibutyl phthalate	1,266	535	6	0	0	1,807
95-50-1	1,2-Dichlorobenzene	4,824	599	478	0	0	5,901
106-46-7	1,4-Dichlorobenzene	0	715	0	0	0	715
91-94-1	3,3'-Dichlorobenzidine	0	0	0	0	0	0
75-71-8	Dichlorodifluoromethane (CFC-12)	65,287	81,902	0	0	0	147,189
107-06-2	1,2-Dichloroethane	330	0	0	0	0	330
75-09-2	Dichloromethane	268,541	272,852	198	0	0	541,591
78-87-5	1,2-Dichloropropane	14,500	5,869	27	0	0	20,396
76-14-2	Dichlorotetrafluoroethane (CFC-114)	1,117	142,645	4,886	0	0	148,648
111-42-2	Diethanolamine	662	1,099	34	1	0	1,796
84-66-2	Diethyl phthalate	3,990	11,924	18	0	0	15,932
64-67-5	Diethyl sulfate	309	58	0	0	0	367
119-90-4	3,3'-Dimethoxybenzidine	1	2	0	0	0	3
131-11-3	Dimethyl phthalate	468	478	5	0	0	951
77-78-1	Dimethyl sulfate	114	8	0	0	0	122
99-65-0	m-Dinitrobenzene	392	14	18,756	0	300	19,462
528-29-0	o-Dinitrobenzene	40	4	237	0	0	281

Footnotes:

see pages 26 and 27

1993 RPPR On-Site Releases/Off-Site Transfers by Chemical

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers	Total Off-Site Transfers	Number of Forms	Chemical Name
4	466	27	33	433	0	963	9	Cadmium compounds
0	0	0	0	0	0	0	1	Captan
0	0	0	207	0	0	207	1	Carbaryl
1,000	430	2,600	52,800	0	0	56,830	3	Carbon disulfide
34,155	0	0	0	0	0	34,155	1	Catechol
14,549	0	9,649	0	0	0	24,198	18	Chlorine
250	0	0	0	0	0	250	3	Chloroacetic acid
6,564	39,000	122,806	25	0	0	168,395	2	Chlorobenzene
27	265	2,283	0	0	0	2,575	4	Chloroethane
24,785	32,700	17,819	25,704	0	0	101,008	6	Chloroform
0	0	0	0	0	0	0	3	Chloromethane
0	0	0	0	70	0	70	1	Chloromethyl methyl ether
274	0	0	344	0	0	618	2	Chlorophenols
303	398,919	50	40,911	22,326	3,043	465,552	29	Chromium
27,668	70,175	10	38,928	112,118	0	248,899	38	Chromium compounds
145	358,239	0	6,099	3,286	6,324	374,093	9	Cobalt
926	15,502	5	1,437	702	0	18,572	10	Cobalt compounds
5,301	7,988,760	0	12,726	150,997	88,649	8,246,433	62	Copper
27,187	6,064,381	0	55,505	106,727	12	6,253,812	38	Copper compounds
0	0	0	6,400	21,800	0	28,200	1	Creosote
0	0	43	2	0	0	45	1	o-Cresol
350	0	0	450	0	0	800	2	p-Cresol
222	0	0	0	0	140	362	5	Cresol (mixed isomers)
0	0	17,452	2,713	1,028	0	21,193	13	Cumene
0	0	0	0	0	0	0	1	Cumene hydroperoxide
137	320	0	1	15	0	473	6	Cyanide compounds
200	14,941	46,380	4,506	620	0	66,647	13	Cyclohexane
0	0	0	1,720	30,745	0	32,465	7	Decabromodiphenyl oxide
0	0	0	0	0	0	0	2	4,4'-Diaminodiphenyl ether
385	0	0	0	0	0	385	2	2,4-Diaminotoluene
1	7	4,476	63,373	49,336	0	117,193	20	Di(2-ethylhexyl) phthalate
0	0	0	0	445	0	445	1	Dibenzofuran
0	0	0	5,710	0	0	5,710	1	1,2-Dibromoethane
6,354	0	87,969	58,242	1,886	0	154,451	15	Dibutyl phthalate
30,505	3,061,912	36,347	410,346	0	0	3,539,110	3	1,2-Dichlorobenzene
0	0	0	0	0	0	0	1	1,4-Dichlorobenzene
0	0	0	0	0	0	0	2	3,3'-Dichlorobenzidine
0	0	0	69,875	0	0	69,875	7	Dichlorodifluoromethane (CFC-12)
1,949	0	0	102	0	0	2,051	2	1,2-Dichloroethane
177,827	4,208,787	607,510	220,112	373,538	0	5,587,774	50	Dichloromethane
0	11,000	0	0	561	0	11,561	1	1,2-Dichloropropane
0	0	0	0	0	0	0	1	Dichlorotetrafluoroethane (CFC-114)
113,488	0	0	552	244	0	114,284	20	Diethanolamine
46,866	0	0	2,790	22,999	1,741	74,396	18	Diethyl phthalate
10	0	0	0	0	0	10	5	Diethyl sulfate
0	0	0	0	0	0	0	2	3,3'-Dimethoxybenzidine
7,623	0	0	1,635	54	0	9,312	1	Dimethyl phthalate
0	0	0	0	0	0	0	6	Dimethyl sulfate
0	0	0	0	0	0	0	1	m-Dinitrobenzene
0	0	0	0	0	0	0	1	o-Dinitrobenzene

Footnotes:

see pages 26 and 27

Table 3. 1993 RPPR On-Site Releases and Off-Site Transfers Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; releases and transfers reported in pounds per year)

CAS #	Chemical Name	Stack Air Emissions	Fugitive Air Emissions	Discharges to Surface Water	Discharges to Ground Water	On-Site Land Disposal	Total On-Site Releases ²
100-25-4	p-Dinitrobenzene	7	3	43	0	0	53
25321-14-6	Dinitrotoluene (mixed isomers)	34	1	300	0	173	508
106-89-8	Epichlorohydrin	987	734	98	0	0	1,819
140-88-5	Ethyl acrylate	1,864	3,545	0	0	0	5,409
100-41-4	Ethylbenzene	103,238	42,475	1,523	0	0	147,236
74-85-1	Ethylene	16,504	73,892	0	0	0	90,396
107-21-1	Ethylene glycol	12,781	19,135	769	0	0	32,685
75-21-8	Ethylene oxide	7,493	13,759	0	0	0	21,252
96-45-7	Ethylene thiourea	0	0	0	0	0	0
50-00-0	Formaldehyde	93,853	11,161	3,600	0	0	108,614
76-13-1	Freon 113	109,740	155,984	422	0	0	266,146
	Glycol ethers	440,924	221,310	85	3	6,403	668,725
118-74-1	Hexachlorobenzene	40	0	0	0	0	40
67-72-1	Hexachloroethane	5	5	0	0	0	10
302-01-2	Hydrazine	2,272	1,602	0	0	0	3,874
10034-93-2	Hydrazine sulfate	11	0	0	0	0	11
7647-01-0	Hydrochloric acid	207,524	49,158	29,018	0	0	285,700
7664-39-3	Hydrogen fluoride	2,103	2,289	0	0	0	4,392
123-31-9	Hydroquinone	11	10	0	0	0	21
78-84-2	Isobutyraldehyde	982	267	0	0	0	1,249
67-63-0	Isopropyl alcohol (manufacturing, strong acid process only)	738	181	0	0	0	919
80-05-7	4,4'-Isopropylidenediphenol	13	1,502	0	0	0	1,515
7439-92-1	Lead	2,874	7,513	-5	0	36,900	47,282
	Lead compounds	7,791	1,600	550	1	45,494	55,436
108-31-6	Maleic anhydride	7,896	538	0	0	0	8,434
7439-96-5	Manganese	540	8,738	0	0	0	9,278
	Manganese compounds	1,621	652	70	0	32,611	34,954
67-56-1	Methanol	815,385	202,347	7,777	0	0	1,025,509
109-86-4	2-Methoxyethanol	25,048	883	0	0	0	25,931
96-33-3	Methyl acrylate	3,477	6,698	0	0	0	10,175
1634-04-4	Methyl tert-butyl ether	123,223	26,354	2,291	0	0	151,868
101-14-4	4,4'-Methylenebis (2-chloroaniline)	0	0	0	0	0	0
78-93-3	Methyl ethyl ketone	561,187	409,019	2	0	0	970,208
108-10-1	Methyl isobutyl ketone	255,352	149,111	13	0	0	404,476
80-62-6	Methyl methacrylate	4,806	2,255	0	0	0	7,061
101-68-8	Methylenebis (phenylisocyanate)	576	133	0	0	0	709
	Mixture	684	0	0	0	0	684
1313-27-5	Molybdenum trioxide	9,758	18,744	0	0	0	28,502
76-15-3	Monochloropentafluoroethane (CFC-115)	2,695	87,221	995	0	0	90,911
121-69-7	N,N-Dimethylaniline	245	6	1	0	0	252
91-20-3	Naphthalene	9,284	10,216	5,573	0	8	25,081
7440-02-0	Nickel	880	64	24	0	0	968
	Nickel compounds	2,012	675	530	0	57,423	60,640
7697-37-2	Nitric acid	88,146	30,871	0	0	0	119,017
99-59-2	5-Nitro-o-anisidine	5	5	0	0	0	10
98-95-3	Nitrobenzene	843	27	265	0	0	1,135
55-63-0	Nitroglycerin	0	0	0	0	0	0
79-21-0	Peracetic acid	2	1	0	0	0	3
108-95-2	Phenol	28,566	3,085	1,547	0	15,162	48,360
106-50-3	p-Phenylenediamine	2,941	91	1,004	0	1,049	5,085

Footnotes:

see pages 26 and 27

1993 RPPR On-Site Releases/Off-Site Transfers by Chemical

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers	Total Off-Site Transfers	Number of Forms	Chemical Name
0	0	0	0	0	0	0	1	p-Dinitrobenzene
0	0	0	17,700	0	0	17,700	1	Dinitrotoluene (mixed isomers)
25,000	0	0	0	68	0	25,068	5	Epichlorohydrin
10	0	42	15,945	3	0	16,000	7	Ethyl acrylate
625	172,848	649,118	17,049	4,799	0	844,439	37	Ethylbenzene
14	0	0	0	0	0	14	6	Ethylene
2,026,477	46,177	6,858	53,095	25,823	97	2,158,527	69	Ethylene glycol
10	0	0	0	0	0	10	9	Ethylene oxide
0	0	0	4,534	0	0	4,534	1	Ethylene thiourea
67,351	0	1,021	45,480	168	9,900	123,920	27	Formaldehyde
36,334	599,128	4,032	3,120	0	0	642,614	17	Freon 113
2,092,577	72,639	299,631	59,482	34,755	9,663	2,568,747	81	Glycol ethers
0	0	0	4,470	0	0	4,470	1	Hexachlorobenzene
0	0	0	0	0	0	0	2	Hexachloroethane
0	0	0	0	0	0	0	5	Hydrazine
0	0	0	0	0	0	0	3	Hydrazine sulfate
77,789	399	3,529	83,199	49,518	0	214,434	108	Hydrochloric acid
0	0	0	82,385	0	0	82,385	11	Hydrogen fluoride
610	0	0	7,027	0	0	7,637	6	Hydroquinone
8,763	0	5,935	13,095	0	0	27,793	2	Isobutyraldehyde
0	14,466	613	0	0	0	15,079	4	Isopropyl alcohol (mfg., strong acid process only)
13,338	0	17	356	209	0	13,920	3	4,4'-Isopropylidenediphenol
34	1,206,024	4	9,242	12,246	30,928	1,258,478	22	Lead
77,994	1,310,413	179	840,709	199,156	101	2,428,552	40	Lead compounds
1,342	0	1,000	1,579	7,341	0	11,262	17	Maleic anhydride
65	390,854	0	0	186	19,119	410,224	18	Manganese
1,688	403,534	0	1,076	3,749	0	410,047	19	Manganese compounds
21,149,809	3,555,334	5,892,898	4,039,432	246,542	57,600	34,941,615	106	Methanol
40,579	72	38,723	3	0	0	79,377	5	2-Methoxyethanol
245	2,736	73	155	0	0	3,209	7	Methyl acrylate
1,075	26,000	48,520	5,766	22,233	0	103,594	10	Methyl tert-butyl ether
0	0	0	0	0	0	0	1	4,4'-Methylenebis (2-chloroaniline)
38,486	634,457	2,447,043	1,068,317	65,892	8,451	4,262,646	80	Methyl ethyl ketone
76,763	609,097	1,182,339	53,029	3,412	0	1,924,640	51	Methyl isobutyl ketone
65	0	1,732	16,557	3	0	18,357	15	Methyl methacrylate
0	0	1,636	12,314	2,501	0	16,451	15	Methylenebis (phenylisocyanate)
101	0	0	178	5	0	284	4	Mixture
0	420	0	0	424	0	844	4	Molybdenum trioxide
0	0	0	0	0	0	0	1	Monochloropentafluoroethane (CFC-115)
0	0	0	0	0	0	0	2	N,N-Dimethylaniline
132	15,334	25,987	2,193	5,727	0	49,373	21	Naphthalene
1,240	248,067	0	112	6,779	13,592	269,790	27	Nickel
1,213	18,399	0	33,954	74,882	1,000	129,448	21	Nickel compounds
167,223	0	0	636,756	690	0	804,669	39	Nitric acid
0	0	0	0	0	0	0	2	5-Nitro-o-anisidine
0	0	0	0	0	0	0	1	Nitrobenzene
0	0	0	0	343	0	343	1	Nitroglycerin
0	0	0	0	0	0	0	1	Peracetic acid
833,813	0	5,101	42,929	547	0	882,390	17	Phenol
220	0	0	8,694	0	0	8,914	2	p-Phenylenediamine

Footnotes:

see pages 26 and 27

Table 3. 1993 RPPR On-Site Releases and Off-Site Transfers Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; releases and transfers reported in pounds per year)

CAS #	Chemical Name	Stack Air Emissions	Fugitive Air Emissions	Discharges to Surface Water	Discharges to Ground Water	On-Site Land Disposal	Total On-Site Releases ²
90-43-7	2-Phenylphenol	3	12	0	0	0	15
75-44-5	Phosgene	1,333	42	0	0	0	1,375
7664-38-2	Phosphoric acid	5,155	2,707	0	0	0	7,862
7723-14-0	Phosphorus (yellow or white)	0	0	0	0	0	0
85-44-9	Phthalic anhydride	4,582	2,575	109	0	0	7,266
88-89-1	Picric acid	0	0	0	0	0	0
123-38-6	Propionaldehyde	2,286	834	0	0	0	3,120
115-07-1	Propylene	36,734	178,706	0	0	0	215,440
75-55-8	Propyleneimine	297	16	0	0	0	313
75-56-9	Propylene oxide	72,186	5,000	0	0	0	77,186
91-22-5	Quinoline	105	1	0	0	0	106
81-07-2	Saccharin (manufacturing)	0	0	0	0	0	0
7782-49-2	Selenium	5	3	0	0	0	8
	Selenium compounds	2	2	0	0	0	4
7440-22-4	Silver	458	807	0	0	0	1,265
	Silver compounds	5	0	0	0	0	5
100-42-5	Styrene	16,174	138,901	245	0	0	155,320
96-09-3	Styrene oxide	2	302	0	0	0	304
7664-93-9	Sulfuric acid	143,771	24,058	0	0	0	167,829
79-34-5	1,1,2,2-Tetrachloroethane	10	35	0	0	0	45
127-18-4	Tetrachloroethylene	1,665	34,796	0	0	0	36,461
961-11-5	Tetrachlorvinphos	0	0	0	0	0	0
62-56-6	Thiourea	5	5	0	0	0	10
7550-45-0	Titanium tetrachloride	482	616	0	0	0	1,098
108-88-3	Toluene	1,071,733	838,272	9,078	0	1,514	1,920,597
584-84-9	Toluene-2,4-diisocyanate	15	12	0	0	0	27
91-08-7	Toluene-2,6-diisocyanate	10	1	0	0	0	11
26471-62-5	Toluene diisocyanate (mixed isomers)	160	15	0	0	0	175
95-53-4	o-Toluidine	1,060	41	1,001	0	0	2,102
71-55-6	1,1,1-Trichloroethane	403,391	437,544	1	0	1,104	842,040
79-01-6	Trichloroethylene	24,603	410,898	0	0	0	435,501
75-69-4	Trichlorofluoromethane (CFC-11)	51,992	74,560	0	0	0	126,552
95-63-6	1,2,4-Trimethylbenzene	94,204	31,736	7	0	5	125,952
7440-62-2	Vanadium (fume or dust)	8	0	0	0	0	8
108-05-4	Vinyl acetate	113,733	17,481	11	0	0	131,225
75-01-4	Vinyl chloride	37,000	11,700	78	0	0	48,778
75-35-4	Vinylidene chloride	4	2,883	0	0	0	2,887
95-47-6	o-Xylene	1,558	1,008	0	0	0	2,566
106-42-3	p-Xylene	700	300	0	0	0	1,000
1330-20-7	Xylene (mixed isomers)	797,825	439,607	10,019	0	4,921	1,252,372
87-62-7	2,6-Xylidene	18	25	387	0	0	430
7440-66-6	Zinc (fume or dust)	13,115	45,744	52	0	0	58,911
	Zinc compounds	11,735	8,457	2,770	1	208,547	231,510
1993 TOTALS		8,516,678	6,594,547	3,289,343	11	443,212	18,843,791

Footnotes:

1. All reporting facilities are included in this summary; these data include three non-manufacturing sector facilities that submitted eight RPPR reports.
2. Total On-Site Releases = air emissions + surface water discharges + ground water discharges + land releases.

1993 RPPR On-Site Releases/Off-Site Transfers by Chemical

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers	Total Off-Site Transfers	Number of Forms	Chemical Name
337	0	0	0	0	0	337	3	2-Phenylphenol
0	0	0	0	0	0	0	4	Phosgene
158,144	21,000	0	83,411	7,946	15	270,516	67	Phosphoric acid
0	0	0	26,000	0	0	26,000	1	Phosphorus (yellow or white)
387	0	0	10,652	3,146	0	14,185	17	Phthalic anhydride
0	0	0	0	0	0	0	1	Picric acid
55	0	0	0	0	0	55	3	Propionaldehyde
0	0	0	0	0	0	0	10	Propylene
0	0	0	0	0	0	0	2	Propyleneimine
10	0	0	1,426	0	0	1,436	8	Propylene oxide
0	0	0	10,661	0	0	10,661	1	Quinoline
8	0	0	0	139	0	147	1	Saccharin (manufacturing)
1	0	0	0	0	27,911	27,912	1	Selenium
0	0	0	0	0	4,744	4,744	1	Selenium compounds
10	1,678	0	2,065	0	0	3,753	6	Silver
2,594	14,960	371	2	0	0	17,927	3	Silver compounds
181	0	5,032	6,343	2,748	0	14,304	25	Styrene
0	0	0	0	0	0	0	3	Styrene oxide
5,418	70,504,962	0	252,374	112,125	175,214	71,050,093	143	Sulfuric acid
150	42,000	0	0	0	0	42,150	1	1,1,2,2-Tetrachloroethane
1	11,518	0	40,412	0	150	52,081	4	Tetrachloroethylene
0	0	0	3,300	0	0	3,300	1	Tetrachlorvinphos
0	0	0	0	901	0	901	3	Thiourea
0	0	0	0	0	0	0	3	Titanium tetrachloride
45,686	1,461,019	4,665,868	1,329,898	1,637,817	0	9,140,288	133	Toluene
0	0	0	2	0	0	2	4	Toluene-2,4-diisocyanate
0	0	0	0	0	0	0	2	Toluene-2,6-diisocyanate
0	0	0	1,547	0	0	1,547	6	Toluene diisocyanate (mixed isomers)
5,779	0	0	23,690	1	0	29,470	4	o-Toluidine
61	289,058	30,553	63,874	4,053	11,932	399,531	66	1,1,1-Trichloroethane
667	328,675	15,936	3,002	0	6,500	354,780	10	Trichloroethylene
0	0	170,774	157,488	1,116	0	329,378	8	Trichlorofluoromethane (CFC-11)
208,241	32,240	34,638	7,053	3,473	0	285,645	33	1,2,4-Trimethylbenzene
0	0	0	0	0	0	0	1	Vanadium (fume or dust)
3,094	1,504	121	78,107	115	28	82,969	14	Vinyl acetate
0	0	0	0	129	0	129	2	Vinyl chloride
8	0	0	84	0	0	92	2	Vinylidene chloride
926	0	41,895	0	0	0	42,821	2	o-Xylene
0	0	0	0	0	0	0	1	p-Xylene
29,405	957,376	3,215,400	450,472	27,270	90	4,680,013	105	Xylene (mixed isomers)
0	0	0	621	0	0	621	2	2,6-Xylidene
674	6,183,236	0	0	24,435	0	6,208,345	15	Zinc (fume or dust)
2,719	732,562	1,489	166,916	886,044	3,919	1,793,649	77	Zinc compounds
38,944,562	117,376,992	24,760,258	14,337,487	5,406,336	485,075	201,310,710	2,718	1993 TOTALS

Footnotes:

3. "POTW" means publicly owned treatment works (municipal or public sewage system).

4. Total Off-Site Transfers = discharges to POTWs + all other off-site transfers (for recycling, energy recovery, treatment and/or disposal).

Table 4. 1993 RPPR On-Site Releases and Off-Site Transfers Reported by New Jersey Facilities¹
(ordered alphabetically by county; releases and transfers reported in pounds per year)

<u>County</u>	<u>Stack Air Emissions</u>	<u>Fugitive Air Emissions</u>	<u>Discharges to Surface Water</u>	<u>Discharges to Ground Water</u>	<u>On-Site Land Disposal</u>	<u>Total On-Site Releases</u>
Atlantic	12,754	5,157	3	0	0	17,914
Bergen	363,957	618,105	0	0	1,104	983,166
Burlington	274,330	189,589	26,527	7	323,552	814,005
Camden	538,041	76,023	0	0	6,403	620,467
Cape May	0	0	0	0	0	0
Cumberland	13,766	181,535	0	0	0	195,301
Essex	643,776	592,464	29,157	0	0	1,265,397
Gloucester	951,099	426,440	60,126	0	3	1,437,668
Hudson	192,204	595,640	432,148	0	0	1,219,992
Hunterdon	263,151	51,881	111	0	468	315,611
Mercer	218,089	139,483	110	0	0	357,682
Middlesex	2,372,988	1,364,336	8,949	4	93,315	3,839,592
Monmouth	65,233	106,676	0	0	0	171,909
Morris	283,327	97,509	18	0	0	380,854
Ocean	7,555	19,439	0	0	0	26,994
Passaic	529,881	369,926	201	0	0	900,008
Salem	205,031	359,966	2,669,381	0	18,213	3,252,591
Somerset	183,010	78,159	4	0	154	261,327
Sussex	67,366	121,433	0	0	0	188,799
Union	973,552	1,025,523	32,244	0	0	2,031,319
Warren	357,568	175,263	30,364	0	0	563,195
1993 TOTALS	8,516,678	6,594,547	3,289,343	11	443,212	18,843,791

Footnotes:

1. All reporting facilities are included in this summary; these data include three non-manufacturing sector facilities that submitted eight RPPR reports.
2. Total On-Site Releases = air emissions + surface water discharges + ground water discharges + land releases at the facility.

1993 RPPR On-Site Releases/Off-Site Transfers by County

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers ^b	Total Off-Site Transfers	Number of Facilities	Number of Forms	County
189	96,989	0	43,428	51,573	0	192,179	4	8	Atlantic
4,984,350	4,149,655	2,719,648	1,446,439	15,256	135,516	13,450,864	80	280	Bergen
8,534	23,936,001	5,938	35,544	391,517	0	24,377,534	27	104	Burlington
290	3,582,498	362,456	81,894	1,246	8,451	4,036,835	31	87	Camden
0	0	0	0	0	0	0	0	0	Cape May
0	0	19,500	0	0	0	19,500	10	20	Cumberland
14,143,943	884,659	843,154	3,769,415	1,835,637	59,208	21,536,016	75	330	Essex
21,757	30,440,632	731,654	900,331	8,922	3,203	32,106,499	31	169	Gloucester
2,667,022	1,291,501	607,958	43,268	88,038	0	4,697,787	33	110	Hudson
271,588	693	0	284,665	780	0	557,726	9	25	Hunterdon
1,200	83,206	37,627	77,694	327,781	2,110	529,618	18	48	Mercer
10,368,920	36,686,931	5,753,524	1,763,410	655,232	44,727	55,272,744	114	568	Middlesex
166,932	494,707	5,472,354	87,513	642,933	4,026	6,868,465	17	56	Monmouth
22,989	178,129	510,635	150,980	173,723	255	1,036,711	38	88	Morris
14	2,964	0	2,405	0	0	5,383	5	11	Ocean
3,285,552	2,920,229	812,134	744,794	153,488	13,995	7,930,192	70	222	Passaic
0	2,555,116	622,169	3,848,522	53,254	182,829	7,261,890	8	104	Salem
181,088	1,276,799	1,164,947	214,046	45,661	0	2,882,541	23	116	Somerset
0	120,884	117,976	136,627	0	0	375,487	6	9	Sussex
2,815,262	8,526,576	4,528,970	559,931	948,254	30,755	17,409,748	71	287	Union
<u>4,932</u>	<u>148,823</u>	<u>449,614</u>	<u>146,581</u>	<u>13,041</u>	<u>0</u>	<u>762,991</u>	<u>17</u>	<u>76</u>	Warren
38,944,562	117,376,992	24,760,258	14,337,487	5,406,336	485,075	201,310,710	687	2,718	1993 TOTALS

Footnotes:

3. "POTW" means publicly owned treatment works (municipal or public sewage system).
4. Total Off-Site Transfers = discharges to POTWs + all other off-site transfers (for recycling, energy recovery, treatment, disposal and/or incorrectly coded transfers).
5. Off-site transfers reported with incorrect codes or no codes regarding method of off-site management.

Table 5. 1993 RPPR On-Site Releases and Off-Site Transfers by New Jersey Facilities¹
(ordered numerically by SIC code; releases and transfers reported in pounds per year)

SIC Category	Stack Air Emissions	Fugitive Air Emissions	Discharges to Surface Water	Discharges to Ground Water	On-Site Land Disposal	Total On-Site Releases ²
20 Food & Kindred Products	257,909	70,063	0	0	0	327,972
21 Tobacco Manufacturing	0	0	0	0	0	0
22 Textile Mill Products	148,544	131,274	1,232	0	0	281,050
23 Apparel & Other Textile Products	0	0	0	0	0	0
24 Lumber & Wood Products	88,403	10,878	0	0	0	99,281
25 Furniture & Fixtures	27,755	2,069	0	0	0	29,824
26 Paper & Allied Products	759,385	301,946	0	0	468	1,061,799
27 Printing & Publishing	90,343	162,928	0	0	0	253,271
28 Chemicals & Allied Products	3,000,233	2,130,433	3,205,899	4	109,886	8,446,455
29 Petroleum & Coal Products	338,028	657,655	81,082	0	1,645	1,078,410
30 Rubber & Misc. Plastic Products	610,394	824,133	230	7	1,104	1,435,868
31 Leather & Leather Products	51	16,243	0	0	0	16,294
32 Stone, Clay & Glass Products	310,249	11,086	3	0	6,557	327,895
33 Primary Metal Industries	265,056	314,287	215	0	323,552	903,110
34 Fabricated Metal Products	1,280,495	1,241,511	317	0	0	2,522,323
35 Machinery, except Electrical	93,025	151,924	0	0	0	244,949
36 Electrical & Electronic Products	154,856	173,847	0	0	0	328,703
37 Transportation Equipment	784,212	266,422	0	0	0	1,050,634
38 Instruments & Related Products	224,279	110,907	232	0	0	335,418
39 Miscellaneous Manufacturing	<u>83,421</u>	<u>15,809</u>	<u>133</u>	<u>0</u>	<u>0</u>	<u>99,363</u>
TOTALS (Manufacturing Sector)	8,516,638	6,593,415	3,289,343	11	443,212	18,842,619
Non-Manufacturing Sector	<u>40</u>	<u>1,132</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,172</u>
1993 TOTALS	8,516,678	6,594,547	3,289,343	11	443,212	18,843,791

Footnotes:

1. All reporting facilities are included in this summary; these data include three non-manufacturing sector facilities that submitted eight RPPR reports.
2. Total On-Site Releases = air emissions + surface water discharges + ground water discharges + land releases at the facility.

