new jersey department of environmental protection

INDUSTRIAL POLLUTION PREVENTION IN NEW JERSEY:

A Trends Analysis of Materials Accounting Data From 1994 to 2001

and

An Annual Report for 2001

Spring 2004

New Jersey Department of Environmental Protection
Bradley M. Campbell, Commissioner

FORWARD

To all residents of New Jersey:

I am pleased to provide you this report on hazardous substances and how they are used and managed in communities throughout the state of New Jersey. This report represents a significant achievement in Governor McGreevey's environmental agenda as it has been over seven years since the New Jersey Department of Environmental Protection (NJDEP) provided a detailed accounting of the progress that facilities are making to reduce potential risks posed by these chemicals.

As an original sponsor of the New Jersey Pollution Prevention Act, Governor McGreevey is a strong proponent for the public's Right to Know about what chemicals are being used and released in their community and the measures being taken to protect their health and the environment. This report is one step forward in providing information to the public and I look forward to a continuing dialogue to improve the information we provide to help people in New Jersey understand chemicals in their communities.

In addition to making information accessible to the public, the NJDEP has an obligation to use this information to design and implement effective policies to protect human health and the environment. In this information age, the NJDEP, like many businesses in the private sector, is working to make the most out of our information resources. Preparing this report, and more importantly using this information, is part of a broader strategy at the NJDEP to use information wisely and target our resources to focus on the most pressing problems in the state.

For example, in 2002, NJDEP's enforcement office targeted a facility in Newark because it was the state's largest emitter of hydrazine, a carcinogenic air pollutant. The facility chose to shut down its operations later that same year. Additionally NJDEP targeted the top twenty-five facilities releasing toxic substances. One result was the investigation of all boat manufacturers that utilize styrene, another carcinogen. Based on these efforts the industry plans to reformulate to reduce the styrene emissions.

In 2003, partly driven by the top twenty-five list and in conjunction with the Environmental Protection Agency (EPA), the NJDEP re-energized its refinery enforcement initiative. Through this project the NJDEP investigated and ultimately reached a settlement with the Coastal Eagle Point Oil Refinery. The settlement will result in significant reductions in volatile organic compound emissions from the facility, primarily benzene, which is also a toxic substance and carcinogen. Efforts are ongoing at three other New Jersey refineries and other facilities continue to be investigated as part of the analysis of the top twenty-five toxic emitting facilities.

Over the past two years, NJDEP has conducted two geographic enforcement sweeps in Camden and Paterson, urban areas of our state where residents were concerned about the impact of various industrial facilities on their children. These initiatives employed the use of information never before available to the NJDEP. New data was used to guide

both the selection of these locations and the targeting of facilities and business sectors within these municipalities. As early projects to employ newly available data, they will serve as springboards to continuing improvement in the collection, management and application of data to direct the effective use of our resources.

Under the leadership of Governor McGreevey we will be expanding upon these efforts to begin addressing even more challenging initiatives with themes such as: identifying and protecting at-risk populations; linking data on environmental exposures to adverse health outcomes; evaluating both individual and cumulative risks; measuring outcomes and looking for trends; balancing enforcement and assistance; and maximizing resources by applying them to our most critical environmental needs.

The NJDEP is committed to working with community members to keep the public informed of our progress on these important initiatives. We are also committed to sharing and using information in increasingly effective ways to better serve the environment and our citizens. This report is an important part of honoring these commitments.

Bradley M. Campbell
Commissioner

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Executive Summary

Purpose and Scope of the Report

Industrial facilities in New Jersey use hazardous substances in their day to day manufacturing operations that produce the products and services needed to keep the state's economy growing. While hazardous substances play a vital role for these facilities and the state, they can also pose potential risks to workers, the general public, and the environment if they are not properly managed. People living and working in communities across the state have a right to know how facilities manage these chemicals because an informed community can provide meaningful input in developing ways to reduce potential risks posed by these chemicals.

The purpose of this report is to provide public information on the use, generation, and release of hazardous substances in New Jersey. The report uses data submitted by facilities from 1994 to 2001 and evaluates changes in hazardous substance trends that occurred during this period. In the last trends analysis published by the New Jersey Department of Environmental Protection (NJDEP) in 1996, the NJDEP found that facilities decreased Nonproduct Output (NPO) by at least 50% between 1987 and 1994, which was the statewide policy goal in the Pollution Prevention Act (P2 Act). This report covers the next seven years to determine if these reductions have continued and where these reductions occurred. Data evaluated in the report is submitted by facilities under the Worker and Community Right to Know (W&CRTK) Act and P2 Act. The report reviews statewide trends for total hazardous substances and looks at specific chemicals and facilities to determine how they changed through time.

This report also includes a detailed evaluation and data release for calendar year 2001. This single-year evaluation provides the most current data available on the use, generation, and release of hazardous substances. The data release includes over 200 tables and charts on the various ways facilities used and managed their hazardous substances. This report summarizes some of the essential data for 2001, but the entire data release is available in various formats by contacting NJDEP.