1993 RPPR On-Site Releases/Off-Site Transfers by SIC Code

Discharges to POTWs	Off-Site Transfers for Recycling	Off-Site Transfers for Energy Recovery	Off-Site Transfers for Treatment	Off-Site Transfers for Disposal	Other Off-Site Transfers ⁴	Total Off-Site Transfers	Number of Facilities	Number of Forms	SIC Code
559,113	14,200	658,631	346,641	931	140	1,579,656	25	70	20
0	0	0	0	0	0	0	0	0	21
413,784	0	0	22,177	370	0	436,331	16	36	22
0	0	0	0	0	0	0	0	0	23
1,093	0	0	6,400	22,507	0	30,000	5	7	24
0	0	19,500	0	0	0	19,500	2	3	25
370,456	5,522	880,505	266,725	63,994	133	1,587,335	22	54	26
842	35,980	39,225	49,817	605	0	126,469	13	28	27
34,684,470	32,187,241	21,015,524	10,523,179	4,159,187	247,573	102,817,174	273	1,512	28
49	54,226,594	62,005	115,156	27,227	174	54,431,205	17	127	29
176,006	191,632	234,943	191,719	501,723	120,442	1,416,465	62	158	30
262,837	0	0	600	84,187	0	347,624	2	4	31
95,769	103,738	75,523	152,262	52,753	0	480,045	16	35	32
1,925,378	18,886,113	61,794	583,354	339,074	46,448	21,842,161	60	188	33
146,396	8,397,579	1,231,432	402,061	33,764	23,467	10,234,699	83	259	34
22,237	106,380	13,799	8,090	20,820	1,511	172,837	20	55	35
481	1,523,780	44,744	12,780	8,484	150	1,590,419	30	45	36
52,162	1,045,598	91,848	14,725	28,711	0	1,233,044	6	41	37
230,928	647,098	143,394	164,169	26,647	45,037	1,257,273	23	70	38
74	4,218	187,391	1,477,632	35,352	0	1,704,667	9	18	39
38,942,075	117,375,673	24,760,258	14,337,487	5,406,336	485,075	201,306,904	684	2,708	Mfg. Sector
2,487	1,319	0	0	0	0	3,806	3	8	Non-Mfg. Sector
38,944,562	117,376,992	24,760,258	14,337,487	5,406,336	485,075	201,310,710	687	2,718	1993 TOTALS

Footnotes:

- "POTW" means publicly owned treatment works (municipal or public sewage system).
- Total Off-Site Transfers = discharges to POTWs + all other off-site transfers (for recycling, energy recovery, treatment, disposal and/or incorrectly coded transfers).
- Off-site transfers reported with incorrect codes or no codes regarding method of off-site management.

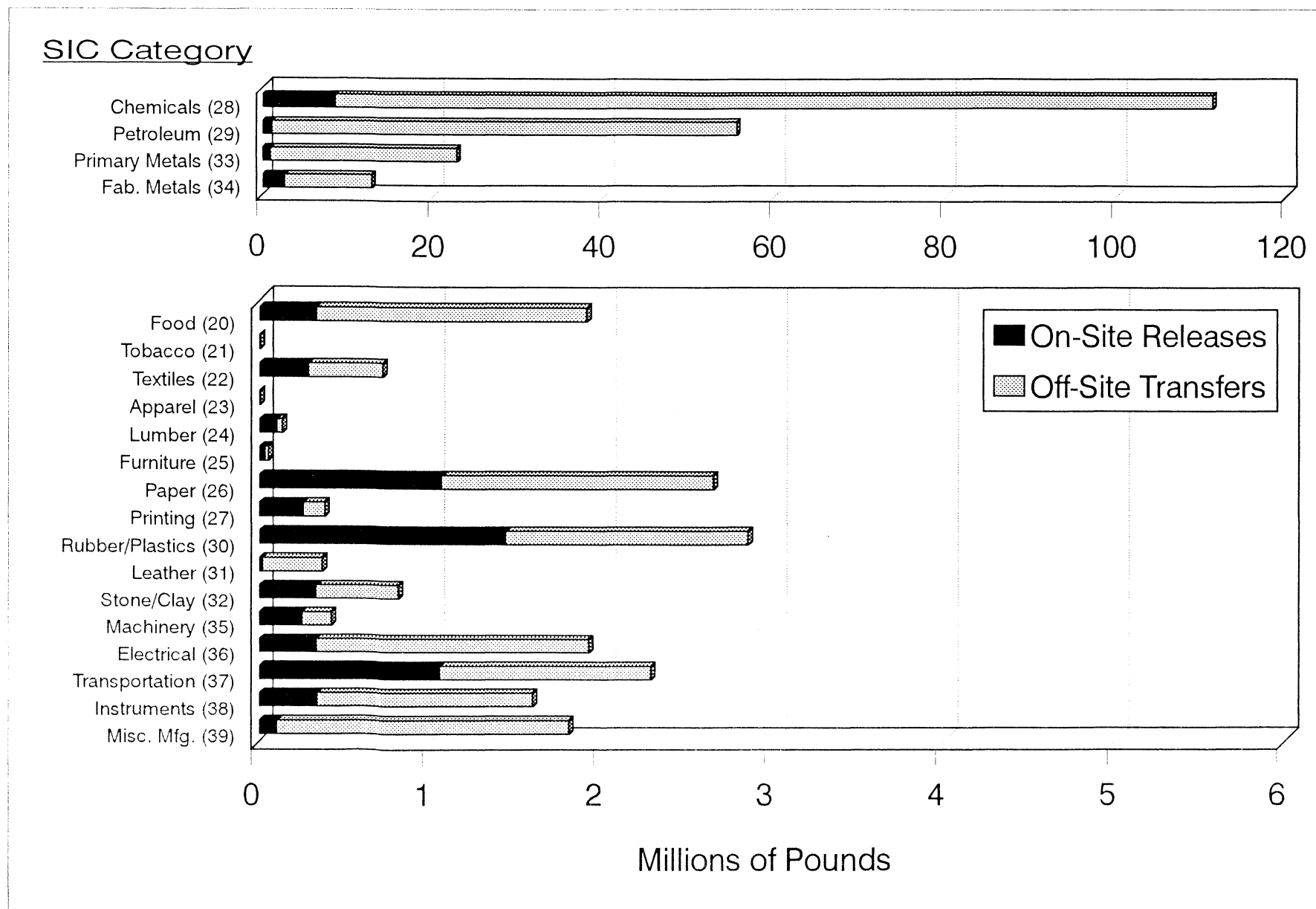


Figure 6. 1993 RPPR Releases and Transfers by Industrial Classification

Table 6. 1993 Release and Pollution Prevention Report

Stack Emissions¹ to the Air (reported in pounds)²Top 10 Chemicals Emitted in the Largest Quantities (Stack Air)

Rank 93 92	CAS # ³	Chemical Name	Pounds per Year	% of Total
1 4	108-88-3	Toluene	1,071,733	12.6
2 3	7664-41-7	Ammonia	832,704	9.8
3 1	67-56-1	Methanol	815,385	9.6
4 5		Xylenes ⁴	800,083	9.4
5 2	67-64-1	Acetone	698,923	8.2
6 7	78-93-3	Methyl ethyl ketone	561,187	6.6
7 9		Glycol ethers	440,924	5.2
8 12	71-36-3	n-Butyl alcohol	416,109	4.9
9 8	71-55-6	1,1,1-Trichloroethane	403,391	4.7
10 10	75-09-2	Dichloromethane	268,541	3.2
			6,308,980	74.1

Top 10 Reported Stack Air Emissions of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 1	Du Pont Repauno Plant	Gloucester	Greenwich Twp	Ammonia	325,478
2 4	Permacel	Middlesex	North Brunswick Twp	Toluene	317,761
3 8	Ford Motor Company	Middlesex	Edison Twp	Xylene (mixed isomers)	270,000
4 52	Schuller International, Inc. ✓	Camden	Winslow Twp	Ammonia	133,380
5 3	Penick Corporation	Essex	Newark	Methanol	126,717
6 NR	National Can Company	Middlesex	Piscataway Twp	Glycol ethers	119,087
7 NR	National Can Company	Middlesex	Piscataway Twp	n-Butyl alcohol	110,925
8 205	Hargro Flexible Packaging	Hunterdon	Raritan Twp	Methyl ethyl ketone	104,211
9 24	Hercules Inc.	Gloucester	Greenwich Twp	Cumene	97,623
10 5	Kleer Kast (PMC Inc.)	Hudson	Kearny	Acetone	91,659

Top 10 Facilities for Total Stack Air Emissions

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 7	Ford Motor Company	Middlesex	Edison Twp	582,767	6.8
2 1	Du Pont Repauno Plant	Gloucester	Greenwich Twp	391,338	4.6
3 5	Permacel	Middlesex	North Brunswick Twp	322,386	3.8
4 NR	National Can Company	Middlesex	Piscataway Twp	230,032	2.7
5 40	Hargro Flexible Packaging	Hunterdon	Raritan Twp	224,365	2.6
6 26	Schuller International, Inc. ✓	Camden	Winslow Twp	181,808	2.1
7 NR	National Can Company	Middlesex	Edison Twp	177,038	2.1
8 148	General Motors Corp.	Union	Linden	173,335	2.0
9 15	Merck & Co, Inc.	Union	Rahway	151,600	1.8
10 36	Russell-Stanley Corp.	Middlesex	Woodbridge Twp	148,712	1.7
				2,583,381	30.3

Footnotes:

- Stack emissions are those releases to the air that occur through stacks, vents, ducts, pipes, or any other confined air streams.
 - Hercules, Inc. in Kenil (Morris County) did not submit its 1993 report in time to be included in this summary; according to the facility, its 1993 stack air releases were 200,000 pounds for acetone and 15,687 pounds for nitroglycerin.
 - Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
 - Includes o-xylene (CAS# 95-47-6), p-xylene (CAS# 106-42-3), and xylene (mixed isomers) (CAS# 1330-20-7).
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 7. 1993 Release and Pollution Prevention Report

Fugitive¹ Emissions to the Air (reported in pounds)²Top 10 Chemicals Emitted in the Largest Quantities (Fugitive Air)

Rank 93 92	CAS # ³	Chemical Name	Pounds per Year	% of Total
1 1	67-64-1	Acetone	979,997	14.9
2 2	108-88-3	Toluene	838,272	12.7
3 5		Xylenes ⁴	440,915	6.7
4 3	71-55-6	1,1,1-Trichloroethane	437,544	6.6
5 6	79-01-6	Trichloroethylene	410,898	6.2
6 4	78-93-3	Methyl ethyl ketone	409,019	6.2
7 8	75-09-2	Dichloromethane	272,852	4.1
8 9	7664-41-7	Ammonia	245,201	3.7
9 14		Glycol ethers	221,310	3.4
10 7	67-56-1	Methanol	202,347	3.1
			4,458,355	67.6

Top 10 Reported Fugitive Air Emissions of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 4	Kleer Kast (PMC Inc.)	Hudson	Kearny	Acetone	439,823
2 2	Peerless Tube Company	Essex	Bloomfield	Trichloroethylene	233,381
3 5	Aqualon	Middlesex	Sayreville	Acetone	214,462
4 3	Arsynco Inc.	Bergen	Carlstadt	Toluene	196,128
5 449	Du Pont Chambers Works	Salem	Pennsville Twp	Dichlorotetrafluoroethane	142,645
6 11	Silverton Marine Corporation	Cumberland	Millville	Styrene	125,268
7 8	Dri-Print Foils Inc.	Union	Rahway	Methyl ethyl ketone	110,020
8 17	Ames Rubber Corp.	Sussex	Wantage Twp	1,1,1-Trichloroethane	102,956
9 15	Dri-Print Foils Inc.	Union	Rahway	Toluene	89,728
10 26	Bayway Refining Co. Corp.	Union	Linden	Propylene	89,000

Top 10 Facilities for Total Fugitive Air Emissions

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 5	Kleer Kast (PMC Inc.)	Hudson	Kearny	451,533	6.8
2 42	Du Pont Chambers Works	Salem	Pennsville Twp	336,143	5.1
3 6	Bayway Refining Co. Corp.	Union	Linden	317,081	4.8
4 4	Dri-Print Foils Inc.	Union	Rahway	305,443	4.6
5 3	Peerless Tube Company	Essex	Bloomfield	298,973	4.5
6 2	Arsynco Inc.	Bergen	Carlstadt	254,010	3.9
7 8	Aqualon	Middlesex	Sayreville	239,333	3.6
8 13	Silverton Marine Corporation	Cumberland	Millville	179,259	2.7
9 NR	American National Can Company	Middlesex	South Brunswick Twp	144,397	2.2
10 7	Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	118,296	1.8
				2,644,468	40.1

Footnotes:

1. Fugitive emissions are those releases to the air that are not released through stack, vents, ducts, pipes, or any other confined air stream.
 2. Hercules, Inc. in Kenvil (Morris County) did not submit its 1993 report in time to be included in this summary; according to the facility, its 1993 fugitive air releases were 727,556 pounds for acetone and 1,743 pounds for nitroglycerin.
 3. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
 4. Includes o-xylene (CAS# 95-47-6), p-xylene (CAS# 106-42-3), and xylene (mixed isomers) (CAS# 1330-20-7).
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 8. 1993 Release and Pollution Prevention Report

Total Emissions to the Air¹ (reported in pounds)²Top 10 Chemicals Emitted in the Largest Quantities (Total Air)

Rank 93 92	CAS # ³	Chemical Name	Pounds per Year	% of Total
1 2	108-88-3	Toluene	1,910,005	12.6
2 1	67-64-1	Acetone	1,678,920	11.1
3 5		Xylenes ⁴	1,240,998	8.2
4 4	7664-41-7	Ammonia	1,077,905	7.1
5 3	67-56-1	Methanol	1,017,732	6.7
6 6	78-93-3	Methyl ethyl ketone	970,206	6.4
7 7	71-55-6	1,1,1-Trichloroethane	840,935	5.6
8 12		Glycol ethers	662,234	4.4
9 13	71-36-3	n-Butyl alcohol	584,549	3.9
10 9	75-09-2	Dichloromethane	541,393	3.6
			10,524,877	69.6

Top 10 Reported Total Air Emissions of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 3	Kleer Kast (PMC Inc.)	Hudson	Kearny	Acetone	531,482
2 4	Permacel	Middlesex	North Brunswick Twp	Toluene	380,873
3 2	Du Pont Repauno Plant	Gloucester	Greenwich Twp	Ammonia	329,271
4 12	Ford Motor Company	Middlesex	Edison Twp	Xylene (mixed isomers)	284,000
5 8	Peerless Tube Company	Essex	Bloomfield	Trichloroethylene	241,310
6 14	Aqualon	Middlesex	Sayreville	Acetone	215,643
7 6	Arsynco Inc.	Bergen	Carlstadt	Toluene	208,663
8 155	Du Pont Chambers Works	Salem	Pennsville Twp	Dichlorotetrafluoroethane	143,762
9 NR ⁴	National Can Company	Middlesex	Piscataway Twp	Glycol ethers	137,043
10 96	Schuller International, Inc.	Camden	Winslow Twp	Ammonia	136,048

Top 10 Facilities for Total Air Emissions

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 9	Ford Motor Company	Middlesex	Edison Twp	633,013	4.2
2 3	Kleer Kast (PMC Inc.)	Hudson	Kearny	547,780	3.6
3 4	Du Pont Chambers Works	Salem	Pennsville Twp	476,713	3.2
4 7	Bayway Refining Co. Corp.	Union	Linden	425,158	2.8
5 2	Du Pont Repauno Plant	Gloucester	Greenwich Twp	400,803	2.7
6 5	Permacel	Middlesex	North Brunswick Twp	395,202	2.6
7 11	Dri-Print Foils Inc.	Union	Rahway	347,080	2.3
8 8	Peerless Tube Company	Essex	Bloomfield	343,692	2.3
9 10	Arsynco Inc.	Bergen	Carlstadt	307,264	2.0
10 NR	National Can Company	Middlesex	Piscataway Twp	267,563	1.8
				4,144,268	27.4

Footnotes:

1. Total air emissions = stack air emissions + fugitive air emissions.
 2. Hercules, Inc. in Kenil (Morris County) did not submit its 1993 report in time to be included in this summary; according to the facility, its 1993 total air releases were 927,556 pounds for acetone and 17,430 pounds for nitroglycerin.
 3. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
 4. Includes o-xylene (CAS# 95-47-6), p-xylene (CAS# 106-42-3), and xylene (mixed isomers) (CAS# 1330-20-7).
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 9. 1993 Release and Pollution Prevention Report

Surface Water Discharges (reported in pounds)

Top 10 Chemicals Discharged in the Largest Quantities (Surface Waters)

Rank				Pounds per	% of
93	92	CAS # ¹	Chemical Name	Year	Total
1	1	7664-41-7	Ammonia	1,754,326	53.3
2	2	7783-20-2	Ammonium sulfate	788,341	24.0
3	* ²	6484-52-2	Ammonium nitrate	593,530	18.0
4	6	7647-01-0	Hydrochloric acid	29,018	0.9
5	* ²		Dinitrobenzene isomers	19,036	0.6
6	8	74-87-3	Chloromethane	17,823	0.5
7	9	7782-50-5	Chlorine	17,709	0.5
8	18	1330-20-7	Xylene (mixed isomers)	10,019	0.3
9	21	108-88-3	Toluene	9,078	0.3
10	10	67-56-1	Methanol	7,777	0.2
				3,246,657	98.7

Top 10 Reported Surface Water Discharges of a Single Chemical

Rank						Pounds per
93	92	Facility Name	County	City	Chemical	Year
1	1	Du Pont Chambers Works	Salem	Pennsville Twp	Ammonia	1,652,314
2	2	Du Pont Chambers Works	Salem	Pennsville Twp	Ammonium sulfate	788,341
3	NR	E M Industries Inc. Rona Div.	Hudson	Bayonne	Ammonium nitrate	432,000
4	NR	Du Pont Chambers Works	Salem	Pennsville Twp	Ammonium nitrate	161,530
5	7	Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Ammonia	35,159
6	* ³	Max Marx Color Corp.	Essex	Irvington	Hydrochloric acid	29,018
7	6	J T Baker Inc.	Warren	Phillipsburg	Ammonia	20,055
8	* ⁴	Du Pont Chambers Works	Salem	Pennsville Twp	m-Dinitrobenzene	18,756
9	10	Du Pont Chambers Works	Salem	Pennsville Twp	Chloromethane	17,823
10	3	Monsanto Company	Gloucester	Logan Twp	Ammonia	15,831

Top 10 Facilities for Total Surface Water Discharges

Rank					Pounds per	% of
93	92	Facility Name	County	City	Year	Total
1	1	Du Pont Chambers Works	Salem	Pennsville Twp	2,669,276	81.1
2	NR	E M Industries Inc. Rona Div.	Hudson	Bayonne	432,000	13.1
3	4	Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	36,603	1.1
4	* ³	Max Marx Color Corp.	Essex	Irvington	29,018	0.9
5	8	Bayway Refining Co. Corp.	Union	Linden	28,390	0.9
6	5	J T Baker Inc.	Warren	Phillipsburg	20,862	0.6
7	2	Monsanto Company	Gloucester	Logan Twp	16,101	0.5
8	7	Occidental Chemical Corp.	Burlington	Burlington Twp	14,166	0.4
9	9	Sybron Chemicals Inc.	Burlington	Pemberton Twp	11,983	0.4
10	NR	Amerada Hess Refinery	Middlesex	Woodbridge Twp	8,290	0.3
					3,266,689	99.3

Footnotes:

1. Chemical Abstracts Service Registry Number.
 2. One of 120 chemicals (of the total of 189) that had no surface water discharges reported for 1992.
 3. Did not report for 1992.
 4. One of 2,457 chemical records (of the total of 2,517) that had no surface water discharges reported for 1992.
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 10. 1993 Release and Pollution Prevention Report

On-Site Releases to Land (reported in pounds)

Top 10 Chemicals Released in the Largest Quantities (Land)

Rank 93 92	CAS # ¹	Chemical Name	Pounds per Year	% of Total
1 1		Zinc compounds	208,547	47.1
2 2		Lead and compounds ²	82,394	18.6
3 * ³		Nickel compounds	57,423	13.0
4 3		Manganese compounds	32,611	7.4
5 * ³		Copper compounds	30,948	7.0
6 5	108-95-2	Phenol	15,162	3.4
7 20		Glycol ethers	6,403	1.4
8 23	1330-20-7	Xylene (mixed isomers)	4,921	1.1
9 * ³	108-88-3	Toluene	1,514	0.3
10 * ³	71-55-6	1,1,1-Trichloroethane	1,104	0.2
			441,027	99.5

Top 10 Reported On-Site Land Releases of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 1	United States Pipe and Foundry	Burlington	Burlington	Zinc compounds	208,547
2 * ⁴	C P Chemicals Inc.	Middlesex	Woodbridge Twp	Nickel compounds	55,802
3 2	United States Pipe and Foundry	Burlington	Burlington	Lead compounds	45,494
4 NR	Griffin Pipe Products Co.	Burlington	Florence Twp	Lead	36,900
5 3	United States Pipe and Foundry	Burlington	Burlington	Manganese compounds	32,611
6 * ⁴	C P Chemicals Inc.	Middlesex	Woodbridge Twp	Copper compounds	30,948
7 6	Du Pont Chambers Works	Salem	Pennsville Twp	Phenol	15,162
8 NR	Domtar Gypsum Inc.	Camden	Camden	Glycol ethers	6,403
9 * ⁴	Staflax Specialty Esters, Inc.	Middlesex	Carteret	Xylene (mixed isomers)	4,920
10 NR	Amerada Hess Refinery	Middlesex	Woodbridge Twp	Nickel compounds	1,621

Top 10 Facilities for Total On-Site Land Releases

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 1	United States Pipe and Foundry	Burlington	Burlington	286,652	64.7
2 * ⁵	C P Chemicals Inc.	Middlesex	Woodbridge Twp	86,750	19.6
3 * ⁵	Griffin Pipe Products Co.	Burlington	Florence Twp	36,900	8.3
4 2	Du Pont Chambers Works	Salem	Pennsville Twp	18,213	4.1
5 NR	Domtar Gypsum Inc.	Camden	Camden	6,403	1.4
6 * ⁵	Staflax Specialty Esters, Inc.	Middlesex	Carteret	4,920	1.1
7 NR	Amerada Hess Refinery	Middlesex	Woodbridge Twp	1,645	0.4
8 * ⁵	Star Glow Industries Inc.	Bergen	East Rutherford	1,104	0.2
9 6	James River Paper Company Inc.	Hunterdon	Milford	468	0.1
10 NR	3 M Corporation	Somerset	Montgomery Twp	154	0.0
				443,209	100.0

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
 2. Includes both lead (CAS# 7439-92-1) and "Lead compounds."
 3. One of 166 chemicals (of the total of 189) that had no on-site land releases reported for 1992.
 4. One of 2,492 chemical records (of the total of 2,517) that had no on-site land releases reported for 1992.
 5. One of 674 facilities (of the total of 682) that had no surface water discharges reported for 1992.
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 11. 1993 Release and Pollution Prevention Report

Total On-Site Releases¹ (reported in pounds)Top 10 Chemicals Released On Site in the Largest Quantities

Rank 93 92	CAS # ²	Chemical Name	Pounds per Year	% of Total
1 1	7664-41-7	Ammonia	2,832,231	15.0
2 3	108-88-3	Toluene	1,920,597	10.2
3 2	67-64-1	Acetone	1,679,437	8.9
4 5		Xylenes ³	1,255,938	6.6
5 4	67-56-1	Methanol	1,025,509	5.4
6 6	78-93-3	Methyl ethyl ketone	970,208	5.1
7 7	71-55-6	1,1,1-Trichloroethane	842,040	4.5
8 8	7783-20-2	Ammonium sulfate	790,184	4.2
9 12		Glycol ethers	668,725	3.5
10 * ⁴	6484-52-2	Ammonium nitrate	593,530	3.1
			12,578,399	66.7

Top 10 Reported Total On-Site Releases of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 1	Du Pont Chambers Works	Salem	Pennsville Twp	Ammonia	1,662,763
2 4	Du Pont Chambers Works	Salem	Pennsville Twp	Ammonium sulfate	788,341
3 5	Kleer Kast (PMC Inc.)	Hudson	Kearny	Acetone	531,578
4 NR	E M Industries Inc. Rona Div.	Hudson	Bayonne	Ammonium nitrate	432,000
5 6	Permacel	Middlesex	North Brunswick Twp	Toluene	380,873
6 3	Du Pont Repauno Plant	Gloucester	Greenwich Twp	Ammonia	329,271
7 14	Ford Motor Company	Middlesex	Edison Twp	Xylene (mixed isomers)	284,000
8 10	Peerless Tube Company	Essex	Bloomfield	Trichloroethylene	241,310
9 17	Aqualon	Middlesex	Sayreville	Acetone	215,643
10 16	United States Pipe and Foundry	Burlington	Burlington	Zinc compounds	212,479

Top 10 Facilities for Total On-Site Releases

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 1	Du Pont Chambers Works	Salem	Pennsville Twp	3,164,202	16.8
2 9	Ford Motor Company	Middlesex	Edison Twp	633,013	3.4
3 4	Kleer Kast (PMC Inc.)	Hudson	Kearny	547,905	2.9
4 7	Bayway Refining Co. Corp.	Union	Linden	453,548	2.4
5 438	E M Industries Inc. Rona Div.	Hudson	Bayonne	442,776	2.3
6 3	Du Pont Repauno	Gloucester	Greenwich Twp	400,803	2.1
7 5	Permacel	Middlesex	North Brunswick Twp	395,202	2.1
8 11	United States Pipe and Foundry	Burlington	Burlington	376,659	2.0
9 12	Dri-Print Foils Inc.	Union	Rahway	347,080	1.8
10 8	Peerless Tube Company	Essex	Bloomfield	343,692	1.8
				7,104,880	37.7

Footnotes:

- Includes all quantities reported emitted to the air, discharged to surface waters and ground water, and released to the land at the facility.
 - Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
 - Includes o-xylene (CAS# 95-47-6), p-xylene (CAS# 106-42-3), and xylene (mixed isomers) (CAS# 1330-20-7).
 - One of 14 chemicals (of the total of 189) that had no on-site releases (air, water or land) reported for 1992.
- NR Not in database, i.e. not reported in time for 1992 summary.

Table 12. 1993 Release and Pollution Prevention Report

Discharges to Publicly Owned Treatment Works¹ (reported in pounds)Top 10 Chemicals Discharged in the Largest Quantities

Rank 93 92	CAS # ²	Chemical Name	Pounds per Year	% of Total
1 1	67-56-1	Methanol	21,149,809	54.3
2 2	7783-20-2	Ammonium sulfate	6,779,552	17.4
3 5	7664-41-7	Ammonia	3,048,025	7.8
4 3		Glycol ethers	2,092,577	5.4
5 4	107-21-1	Ethylene glycol	2,026,477	5.2
6 7	67-64-1	Acetone	879,933	2.3
7 6	108-95-2	Phenol	833,813	2.1
8 25	95-63-6	1,2,4-Trimethylbenzene	208,241	0.5
9 13	71-36-3	n-Butyl alcohol	202,002	0.5
10 10	75-09-2	Dichloromethane	177,827	0.5
			37,398,256	96.0

Top 10 Reported POTW Discharges of a Single Chemical

Rank 93 92	Facility Name	County	City	Chemical	Pounds per Year
1 1	Old Bridge Chemicals, Inc.	Middlesex	Old Bridge Twp	Ammonium sulfate	4,306,202
2 2	Sun Chemical Corp.	Essex	Newark	Methanol	4,000,000
3 19	Zeneca Inc. - Bayonne Site	Hudson	Bayonne	Ammonia	2,301,132
4 12	Cookson Pigments	Essex	Newark	Methanol	1,881,190
5 10	Degussa Corp. - Metz Division	Middlesex	South Plainfield	Methanol	1,866,172
6 6	Penick Corporation	Essex	Newark	Methanol	1,863,384
7 3	Merck & Co., Inc.	Union	Rahway	Methanol	1,600,000
8 8	Hoffmann-La Roche Inc.	Essex	Nutley	Methanol	1,572,055
9 16	Fabricolor Mfg. Corp.	Passaic	Paterson	Ammonium sulfate	1,453,049
10 13	Pfister Chemical Inc.	Bergen	Ridgefield	Methanol	1,449,440

Top 10 Facilities for Total POTW Discharges

Rank 93 92	Facility Name	County	City	Pounds per Year	% of Total
1 1	Old Bridge Chemicals, Inc.	Middlesex	Old Bridge Twp	4,306,352	11.1
2 3	Sun Chemical Corp.	Essex	Newark	4,000,000	10.3
3 5	Hoffmann-La Roche Inc.	Essex	Nutley	2,598,111	6.7
4 6	Aqualon	Middlesex	Sayreville	2,431,535	6.2
5 18	Zeneca Inc. - Bayonne Site	Hudson	Bayonne	2,301,132	5.9
6 2	Merck & Co, Inc.	Union	Rahway	2,270,850	5.8
7 10	Cookson Pigments	Essex	Newark	1,978,471	5.1
8 7	Kalama Chemical Inc.	Bergen	Garfield	1,942,389	5.0
9 12	Degussa Corp. - Metz Division	Middlesex	South Plainfield	1,901,336	4.9
10 9	Penick Corporation	Essex	Newark	1,863,907	4.8
				25,594,083	65.7

Footnotes:

1. POTW means publicly owned treatment works, including public sewage or municipal sewage treatment plants.
2. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.

Table 13. 1993 Release and Pollution Prevention Report

Off-Site Transfers for Recycling (reported in pounds)

Top 10 Chemicals Transferred in the Largest Quantities (for Off-Site Recycling)

CAS # ¹	Chemical Name	Pounds per Year	% of Total
7664-93-9	Sulfuric acid	70,504,962	60.1
	Copper and compounds ²	14,053,141	12.0
	Zinc and compounds ³	6,915,798	5.9
75-09-2	Dichloromethane	4,208,787	3.6
67-56-1	Methanol	3,555,334	3.0
95-50-1	1,2-Dichlorobenzene	3,061,912	2.6
	Lead and compounds ⁴	2,516,437	2.1
7429-90-5	Aluminum (fume or dust)	1,799,089	1.5
1344-28-1	Aluminum oxide	1,541,153	1.3
108-88-3	Toluene	1,461,019	1.2
		109,617,632	93.1

Top 10 Reported Off-Site Transfers for Recycling of a Single Chemical

Facility Name	County	City	Chemical	Pounds per Year
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Sulfuric acid	29,501,180
Amerada Hess Refinery	Middlesex	Woodbridge Twp	Sulfuric acid	24,670,000
Sybron Chemicals Inc.	Burlington	Pemberton Twp	Sulfuric acid	15,794,388
Circuit Foil USA, Inc.	Burlington	Bordentown Twp	Copper compounds	6,004,414
Raritan River Steel Company	Middlesex	Perth Amboy	Zinc (fume or dust)	3,371,400
Biocraft Laboratories, Inc.	Bergen	Waldwick	Dichloromethane	2,949,109
New Jersey Steel Corporation	Middlesex	Sayreville	Zinc (fume or dust)	2,722,244
Merck & Co, Inc.	Union	Rahway	Methanol	2,683,000
Phelps Dodge Specialty Copper	Union	Elizabeth	Copper	2,498,055
The Okonite Co. Inc.	Middlesex	North Brunswick Twp	Copper	2,427,147

Top 10 Facilities for Total Off-Site Transfers for Recycling

Facility Name	County	City	Pounds per Year	% of Total
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	29,501,906	25.1
Amerada Hess Refinery	Middlesex	Woodbridge Twp	24,670,429	21.0
Sybron Chemicals Inc.	Burlington	Pemberton Twp	15,805,388	13.5
Circuit Foil USA, Inc.	Burlington	Bordentown Twp	6,556,594	5.6
Merck & Co, Inc.	Union	Rahway	4,536,130	3.9
Raritan River Steel Company	Middlesex	Perth Amboy	3,865,760	3.3
New Jersey Steel Corporation	Middlesex	Sayreville	3,532,054	3.0
Aluminum Smelters of NJ	Camden	Pennsauken Twp	3,460,911	2.9
Biocraft Laboratories, Inc.	Bergen	Waldwick	2,949,109	2.5
Du Pont Chambers Works	Salem	Pennsville Twp	2,555,116	2.2
			97,433,397	83.0

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
2. Includes both copper (CAS# 7440-50-8) and "copper compounds."
3. Includes both zinc (CAS# 7440-66-6) and "zinc compounds."
4. Includes both lead (CAS# 7439-92-1) and "lead compounds."

Table 14. 1993 Release and Pollution Prevention Report

Off-Site Transfers for Energy Recovery (reported in pounds)

Top 10 Chemicals Transferred in the Largest Quantities (for Energy Recovery)

CAS # ¹	Chemical Name	Pounds per Year	% of Total
67-56-1	Methanol	5,892,898	23.8
108-88-3	Toluene	4,665,868	18.8
67-64-1	Acetone	3,571,614	14.4
	Xylenes ²	3,258,295	13.2
78-93-3	Methyl ethyl ketone	2,447,043	9.9
108-10-1	Methyl isobutyl ketone	1,182,339	4.8
100-41-4	Ethylbenzene	649,118	2.6
75-09-2	Dichloromethane	607,510	2.5
71-36-3	n-Butyl alcohol	535,841	2.2
100-44-7	Benzyl chloride	305,715	1.2
		23,116,241	93.4

Top 10 Reported Off-Site Transfers for Energy Recovery of a Single Chemical

Facility Name	County	City	Chemical	Pounds per Year
International Flavors & Fragrances	Monmouth	Union Beach	Toluene	2,011,342
Biocraft Laboratories, Inc.	Bergen	Waldwick	Acetone	1,514,134
Merck & Co, Inc.	Union	Rahway	Methanol	1,500,000
International Flavors & Fragrances	Monmouth	Union Beach	Methyl ethyl ketone	1,360,442
CPS Chemical Co. Inc.	Middlesex	Old Bridge Twp	Methanol	1,146,378
International Flavors & Fragrances	Monmouth	Union Beach	Methanol	1,006,265
Mobil Oil Corporation	Middlesex	Edison Twp	Xylene (mixed isomers)	787,382
Beecham Inc, Tenn. Corp.	Middlesex	Piscataway Twp	Acetone	681,500
Permacel	Middlesex	North Brunswick Twp	Toluene	674,137
International Flavors & Fragrances	Monmouth	Union Beach	Xylene (mixed isomers)	592,794

Top 10 Facilities for Total Off-Site Transfers for Energy Recovery

Facility Name	County	City	Pounds per Year	% of Total
International Flavors & Fragrances	Monmouth	Union Beach	5,383,863	21.7
Merck & Co, Inc.	Union	Rahway	2,585,000	10.4
Biocraft Laboratories, Inc.	Bergen	Waldwick	1,514,134	6.1
CPS Chemical Co. Inc.	Middlesex	Old Bridge Twp	1,175,009	4.7
Mobil Oil Corporation	Middlesex	Edison Twp	1,152,533	4.7
Beecham Inc, Tenn. Corp.	Middlesex	Piscataway Twp	1,038,100	4.2
Schering Corporation	Union	Union Twp	951,156	3.8
Permacel	Middlesex	North Brunswick Twp	731,031	3.0
American Cyanamid Co.	Somerset	Bridgewater Twp	671,914	2.7
Transfer Print Foils Inc.	Middlesex	East Brunswick Twp	570,127	2.3
			15,772,867	63.7

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
2. Includes m-xylene (CAS# 108-38-3), o-xylene (CAS# 95-47-6), and xylene (mixed isomers) (CAS# 1330-20-7).

Table 15. 1993 Release and Pollution Prevention Report

Off-Site Transfers for Treatment (reported in pounds)

Top 10 Chemicals Transferred in the Largest Quantities (for Treatment)

CAS # ¹	Chemical Name	Pounds per Year	% of Total
67-56-1	Methanol	4,039,432	28.2
85-68-7	Butyl benzyl phthalate	1,599,329	11.2
108-88-3	Toluene	1,329,898	9.3
78-93-3	Methyl ethyl ketone	1,068,317	7.5
67-64-1	Acetone	970,287	6.8
	Lead and compounds ²	849,951	5.9
7697-37-2	Nitric acid	636,756	4.4
	Xylenes ³	452,051	3.1
95-50-1	1,2-Dichlorobenzene	410,346	2.9
7783-20-2	Ammonium sulfate	394,588	2.8
		11,750,995	82.1

Top 10 Reported Off-Site Transfers for Treatment of a Single Chemical

Facility Name	County	City	Chemical	Pounds per Year
Hoffmann-La Roche Inc.	Essex	Nutley	Methanol	1,599,517
Mannington Mills Inc.	Salem	Mannington Twp	Butyl benzyl phthalate	1,472,076
Stepan Company - Maywood Div.	Bergen	Maywood	Methanol	877,880
Du Pont Chambers Works	Salem	Pennsville Twp	Lead compounds	815,184
BASF Corporation	Middlesex	Middlesex	Methyl ethyl ketone	719,541
Ganes Chemicals, Inc.	Salem	Pennsville Twp	Methanol	600,438
Hoffmann-La Roche Inc.	Essex	Nutley	Toluene	445,545
Hoffmann-La Roche Inc.	Essex	Nutley	Acetone	406,213
Chem-Fleur Inc.	Essex	Newark	Methanol	400,804
Du Pont Chambers Works	Salem	Pennsville Twp	1,2-Dichlorobenzene	388,370

Top 10 Facilities for Total Off-Site Transfers for Treatment

Facility Name	County	City	Pounds per Year	% of Total
Hoffmann-La Roche Inc.	Essex	Nutley	2,734,024	19.1
Du Pont Chambers Works	Salem	Pennsville Twp	1,499,669	10.5
Mannington Mills Inc.	Salem	Mannington Twp	1,475,476	10.3
BASF Corporation -Del-	Middlesex	Middlesex	959,941	6.7
Stepan Company - Maywood Div.	Bergen	Maywood	877,880	6.1
Ganes Chemicals, Inc.	Salem	Pennsville Twp	830,712	5.8
Du Pont Repauno Plant	Gloucester	Greenwich Twp	427,138	3.0
Chem-Fleur Inc.	Essex	Newark	424,705	3.0
Biocraft Laboratories, Inc.	Bergen	Waldwick	343,904	2.4
Givaudan-Roure Corporation	Passaic	Clifton	323,781	2.3
			9,897,230	69.0

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
2. Includes both lead (CAS# 7439-92-1) and "lead compounds."
3. Includes m-xylene (CAS# 108-38-3) and xylene (mixed isomers) (CAS# 1330-20-7).

Table 16. 1993 Release and Pollution Prevention Report

Off-Site Transfers for Disposal (reported in pounds)

Top 10 Chemicals Transferred in the Largest Quantities (for Disposal)

CAS # ¹	Chemical Name	Pounds per Year	% of Total
108-88-3	Toluene	1,637,817	30.3
	Zinc and compounds ²	910,479	16.8
	Antimony compounds	695,997	12.9
75-09-2	Dichloromethane	373,538	6.9
	Copper and compounds ³	257,724	4.8
67-56-1	Methanol	246,542	4.6
	Lead and compounds ⁴	211,402	3.9
	Barium and compounds ⁵	177,193	3.0
	Chromium and compounds ⁶	134,444	2.5
7664-93-9	Sulfuric acid	112,125	2.1
		4,757,261	87.8

Top 10 Reported Off-Site Transfers for Disposal of a Single Chemical

Facility Name	County	City	Chemical	Pounds per Year
Mallinckrodt Inc.	Essex	Belleville	Toluene	1,585,067
Synergistics Industries Inc.	Monmouth	Howell Twp	Antimony compounds	610,800
Ciba-Geigy Corp.	Union	Summit	Dichloromethane	373,538
Rhein Chemie Corp.	Mercer	Ewing Twp	Zinc compounds	290,667
Madison Industries	Middlesex	Old Bridge Twp	Zinc compounds	199,018
Ciba-Geigy Corp.	Union	Summit	Methanol	181,987
Sybron Chemicals Inc.	Burlington	Pemberton Twp	Zinc compounds	181,316
United States Pipe and Foundry	Burlington	Burlington	Barium compounds	146,159
Du Pont Pompton Lakes	Passaic	Pompton Lakes	Copper	133,899
E C D, Inc.	Union	Hillside Twp	Sulfuric acid	93,857

Top 10 Facilities for Total Off-Site Transfers for Disposal

Facility Name	County	City	Pounds per Year	% of Total
Mallinckrodt Inc.	Essex	Belleville	1,648,746	30.5
Ciba-Geigy Corp.	Union	Summit	680,760	12.6
Synergistics Industries Inc.	Monmouth	Howell Twp	614,311	11.4
Rhein Chemie Corp.	Mercer	Ewing Twp	308,425	5.7
Madison Industries	Middlesex	Old Bridge Twp	265,730	4.9
Sybron Chemicals Inc.	Burlington	Pemberton Twp	198,356	3.7
United States Pipe and Foundry	Burlington	Burlington	154,966	2.9
Du Pont Pompton Lakes	Passaic	Pompton Lakes	152,609	2.8
E C D, Inc.	Union	Hillside Twp	93,857	1.7
C P Chemicals Inc.	Middlesex	Woodbridge Twp	86,750	1.6
			4,204,510	77.8

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
2. Includes both zinc (CAS# 7440-66-6) and "zinc compounds."
3. Includes both copper (CAS# 7440-50-8) and "copper compounds."
4. Includes both lead (CAS# 7439-92-1) and "lead compounds."
5. Includes both barium (CAS# 7440-39-3) and "barium compounds."
6. Includes both chromium (CAS# 7440-47-3) and "chromium compounds."

Table 17. 1993 Release and Pollution Prevention Report

Total Off-Site Transfers (reported in pounds)

Top 10 Chemicals Transferred Off-Site in the Largest Quantities

CAS # ¹	Chemical Name	Pounds per Year	% of Total
7664-93-9	Sulfuric acid	71,050,093	35.3
67-56-1	Methanol	34,941,615	17.4
	Copper and compounds ²	14,500,245	7.2
108-88-3	Toluene	9,140,288	4.5
	Zinc and compounds ³	8,001,994	4.0
7783-20-2	Ammonium sulfate	7,175,423	3.6
67-64-1	Acetone	6,834,470	3.4
75-09-2	Dichloromethane	5,587,774	2.8
	Xylenes ⁴	4,734,096	2.4
78-93-3	Methyl ethyl ketone	4,262,646	2.1
		166,228,644	82.7

Top 10 Reported Total Off-Site Transfers of a Single Chemical

Facility Name	County	City	Chemical	Pounds per Year
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Sulfuric acid	29,501,180
Amerada Hess Refinery	Middlesex	Woodbridge Twp	Sulfuric acid	24,670,000
Sybron Chemicals Inc.	Burlington	Pemberton Twp	Sulfuric acid	15,794,388
Circuit Foil USA, Inc.	Burlington	Bordentown Twp	Copper compounds	6,004,459
Merck & Co, Inc.	Union	Rahway	Methanol	5,786,100
Old Bridge Chemicals, Inc.	Middlesex	Old Bridge Twp	Ammonium sulfate	4,306,202
Sun Chemical Corp.	Essex	Newark	Methanol	4,000,000
Raritan River Steel Company	Middlesex	Perth Amboy	Zinc (fume or dust)	3,371,400
Hoffmann-La Roche Inc.	Essex	Nutley	Methanol	3,262,876
Biocraft Laboratories, Inc.	Bergen	Waldwick	Dichloromethane	2,949,109

Top 10 Facilities for Total Off-Site Transfers

Facility Name	County	City	Pounds per Year	% of Total
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	29,531,729	14.7
Amerada Hess Refinery	Middlesex	Woodbridge Twp	24,692,926	12.3
Sybron Chemicals Inc.	Burlington	Pemberton Twp	16,007,744	8.0
Merck & Co, Inc.	Union	Rahway	9,466,580	4.7
Circuit Foil USA, Inc.	Burlington	Bordentown Twp	6,559,315	3.3
Hoffmann-La Roche Inc.	Essex	Nutley	5,531,207	2.7
International Flavors & Fragrances	Monmouth	Union Beach	5,475,708	2.7
Biocraft Laboratories, Inc.	Bergen	Waldwick	4,807,147	2.4
Du Pont Chambers Works	Salem	Pennsville Twp	4,472,120	2.2
Old Bridge Chemicals, Inc.	Middlesex	Old Bridge Twp	4,387,506	2.2
			110,931,982	55.1

Footnotes:

1. Chemical Abstracts Service Registry Number; compound categories do not have CAS numbers.
2. Includes both copper (CAS# 7440-50-8) and "copper compounds."
3. Includes both zinc (CAS# 7440-66-6) and "zinc compounds."
4. Includes m-xylene (CAS# 108-38-3) and xylene (mixed isomers) (CAS# 1330-20-7).

Materials Accounting

The concept behind New Jersey's release reporting program is a simplified chemical mass balance approach, accounting for all input and output quantities of each reported toxic chemical to the greatest extent possible. The input quantities should approximately equal the output quantities of the reported toxic chemicals, using the chemical throughput data along with the reported on-site and off-site waste management practices, including environmental release and off-site transfer data. Figure 7, a materials accounting worksheet, presents the data elements that are considered in the mass balance approach.

In order to assess general data quality, the throughput data, as reported on the Release and Pollution Prevention Report (DEQ-114), are evaluated as facility-level chemical input and output balances. The input component includes: the starting inventory of the toxic chemical for the year, the quantity produced on site and the quantity brought on site. The output component includes: the quantity consumed (chemically reacted in process) on site, the quantity shipped off site as (or in) product, the quantity destroyed through on-site treatment, the ending inventory and all environmental releases and off-site transfers for further management.

Table 18 presents, alphabetically by chemical name, a summary of the throughput data including environmental releases and off-site transfers for 193 chemicals, compound categories and "mixture" category reported for 1993. New Jersey facilities are permitted to claim confidentiality regarding chemical throughput data. Five facilities exercised this prerogative and claimed trade secrecy for 34 reported chemicals. The throughput data from these reports are not included in the summaries in this section.

Therefore, 682 facilities reported on 2,684 DEQ-114s that more than 7.7 billion pounds of the reported chemicals were manufactured and more than 8.3 billion pounds were brought on site in 1993. These same facilities reported that nearly 3.2 billion pounds of chemicals were consumed in process and more than 12.5 billion pounds were shipped off site as (or in) product. These facilities also reported that during calendar year 1993, more than 185 million pounds were destroyed through on-site treatment, more than 200 million pounds were transferred off-site for further management, and more than 18 million pounds of environmental releases occurred at the facilities. Additionally, the facilities reported that nearly 18 millions pounds of input chemicals were recycled (out of process) on site and reused.

From the reported data, total input and output quantities were calculated. Using these two quantities, an assessment is made of the balance, or closure, achieved in the materials accounting process. The resultant discrepancies in materials accounting are then addressed as either a quantitative difference or a percent error. Department staff contacted facilities that reported large quantitative errors to notify them of the observed discrepancies. These contacts prove beneficial in at least three different ways: 1) facility personnel receive direct technical guidance from department staff; 2) revised reports may then be submitted, improving the overall quality of the database; and 3) NJDEP staff are alerted to misunderstandings in the instructions and the completion of the reporting form.

The data quality review process and some of the possible (i.e., the known) sources of reporting errors are addressed on the following pages. Figure 8 demonstrates the distribution of observed material accounting discrepancies in the 1993 data. Twelve facilities submitted reports for 20 chemicals with a difference of more than 1,000,000 pounds between input and output; eight of those where the input exceeded the output by more than 1,000,000 pounds and 12 where the output exceeded the input. The department annually investigates such discrepancies to gain an understanding of the causative factors. It is encouraging however, that the 1993 data indicate an improvement over the 1992 data. The total number of data records and the number of zero

discrepancy reports increased for 1993, while the number of discrepancy reports at each extreme declined.

Table 19 presents the top 10 toxic chemical records by the largest quantitative difference for both a positive value and a negative value. As noted, the difference is simply the input minus the output. Therefore, a positive value means that a larger quantity is accounted for on the input side of the equation; a negative value means that a larger quantity is accounted for on the output side of the equation. The department has taken steps to notify industries of these observed differences. While looking at the large quantitative differences, it is important to note the value of the percent error. A review of Table 19 shows that for nine of the 20 chemical records listed, the quantitative difference is less than two percent of the total.

Large percentage discrepancies are also observed and may be just as significant as large quantitative discrepancies. The equations for determining the percent error are:

$$\frac{(\text{Input} - \text{Output}) \times 100\%}{\text{Input}}$$

where Input is greater than Output, or

$$\frac{(\text{Input} - \text{Output}) \times 100\%}{\text{Output}}$$

where Output is greater than Input.

The sign of the error value (+ or -) resulting from the equations indicates the source of the excess in the materials accounting process. A "positive" percent error results when the input exceeds the output; a "negative" percent error results when the output exceeds the input. Table 20 presents the top 10 toxic chemical records by the largest percentage error for both a positive value and a negative value. A review of Table 20 indicates that possibly some of these chemicals did not exceed the 10,000 pound manufacture, process, or otherwise use threshold and should not have been reported at all (compare input and output quantities). For example, see the vanadium (fume or dust) listing by Shield Alloy (Table 20). This report does not come close to meeting the reporting threshold. However, the reporting burden is on the regulated facility and to date the department has not focused on these types of submissions; future efforts may incorporate notifications to facilities that submit reports that are questionable with respect to the thresholds.

Development and inclusion of the materials accounting worksheet (Figure 7) with the DEQ-114 reporting package was intended to minimize the types of errors noted in Tables 19 and 20. The department has continued to conduct outreach efforts that encourage facilities to use the worksheet as a preliminary check of reported quantities on the Release and Pollution Prevention Report.

Table 21 summarizes, by county, the throughput data, the calculated inputs and outputs, and the materials accounting differences. Table 22 presents a detailed summary, by standard industrial classification, of the throughput data, the calculated inputs and outputs and the materials accounting differences.

Data Quality Assurance and Possible Sources of Error

The Release and Pollution Prevention Reports are subjected to data quality review. Preliminary summaries and reviews of the database required a significant amount of manual effort, comparing the database with the actual forms. Additionally, NJDEP staff provided technical assistance through phone conversations with facility personnel. Other facilities were notified by mail that corrections were necessary to previously submitted data.

Based on this assistance and discussions with facility environmental managers, it is evident

that historically there have been some misunderstandings or misinterpretations of the intent and nature of the reportable data. For example, the distinction between "consumed on site" and "shipped off site as (or in) product" was not clearly understood by the regulated community. Consumed on site means that a chemical change occurs, i.e., the toxic chemical's molecular structure is altered in the process resulting in the formation of a new substance. A toxic chemical may be shipped off site as (or in) product as a result of the manufacture or processing of the reported toxic chemical, or another chemical, and it remains primarily in the product or in a mixture with another chemical or chemicals. Recognizing that there have been, and continue to be, misunderstandings about the various reportable data elements, the DEQ-114 instructions contain a worksheet for verification of the materials accounting data (see Figure 7).

The most significant misreporting occurs for the metals and their compound categories. When reporting on the metal compound categories, *only the quantity of the parent metal is to be reported*. For throughput reporting, the metals are generally not reportable as "produced on site" or as "consumed on site." An exception to this would be those facilities which are engaged in the primary smelting and metals refining industries (SICs 3331 and 3339, respectively) that are actually extracting the metals from ores, etc., in their processes. Another exception is in the case of reporting of those metals that have a "fume or dust" qualifier (i.e. aluminum, vanadium, and zinc) where the fume or dust is either produced or consumed in the process. Table 18, the summary of throughput data by chemical, demonstrates the cases where metals are reported as produced, consumed and even destroyed through treatment at the reporting facilities.

Another factor that may be a source of discrepancies in materials accounting is that the reporting requirements allow the rounding off of reportable quantities to two significant integers. Quantities are more likely to be rounded down, than up, thereby masking a certain quantity of the "true" value (or estimate); the larger the actual value (or estimate) is, the more significant the rounded off quantity will be. For example, consider the impact on the database, and subsequent data analyses, of rounding off 12,345 pounds versus 12,345,678 pounds. In one case, 345 pounds are excluded from reporting, in the other case 345,678 pounds are not reported. Therefore, rounding off is discouraged on the Release and Pollution Prevention Report.

It should also be noted that not all industries are primarily concerned with tracking the amount of a reportable toxic chemical within their processes or facilities, though most are able to fairly accurately quantify the environmental releases and off-site transfers of those chemicals. The petroleum refining industry is a good example of this. Crude oil, a raw material that varies in composition depending upon its geographic and geologic origins, is "cracked," or refined, to provide a wide variety of hydrocarbon-based chemicals. Benzene, toluene and xylene are toxic chemicals that are cracked and refined from oil, and then blended with other chemicals to produce, for example, gasoline. The industry focuses more on the performance characteristics of the products than on exactly how much of any chemical was contained in or cracked from the crude. Further, physical and chemical analyses of crude oil are expensive and may require many months to complete and are, therefore, not performed on every batch of crude that a refinery receives and processes. Subsequently, the quantitative estimates for throughput data are often based on previously published analytical results of chemical composition data that may, or may not, be representative of the actual composition of the batches refined in the reporting year. That composition data identifies the chemicals contained in the crude by a range of numbers (i.e., a minimum and a maximum value), not by an exact value of the percent composition.

Considering this information along with the volume of chemical throughput reported by the petroleum industry (see data in Table 22) demonstrates the challenges to generating meaningful information from a simplified mass balance approach for some industries. It should also be noted that some industries, by the nature of their processes, indirectly derive the quantities of the chemicals tracked through their processes.