The NJDEP encourages facility staff and members of the public to review and ask questions concerning the data and analyses presented in this report. In the future, we plan to publish additional reports on a more frequent schedule and feedback from diverse stakeholders will help improve our ability to provide information to the public.

Summary of Methods

Data submitted by facilities under the W&CRTK Act, normally referred to as facility-level "materials accounting data," provides a complete view of hazardous substances as they flow through communities and facilities' manufacturing operations. This unique information, which is submitted only in the state of New Jersey, provides insight into pollution prevention accomplishments that cannot be seen by analyzing other data such as the federal Toxic Chemical Release Inventory (TRI). For materials accounting, facilities report approximately 20 different quantities that make up a complete accounting of their hazardous substances. Data is reported

annually in pounds to the NJDEP on a form known as the "Release and Pollution Prevention Report" (RPPR). This report focuses on three (3) separate quantities reported on the RPPR to assess statewide trends. These include:

Use:	Use is the quantity of hazardous substances processed at the facility. Use is not directly reported in materials accounting data. It is calculated by adding together three quantities that are reported: the quantity consumed, shipped as (or in) product, and NPO.
Nonproduct Output (NPO):	NPO is the quantity of the reported substance that was generated prior to storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use as a product. NPO is calculated by adding on-site releases, managed on-site and off-site transfers.
On-site Releases:	On-site releases include those quantities of hazardous substances that were released as stack emissions and fugitive air emissions, discharged to surface waters and ground waters, and on-site land disposal.

This report evaluates trends for all hazardous substances required to be reported on the RPPR and tracks three separate groups of "chemicals of concern." These three groups include: Carcinogens; Persistent, Bioaccumulative, Toxic (PBT) substances; and Extraordinarily Hazardous Substances (EHS). These chemicals pose significant risks to human health and the environment and tracking these substances separately helps keep the public informed of the trends for these important chemicals.

Due to changes in reporting requirements over the years, the report evaluates different "universes" of facilities to ensure that decreases or increases from year to year reflect actual changes at facilities, not just changes in the reporting requirements. The primary or "Core" universe is used as the best measure of statewide trends and is based on a subset of chemicals from the original, regulated Standard Industrial Classification (SIC) codes. This report summarizes data for the Core facilities that were required to report each year between 1994 and 2001. This Core universe captures a minimum of 80% of the total facilities that report each year.

One of the goals of this report is to determine if reductions are due to pollution prevention and to do that, impacts from changes in economic activity must be considered. To estimate impacts from changes in economic activity, the report quantifies Use, NPO and releases using two different metrics. The first tracks the sum of the "unadjusted" data as it is reported by the facilities. The second uses a Production/Activity Index to adjust the reported quantities for changes in production. Tracking both quantities presents a more complete picture for hazardous substance trends. The unadjusted quantities are needed to address concerns of potential risks and exposure from hazardous chemicals in communities regardless of production levels at the facilities. The adjusted quantities are useful for assessing if changes are due to increases or decreases in production, or whether they are more likely attributed to improvements in efficiency and pollution prevention.

Overview of Findings

Overall, New Jersey facilities have achieved substantial reductions statewide for NPO and releases of hazardous substances. The most notable finding from assessing trends for hazardous substances statewide is that facilities substantially decreased hazardous substances generated as NPO and released into the environment. Although production levels increased by 10%, facilities decreased their NPO generation by 26% and releases decreased by 58%.

When the quantities are adjusted for production, reductions grow to 33% for NPO and 62% for releases. This means that facilities achieved statewide reductions by improving efficiency and implementing pollution prevention measures.

Overall, New Jersey facilities have made less progress reducing the Use of hazardous substances compared to NPO and release. Facilities actually increased the Use of hazardous substances by 8%, using unadjusted quantities. However, when you adjust the quantities for production, Use decreased by 2%. This means that facilities are using substances more efficiently, but increases in production are outpacing this efficiency improvement to drive total Use up.

Increases in Use of hazardous substances are caused by increases in chemicals shipped as (or in) product. The lack of progress for reducing hazardous substance Use is due to the fact that Use is dominated by the quantity of chemicals shipped as (or in) product. In 2001, hazardous substances shipped as (or in) product accounted for 87% of all hazardous substance Use. Between 1994 and 2001 hazardous substances shipped as (or in) product increased by 15% using unadjusted quantities and increased by 4% using adjusted quantities and is the only component of use that increased using adjusted and unadjusted quantities during the period. Industries such as petroleum refineries and metal fabrication account for over 90% of the quantities in products. These types of facilities have limited options for reducing Use compared to other types of industries.

Statewide trends are often driven by changes at a few large facilities. This is particularly true for hazardous substance Use, which is dominated by petroleum refineries, metal manufacturers, and a few large plastics and chemical manufacturers. Increases in Use by the top 10 facilities mask decreases in Use achieved by all other facilities combined. If the top 10 facilities were excluded from the analysis, statewide Use would show a decrease of 10% instead of the 8% increase.