Table 18. 1993 RPPR Throughput Data Reported by New Jersey Facilities¹
(ordered alphabetically by chemical name; quantities reported in pounds per year)

CAS #	Chemical Name	Inputs			Outputs	
		Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
75-07-0	Acetaldehyde	6,785	28,262	644,143	612,874	20,547
67-64-1	Acetone	5,821,480	234,784	35,880,216	4,836,180	19,162,291
75-05-8	Acetonitrile	31,150	38,000	1,535,942	0	1,256,670
79-06-1	Acrylamide	98,093	0	1,074,327	1,105,970	0
79-10-7	Acrylic acid	287,127	0	3,631,048	2,117,902	1,576,080
107-13-1	Acrylonitrile	246,272	0	5,082,516	4,963,703	1,724
107-18-6	Allyl alcohol	21,530	0	282,747	151,368	20,481
107-05-1	Allyl chloride	6,640	0	58,647	52,226	0
7429-90-5	Aluminum (fume or dust)	1,164,730	1,814,166	3,143,718	0	3,990,746
1344-28-1	Aluminum oxide (fibrous forms only)	10,922	1,514,153	64,400	0	72,194
60-09-3	4-Aminoazobenzene	880	0	20,395	20,175	0
7664-41-7	Ammonia	1,038,488	3,858,694	192,085,551	81,014,619	90,779,329
6484-52-2	Ammonium nitrate (solution)	345,900	652,764	1,534,200	0	1,479,600
7783-20-2	Ammonium sulfate (solution)	78,539	7,635,238	814,427	392,935	329,937
62-53-3	Aniline	423,943	109,076	2,629,363	2,581,078	0
90-04-0	o-Anisidine	56,675	0	99,534	99,247	0
120-12-7	Anthracene	250,713	1,083,533	2,370,835	0	3,504,109
7440-36-0	Antimony	2,524,264	0	14,512,800	0	12,857,579
	Antimony compounds	373,786	0	3,793,461	0	3,618,408
7440-38-2	Arsenic	7,655	0	35,164	31,427	10,683
	Arsenic compounds	11,211	0	28,085	0	26,591
1332-21-4	Asbestos (friable)	62,140	0	4,242,984	0	4,529,404
7440-39-3	Barium	15,149	0	100,889	420	85,590
	Barium compounds	774,934	217,931	5,385,134	528,348	5,063,270
98-87-3	Benzal chloride	40,759	3,703,036	0	28,901	3,630,402
71-43-2	Benzene	53,466,482	420,320,015	169,943,315	89,633,202	510,195,430
98-07-7	Benzoic trichloride	239	20,906	0	150	20,530
98-88-4	Benzoyl chloride	39,974	0	94,731	80,870	0
94-36-0	Benzoyl peroxide	28,951	0	228,102	234,705	0
100-44-7	Benzyl chloride	533,191	70,633,794	7,231,621	49,459,329	27,757,545
92-52-4	Biphenyl	8,767	0	121,751	0	67,240
111-44-4	Bis(2-chloroethyl) ether	26,910	0	18,513	43,526	0
542-88-1	Bis(chloromethyl) ether	187	23,191	0	22,961	0
103-23-1	Bis (2-ethylhexyl) adipate	311,800	38,500	1,386,230	494,469	970,226
74-83-9	Bromomethane	0	0	15,300	0	0
75-63-8	Bromotrifluoromethane (Halon 1301)	64,758	0	858,986	0	921,814
106-99-0	1,3-Butadiene	1,796	5,185,771	261,884	5,114,000	334,741
141-32-2	Butyl acrylate	1,962,111	0	37,287,251	28,682,378	8,751,920
71-36-3	n-Butyl alcohol	7,880,617	0	43,947,313	28,725,354	13,895,697
78-92-2	sec-Butyl alcohol	460,137	0	617,332	97,155	526,378
75-65-0	tert-Butyl alcohol	429,858	119,785	295,588	169,137	24,221
85-68-7	Butyl benzyl phthalate	3,554,488	95,044,231	21,975,967	0	115,307,839
123-72-8	Butyraldehyde	52,920	0	226,801	230,088	0
569-64-2	C.I. Basic Green 4	786	0	14,990	0	15,698
989-38-8	C.I. Basic Red 1	2,000	0	45,930	0	45,382
2832-40-8	C.I. Disperse Yellow 3	12,034	0	0	0	11,221
81-88-9	C.I. Food Red 15	13,000	0	80,000	87,000	1
3118-97-6	C.I. Solvent Orange 7	500	33,840	0	0	32,606
97-56-3	C.I. Solvent Yellow 3	5,280	0	31,800	0	22,470
842-07-9	C.I. Solvent Yellow 14	7,100	13,970	2,500	28,969	4,721

Footnotes: see pages 54 and 55

1993 RPPR Throughput Data Summary by Chemical

Outputs							
Ending Inventory	Destroyed On Site	Releases & Transfers	Total Input ²	Total Output ³	Difference ⁴	# of Forms	Chemical Name
21,432	24,475	4,075	679,190	683,403	-4,213	4	Acetaldehyde
6,574,066	2,560,968	8,512,437	41,936,480	41,645,942	290,538	87	Acetone
65,038	0	325,792	1,605,092	1,647,500	-42,408	7	Acetonitrile
52,274	0	19,603	1,172,420	1,177,847	-5,427	3	Acrylamide
153,755	5,821	8,177	3,918,175	3,861,735	56,440	15	Acrylic acid
183,125	1,012	3,488	5,328,788	5,153,052	175,736	6	Acrylonitrile
124,041	28	6,958	304,277	302,876	1,401	3	Allyl alcohol
3,845	247	8,969	65,287	65,287	0	1	Allyl chloride
555,407	0	1,812,634	6,122,614	6,358,787	-236,173	9	Aluminum (fume or dust)
1,552	0	1,515,729	1,589,475	1,589,475	0	2	Aluminum oxide (fibrous forms only)
1,100	0	0	21,275	21,275	0	1	4-Aminoazobenzene
15,294,985	4,790,764	5,852,429	196,982,733	197,732,126	-749,393	88	Ammonia
371,700	161,530	981,564	2,532,864	2,694,394	-161,530	6	Ammonium nitrate (solution)
54,403	21,498	7,965,607	8,528,204	8,764,380	-236,176	12	Ammonium sulfate (solution)
459,935	109,626	11,967	3,162,382	3,162,606	-224	9	Aniline
55,444	0	1,518	156,209	156,209	0	3	o-Anisidine
199,683	160	1,215	3,705,081	3,705,167	-86	3	Anthracene
4,160,243	588	19,272	17,037,064	17,037,682	-618	6	Antimony
427,352	2,506	712,886	4,167,247	4,761,152	-593,905	27	Antimony compounds
44	0	917	42,819	43,071	-252	2	Arsenic
9,480	0	4,043	39,296	40,114	-818	5	Arsenic compounds
47,711	0	1,054	4,305,124	4,578,169	-273,045	3	Asbestos (friable)
12,688	0	17,923	116,038	116,621	-583	3	Barium
688,750	146,264	213,404	6,377,999	6,640,036	-262,037	48	Barium compounds
40,024	0	44,468	3,743,795	3,743,795	0	1	Benzal chloride
39,288,821	103,865	413,138	643,729,812	639,634,456	4,095,356	12	Benzene
234	0	231	21,145	21,145	0	1	Benzoic trichloride
53,834	0	6	134,705	134,710	-5	3	Benzoyl chloride
22,226	0	122	257,053	257,053	0	2	Benzoyl peroxide
869,424	1,703	310,662	78,398,606	78,398,663	-57	9	Benzyl chloride
5,910	11,375	47,832	130,518	132,357	-1,8390	6	Biphenyl
1,892	3	2	45,423	45,423	0	1	Bis(2-chloroethyl)ether
26	100	291	23,378	23,378	0	1	Bis(chloromethyl) ether
251,133	5,586	15,160	1,736,530	1,736,574	-44	10	Bis (2-ethylhexyl) adipate
0	0	15,300	15,300	15,300	0	1	Bromomethane
1,714	0	216	923,744	923,744	0	1	Bromotrifluoromethane (Halon 1301)
680	0	262	5,449,451	5,449,683	-232	3	1,3-Butadiene
2,895,527	248	20,246	39,249,362	40,350,319	-1,100,957	13	Butyl acrylate
5,456,592	1,183,588	1,790,989	51,827,930	51,052,220	775,710	56	n-Butyl alcohol
315,535	3,020	167,425	1,077,469	1,109,513	-32,044	4	sec-Butyl alcohol
448,294	0	202,929	845,231	844,581	650	5	tert-Butyl alcohol
2,928,173	462,484	1,654,816	120,574,686	120,353,312	221,374	15	Butyl benzyl phthalate
47,380	0	257	279,721	277,725	1,996	1	Butyraldehyde
0	0	78	15,776	15,776	0	1	C.I. Basic Green 4
2,000	500	48	47,930	47,930	0	1	C.I. Basic Red 1
690	0	14	12,034	11,925	109	1	C.I. Disperse Yellow 3
5,600	0	0	93,000	92,601	399	1	C.I. Food Red 15
1,500	0	234	34,340	34,340	0	2	C.I. Solvent Orange 7
3,390	0	0	37,080	37,080	0	1	C.I. Solvent Yellow 3
1,100	0	0	23,570	23,570	0	1	C.I. Solvent Yellow 14

Footnotes: see pages 54 and 55

Table 18. 1993 RPPR Throughput Data Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; quantities reported in pounds per year)

CAS #	Chemical Name	Inputs			Outputs	
		Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
	Cadmium compounds	27,428	0	121,316	0	113,118
133-06-2	Captan	0	0	11,330	0	11,329
63-25-2	Carbaryl	835	0	23,611	0	23,813
75-15-0	Carbon disulfide	263,460	0	2,574,420	2,497,383	0
120-80-9	Catechol	0	34,155	0	0	0
7782-50-5	Chlorine	5,892,370	9,590	122,878,526	123,671,340	1,558,530
79-11-8	Chloroacetic acid	268,420	0	1,904,106	1,821,981	185,400
108-90-7	Chlorobenzene	96,132	0	135,800	0	0
75-00-3	Chloroethane	83,108	75,226	762,055	830,014	7,020
67-66-3	Chloroform	735,725	26,759	441,115	185,632	105,929
74-87-3	Chloromethane	66,866	53,146	3,589,113	3,465,262	0
107-30-2	Chloromethyl methyl ether	9,322	1,159,574	0	1,158,562	0
	Chlorophenols	13,834	0	151,465	17,385	125,175
7440-47-3	Chromium	2,008,042	43,261	13,931,632	95,511	13,377,306
	Chromium compounds	1,494,950	0	5,357,060	24,050	5,470,449
7440-48-4	Cobalt	1,119,916	0	1,597,902	7,353	1,817,115
	Cobalt compounds	76,601	0	431,662	23,647	404,018
7440-50-8	Copper	14,882,265	43,261	236,039,867	2,447,942	223,240,838
	Copper compounds	2,254,204	3,754,179	22,404,041	28,900	19,791,335
8001-58-9	Creosote	364,000	0	9,994,262	0	9,749,078
95-48-7	o-Cresol	6,229	0	25,186	0	20,704
106-44-5	p-Cresol	192,800	0	5,986,450	6,076,021	0
1319-77-3	Cresol (mixed isomers)	492,253	0	3,370,444	59,920	3,320,822
98-82-8	Cumene	11,938,079	160,014,618	63,809,282	53,315,024	163,217,080
80-15-9	Cumene hydroperoxide	780,598	7,902,956	0	7,232,640	1,188,909
	Cyanide compounds	14,147	0	110,244	70,280	9,470
110-82-7	Cyclohexane	16,619,080	227,004,160	106,742,291	100,063,305	236,399,853
1163-19-5	Decabromodiphenyl oxide	247,308	0	1,719,927	0	1,789,761
101-80-4	4,4'-Diaminodiphenyl ether	28,812	1,365,540	43,740	50,295	1,343,010
95-80-7	2,4-Diaminotoluene	3,212	0	83,358	100,794	0
117-81-7	Di(2-ethylhexyl) phthalate	1,544,881	0	38,970,801	5,363,044	33,642,319
132-64-9	Dibenzofuran	0	0	222,297	0	221,584
106-93-4	1,2-Dibromoethane	570,623	0	0	0	394,055
84-74-2	Dibutyl phthalate	200,556	0	1,345,860	0	1,365,337
95-50-1	1,2-Dichlorobenzene	599,304	0	16,806,243	12,734,285	0
106-46-7	1,4-Dichlorobenzene	63,000	0	617,000	0	543,000
91-94-1	3,3'-Dichlorobenzidine	104,400	0	1,144,000	1,131,838	0
75-71-8	Dichlorodifluoromethane (CFC-12)	298,499	0	2,220,645	0	1,461,849
107-06-2	1,2-Dichloroethane	82,333	0	20,038	0	0
75-09-2	Dichloromethane	1,308,739	0	10,776,184	92,471	4,659,799
78-87-5	1,2-Dichloropropane	57,572	0	1,502,780	1,452,980	0
76-14-2	Dichlorotetrafluoroethane (CFC-114)	838,410	0	5,689,874	4,545,580	0
111-42-2	Diethanolamine	544,564	0	10,154,291	9,317,830	643,979
84-66-2	Diethyl phthalate	685,045	0	4,867,948	190,417	4,867,673
64-67-5	Diethyl sulfate	38,542	0	880,333	812,641	0
119-90-4	3,3'-Dimethoxybenzidine	8,100	0	82,111	83,084	0
131-11-3	Dimethyl phthalate	7,591	0	39,500	0	27,664
77-78-1	Dimethyl sulfate	133,221	0	691,813	703,880	0
99-65-0	m-Dinitrobenzene	130,500	27,349,376	0	27,244,269	0
528-29-0	o-Dinitrobenzene	16,500	3,457,967	0	3,444,724	0

Footnotes: see pages 54 and 55

1993 RPPR Throughput Data Summary by Chemical

← Outputs							
Ending Inventory	Destroyed On Site	Releases & Transfers	Total Input ²	Total Output ³	Difference ⁴	# of Forms	Chemical Name
32,752	300	1,474	148,744	147,644	1,100	9	Cadmium compounds
0	0	1	11,330	11,330	0	1	Captan
298	0	335	24,446	24,446	0	1	Carbaryl
256,806	1,104	82,417	2,837,880	2,837,710	170	3	Carbon disulfide
0	0	34,155	34,155	34,155	0	1	Catechol
2,964,639	518,134	80,102	128,780,486	128,792,745	-12,259	17	Chlorine
129,037	1,580	295	2,172,526	2,138,292	34,234	3	Chloroacetic acid
59,500	0	170,828	231,932	230,328	1,604	2	Chlorobenzene
7,897	5,420	70,213	920,389	920,564	-175	4	Chloroethane
776,013	0	136,657	1,203,599	1,204,231	-632	6	Chloroform
171,770	35,468	36,625	3,709,125	3,709,125	0	3	Chloromethane
1,322	6,710	2,302	1,168,896	1,168,896	0	1	Chloromethyl methyl ether
21,928	0	626	165,299	165,114	185	2	Chlorophenols
2,046,247	0	467,519	15,982,935	15,986,583	-3,648	29	Chromium
968,781	13,200	249,503	6,852,010	6,725,983	126,027	37	Chromium compounds
528,726	0	374,428	2,717,818	2,727,622	-9,804	9	Cobalt
62,988	174	18,418	508,263	509,245	-82	9	Cobalt compounds
15,466,383	270	8,255,703	250,965,393	249,411,136	1,554,257	62	Copper
2,588,551	3,388	6,285,562	28,412,424	28,697,736	-285,312	36	Copper compounds
586,084	0	37,600	10,358,262	10,372,762	-14,500	1	Creosote
10,638	0	73	31,415	31,415	0	1	o-Cresol
103,222	0	1,507	6,179,250	6,180,750	-1,500	2	p-Cresol
480,486	0	3,616	3,862,697	3,864,844	-2,147	5	Cresol (mixed isomers)
20,718,559	6,307	177,049	235,761,979	237,434,019	-1,672,040	13	Cumene
392,820	0	115	8,683,554	8,814,484	-130,930	1	Cumene hydroperoxide
11,134	40,449	3,059	124,391	134,392	-10,001	6	Cyanide compounds
14,695,224	141,166	97,810	350,365,531	351,397,358	-1,031,827	13	Cyclohexane
132,487	0	32,483	1,967,235	1,954,731	12,504	7	Decabromodiphenyl oxide
25,475	17,292	2,020	1,438,092	1,438,092	0	2	4,4'-Diaminodiphenyl ether
6,464	0	387	86,570	107,645	-21,075	2	2,4-Diaminotoluene
1,155,438	87,847	165,836	40,515,682	40,414,484	101,198	19	Di(2-ethylhexyl) phthalate
0	0	1,158	222,297	222,742	-445	1	Dibenzofuran
165,884	0	10,684	570,623	570,623	0	1	1,2-Dibromoethane
99,387	0	156,258	1,546,416	1,620,982	-74,566	15	Dibutyl phthalate
2,320,359	35,132	3,545,011	17,405,547	18,634,787	-1,229,240	3	1,2-Dichlorobenzene
137,000	0	715	680,000	680,715	-715	1	1,4-Dichlorobenzene
113,400	164	0	1,248,400	1,245,402	2,998	2	3,3'-Dichlorobenzidine
750,837	0	217,064	2,519,144	2,429,750	89,394	7	Dichlorodifluoromethane (CFC-12)
99,767	23,946	2,381	102,371	126,094	-23,723	2	1,2-Dichloroethane
936,808	27,834	6,129,365	12,084,923	11,846,277	238,646	50	Dichloromethane
75,237	7,000	31,957	1,560,352	1,567,174	-6,822	1	1,2-Dichloropropane
1,855,146	158,910	148,648	6,528,284	6,708,284	-180,000	1	Dichlorotetrafluoroethane (CFC-114)
547,441	59,153	116,080	10,698,855	10,684,483	14,372	20	Diethanolamine
627,715	10	90,328	5,552,993	5,776,143	-223,150	18	Diethyl phthalate
105,879	0	377	918,875	918,897	-22	5	Diethyl sulfate
7,223	0	3	90,211	90,310	-99	2	3,3'-Dimethoxybenzidine
7,682	0	10,263	47,091	45,609	1,482	1	Dimethyl phthalate
121,011	33	122	825,034	825,046	-12	6	Dimethyl sulfate
1,897	27,565	281	3,474,467	3,474,467	0	1	o-Dinitrobenzene
15,153	200,992	19,462	27,479,876	27,479,876	0	1	m-Dinitrobenzene

Footnotes: see pages 54 and 55

Table 18. 1993 RPPR Throughput Data Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; quantities reported in pounds per year)

CAS #	Chemical Name	Inputs			Outputs	
		Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
100-25-4	p-Dinitrobenzene	3,000	628,721	0	626,311	0
25321-14-6	Dinitrotoluene (mixed isomers)	173	70,195	0	0	0
106-89-8	Epichlorohydrin	270,853	0	1,660,158	1,747,729	10,800
140-88-5	Ethyl acrylate	1,734,930	0	35,143,978	34,592,510	1,059,000
100-41-4	Ethylbenzene	43,323,553	557,544,237	194,383,787	1,649,954	741,234,104
74-85-1	Ethylene	266,926	200,369,608	16,404,783	118,057,392	95,804,796
107-21-1	Ethylene glycol	8,817,830	1,463,927	194,326,609	8,442,659	184,183,679
75-21-8	Ethylene oxide	3,021,804	0	52,187,760	53,081,251	11
96-45-7	Ethylene thiourea	0	0	199,486	0	185,983
50-00-0	Formaldehyde	2,062,557	22,382,143	14,434,993	7,718,713	30,350,650
76-13-1	Freon 113	1,136,410	0	2,488,401	86,306	1,858,574
	Glycol ethers	5,179,621	3,302,082	50,785,036	8,855,540	42,401,019
118-74-1	Hexachlorobenzene	0	12,805	0	0	6,755
67-72-1	Hexachloroethane	21,300	0	81,900	0	95,500
302-01-2	Hydrazine	119,776	0	603,043	136,902	317,392
10034-93-2	Hydrazine sulfate	18,958	53,239	46,412	61,933	40,668
7647-01-0	Hydrochloric acid	4,834,851	92,485,836	53,483,489	36,401,816	54,581,459
7664-39-3	Hydrogen fluoride	2,273,498	575,653	19,143,716	12,088,485	46,694
123-31-9	Hydroquinone	128,184	0	1,532,893	100,833	1,436,713
78-84-2	Isobutyraldehyde	6,772	0	336,540	177,410	0
67-63-0	Isopropyl alcohol (manufacturing, strong acid process only)	16,878	0	219,359	0	206,288
80-05-7	4,4'-isopropylidenediphenol	289,180	0	4,214,888	3,256,695	1,078,124
7439-92-1	Lead	1,451,422	482,138	12,839,762	0	12,224,942
	Lead compounds	12,298,464	217,610	29,629,277	0	31,892,043
108-31-6	Maleic anhydride	416,949	0	4,840,190	4,553,044	17,523
7439-96-5	Manganese	728,477	86,523	25,288,256	5,700	23,635,119
	Manganese compounds	525,006	444,893	1,269,873	0	1,241,436
67-56-1	Methanol	19,601,203	11,853,800	132,380,826	83,084,070	34,872,770
109-86-4	2-Methoxyethanol	13,083	37,277	37,647	0	29,246
96-33-3	Methyl acrylate	1,179,587	0	19,614,913	10,581,185	9,155,848
1634-04-4	Methyl tert-butyl ether	180,008,706	87,680,000	1,517,973,497	0	1,616,487,322
101-14-4	4,4'-Methylenebis (2-chloroaniline)	5,760	0	115,964	114,124	0
78-93-3	Methyl ethyl ketone	7,519,828	0	57,172,303	559,490	52,996,671
108-10-1	Methyl isobutyl ketone	2,523,385	0	11,213,270	236,690	7,841,612
80-62-6	Methyl methacrylate	326,248	0	8,637,884	7,258,930	1,398,727
101-68-8	Methylenebis (phenylisocyanate)	301,596	0	8,696,824	4,681,862	3,796,456
	Mixture	32,107	0	533,204	0	532,130
1313-27-5	Molybdenum trioxide	922,753	0	4,879,757	1,413,735	3,249,576
76-15-3	Monochloropentafluoroethane (CFC-115)	352,545	2,376,255	552	0	2,418,463
121-69-7	N,N-Dimethylaniline	360,701	0	591,853	120,360	743,578
91-20-3	Naphthalene	14,742,412	256,490,000	67,675,949	667,121	314,728,541
7440-02-0	Nickel	4,680,500	0	10,476,106	14,391	11,829,039
	Nickel compounds	603,583	0	3,060,887	0	2,967,525
7697-37-2	Nitric acid	9,477,607	137,034,154	135,060,120	117,858,741	137,694,414
99-59-2	5-Nitro-o-anisidine	10,600	0	36,000	38,000	0
98-95-3	Nitrobenzene	1,659	23,188,020	0	23,015,690	221
55-63-0	Nitroglycerin	0	0	13,957	0	13,614
79-21-0	Peracetic acid	700	0	30,000	27,697	0
108-95-2	Phenol	1,611,387	1,831,596	14,969,179	14,389,902	1,609,425
106-50-3	p-Phenylenediamine	224,969	636,854	347,434	0	947,089

Footnotes: see pages 54 and 55

1993 RPPR Throughput Data Summary by Chemical

Outputs								
Ending Inventory	Destroyed On Site	Releases & Transfers	Total Input ²	Total Output ³	Difference ⁴	# of Forms	Chemical Name	
348	5,009	53	631,721	631,721	0	1	p-Dinitrobenzene	
0	52,160	18,208	70,368	70,368	0	1	Dinitrotoluene (mixed isomers)	
110,501	776	26,887	1,931,011	1,896,693	34,318	5	Epichlorohydrin	
1,210,044	502	21,409	36,878,908	36,883,465	-4,557	7	Ethyl acrylate	
37,810,140	140,908	991,675	795,251,577	781,826,781	13,424,796	37	Ethylbenzene	
234,395	2,440,869	90,410	217,041,317	216,627,862	413,455	6	Ethylene	
9,490,377	13,523	2,186,759	204,608,366	204,316,997	291,369	68	Ethylene glycol	
1,931,937	170,271	21,262	55,209,564	55,204,732	4,832	9	Ethylene oxide	
8,966	0	4,534	199,486	199,483	3	1	Ethylene thiourea	
577,152	48,317	232,534	38,879,693	38,927,366	-47,673	27	Formaldehyde	
623,552	116,312	908,760	3,624,811	3,593,504	31,307	17	Freon 113	
2,996,641	706,410	3,237,472	59,266,739	58,197,082	1,069,657	81	Glycol ethers	
0	1,540	4,510	12,805	12,805	0	1	Hexachlorobenzene	
7,700	0	10	103,200	103,210	-10	2	Hexachloroethane	
112,889	105,032	3,874	722,819	676,089	46,730	5	Hydrazine	
14,794	0	11	118,609	117,406	1,203	3	Hydrazine sulfate	
3,132,559	54,630,218	481,881	150,804,176	149,227,933	1,576,243	107	Hydrochloric acid	
2,410,893	7,368,272	86,777	21,992,867	22,001,121	-8,254	11	Hydrogen fluoride	
115,843	0	7,658	1,661,077	1,661,047	30	6	Hydroquinone	
135,865	0	29,042	343,312	342,317	995	2	Isobutyraldehyde	
18,920	4,974	15,998	236,237	246,180	-9,943	4	Isopropyl alcohol (manufacturing)	
147,920	0	15,435	4,504,068	4,498,174	8,894	3	4,4'-Isopropylidenediphenol	
1,130,469	2,592	1,305,760	14,773,322	14,663,763	109,559	22	Lead	
7,657,732	1	2,483,988	42,145,351	42,033,764	111,587	40	Lead compounds	
497,503	1,170	12,341	5,257,139	5,081,581	175,558	16	Maleic anhydride	
1,547,350	0	419,502	26,103,256	25,607,671	495,585	18	Manganese	
547,097	5,004	443,362	2,239,772	2,236,899	2,873	18	Manganese compounds	
10,101,006	1,306,110	35,866,518	163,835,829	165,330,474	-1,494,645	105	Methanol	
4,696	253,574	105,307	88,007	392,823	-304,816	4	2-Methoxyethanol	
1,018,478	25,853	13,384	20,794,500	20,794,748	-248	7	Methyl acrylate	
171,585,291	160,242	255,462	1,785,662,203	1,788,488,317	-2,826,114	10	Methyl tert-butyl ether	
7,600	0	0	121,724	121,724	0	1	4,4'-Methylenebis (2-chloroaniline)	
5,147,953	3,778,991	5,173,409	64,692,131	67,656,514	-2,964,383	79	Methyl ethyl ketone	
2,202,504	1,593,187	2,329,116	13,736,655	14,203,109	-466,454	51	Methyl isobutyl ketone	
402,427	143,719	25,418	8,964,132	9,229,221	-265,089	15	Methyl methacrylate	
338,118	0	17,160	8,998,420	8,833,596	164,824	15	Methylenebis (phenylisocyanate)	
32,227	0	968	565,311	565,325	-14	4	Mixture	
1,028,779	0	29,047	5,802,510	5,721,137	81,373	3	Molybdenum trioxide	
187,706	32,181	90,911	2,729,352	2,729,261	91	1	Monochloropentafluoroethane (CFC-115)	
88,346	0	252	952,554	952,536	18	2	N,N-Dimethylaniline	
19,629,388	111,294	74,454	338,908,361	335,210,798	3,697,563	21	Naphthalene	
3,069,060	0	270,758	15,156,606	15,183,248	-26,642	27	Nickel	
557,577	478	186,206	3,664,470	3,711,786	-47,316	20	Nickel compounds	
7,858,776	17,990,997	923,686	281,571,881	282,326,614	-754,733	39	Nitric acid	
6,600	0	10	46,600	44,610	1,990	2	5-Nitro-o-anisidine	
560	171,873	1,135	23,189,679	23,189,479	200	1	Nitrobenzene	
0	0	343	13,957	13,957	0	1	Nitroglycerine	
3,000	0	3	30,700	30,700	0	1	Peracetic acid	
848,836	679,192	894,329	18,412,162	18,421,684	-9,522	16	Phenol	
225,109	22,927	13,999	1,209,257	1,209,124	133	2	p-Phenylenediamine	

Footnotes: see pages 54 and 55

Table 18. 1993 RPPR Throughput Data Reported by New Jersey Facilities,¹ continued
(ordered alphabetically by chemical name; quantities reported in pounds per year)

CAS #	Chemical Name	Inputs			Outputs	
		Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
90-43-7	2-Phenylphenol	33,670	0	168,578	38,150	139,203
75-44-5	Phosgene	46,392	41,071,255	4,929,400	45,321,011	3,811
7664-38-2	Phosphoric acid	1,611,942	5,244,750	15,104,393	3,611,716	8,631,088
85-44-9	Phthalic anhydride	4,451,319	0	107,343,240	102,239,021	6,305,673
88-89-1	Picric acid	0	157,454	0	0	0
123-38-6	Propionaldehyde	142,840	0	1,131,680	1,159,575	0
115-07-1	Propylene	7,323,956	824,259,933	350,029,139	693,464,544	474,284,092
75-55-8	Propyleneimine	1,500	200,411	63,903	60,886	185,411
75-56-9	Propylene oxide	1,203,454	0	32,290,869	32,514,574	98,040
91-22-5	Quinoline	7,449	0	8,525	0	0
81-07-2	Saccharin (manufacturing)	0	0	122,026	121,880	121,880
7782-49-2	Selenium	9,180	0	35,278	0	7,869
	Selenium compounds	6,663	0	7,031	0	3,235
7440-22-4	Silver	835,908	0	1,564,878	0	1,531,562
	Silver compounds	41,140	0	1,208,982	0	1,218,230
100-42-5	Styrene	1,518,893	0	157,955,490	155,944,968	292,984
96-09-3	Styrene oxide	68,746	0	398,189	450,992	320
7664-93-9	Sulfuric acid	29,392,478	233,838,054	516,286,705	179,515,909	442,447,872
79-34-5	1,1,2,2-Tetrachloroethane	42,200	0	0	0	0
127-18-4	Tetrachloroethylene	76,271	0	156,292	0	55,762
961-11-5	Tetrachlorvinphos	533,060	0	19,800	0	200,247
62-56-6	Thiourea	37,310	0	242,450	221,890	40,859
7550-45-0	Titanium tetrachloride	515,799	0	5,774,320	5,592,231	0
108-88-3	Toluene	164,611,056	1,787,908,081	1,008,007,676	65,963,124	2,754,687,952
584-84-9	Toluene-2,4-diisocyanate	28,245	0	688,402	466,540	225,416
91-08-7	Toluene-2,6-diisocyanate	3,399	0	63,200	28,000	35,740
26471-62-5	Toluene diisocyanate (mixed isomers)	465,523	0	14,350,482	14,424,261	28,287
95-53-4	o-Toluidine	401,390	9,998,966	588,735	648,415	9,937,443
71-55-6	1,1,1-Trichloroethane	1,587,461	0	41,436,712	36,056,350	2,244,676
79-01-6	Trichloroethylene	238,021	0	1,091,121	0	216,063
75-69-4	Trichlorofluoromethane (CFC-11)	435,279	0	2,686,047	0	2,298,402
95-63-6	1,2,4-Trimethylbenzene	58,462,438	370,368,210	373,689,671	11,135,906	740,175,633
7440-62-2	Vanadium (fume or dust)	0	685	0	0	0
108-05-4	Vinyl acetate	10,208,254	0	198,852,569	126,133,771	78,832,338
75-01-4	Vinyl chloride	6,671,858	0	467,506,007	465,794,371	740
75-35-4	Vinylidene chloride	23,765	0	198,000	173,802	0
95-47-6	o-Xylene	172,900	0	605,052	483,757	0
106-42-3	p-Xylene	6,450	0	91,589	0	90,039
1330-20-7	Xylene (mixed isomers)	178,957,577	1,996,285,164	1,026,370,867	8,184,661	2,999,441,805
87-62-7	2,6-Xylidene	15,563	89,996	15,884	26,704	72,973
7440-66-6	Zinc (fume or dust)	456,673	6,206,470	2,121,462	533,025	1,694,160
	Zinc compounds	2,573,530	897,017	30,114,050	3,982,789	26,046,071
1993 TOTALS		956,443,870	7,722,391,420	8,336,389,763	3,181,996,944	12,540,836,051

Footnotes:

- Five facilities and 34 chemical records are not included in the throughput data analyses as a result of trade secret claims on that data; these data do include three non-manufacturing sector facilities that submitted eight RPPRs.
- Total Input = starting inventory + quantity produced on site + quantity brought on site.

1993 RPPR Throughput Data Summary by Chemical

- Outputs							
Ending Inventory	Destroyed On Site	Releases & Transfers	Total Input ³	Total Output ³	Difference ⁴	# of Forms	Chemical Name
24,572	0	352	202,248	202,277	-29	3	2-Phenylphenol
41,280	678,051	1,375	46,047,047	46,045,528	1,519	4	Phosgene
1,322,694	8,168,035	274,666	21,961,085	22,008,199	-47,114	66	Phosphoric acid
3,661,218	30,880	21,451	111,794,559	112,258,243	-463,684	17	Phthalic anhydride
0	157,454	0	157,454	157,454	0	1	Picric acid
104,538	0	3,175	1,274,520	1,267,288	7,232	3	Propionaldehyde
7,021,810	3,419,847	215,440	1,181,613,028	1,178,405,733	3,207,295	9	Propylene
17,826	0	313	265,814	264,436	1,378	2	Propyleneimine
752,868	50,440	78,622	33,494,323	33,494,544	-221	8	Propylene oxide
5,172	35	10,767	15,974	15,974	0	1	Quinoline
0	0	147	122,026	243,907	-121,881	1	Saccharin (manufacturing)
10,452	0	27,920	44,458	46,241	-1,783	1	Selenium
7,022	0	4,748	13,694	15,005	-1,311	1	Selenium compounds
866,479	0	5,018	2,400,786	2,403,059	-2,273	6	Silver
14,230	0	17,932	1,250,122	1,250,392	-270	3	Silver compounds
1,634,832	1,402	169,624	159,474,383	158,043,810	1,430,573	25	Styrene
5,668	0	304	466,935	457,284	9,651	3	Styrene oxide
30,070,130	59,889,662	71,217,922	779,517,237	783,171,495	-3,624,258	143	Sulfuric acid
0	0	42,195	42,200	42,195	5	1	1,1,2,2-Tetrachloroethane
86,035	412	88,542	232,563	230,751	1,812	4	Tetrachloroethylene
346,825	0	3,300	552,860	550,372	2,488	1	Tetrachlorvinphos
17,835	15	911	279,760	281,510	-1,750	3	Thiourea
539,154	0	1,098	6,290,119	6,132,483	157,636	3	Titanium tetrachloride
141,347,024	4,601,259	9,916,328	2,960,526,813	2,976,515,687	-15,988,874	131	Toluene
29,635	0	29	716,647	721,620	-4,973	4	Toluene-2,4-diisocyanate
2,849	0	11	66,599	66,600	-1	2	Toluene-2,6-diisocyanate
349,640	1,663	1,722	14,816,005	14,805,573	10,432	6	Toluene diisocyanate (mixed isomers)
150,529	222,132	31,572	10,989,091	10,990,091	-1,000	4	o-Toluidine
1,306,373	2,209,213	1,241,571	43,024,173	43,058,183	-34,010	66	1,1,1-Trichloroethane
221,718	0	790,281	1,329,142	1,228,062	101,080	10	Trichloroethylene
366,994	0	455,930	3,121,326	3,121,326	0	8	Trichlorofluoromethane (CFC-11)
51,940,655	100,482	411,597	802,520,319	803,764,273	-1,243,954	33	1,2,4-Trimethylbenzene
0	0	8	685	8	677	1	Vanadium (fume or dust)
3,918,034	40,078	196,939	209,060,823	209,121,160	-90,337	13	Vinyl acetate
7,828,358	508,000	48,907	474,177,865	474,180,376	-2,511	2	Vinyl chloride
44,945	0	2,979	221,765	221,726	439	2	Vinylidene chloride
180,692	0	45,387	777,952	709,836	68,116	2	o-Xylene
7,000	0	1,000	98,039	98,039	0	1	p-Xylene
149,724,219	1,819,366	5,923,145	3,201,613,608	3,165,093,196	36,520,412	103	Xylene (mixed isomers)
10,018	10,623	1,051	121,443	121,369	74	2	2,6-Xylidene
343,329	0	6,267,256	8,784,605	8,837,770	-53,165	15	Zinc (fume or dust)
2,298,501	12,813	1,668,949	33,584,597	34,009,123	-424,526	74	Zinc compounds
857,986,024	185,023,847	218,267,732	17,015,225,053	16,984,110,598	31,114,455	2,684	1993 TOTALS

Footnotes:

- Total Output = quantity consumed on site + quantity shipped off site + ending inventory + quantity destroyed through on-site treatment + air emissions + water discharges + on-site land releases + off-site transfers.
- Difference = Input - Output (a positive value means that a larger quantity was accounted for on the input side of the equation; a negative value means that a larger quantity was accounted for on the output side of the equation).

1993 Release and Pollution Prevention Report Self Verification of Materials Accounting Data

(All Quantities Must Be Reported In Pounds)

NJEIN: _____

CAS#: _____

Substance: _____

Inputs

5. Starting Inventory _____

6. Quantity Produced
on site _____

7. Quantity Brought
on site _____

Outputs

9. Quantity Consumed
(chemically altered) _____

10. Quantity Shipped Off Site
as (or in) Product _____

11. Ending Inventory _____

13. Quantity Destroyed through
On-Site Treatment _____

14. Stack Air Emissions _____

15. Fugitive Air Emissions _____

16. Discharge to POTWs _____

17. Discharge to Surface Waters _____

18. Discharge to Ground Water _____

19. On-Site Land Disposal _____

20. Other Off-Site Transfers _____

Sum of Inputs: _____ ≈

Sum of Outputs: _____

Figure 7. Self Verification of Materials Accounting Data Worksheet

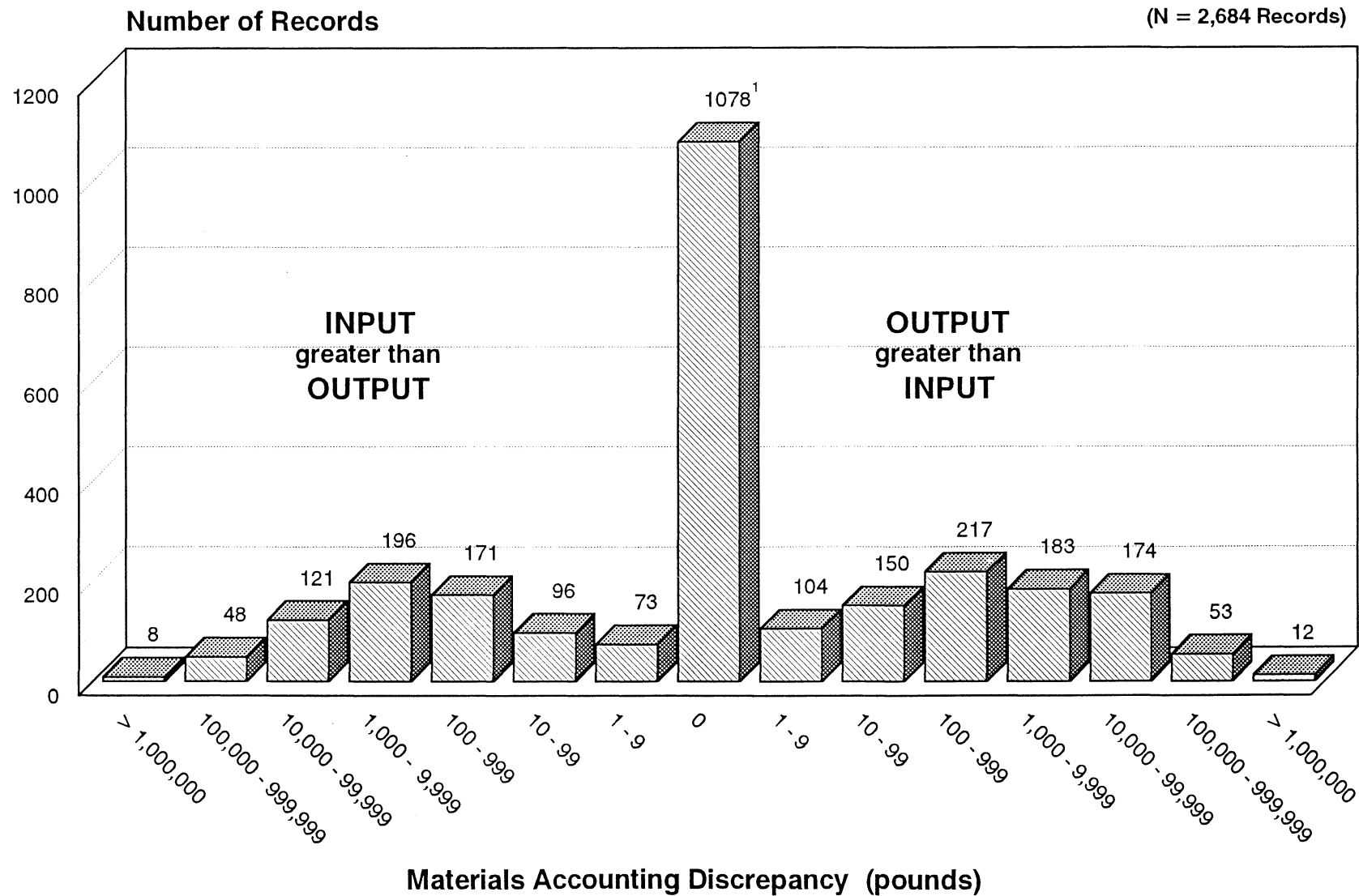


Figure 8. Number of Records by Quantitative Difference in Materials Balance, 1993 RPPR

1. A materials accounting balance was reported for 1,078 chemical records, that is Input = Output

Table 19. 1993 Release and Pollution Prevention Report

Materials Accounting Discrepancy by Quantitative Difference

Top 10 Chemical Records by Positive Quantitative Difference (Input exceeds Output)

Facility Name	County	City	Chemical	Input ¹	Output ²	Difference ^{3*}	Percent Error ^{4*}
Bayway Refining Co. Corp.	Union	Linden	Xylene (mixed isomers)	1,094,000,000	1,054,092,842	39,907,158	3.65
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Ethylbenzene	135,890,313	122,296,506	13,593,807	10.00
Bayway Refining Co. Corp.	Union	Linden	Benzene	207,000,000	203,060,089	3,939,911	1.90
Bayway Refining Co. Corp.	Union	Linden	Naphthalene	249,900,000	246,237,173	3,662,827	1.47
Bayway Refining Co. Corp.	Union	Linden	Propylene	383,500,000	380,297,000	3,203,000	0.84
Crompton & Knowles Corp.	Essex	Nutley	Hydrochloric acid	3,325,665	1,025,904	2,299,761	69.15
Union Carbide Chemicals	Middlesex	Piscataway Twp	Glycol ethers	1,827,286	431,319	1,395,967	76.40
Silverton Marine Corporation	Cumberland	Millville	Styrene	1,621,845	252,311	1,369,534	84.44
Magnesium Elektron Inc.	Hunterdon	Kingwood Twp	Sulfuric acid	2,194,424	1,311,174	883,250	40.25
Cardolite Corporation	Essex	Newark	n-Butyl alcohol	1,408,316	536,950	871,366	61.87

Top 10 Chemical Records by Negative Quantitative Difference (Output exceeds Input)

Facility Name	County	City	Chemical	Input	Output	Difference	Percent Error
Bayway Refining Co. Corp.	Union	Linden	Toluene	885,000,000	893,105,138	-8,105,138	-0.91
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Toluene	613,044,523	620,476,278	-7,431,755	-1.20
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Xylene (mixed isomers)	632,429,495	635,704,994	-3,275,499	-0.52
Bayway Refining Co. Corp.	Union	Linden	Methyl tert-butyl ether	682,000,000	685,216,510	-3,216,510	-0.47
Du Pont Repauno Plant	Gloucester	Greenwich Twp	Sulfuric acid	1,886,005	4,858,456	-2,972,451	-61.18
Color Technology, Inc.	Somerset	Somerville	Methyl ethyl ketone	326,994	2,921,272	-2,594,278	-88.81
Metem Corporation	Morris	Parsippany-Troy Hill	Sulfuric acid	1,532,677	2,930,934	-1,398,257	-47.71
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	1,2,4-Trimethylbenzene	98,934,954	100,325,417	-1,390,463	-1.39
Coastal Eagle Point Oil Company	Gloucester	West Deptford Twp	Cumene	104,247,595	105,535,203	-1,287,608	-1.22
Du Pont Chambers Works	Salem	Pennsville Twp	1,2-Dichlorobenzene	16,192,220	17,386,213	-1,193,993	-6.87

Footnotes:

1. Total Input = starting inventory + quantity produced on site + quantity brought on site.
2. Total Output = quantity consumed on site + quantity shipped off site + ending inventory + quantity destroyed through on-site treatment + air emissions + water discharges + on-site land releases + off-site transfers.
3. Difference = Input - Output (a positive value means that a larger quantity was accounted for on the input side of the equation; a negative value means that a larger quantity was accounted for on the output side of the equation).
4. Percent Error = (Input - Output)/Input x 100, where Input is greater than Output, or (Input - Output)/Output x 100, where Output is greater than Input.

* As a result of the simplified mass balance approach, the various methods of materials accounting employed by facilities, the various estimation techniques for on-site releases and off-site transfers, and other factors, materials accounting discrepancies are not unusual. The Department performs an assessment of the balance, or closure, achieved in the accounting process for every chemical record. Starting with the chemical records with the largest quantitative differences, Department staff contact facility environmental managers and notify them of the findings. See pages 46 and 47 for a further discussion of this issue.

Table 20. 1993 Release and Pollution Prevention Report

Materials Accounting Discrepancy by Percent Error

Top 10 Chemical Records where Input exceeds Output

Facility Name	County	City	Chemical	Input ¹	Output ²	Difference ^{3*}	Percent Error ^{4*}
United States Bronze Powders	Hunterdon	Flemington	Ammonia	23,489	17	23,472	99.93
Shield Alloy Corporation	Gloucester	Newfield	Vanadium (fume or dust)	685	8	677	98.83
Milton Can Company, Inc.	Union	Elizabeth	Glycol ethers	50,029	2,183	47,846	95.64
Duralith Corporation	Cumberland	Millville	Methyl ethyl ketone	2,175	95	2,080	95.63
Automatic Brazing Co. Corp.	Union	Scotch Plains Twp	Copper	21,600	1,000	20,600	95.37
Frigidare Company Home Comfort	Middlesex	Edison Twp	Dichlorodifluoromethane	97,526	6,052	91,474	93.79
Milton Can Company, Inc.	Union	Elizabeth	1,2,4-Trimethylbenzene	12,200	902	11,298	92.61
Coining Corporation of America	Bergen	Saddle Brook Twp	Lead	31,441	2,335	29,106	92.57
Bayway Refining Co. Corp.	Union	Linden	Molybdenum trioxide	86,000	6,541	79,459	92.39
E R Squibb & Sons Inc.	Middlesex	North Brunswick Twp	Dichloromethane	386,200	46,100	340,100	88.06

Top 10 Chemical Records where Output exceed Input

Facility Name	County	City	Chemical	Input	Output	Difference	Percent Error
Baltic Dyeing & Finishing Co.	Passaic	Passaic	Ammonia	0	19,370	-19,370	-100.00
Electrum Recovery Works Inc.	Union	Rahway	Lead compounds	0	322,171	-322,171	-100.00
Crompton & Knowles Corp.	Essex	Nutley	2,4-Diaminotoluene	13	13,468	-13,455	-99.90
H & N Chemical Co.	Passaic	Totowa	Vinyl acetate	4,200	293,601	-289,401	-98.57
H & N Chemical Co.	Passaic	Totowa	Butyl acrylate	22,500	1,104,260	-1,081,760	-97.96
Hoechst Celanese Corp.	Somerset	Branchburg Twp	2-Methoxyethanol	8,386	314,311	-305,925	-97.33
United States Gypsum Company	Middlesex	Woodbridge Twp	Ethylene glycol	3,600	48,700	-45,100	-92.61
Kirker Chemical Corp.	Passaic	Paterson	Xylene (mixed isomers)	94,613	1,061,017	-966,404	-91.08
Color Technology, Inc.	Somerset	Somerville	Methyl ethyl ketone	326,994	2,921,272	-2,594,278	-88.81
Coining Corporation of America	Bergen	Saddle Brook Twp	1,1,1-Trichloroethane	3,834	32,165	-28,331	-88.08

Footnotes:

1. Total Input = starting inventory + quantity produced on site + quantity brought on site.
2. Total Output = quantity consumed on site + quantity shipped off site + ending inventory + quantity destroyed through on-site treatment + air emissions + water discharges + on-site land releases + off-site transfers.
3. Difference = Input - Output (a positive value means that a larger quantity was accounted for on the input side of the equation; a negative value means that a larger quantity was accounted for on the output side of the equation).
4. Percent Error = (Input - Output)/Input x 100, where Input is greater than Output, or (Input - Output)/Output x 100, where Output is greater than Input.

* As a result of the simplified mass balance approach, the various methods of materials accounting employed by facilities, the various estimation techniques for on-site releases and off-site transfers, and other factors, materials accounting discrepancies are not unusual. The Department performs an assessment of the balance, or closure, achieved in the accounting process for every chemical record. Starting with the chemical records with the largest quantitative differences, Department staff contact facility environmental managers and notify them of the findings. See pages 46 and 47 for a further discussion of this issue.

Table 21. 1993 RPPR Throughput Data Reported by New Jersey Facilities¹
(ordered alphabetically by county; quantities reported in pounds per year)

County	Number of Facilities	# of Forms	Inputs			Outputs	
			Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
Atlantic	4	8	672,158	0	1,332,094	129,022	1,073,934
Bergen	80	280	5,428,091	1,283,191	109,503,692	32,574,180	61,257,078
Burlington	26	97	8,358,667	3,967,301	215,312,012	155,198,667	35,110,169
Camden	31	87	5,024,641	5,141,957	40,461,021	6,229,381	31,921,317
Cape May	0	0	0	0	0	0	0
Cumberland	10	20	164,143	44,918	2,051,870	506,074	105,203
Essex	75	330	59,713,103	257,799,818	448,531,306	94,900,174	599,210,003
Gloucester	31	169	212,555,700	3,471,611,430	1,552,745,366	991,290,919	3,993,445,238
Hudson	33	110	5,209,519	14,357,253	39,827,416	18,408,579	25,124,419
Hunterdon	9	25	2,169,012	271,645	15,745,068	4,023,193	6,833,809
Mercer	18	48	2,199,778	0	20,377,760	978,978	17,580,013
Middlesex	112	555	287,480,949	621,587,571	3,376,834,152	758,507,820	3,156,950,487
Monmouth	17	56	2,656,589	54,105	165,100,063	6,353,441	147,284,419
Morris	38	88	6,875,991	1,362,290	19,578,115	2,876,687	18,398,048
Ocean	4	9	60,741	0	196,736	0	201,746
Passaic	70	222	5,973,045	2,889,423	87,560,578	20,487,170	57,653,897
Salem	8	104	28,725,525	142,512,759	654,279,293	684,198,988	36,227,589
Somerset	23	116	2,286,808	194,938	76,114,723	55,613,134	18,148,672
Sussex	6	9	105,798	0	1,236,915	0	0
Union	70	275	311,938,139	3,191,806,362	1,356,794,851	226,192,313	4,301,577,128
Warren	17	76	8,845,473	7,506,459	152,806,732	123,528,224	32,732,882
1993 TOTALS	682	2,684	956,443,870	7,722,391,420	8,336,389,763	3,181,996,944	12,540,836,051

Footnotes:

1. Five facilities and 34 chemical records are not included in the throughput data analyses as a result of trade secret claims on that data. Includes data from three non-manufacturing sector facilities that submitted eight RPPRs.
2. Total Input = starting inventory + quantity produced on site + quantity brought on site.

1993 RPPR Throughput Data Summary by County

- Outputs			Total Input ²	Total Output ³	Difference ⁴	County
Ending Inventory	Destroyed On Site	Releases & Transfers				
576,960	0	210,093	2,004,252	1,990,009	14,243	Atlantic
3,953,745	5,749,103	14,434,030	116,214,974	117,968,136	-1,753,162	Bergen
8,426,119	5,122,982	24,898,385	227,637,980	228,756,332	-1,118,342	Burlington
6,597,077	1,901,031	4,657,302	50,627,619	51,306,108	-678,489	Camden
0	0	0	0	0	0	Cape May
130,720	303,653	214,801	2,260,931	1,260,451	1,000,480	Cumberland
36,820,820	9,288,290	22,801,413	766,044,227	763,020,700	3,023,527	Essex
193,009,930	28,684,217	33,544,167	5,236,912,496	5,239,974,471	-3,061,975	Gloucester
5,041,065	6,594,727	5,917,779	59,394,188	61,086,569	-1,692,381	Hudson
1,772,504	3,690,461	873,337	18,185,725	17,193,304	992,421	Hunterdon
1,797,291	1,315,674	887,300	22,577,538	22,559,256	18,282	Mercer
278,090,638	27,454,795	57,857,610	4,285,902,672	4,278,861,350	7,041,322	Middlesex
5,507,957	2,485,566	7,040,374	167,810,757	168,671,757	-861,000	Monmouth
4,397,556	2,161,988	1,417,565	27,816,396	29,251,844	-1,435,448	Morris
24,282	0	30,114	257,477	256,142	1,335	Ocean
5,257,936	7,613,692	8,830,200	96,423,046	99,842,895	-3,419,849	Passaic
26,244,920	70,257,215	10,514,481	825,517,577	827,443,193	-1,925,616	Salem
2,500,157	1,810,237	3,143,868	78,596,469	81,216,068	-2,619,599	Somerset
183,039	610,867	564,286	1,342,713	1,358,192	-15,479	Sussex
268,946,297	7,027,367	19,104,441	4,860,539,352	4,822,847,546	37,691,806	Union
8,707,011	2,951,982	1,326,186	169,158,664	169,246,285	-87,621	Warren
857,986,024	185,023,847	218,267,732	17,015,225,053	16,984,110,598	31,114,455	1993 COUNTY TOTALS

Footnotes:

3. Total Output = quantity consumed on site + quantity shipped off site + ending inventory + quantity destroyed through on-site treatment + air emissions + water discharges + on-site land releases + off-site transfers.
4. Difference = Input - Output (a positive value means that a larger quantity was accounted for on the input side of the equation; a negative value means that a larger quantity was accounted for on the output side of the equation).

Table 22. 1993 RPPR Throughput Data Reported by New Jersey Facilities¹
(ordered numerically by SIC code; quantities reported in pounds per year)

SIC Category	Number of Facilities	# of Forms	Inputs			Outputs	
			Starting Inventory	Produced On-Site	Brought On-Site	Consumed On-Site	Shipped Off-Site
20 Food & Kindred Products	25	70	1,734,218	342,220	17,173,857	14,304,142	817,759
21 Tobacco Manufacturing	0	0	0	0	0	0	0
22 Textile Mill Products	16	36	108,219	44,918	1,462,977	87,109	200,210
23 Apparel & Other Textile Prod.	0	0	0	0	0	0	0
24 Lumber & Wood Products	5	7	567,701	0	10,901,820	663,014	10,004,550
25 Furniture & Fixtures	2	3	4,904	0	31,900	0	0
26 Paper & Allied Products	20	42	642,445	513,033	9,563,997	4,324,118	1,806,728
27 Printing & Publishing	13	28	201,935	0	1,855,334	16,091	13,740
28 Chemicals & Allied Products	271	1,497	132,327,460	788,676,323	2,617,033,387	1,933,470,872	1,215,492,401
29 Petroleum & Coal Products	17	127	744,266,560	6,897,816,142	4,653,917,227	780,044,052	10,750,287,600
30 Rubber & Misc. Plastic Prod.	62	158	8,793,249	29,234	455,113,536	402,729,122	46,635,538
31 Leather & Leather Products	2	4	57,762	72,122	4,213,532	3,625,200	265,430
32 Stone, Clay, & Glass Products	16	35	768,560	317,714	6,848,160	3,048,066	2,362,416
33 Primary Metal Industries	59	181	23,690,247	12,106,851	283,274,348	6,163,761	266,379,695
34 Fabricated Metal Products	83	259	7,667,739	0	49,725,477	1,306,941	25,180,995
35 Machinery, except Electrical	20	55	31,178,734	22,281,175	161,424,604	28,957,117	171,700,941
36 Electrical & Electronic Prod.	30	45	1,374,953	29,071	23,220,947	594,084	20,053,498
37 Transportation Equipment	6	41	409,933	0	11,601,029	312,195	6,367,875
38 Instruments & Related Prod.	23	70	878,645	162,617	9,440,247	2,033,735	6,032,071
39 Miscellaneous Manufacturing	9	18	1,736,161	0	19,275,624	109,270	17,152,518
TOTALS (Manufacturing Sector)	679	2,676	956,409,425	7,722,391,420	8,336,078,003	3,181,788,889	12,540,753,965
Non-Manufacturing Sector	3	8	34,445	0	311,760	208,055	82,086
1993 SIC TOTALS	682	2,684	956,443,870	7,722,391,420	8,336,389,763	3,181,996,944	12,540,836,051

Footnotes:

1. Five facilities and 34 chemical records are not included in the throughput data analyses as a result of trade secret claims on that data.
2. Total Input = starting inventory + quantity produced on site + quantity brought on site.

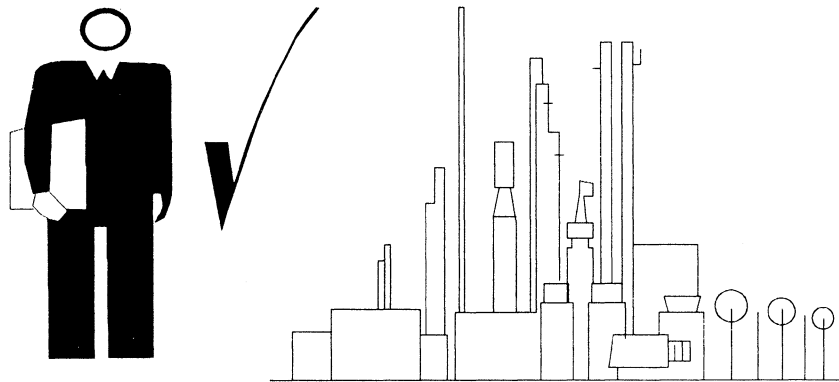
1993 RPPR Throughput Data Summary by SIC Code

- Outputs			Total Input ²	Total Output ³	Difference ⁴	SIC Category
Ending Inventory	Destroyed On Site	Releases & Transfers				
1,836,694	572,888	1,907,628	19,250,295	19,439,111	-188,816	20 Food, etc.
0	0	0	0	0	0	21 Tobacco Mfg.
77,874	661,381	717,381	1,616,114	1,743,955	-127,841	22 Textile Mills
0	0	0	0	0	0	23 Apparel, etc.
688,866	0	128,182	11,469,521	11,484,612	-15,091	24 Lumber & Wood
3,644	0	49,324	36,804	52,968	-16,164	25 Furniture, etc.
781,459	2,466,806	1,431,617	10,719,475	10,810,728	-91,253	26 Paper, etc.
195,527	1,470,133	379,740	2,057,269	2,075,231	-17,962	27 Printing, etc.
135,537,939	151,319,236	110,888,630	3,538,037,170	3,546,709,078	-8,761,908	28 Chemicals, etc.
662,330,767	7,582,439	55,509,615	12,295,999,929	12,255,754,473	40,245,456	29 Petroleum, etc.
9,466,591	2,789,954	2,852,333	463,936,019	464,473,538	-537,519	30 Rubber, etc.
62,656	2,520	363,918	4,343,416	4,319,724	23,692	31 Leather, etc.
579,270	556,905	807,940	7,934,434	7,354,597	579,837	32 Stone, etc.
21,632,835	3,681,071	22,452,117	319,071,446	320,309,479	-1,238,033	33 Primary Metals
8,319,183	9,901,365	12,757,022	57,393,216	57,465,506	-72,290	34 Fabr. Metals
12,424,043	1,658,451	417,786	214,884,513	215,158,338	-273,825	35 Machinery
1,376,074	270,492	1,919,122	24,624,971	24,213,270	411,701	36 Electrical
835,169	800,286	2,283,678	12,010,962	10,599,203	1,411,759	37 Transportation
703,028	545,507	1,592,691	10,481,509	10,907,032	-425,523	38 Instruments
1,083,232	733,701	1,804,030	21,011,785	20,882,751	129,034	39 Misc. Mfg.
857,934,851	184,013,135	218,262,754	17,014,878,848	16,983,753,594	31,125,254	Mfg. Sector
51,173	10,712	4,978	346,205	357,004	-10,799	Non-Mfg. Sector
857,986,024	185,023,847	218,267,732	17,015,225,053	16,984,110,598	31,114,455	1993 SIC TOTALS

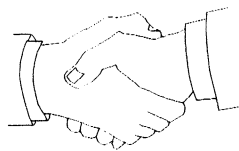
Footnotes:

- Total Output = quantity consumed on site + quantity shipped off site + ending inventory + quantity destroyed through on-site treatment + air emissions + water discharges + on-site land releases + off-site transfers.
- Difference = Input - Output (a positive value means that a larger quantity was accounted for on the input side of the equation; a negative value means that a larger quantity was accounted for on the output side of the equation).

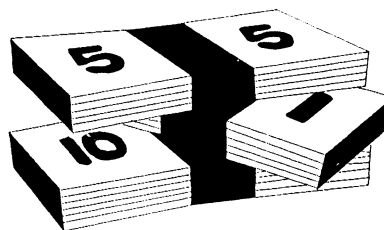
COMMUNITY RIGHT TO KNOW COMPLIANCE ACTIVITIES



INSPECTIONS



COOPERATION



PENALTIES

COMMUNITY RIGHT TO KNOW COMPLIANCE ACTIVITIES

The department continued to strive to achieve greater compliance for the Community Right to Know Survey. During 1994 there was a shift in enforcement focus to large companies rather than smaller businesses due to the implementation of reporting thresholds as part of regulatory changes. Focus was also placed on inspecting individual companies having multiple locations throughout the state rather than single-site companies.

Many facility locations associated with SIC code group 4922, "natural gas transmission," were inspected during 1994. This study was conducted as a result of questionable inventory ranges reported for 1992 - some in excess of 500,000 pounds - and surveys received from many sites not found in the program's facility tracking system (FTS). As a result of these inspections, it was found that some facilities were reporting daily throughput of transmission lines rather than on-site storage inventories. Some sites were found to be remote, unmanned regulating and metering stations located throughout New Jersey rather than regulated facilities.

Two additional types of audit inspections were initiated for survey year 1993. The first concerned facilities having research and development (R&D) laboratory reporting exemptions. Results were used to verify the facility's R&D activities and the validity of its exemption from Community Right to Know reporting. Audits were also performed at manufacturing facilities reporting inventories of EPCRA Section 313 toxic chemicals exceeding 10,000 pounds on the CRTK survey but failing to submit Release and Pollution Prevention Reports (DEQ-114).

Continued compliance emphasis was placed on referrals from both within the department and from outside agencies. Coordination with county, local health, police and fire departments and fire prevention bureaus was found to be beneficial in increasing awareness of, and compliance with, CRTK reporting requirements. The number of audits conducted by the department in each county are presented in Figure 11.

A total of 499 administrative orders were issued for reporting year 1993, a significant increase from 295 administrative orders issued for reporting year 1992 and 353 for reporting year 1991. The increase can be attributed to the use of additional office personnel to assist in processing enforcement documents. Of the 499 administrative orders, 470 were issued to three-year non-responding facilities. The 29 remaining administrative orders were issued to facilities that were audited during calendar year 1993 and failed to report all inventory on the 1993 CRTK survey. Orders resulted in the assessment of more than \$420,000 in penalties of which approximately \$26,000 was collected as of March 1995. The average fine assessed was approximately \$842.00.

Figures 9 and 10 show the compliance rates for reporting years 1993, 1992 and 1991 for manufacturing and certain non-manufacturing sector employers regulated by the New Jersey Worker and Community Right to Know Act.

Figure 12 represents an evaluation of compliance by county. The compliance rate ranged from 90% to 94%. The greatest increase (3%) from 1992 rates was observed in both Bergen and Mercer counties. It should be noted that the department considers notifications from companies that are no longer in business and facility status changes as well as surveys actually submitted in its computation of compliance.

1993 Surveys Mailed = 12,540 1993 Surveys Returned = 11,605 1993 Compliance = 93%
 1992 Surveys Mailed = 12,559 1992 Surveys Returned = 11,644 1992 Compliance = 93%
 1991 Surveys Mailed = 13,071 1991 Surveys Returned = 11,927 1991 Compliance = 91%

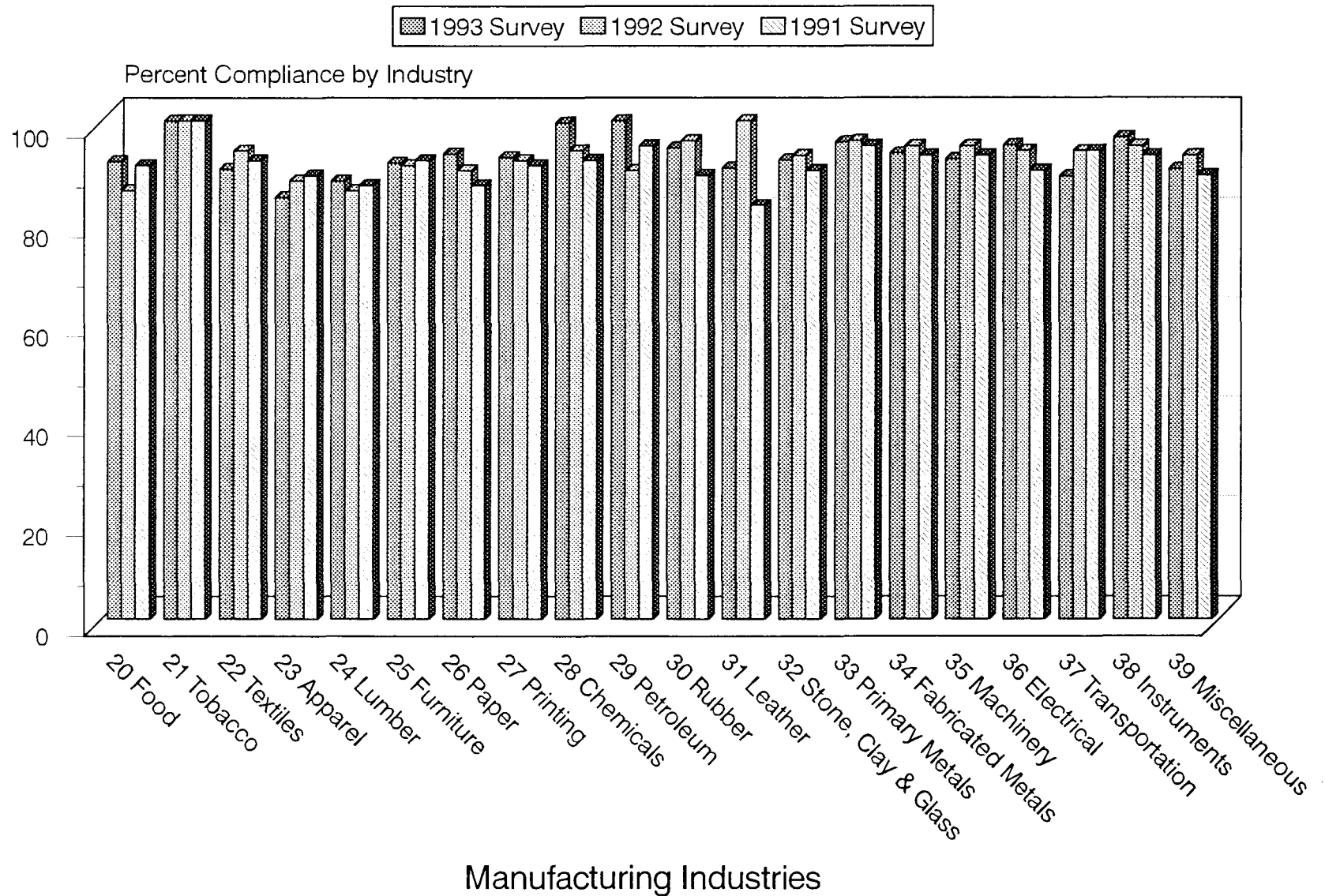


Figure 9. Community RTK Survey Compliance: 1993, 1992, & 1991 (Manufacturing Industries)

1993 Surveys Mailed = 19,920
 1992 Surveys Mailed = 19,704
 1991 Surveys Mailed = 21,238

1993 Surveys Returned = 18,193
 1992 Surveys Returned = 18,087
 1991 Surveys Returned = 18,296

1993 Compliance = 91%
 1992 Compliance = 92%
 1991 Compliance = 86%

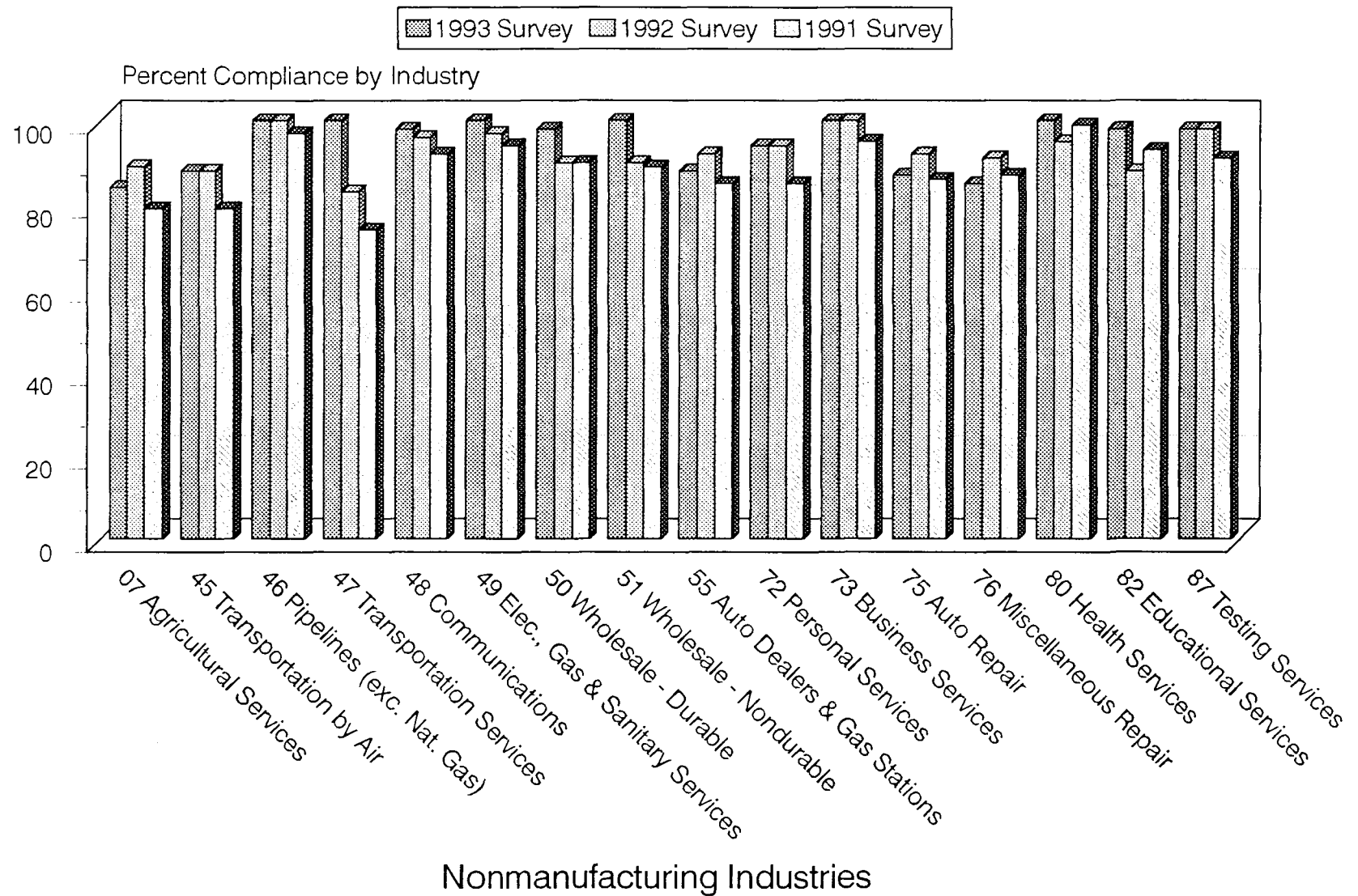


Figure 10. Community RTK Survey Compliance: 1993, 1992, & 1991 (Nonmanufacturing Industries)

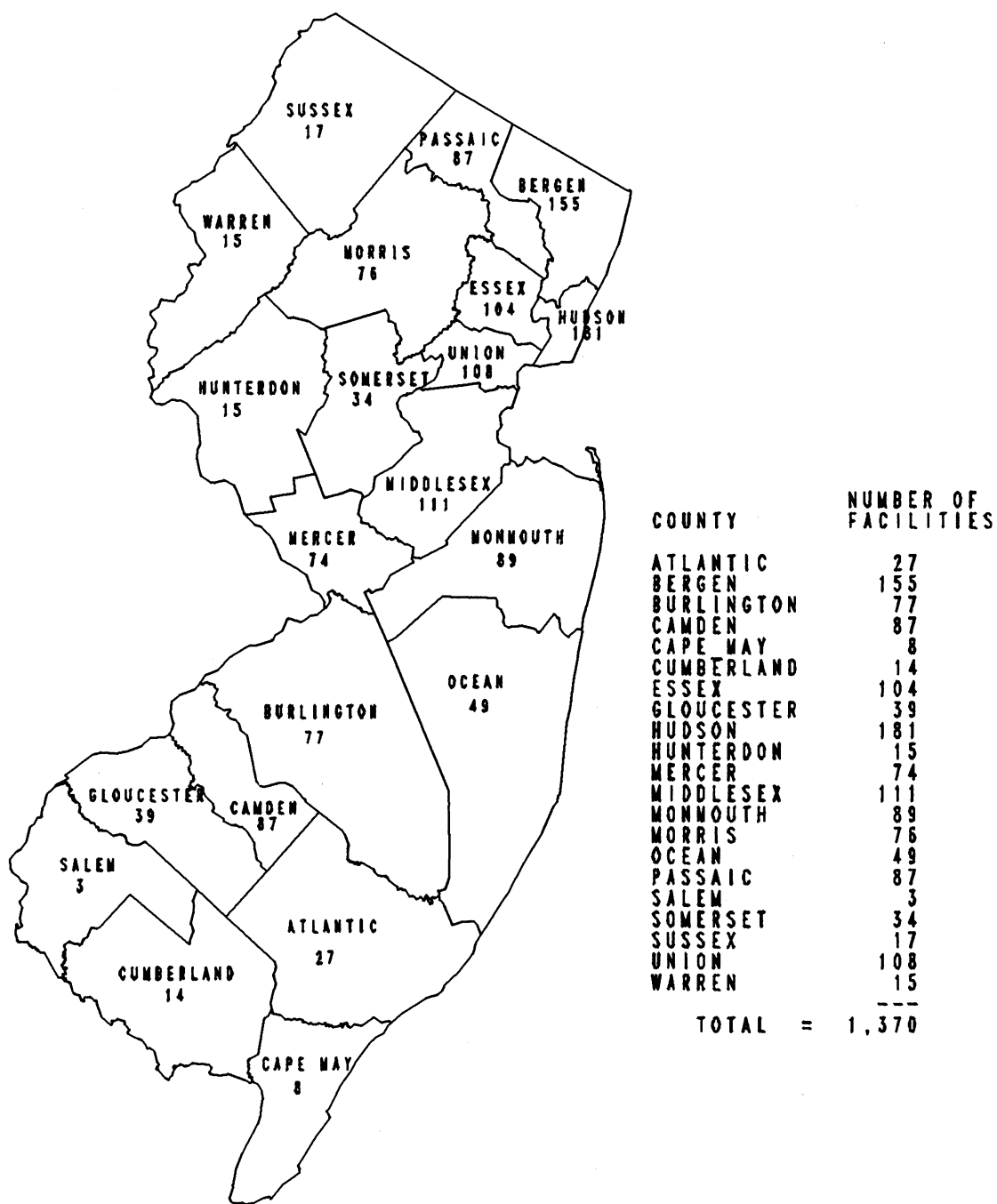
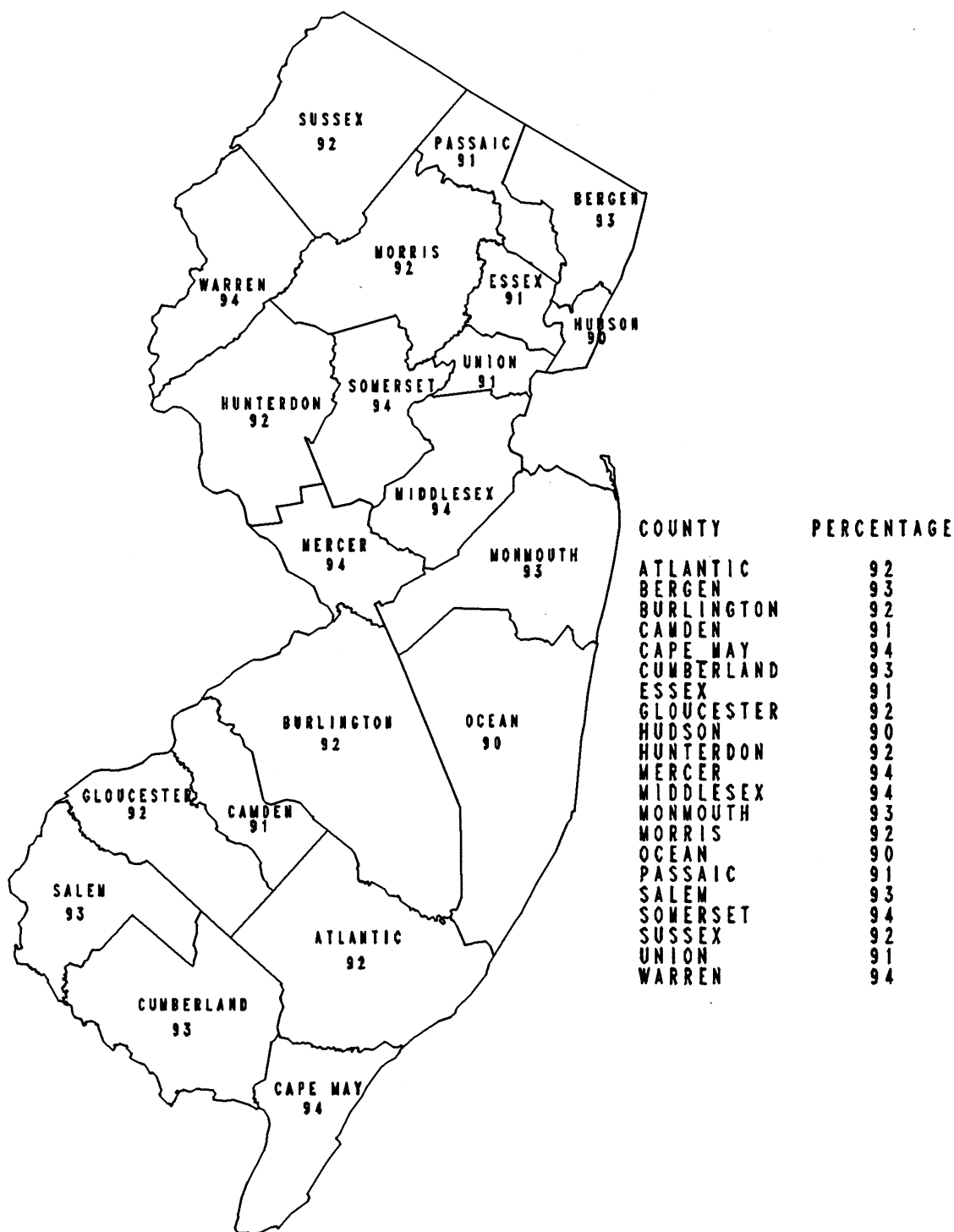


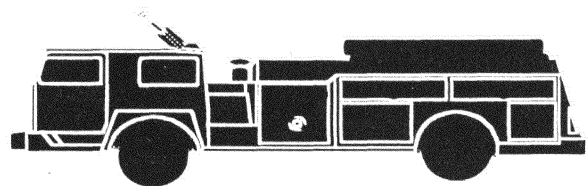
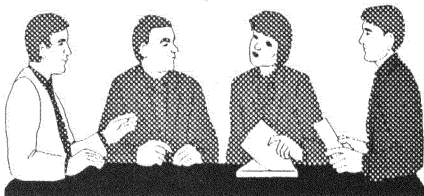
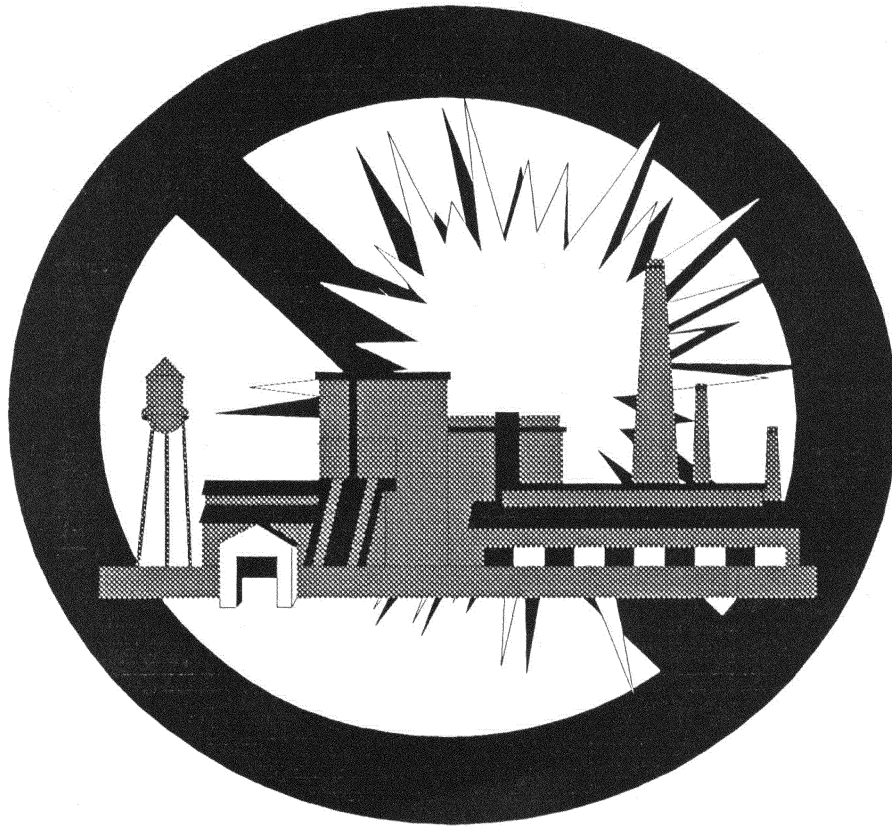
Figure 11. Number of Right To Know Field Audits Conducted by the DEP in 1994 by County



**Figure 12. 1993 Community Right To Know Survey Compliance
(by percentage)**

EPCRA SECTIONS 301 - 304

EXTREMELY HAZARDOUS SUBSTANCE
PLANNING & NOTIFICATION



EXTREMELY HAZARDOUS SUBSTANCE PLANNING AND NOTIFICATION

A list of Extremely Hazardous Substances, with associated threshold planning quantities (TPQ) and reportable quantities (RQ), was established by USEPA under Section 302 of the Emergency Planning and Community Right to Know Act of 1986 (EPCRA). This list represents substances which would likely cause serious irreversible health effects if unplanned releases occurred. Under EPCRA, a facility that had an Extremely Hazardous Substance above a threshold planning quantity had to inform the NJDEP and their Local Emergency Planning Committee (LEPC) by May 17, 1987 that it was subject to emergency planning. Facilities must also notify the NJDEP and their LEPCs that they are subject to these requirements within 60 days after the first on-site occurrence of any Extremely Hazardous Substance above the threshold planning quantity.

Local Emergency Planning Committees are established under EPCRA and are required to develop comprehensive emergency response plans for their regions. In New Jersey, every municipality and county is required to maintain an LEPC. The New Jersey Emergency Management Act (New Jersey Statutes Annotated Appendix A:9-30 et seq.) also requires every municipality and county to develop and maintain an Emergency Operations Plan. These plans include all emergency services procedures, including those needed to fulfill EPCRA. To date, approximately 87% of the state's 588 LEPCs have approved plans. An additional 11% are under development or in need of review and resubmission to the State Police Office of Emergency Management. Less than 2% have not developed plans. With this level of compliance, less than 1% of the state's population is in an area that does not have an LEPC with an approved plan or one under review.

Under Section 304 of EPCRA, a facility is required to report an unplanned release of any Extremely Hazardous Substance above the reportable quantity to the NJDEP and to their LEPC. This federal requirement is in addition to the state requirement that any unplanned release of any substance must be reported immediately to the NJDEP's hotline.

As of the Spring of 1995, there were 690 active facilities in the state that had notified the Department that Extremely Hazardous Substances were present at their facilities above the threshold planning quantity, including 618 private sector and 72 public sector facilities. Figure 13 shows the distribution of these facilities by county. An analysis by SIC code is shown in Table 23. The number of active facilities is a significant drop from the 955 reported in last year's annual report. The Department is investigating the validity of this decrease. Fewer EPCRA 302 facilities may be the result of facilities going out of business or reducing substance inventories below the TPQ. Also, business mergers and sales may result in changes to facility names and/or identification numbers. This will often make it difficult to match the new reporting entity to the facility that originally submitted the 302 notification, thereby making it difficult to track a facility's Section 302 status.

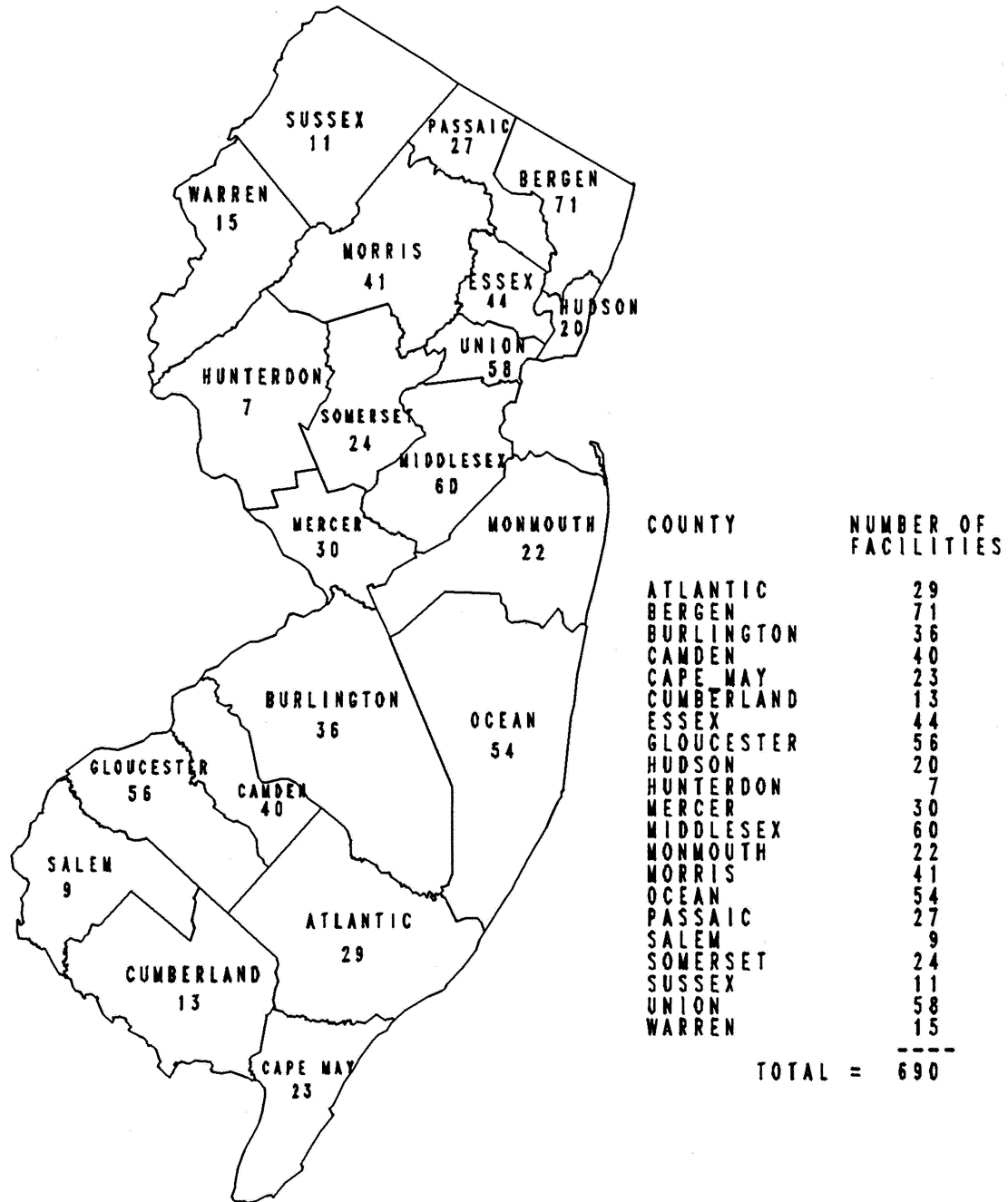


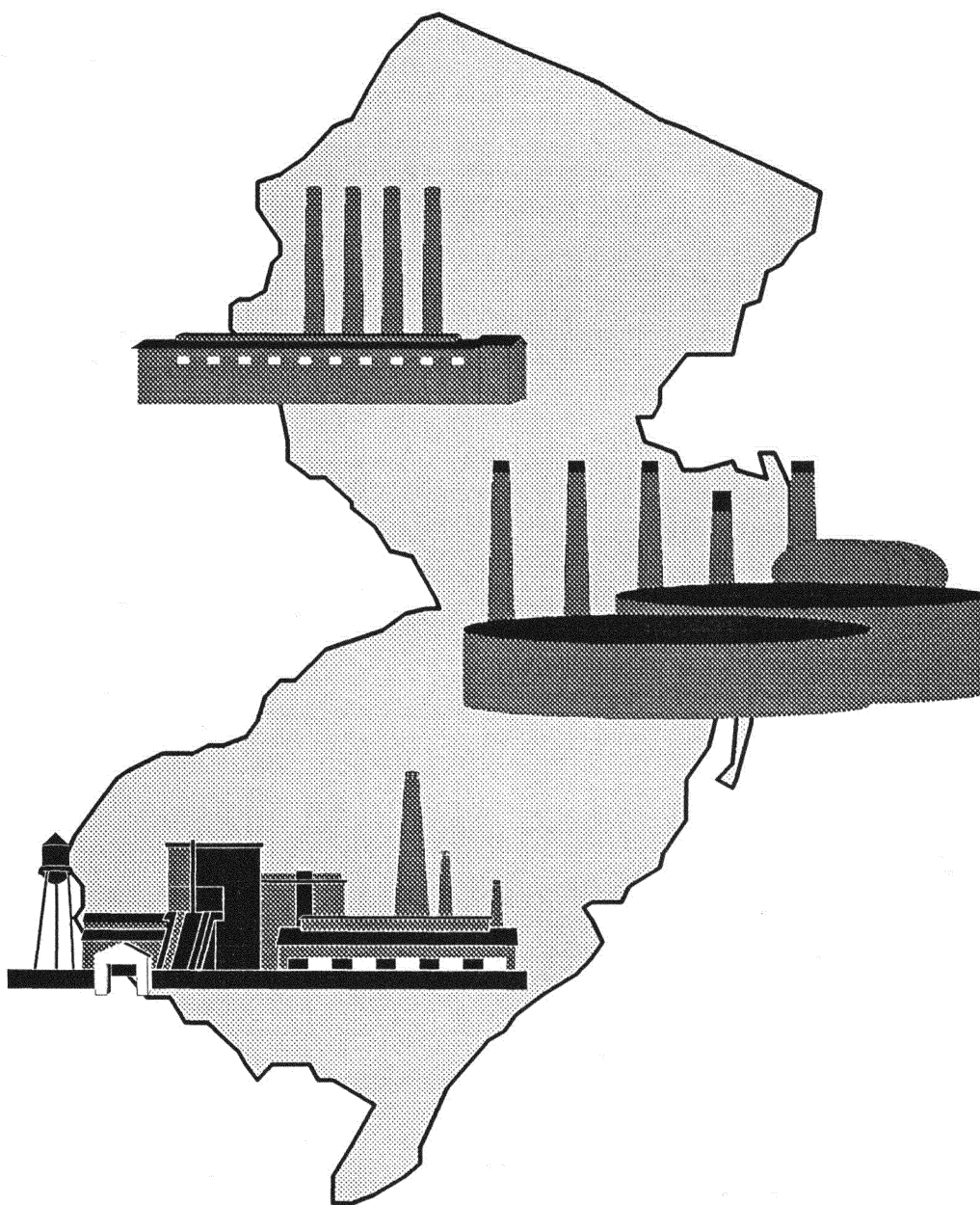
Figure 13. Number of Facilities Filing Section 302 Notifications by County

Table 23. New Jersey's EPCRA Section 302 Facilities by Standard Industrial Classification¹

SIC	Activity	Total Number of Facilities	Number of Public Sector Facilities
01	Agricultural production - crops	14	
07	Agricultural services	6	
17	Construction - special trade contractors	1	
20	Food & kindred products	15	
22	Textile mill products	4	
23	Apparel & other textile products	5	
24	Lumber & wood products	10	
25	Furniture & fixtures	3	
26	Paper & allied products	8	
27	Printing & publishing	21	
28	Chemicals & allied products	115	
29	Petroleum & coal products	10	
30	Rubber & miscellaneous plastics products	15	
31	Leather & leather products	1	
32	Stone, clay & glass products	17	
33	Primary metal industries	21	
34	Fabricated metal products	48	
35	Machinery, except electrical	20	
36	Electrical & electronic equipment	18	
37	Transportation equipment	4	
38	Instruments & related products	15	
39	Miscellaneous manufacturing industries	5	
40	Railroad transportation	1	1
42	Motor freight transportation & warehousing	7	
47	Transportation services	1	
48	Communications	26	
49	Electric, gas & sanitary services	145	44
50	Wholesale trade - durable goods	7	
51	Wholesale trade - nondurable goods	32	
53	General merchandise stores	47	
54	Food stores	1	
55	Automotive dealers & gasoline service stations	3	
59	Miscellaneous retail	1	
65	Real estate	1	
73	Business services	3	
75	Automotive repair, services, & parking	1	
76	Miscellaneous repair services	1	
80	Health services	2	
82	Educational services	5	4
87	Engineering, accounting, research, management, & related services	2	
89	Miscellaneous services	2	
91	Executive, legislative, & general government, except finance	21	21
96	Administration of economic programs	1	1
97	National security & international affairs	4	1
		690	72

1. Active facilities as of the Spring of 1995.

EPCRA SECTION 313
TOXIC CHEMICAL RELEASE INVENTORY
FOR 1993



THE 1993 TOXIC CHEMICAL RELEASE INVENTORY

Introduction

The Toxic Chemical Release Inventory (TRI) was established under the federal Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) in Section 313. This section requires that Toxic Chemical Release Inventory Reporting Forms (Form R) be filed by owners and operators of facilities that meet all three of the following criteria:

- ▶ the facility's business activity is included in the manufacturing Standard Industrial Classification codes 20 through 39 (major groups); and
- ▶ the facility has 10 or more full-time employees; and
- ▶ the facility manufactured (defined to include imported) or processed more than 25,000 pounds or otherwise used more than 10,000 pounds of any listed toxic chemical during the calendar year.

Covered facilities are required to provide on the Form R estimated quantities of the following on-site releases and off-site transfers for each chemical meeting the thresholds:

- fugitive air emissions (nonpoint source);
- stack air emissions (point source);
- surface water discharges;
- underground injection;
- on-site land releases (at the facility);
- discharges to publicly owned treatment works (POTW); and
- transfers to other off-site locations for further waste management.

The quantities are estimated annual amounts of on-site releases and off-site transfers from the entire reporting facility. The information presented here is a general summary of the 1993 data based upon information provided by the USEPA, gathered from Form R submissions to the USEPA through early January 1995.

An expansion of the TRI reporting requirements was made under Section 6607 of the federal Pollution Prevention Act of 1990 beginning with the 1991 reporting year. The quantity of a toxic chemical that was transferred off site and subject to recycling or energy recovery was reportable for the third year under the heading of "Transfers to Other Off-Site Locations." Additionally, 1993 was the third year of the reporting requirements for source reduction information under section 8 of the Form R. For each reportable chemical, estimated quantities of chemicals amenable to source reduction were required for the following activities:

- quantity released to the environment;
- quantity used for energy recovery on site;
- quantity used for energy recovery off site;
- quantity recycled on site;
- quantity recycled off site;
- quantity treated on site; and
- quantity treated off site.

For reporting year 1993 di-n-octyl phthalate (CAS# 117-84-0) was deleted from the EPCRA Section 313 Toxic Chemical List. Additionally, barium sulfate was deleted from the

"barium compounds" category and the "glycol ethers" category was redefined to exclude high molecular weight glycol ethers known as surfactant glycol ethers. Therefore, there were 316 unique chemicals and 20 chemical categories subject to reporting for 1993.

Figure 14 presents a summary of the 1993 TRI data for New Jersey. This figure was adapted from the "1993 Toxics Release Inventory, Public Data Release - State Fact Sheets" published by USEPA (document number EPA 745-F-95-002, March 1995). The outline map of New Jersey identifies by triangle (▲) the location of every reporting facility. Reported releases and waste management activities are grouped by on-site releases, on-site waste management activities and off-site transfers for further waste management. Also, the top five chemicals for total on-site releases are listed.

The top 10 New Jersey TRI facilities for total on-site releases and the top 10 facilities for air/water/land releases are found in Table 24, which was also adapted from the USEPA TRI State Fact Sheets. It becomes evident when looking at the two groupings in Table 24 that there is no difference in the facilities listed or their rankings. This is due to the fact that underground injection is not a typical waste disposal method in New Jersey, is not reported by these facilities and, therefore, does not affect the rankings.

New Jersey is one of only two states in the nation that has a state release reporting program in addition to the federal program that collects materials accounting data (the other is Massachusetts). New Jersey's reporting requirements are different from the federal reporting requirements and additional data elements are required to be reported; however, the same facilities are required to provide data on the same toxic chemicals reported on Form R, i.e., those manufactured or processed in excess of 25,000 pounds or otherwise used in excess of 10,000 pounds. Further, beginning with reporting year 1993, New Jersey facilities were required to report on the Release and Pollution Prevention Report any listed chemicals that were manufactured or processed in excess of 10,000 pounds.

This unique situation permits interesting comparisons of the data reported under the state and federal programs. Table 25 presents a contrast of the 1993 data reported on the federal Form R and the state Release and Pollution Prevention Report (RPPR). One of the differences observed is the numbers of the reporting facilities and the number of each report (i.e., Form R and RPPR) submitted. As a result of New Jersey's 10,000 pound manufacture and process thresholds, more RPPRs were submitted by fewer facilities compared to Form R.

A second difference is the list of top 10 facilities for total on-site releases (Table 11 on page 38 in the Release and Pollution Prevention Report section [as reported on the RPPR] and Table 24 on page 80 as reported on Form R). The list of facilities is identical, however, the facility total on-site releases vary for almost every company. (Note: USEPA had mistakenly identified Bayway Refining Company Corp. as the [former] Exxon Bayway Refinery, as evident on Table 24.) New Jersey's requirements have resulted in additional chemicals reported by certain facilities. Therefore, when a facility reported larger total quantities on the Form R (e.g. Table 24 vs. Table 11), a review of the Form R and RPPR was conducted to identify the cause of the discrepancy.

A more detailed explanation of the observed differences can be found in the Release and Pollution Prevention Report section of this report (see page 17). However, the main reasons for the variations are: 1) New Jersey's threshold may require facilities to report more chemicals on the RPPR than on the Form R; 2) the number of facilities complying with the state and federal requirements; 3) the number of chemicals reported by those facilities; and 4) the

quantities of on-site releases and off-site transfers reported for those chemicals.

1987 - 1993 TRI Release and Off-Site Transfer Trends

The 1993 data represents the seventh year of TRI reporting under Section 313 of EPCRA. Over the years, there have been numerous changes in the reporting requirements of the program. The reporting thresholds for manufacture and process have been systematically reduced (75,000 pounds in 1987, 50,000 pounds in 1988, and 25,000 pounds for 1989 and thereafter). Chemicals have been added to and deleted from the list of reportable toxic chemicals. Also, qualifiers have been added to reportable chemicals; the most notable was specifying "fibrous forms only" for aluminum oxide, commencing with reporting year 1989.

Beginning with the 1991 reporting year, reporting requirements were expanded to include off-site transfers for recycling or energy recovery and the reporting of data relevant to source reduction and recycling activities. Additionally, through USEPA's compliance actions or voluntary submissions by facilities, new forms are received every year from companies that are reporting for any or all of the previous reporting years. Facilities have also been afforded the opportunity to submit revisions to previous years' forms when new information becomes available that indicates that data reported on those previous submissions were incorrect, e.g., reported air releases were too high (low) and are requested to be changed.

The availability of seven years of data provides the opportunity to conduct extensive analyses and comparisons from year to year. One of the simplest on the large scale, and most revealing, is the trend analyses of on-site releases and off-site transfers presented in Figures 15 and 16, respectively. Each year's data were normalized to the extent practical to be comparable to every other year. The quantities for any chemical that has been delisted were excluded from all data summaries. However, any chemical additions to the list remained in the data sets, particularly since their influences were small in the overall data analyses.

The observations indicate that the trends are in the right direction. The summary of on-site releases (Figure 15) indicates considerable declines over the past seven years, particularly for stack and fugitive air emissions. Surface water discharges are relatively constant due to some late reports with large discharge quantities for previous years, particularly relevant to ammonia and ammonium solutions reporting clarifications. Discharges to publicly owned treatment works (POTW) and off-site transfers for treatment or disposal are also declining (Figure 16), though POTW discharges did level off from 1992 to 1993. Conversely, off-site transfers for recycling or energy recovery have increased (from 1991 to 1993 with a slight dip from 1992 values). These management methods (recycling and energy recovery) are higher on the pollution prevention hierarchy than treatment or disposal, and are, therefore, preferable methods of dispensing with generated wastes. However, real pollution prevention, that is reducing the demand for a toxic chemical per unit of product manufactured and eliminating the generation of the toxic chemical as a waste, is the ideal approach to dealing with toxic chemicals. Yet, pollution prevention is not practical to all applications of all toxic chemicals.

Late Submissions (and other reporting issues)

Form Rs are to be submitted by July 1 of the year following the reporting year. Every reporting year there are a number of facilities that submit their forms, or revisions, so late that they can not be included in data summaries of the type presented here. For the 1993 reporting

year, the state received 20 Form Rs from 11 facilities that are not included in USEPA's summaries and analyses (i.e., they are not included in the summaries presented in Figures 14, 15 or 16, nor are they included in Tables 24 and 25). The most significant of these is the late submission from the Hercules facility in Kenvil, Morris County (USEPA did provide a footnote that is found at the bottom of Table 24). In reporting year 1992, Hercules, Kenvil was the #1 facility for total air emissions and total fugitive air emissions, and #2 for total on-site releases and total stack air emissions in New Jersey. The late 1993 report by Hercules indicated total on-site releases as follows:

Hercules, Kenvil 1993 Form R On-Site Releases (in pounds)			
Chemical	Stack Air Emissions	Fugitive Air Emissions	Total Air Emissions
Acetone	200,000	727,556	927,556
Nitroglycerin	15,687	1,743	17,430
Total:	215,687	729,299	944,986

The total on-site releases for all 20 late Form Rs amounted to 955,751 pounds and the total off-site transfers amounted to 2,304,680 pounds. Again, these quantities are not represented in any of the summaries in this report.

Another large reporting discrepancy was found, this time for the Coastal Eagle Point Oil Refinery in West Deptford (Gloucester County). Coastal Eagle on their 1993 RPPR reported 29,501,180 pounds of sulfuric acid transferred off site for recycling. The 1993 Form R report showed no quantity of sulfuric acid for off-site transfers. Communications with facility staff revealed that there was a difference in the interpretation of questions on the state and federal forms regarding off-site transfers, the intent of those questions, and uses and interpretations of the word "waste" with respect to reporting. As a result, this off-site recycling quantity is represented in Table 25 under 1993 RPPR but not under 1993 Form R.

Table 25 does reflect a reduction from 1992 to 1993 of more than 13,000,000 pounds reported for one chemical alone by the Amerada Hess Refinery. For 1992, Amerada Hess reported 37,690,000 pounds of sulfuric acid sent off site for recycling; for the 1993 reporting year a total of 24,674,580 pounds was reported. The facility's total releases and transfers in 1992 were 37,789,677 pounds while the 1993 total releases and transfers amounted to 24,849,219 pounds.

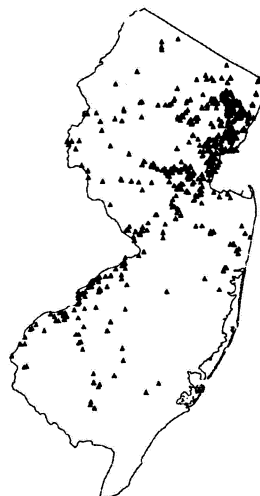
In closing, public disclosure of these release and transfer data has encouraged many facility owners and operators to look for means to reduce the quantities of toxic chemicals discharged from their facilities. Many of the larger corporations have made voluntary commitments to reduce their releases by up to 90% by 1996 (when compared to 1987 or 1988 levels). Yet, these positive trends must be carefully analyzed. The observed reductions in the quantities of environmental releases and off-site transfers can be attributed to many factors. Improvements in the methods to calculate estimates of releases and transfers may be responsible for some of the observed reductions over the years. Fewer facilities reporting fewer chemicals is also a component of the trend. Nonetheless, it is apparent that chemical releases and transfers, at least for many of the reporting industries, are on the decline.



1993 TOXICS RELEASE INVENTORY

NEW JERSEY

Population	7,879,000
Total Facilities	700
Total Forms	2,575
National Rank for Total Releases	32
National Rank for Air/Water/Land Releases	32
Transfers into State	
Rank	11
Pounds	64,951,840
Transfers Out of State	
Rank	7
Pounds	99,892,154



Reported Releases and Waste Management Activities (pounds)

On-site Releases	19,372,889
Air Emissions	15,438,767
Surface Water Discharges	3,296,633
Underground Injection	0
Releases to Land	637,489
On-site Waste Management	345,488,896
Recycling	80,113,034
Energy Recovery	18,265,525
Treatment	247,110,337
Off-site Transfers for Further Waste Management	181,031,534
Recycling	99,562,436
Energy Recovery	28,241,990
Treatment	10,416,001
Publicly Owned Treatment Works (POTWs)	38,828,620
Disposal	3,887,380
Other Off-site Transfers	95,107

Top Five Chemicals for Total Releases

Chemical	Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Ammonia	1,121,080	1,758,075	0	0	2,879,155
Toluene	2,054,949	9,082	0	1,514	2,065,545
Acetone	1,639,769	517	0	0	1,640,286
Xylene (mixed isomers)	1,275,008	10,022	0	6	1,285,036
Methanol	1,064,290	7,772	0	0	1,072,062

Top Five Chemicals for Air/Water/Land Releases

Chemical	Air Emissions Pounds	Surface Water Discharges Pounds	Releases to Land Pounds	Total Releases Pounds
Ammonia	1,121,080	1,758,075	0	2,879,155
Toluene	2,054,949	9,082	1,514	2,065,545
Acetone	1,639,769	517	0	1,640,286
Xylene (mixed isomers)	1,275,008	10,022	6	1,285,036
Methanol	1,064,290	7,772	0	1,072,062

Figure 14. 1993 TRI Data Fact Sheet for New Jersey



1993 TOXICS RELEASE INVENTORY

NEW JERSEY

Top Ten Facilities for Total Releases

Facility	City, County	Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Du Pont	Deepwater, Salem	476,722	2,669,278	0	207,074	3,353,074
Ford Motor Co.	Edison, Middlesex	624,239	0	0	0	624,239
PMC Inc.	Kearny, Hudson	547,780	125	0	0	547,905
Exxon Bayway Chemical Plant	Linden, Union	489,129	23,502	0	0	512,631
Rona	Bayonne, Hudson	11,566	432,000	0	0	443,566
Du Pont Repauno Plant	Gibbstown, Gloucester	396,990	7,026	0	0	404,016
Permacel	North Brunswick, Middlesex	395,207	0	0	0	395,207
U.S. Pipe & Foundry Co.	Burlington, Burlington	89,569	0	0	286,652	376,221
Dri-Print Foils Inc.	Rahway, Union	347,073	0	0	0	347,073
Peerless Tube Co.	Bloomfield, Essex	343,692	0	0	0	343,692

Top Ten Facilities for Air/Water/Land Releases

Facility	City, County	Air Emissions Pounds	Surface Water Discharges Pounds	Releases to Land Pounds	Air/Water/Land Releases Pounds
Du Pont	Deepwater, Salem	476,722	2,669,278	207,074	3,353,074
Ford Motor Co.	Edison, Middlesex	624,239	0	0	624,239
PMC Inc.	Kearny, Hudson	547,780	125	0	547,905
Exxon Bayway Chemical Plant	Linden, Union	489,129	23,502	0	512,631
Rona	Bayonne, Hudson	11,566	432,000	0	443,566
Du Pont Repauno Plant	Gibbstown, Gloucester	396,990	7,026	0	404,016
Permacel	North Brunswick, Middlesex	395,207	0	0	395,207
U.S. Pipe & Foundry Co.	Burlington, Burlington	89,569	0	286,652	376,221
Dri-Print Foils Inc.	Rahway, Union	347,073	0	0	347,073
Peerless Tube Co.	Bloomfield, Essex	343,692	0	0	343,692

For More Information...

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To obtain TRI data use assistance,
call TRI User Support Service (TRI-US):

EPA Regional Contact:
(908) 906-6890

Nora Lopez
Fax (908) 321-6788

(202) 260-1531 Fax (202) 260-4659

Hercules, Inc. in Kenvil (Morris County) was the top-ranked facility for total releases and for air/water/land releases in 1992. However, it does not appear in these tables this year because its reporting forms were not received by EPA prior to publication of this report. According to the facility, its 1993 releases totalled 944,986 pounds (fugitive and stack air).

Table 24. 1993 TRI Data Fact Sheet for New Jersey

Top 10 New Jersey Facilities for On-Site Releases

Table 25. 1993 Reporting Year Comparison for New Jersey's Facilities Subject to Federal and State Release Reporting Requirements¹

USEPA Form R vs. NJ Release and Pollution Prevention Report (RPPR)
(releases and transfers are reported in pounds)

	1993 Form R	1993 RPPR
Number of Facilities	700	687
Number of Forms	2,575	2,718 ²
On-Site Releases	19,372,889	18,843,791
Stack Air Emissions	8,458,204	8,516,678
Fugitive Air Emissions	6,980,563	6,594,547
Surface Water Discharges	3,296,633	3,289,343
Groundwater Discharges ³	NA ⁴	11
Underground Injection ⁵	0 ⁶	NA
On-Site Land Disposal	637,489	443,212
Off-Site Transfers for Further Waste Management	181,031,534	201,310,710
POTW Discharges	38,828,620	38,944,562
Off-Site Recycling	99,562,436	117,376,992
Off-site Energy Recovery	28,241,990	24,760,258
Off-Site Treatment	10,416,001	14,337,487
Off-Site Disposal	3,887,380	5,406,336
Other Off-Site Transfers ⁷	95,107	485,075

Footnotes:

1. Observed differences are the result of: a) New Jersey's 10,000 pound manufacture, process, or otherwise use threshold; b) USEPA's inclusion of Form R submissions through early February 1995 and NJDEP's inclusion of RPPR submissions through March 1995; c) facilities failing to report all chemicals on the RPPR that were reported on the Form R; d) facilities failing to report on-site releases and off-site transfers on one form that were reported on the other; and other reasons addressed on pages 17 and 77-78 of this report.
2. The New Jersey threshold is 10,000 pounds for manufacture, process or otherwise use for all reportable substances once a facility meets the Form R reporting requirements; therefore, a facility may submit additional RPPRs beyond the number of Form Rs submitted.
3. This data element appears on the RPPR but not on the Form R.
4. "NA" means not applicable.
5. This data element appears on the Form R but not on the RPPR.
6. Underground injection is not a typical waste disposal method in New Jersey.
7. Transfers reported with no waste management codes or invalid codes.

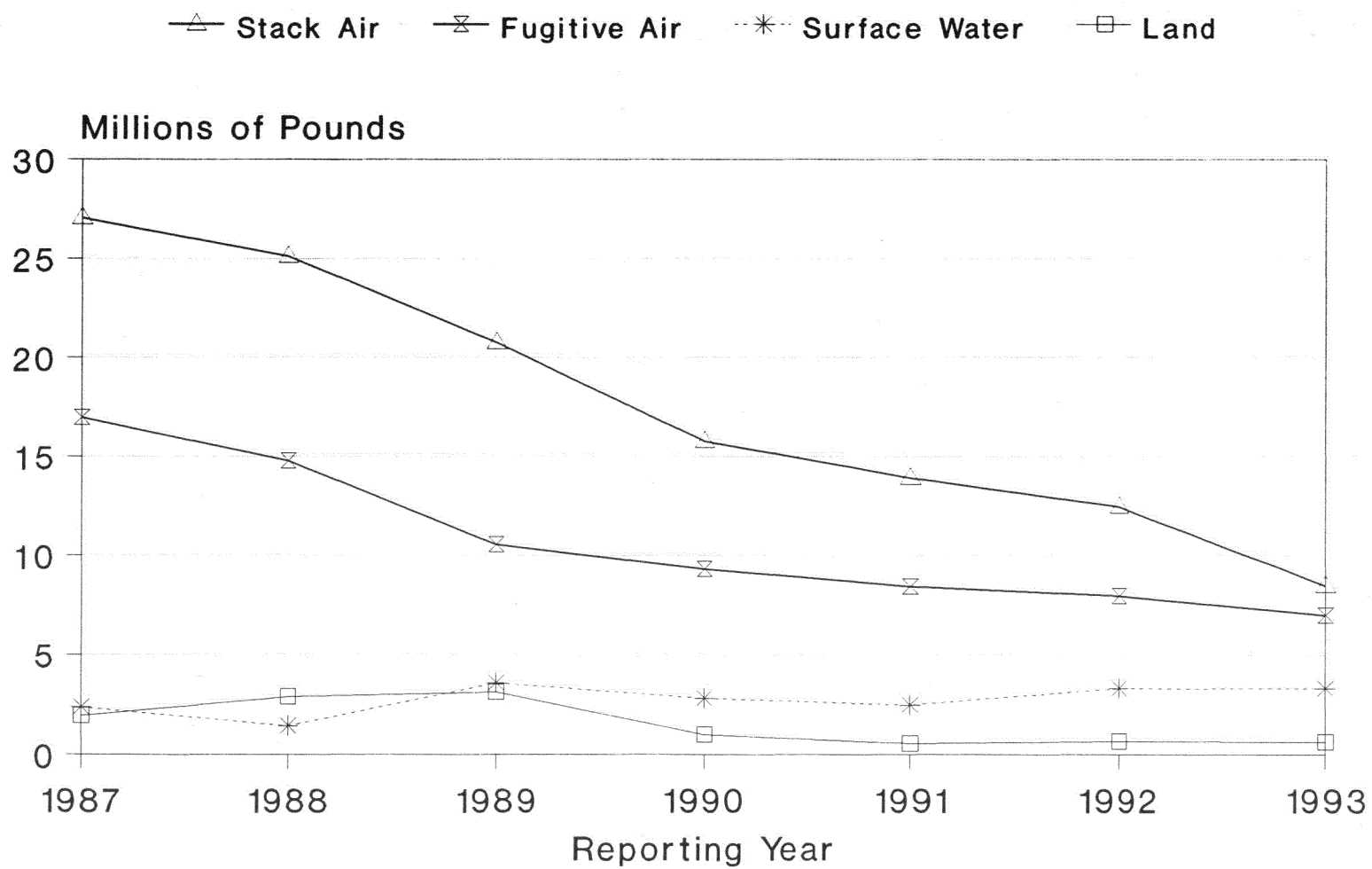


Figure 15. TRI On-Site Releases, 1987 - 1993

△ Off-Site Recycling

○ Energy Recovery

× POTW

◇ Treatment/Disposal

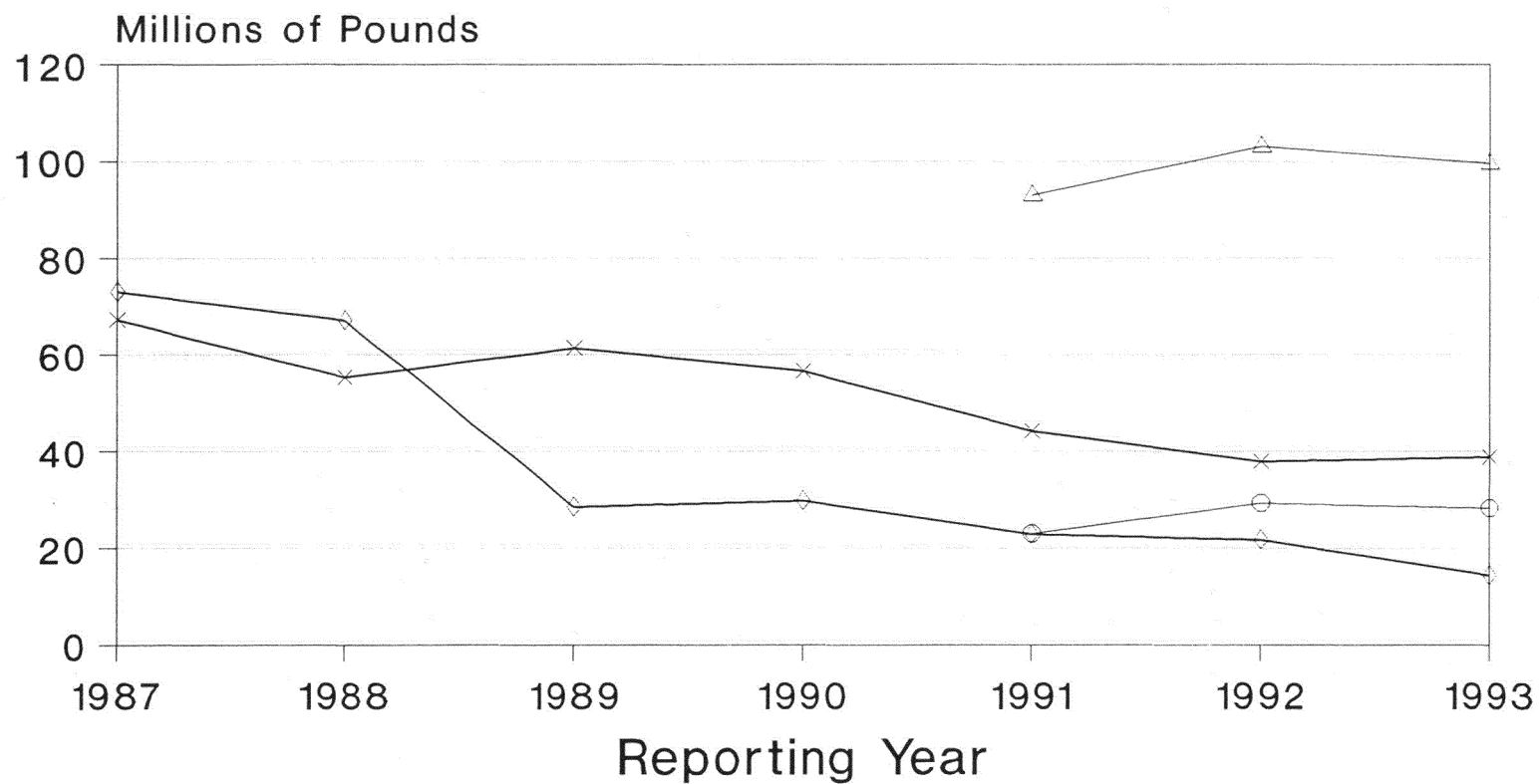


Figure 16. TRI POTW Discharges and Off-Site Transfers, 1987 - 1993

Appendix A

Standard Industrial Classification Codes: New Jersey Employer Groups And Activities Subject To Hazardous Substances Inventory Reporting

<u>SIC Code</u>	<u>ACTIVITY</u>
07	AGRICULTURAL SERVICES
0782	Lawn and Garden Services (only)
20 - 39	MANUFACTURING ESTABLISHMENTS (Entire Major Groups)
20	FOOD AND KINDRED PRODUCTS
21	TOBACCO MANUFACTURING
22	TEXTILE MILL PRODUCTS
23	APPAREL AND OTHER TEXTILE PRODUCTS
24	LUMBER AND WOOD PRODUCTS
25	FURNITURE AND FIXTURES
26	PAPER AND ALLIED PRODUCTS
27	PRINTING AND PUBLISHING
28	CHEMICALS AND ALLIED PRODUCTS
29	PETROLEUM AND COAL PRODUCTS
30	RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS
31	LEATHER AND LEATHER PRODUCTS
32	STONE, CLAY, AND GLASS PRODUCTS
33	PRIMARY METAL INDUSTRIES
34	FABRICATED METAL PRODUCTS
35	MACHINERY, EXCEPT ELECTRICAL
36	ELECTRICAL AND ELECTRONIC EQUIPMENT
37	TRANSPORTATION EQUIPMENT
38	INSTRUMENTS AND RELATED PRODUCTS
39	MISCELLANEOUS MANUFACTURING INDUSTRIES

Appendix A. Standard Industrial Classification Codes, continued

<u>SIC Code</u>	<u>ACTIVITY</u>
45	TRANSPORTATION BY AIR
4511	Certificated Air Transportation
(4512)	(Scheduled Air Transport) ¹
(4513)	(Air Courier Services) ¹
4582	Airports and Flying Fields
(4581)	(Airports, Flying Fields, & Airport Terminal Services) ¹
4583	Airport Terminal Services (see 4581) ¹
46	PIPELINES, EXCEPT NATURAL GAS (Entire Major Group)
47	TRANSPORTATION SERVICES
4712	Freight Forwarding
(4731)	(Arrangement of Transportation of Freight and Cargo) ¹
4742	Rental of Railroad Cars, with Care of Lading
(4741)	(Rental of Railroad Cars) ¹
4743	Rental of Railroad Cars, without Care of Lading (see 4741) ¹
4782	Inspection and Weighing
(4785)	(Fixed Facilities, Handling Motor Vehicle Transport, including Inspection and Weighing) ¹
4783	Packing and Crating
4784	Fixed Facilities, Handling Motor Vehicle Transport (see 4785) ¹
4789	Transport Services, n.e.c. ²
48	COMMUNICATIONS
4811	Telephone Communication (Radio or Wire)
(4812)	(Radiotelephone Communication) ¹
(4813)	(Telephone, except Radiotelephone) ¹
4821	Telegraph Communication (Radio or Wire)
(4822)	(Telegraph Communication (Radio or Wire)) ¹
49	ELECTRIC, GAS, AND SANITARY SERVICES (Entire Major Group)

Appendix A. Standard Industrial Classification Codes, continued

<u>SIC Code</u>	<u>ACTIVITY</u>
50	WHOLESALE TRADE - DURABLE GOODS
5085	Machinery, Equipment, and Supplies - Industrial
5087	Machinery, Equipment, and Supplies - Service Establishments
5093	Miscellaneous Durable Goods - Scraps and Waste
51	WHOLESALE TRADE - NONDURABLE GOODS
5122	Drugs, Drug Proprietaries, and Druggists' Sundries
5161	Chemicals and Allied Products
(5162)	(Plastics Materials, Basic Forms and Shapes) ¹
(5169)	(Chemicals and Allied Products, n.e.c.) ^{1,2}
5171	Petroleum Bulk Stations and Terminals
5172	Petroleum and Petroleum Product Wholesalers, except Bulk Stations and Terminals
5181	Beer and Ale
5182	Wines and Distilled Alcoholic Beverages
5191	Farm Supplies
5192	Books, Periodicals, and Newspapers
5193	Flowers, Nursery Stock and Florists Supplies
5194	Tobacco and Tobacco Products
5198	Paints, Varnishes, and Supplies
5199	Nondurable Goods, n.e.c. ²
55	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS
5511	Motor Vehicle Dealers (New and Used)
5521	Motor Vehicle Dealers (Used only)
5541	Gasoline Service Stations - Retail
72	PERSONAL SERVICES
7216	Dry Cleaning Plants, except Rug Cleaning
7217	Carpet and Upholstery Cleaning
7218	Industrial Launderers
73	BUSINESS SERVICES
7397	Commercial Testing Labs
(8734)	(Testing Labs)

Appendix A. Standard Industrial Classification Codes, continued

<u>SIC Code</u>	<u>ACTIVITY</u>
75	AUTOMOTIVE REPAIR, SERVICES, AND GARAGES
7531	Top and Body Repair
(7532)	(Top, Body, and Upholstery Repair, and Paint) ¹
7533	Automotive Exhaust System Repair
7534	Tire Retreading and Repair
7535	Paint (see 7532) ¹
7536	Automotive Glass Replacement
7537	Automotive Transmission Repair
7538	General Automotive Repair
7539	Automotive Repair, n.e.c. ²
76	MISCELLANEOUS REPAIR
7692	Welding Repair
80	HEALTH SERVICES
8062	General Medical and Surgical Hospitals ³
8063	Psychiatric Hospitals ³
8069	Specialty Hospitals, except Psychiatric ³
82	EDUCATIONAL SERVICES
8211	Elementary and Secondary Schools ³
8221	Colleges, Universities, and Professional Schools ³
8222	Junior Colleges and Technical Institutes ³
8249	Vocational Schools, except Vocational Schools n.e.c. ^{2,3}
91 - 96	PUBLIC ADMINISTRATION
	All State, County, and Local Governments ³

1. Activity as currently described, "Standard Industrial Classification Manual, Revised," (PB87-100012), National Technical Information Service, Springfield, VA, 1987.
2. n.e.c. means "not elsewhere classified."
3. Public sector employers receive the Right to Know Survey from the NJ Department of Health (NJDOH). It combines the hazardous substances inventory reporting requirements of both NJDEP and NJDOH.

Appendix B

COMMUNITY RIGHT TO KNOW INFORMATION REQUEST FORM

Name _____

Address _____

Phone _____

Date _____

NJ Department of Environmental Protection
Bureau of Chemical Release Information and Prevention
Community Right to Know Program
CN 405
Trenton, NJ 08625-0405

Attention: Bureau Chief

I am interested in obtaining the information listed below. I understand that there are photocopy or computer fees for producing certain types of reports. I further understand that I will be notified of charges exceeding \$20.00 before the reports are sent.

I have checked off the types of information I am interested in.

___ 1. Facility Information

Please send me the hazardous substances inventory and TRI data for ...

FACILITY NAME: _____

ADDRESS: _____

CITY: _____ COUNTY: _____

___ 2. Municipality Information

Please send me a list of the names of all facilities subject to the Community Right to Know reporting requirements and located in ...

(Municipality) _____ (County) _____

I am interested in the above information because (check all that apply):

___ I am a local official interested in planning.

___ I am an emergency responder interested in being better prepared for hazardous materials incidents in my community.

___ I am a citizen who wishes to be more aware about hazardous substances stored and/or released in my community.

___ Other: _____

Sincerely,

Appendix C

Toxic Chemicals Reference Sheet Common Uses of Toxic Chemicals and Their Potential Hazards.

The following is presented as a quick-reference summary of information for the toxic chemicals presented in Tables 6 through 17 as "Largest Total Quantities." It is not a detailed discussion on the uses of and/or potential hazards posed by the chemicals. The reader should consult chemical or toxicology reference materials when there is interest in knowing more about any or all of the substances presented in this report. The New Jersey Department of Health - Right to Know Program has prepared a series of "Hazardous Substance Fact Sheets" for most of the following toxic chemicals as well as a large number of others. These fact sheets are available through the NJ Department of Health, Right to Know Program, CN-368, Trenton, NJ 08625-0368.

Acetone: In paints, varnishes and lacquers; solvent for cements in the leather and rubber industries. Hazard: flammable; moderately toxic if inhaled; can irritate eyes, nose and throat.

Aluminum (fume or dust): Used as a powder in paints and protective coatings, as a catalyst and in rocket fuel. Hazard: fine powders form flammable and explosive mixtures in air and with oxidants; moderately flammable/explosive by heat, flame or chemical reaction with powerful oxidizers.

Aluminum Oxide: Used in production of aluminum, abrasives, paint, ceramics, electrical insulators, catalysts and light bulbs. Hazard: dust toxic by inhalation.

Ammonia: Used in making fertilizers, explosives, plastics, dyes and textiles. Hazard: moderately flammable; inhalation may irritate lungs; can irritate eyes, nose, mouth and throat; exposure to concentrated fumes can be fatal.

Ammonium nitrate: Used in making fertilizers, herbicides, insecticides and explosives. Hazard: powerful oxidizer and allergen, flammable by spontaneous chemical reaction; can explode under confinement and high temperature.

Ammonium sulfate (solution): In fertilizers, water treatment, fire proofing and rayon. Hazard: moderately toxic by several routes; can be toxic if swallowed.

Antimony and compounds: Used in manufacture of alloys, enamels, rubber compounds, matches, fireworks; catalysts; a mordant in the dyeing and printing of fabrics or leather. Hazard: toxic as a fume or dust; most compounds are poisons by ingestion, inhalation and intraperitoneal (injection) routes; can irritate eyes, nose, throat and skin.

Barium and compounds: In vacuum and X-ray tubes and spark plugs. Hazard: powder is flammable at room temperature; can irritate eyes, nose and throat.

Benzyl chloride: Used in dyes, intermediates, pharmaceuticals, synthetic tannins and photographic developers. Hazard: intensely irritating to eyes and skin; poison by inhalation; moderately toxic by ingestion and subcutaneous routes.

Appendix C. Toxic Chemicals Reference Sheet, continued

n-Butyl alcohol: Solvent for fats, resins, waxes, gums, shellac and varnish; also in manufacture of rayon, lacquers, detergents and hydraulic fluids. Hazard: flammable; toxic by prolonged inhalation; can irritate eyes, nose, throat and skin.

Butyl benzyl phthalate: Organic intermediate, used as a plasticizer for polyvinyl and cellulose resins. Hazard: a skin, eye, nose and throat irritant; moderately toxic by ingestion and intraperitoneal routes.

Chlorine: Widely used ingredient in disinfectants, cleaners and other chemicals; in waste water treatment; and in publicly owned treatment works. Hazard: extremely poisonous; moderately toxic and very irritating by inhalation; can cause respiratory problems in small doses.

Chloromethane: Used in low temperature polymerization, a refrigerant, methylating agent in organic synthesis, herbicide. Hazard: mildly toxic by inhalation; dangerous fire hazard when exposed to heat, flame or powerful oxidizers.

Chromium and compounds: Used in alloying and as a plating element on metal and plastic substrates for corrosion resistance. Hazard: irritating and corrosive effect on tissue; chromium is a human poison and the powder explodes spontaneously in air. Hexavalent compounds are more toxic than the trivalent compounds.

Copper and compounds: Used in electrical wiring, plumbing, compounds used in fungicides, pesticides, electroplating, paint pigments and catalysts. Hazard: irritants; some compounds highly toxic; degree of toxicity dependent on compound, exposure and method of entry into the body.

Cumene: Used in chemical synthesis; a solvent. Hazard: flammable; moderately toxic by ingestion, mildly toxic by inhalation and skin contact; eye and skin irritant; narcotic in high concentrations.

Dichlorobenzenes: Solvents used in dry cleaning, as a degreasing agent, used in production of fumigants, insecticides and dyes. Hazard: skin, eye, throat and lung irritants; moderately toxic by inhalation; inhalation may cause headaches and nausea; emits toxic fumes when heated to decomposition; experimental mutagenic, carcinogenic and teratogenic data.

Dichloromethane: Industrial solvent and paint stripper; in aerosol and pesticide products; used in photographic film production, and in food, furniture and plastics processing. Hazard: carcinogen; lung irritant; inhalation can cause headaches, fatigue and "drunk behavior."

Dichlorotetrafluoroethane: Used as a solvent, refrigerant and air conditioner and in fire extinguishers. Hazard: Moderately toxic by inhalation; irritant; an asphyxiant.

Dinitrobenzene (m & p isomers): Used in organic synthesis, dyes. Hazard: poison by ingestion, emits toxic fumes when heated to decomposition.

Ethylene glycol: In anti-freeze, paints, laminates, auto brake fluids, ink, tobacco and wood stains, and used to de-ice aircraft wings. Hazard: teratogen; highly toxic by ingestion or inhalation.

Appendix C. Toxic Chemicals Reference Sheet, continued

Ethyl benzene: A solvent, intermediate in the production of styrene. Hazard: moderately toxic by inhalation and intraperitoneal routes; an eye and skin irritant.

Glycol ethers: Solvents. Hazard: toxic by inhalation, ingestion or skin absorption; irritating to eyes, nose, throat and skin.

Hydrochloric acid: Metal cleaning and pickling, food processing and general cleaners. Hazard: very corrosive, toxic by ingestion or inhalation; can irritate the mouth, nose and throat.

Lead and compounds: In batteries, gasoline additives, ammunition, piping and radiation shielding. Hazard: poison by ingestion; can cause brain damage, particularly in children; suspected carcinogen of the lungs and kidneys.

Manganese and compounds: In aluminum production, steel making, metal purification and dry cell batteries. Compounds used for varnishes, fertilizers, food additives. Hazard: manganese dust is flammable and moderately explosive; toxic by inhalation.

Methanol: Solvent, cleaner and fuel. Hazard: highly flammable; ingestion can cause blindness; mildly toxic by inhalation.

Methyl ethyl ketone: Solvent in making plastics, textiles, paint and paint removers and adhesives. Hazard: flammable, explosive; toxic by inhalation; a strong irritant; moderately toxic by ingestion.

Methyl isobutyl ketone: Solvent for paints, varnishes, nitrocellulose lacquers, gums and resins. Hazard: flammable; poison by intraperitoneal route; moderately toxic by ingestion; mildly toxic by inhalation; very irritating to skin, eyes and mucous membranes; narcotic in high concentrations; dangerous fire hazard when exposed to heat, flame or oxidizers.

Nickel and compounds: Used in alloying and electroplating, catalysts, dyes and textile printing. Hazard: nickel and many of its compounds are poisons and carcinogens.

Nitric acid: Used in making fertilizers, dyes, explosives, metallurgy and etching steel. Hazard: corrosive; powerful oxidizer; flammable by chemical reaction with reducing agents; produces toxic fumes when heated to decomposition; corrosive to eyes, skin, mucous membranes and teeth; experimental teratogen; human poison; delayed pulmonary edema.

Phenol: Widely used for disinfectants, pharmaceuticals and paints; also used to refine lubricating oils. Hazard: mutagen; human poison by ingestion; toxic if inhaled or through skin contact; a severe eye and skin irritant.

Propylene: Used in the production of fabricated polymers, fibers, solvents, resins and plastic products. Hazard: highly flammable; an asphyxiant.

Styrene: Used in the manufacture of polystyrene and resins, protective coatings, plastics, synthetic rubber and as an insulator. Hazard: toxic by ingestion and inhalation; can react vigorously with oxidizing agents; emits acrid smoke and irritating fumes when heated to decomposition.

Appendix C. Toxic Chemicals Reference Sheet, continued

Sulfuric acid: In fertilizers, chemicals, dyes, rayon and film; widely used by the metals industry. Hazard: moderately toxic by ingestion; a severe eye irritant; extremely irritating, corrosive and toxic to tissue.

Toluene: Solvent for perfumes, medicines, dyes, explosives, detergents, aviation gasoline and other chemicals. Hazard: highly flammable and explosive; toxic by ingestion, inhalation, skin contact.

1,1,1-Trichloroethane: Solvent for cleaning precision instruments; also in pesticides and textiles. Hazard: suspected carcinogen; irritating to eyes and skin; moderately toxic by ingestion, inhalation and skin contact.

Trichloroethylene: For cleaning electronic parts and diluting paints; also used in degreasers and fumigants; aerospace industries use it to flush liquid oxygen. Hazard: carcinogen; mildly toxic by ingestion and inhalation.

1,2,4-Trimethylbenzene: Used in the manufacture of dyes and pharmaceuticals. Hazard: moderately toxic by intraperitoneal route; mildly toxic by inhalation; can cause central nervous system depression, anemia and bronchitis; flammable when exposed to heat, flame or oxidizers.

Xylenes: Used as solvents and in making drugs, dyes, insecticides and gasoline. Hazard: flammable; mildly toxic by ingestion and inhalation.

Zinc and compounds: Used as a coating on iron and steel, in making brass metal alloys, car parts, electroplating, batteries, electrical products, paints and fungicides. Hazard: zinc dust is flammable and a human skin irritant.

References:

Hawley, Gessner G., editor, The Condensed Chemical Dictionary, Tenth Edition, Van Nostrand Reinhold Company, New York, NY, 1981.

New Jersey Department of Health, Right to Know Program, Hazardous Substance Fact Sheets, Trenton, NJ.

Sax, N. Irving, and Richard J. Lewis, Sr., editors, Dangerous Properties of Industrial Materials, Seventh Edition, Van Nostrand Reinhold Company, New York, NY, 1989.

Windholz, Martha, et al., editors, The Merck Index, Ninth Edition, Merck & Co., Inc., Rahway, New Jersey, 1976.

Glossary of Acronyms and Terms used in the Annual Report

Carcinogen	Able to produce malignant tumor growth. Operationally, most benign tumors are usually included also.
CAS	Chemical Abstracts Service
CRTK	Community Right to Know
DEQ-094	Community Right to Know Survey
DEQ-114	Release and Pollution Prevention Report
EHS	Environmental Hazardous Substance
EPCRA	Emergency Planning and Community Right to Know Act of 1986 (also known as Title III of SARA)
FORM R	Toxic Chemical Release Inventory Reporting Form, USEPA
FTS	Facility Tracking System
Intraperitoneal	Within the membrane surrounding the organs of the abdominal cavity; refers to injection.
LEPC	Local Emergency Planning Committee
Mutagen	Able to cause a permanent change in the structure of DNA.
NJDEP	New Jersey Department of Environmental Protection
NJDOH	New Jersey Department of Health
NJEIN	New Jersey Employer Identification Number
POTW	Publicly Owned Treatment Works
RPPR	Release and Pollution Prevention Report
RQ	Reportable Quantity
RTKPAS	Right To Know Public Access System
SARA	Superfund Amendments and Reauthorization Act of 1986
SIC	Standard Industrial Classification
Teratogen	Able to cause structural or functional defects during the development of an organism.
Title III	Emergency Planning and Community Right to Know Act of 1986
TPQ	Threshold Planning Quantity
TRI	Toxic Chemical Release Inventory
USEPA	United States Environmental Protection Agency
W&CRTK	Worker and Community Right to Know

*New Jersey Department of Environmental Protection
Bureau of Chemical Release Information and Prevention
CN - 405
Trenton, New Jersey 08625-0405*