Reductions in releases, on the other hand, are more often attributed to the combined actions of several smaller facilities. Changes by the top 10 facilities account for approximately 46% of the statewide release reductions. This means that the remaining universe of facilities has contributed more to statewide release reductions than the top 10 facilities.

Even though there is a clear downward trend statewide, there are instances where increases are taking place. Of the 197 "core" chemicals tracked, the following trends were seen:

- 32% (63 chemicals) increased in Use,
- 34% (67 chemicals) increased in NPO; and
- 22% (43 chemicals) increased in On-site Releases.

An analysis of specific facilities shows a similar distribution of increases. This analysis shows that 24%, 23% and 16% of facilities reported increases in Use, NPO and releases respectively for unadjusted quantities. While decreases have outpaced these increases to drive the overall statewide trends downward, it is important to understand where these increases are taking place and whether they create potential localized impacts to human health and the environment.

Statewide Trends

Findings on Hazardous Substance Use

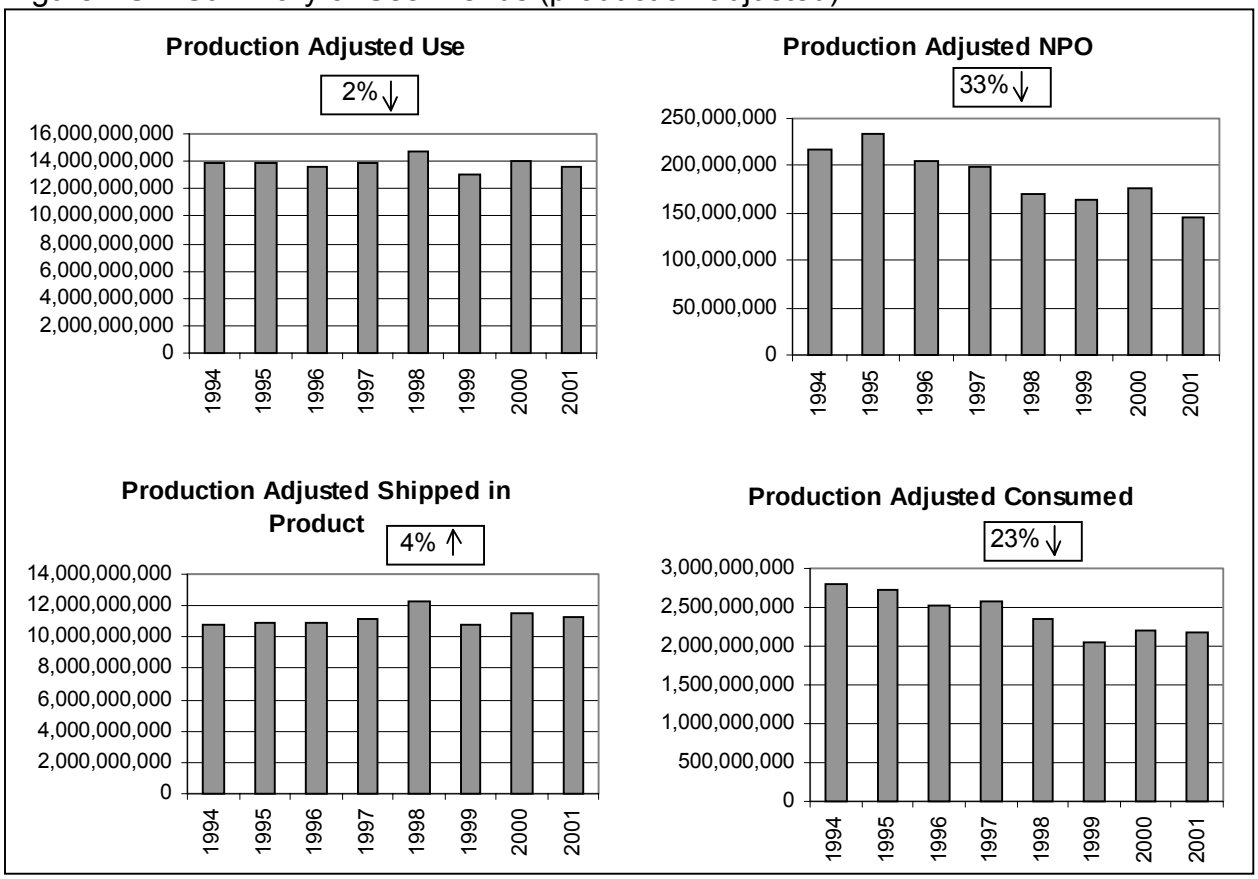
Use of hazardous substances decreased by 2% or 227 million pounds from 1994 to 2001 when adjusted for production (see Table ES1). This trend shows that the quantities Used increased at a slow rate between 1994 and 1997, but saw its biggest increase in 1998 (see Figure ES1). Quantities decreased in 1999, then Use increased in 2000 and decreased in 2001. The biggest decrease occurred between 2000 and 2001. If unadjusted quantities are used, Use actually increased by 8%. This means that facilities are using substances more efficiently, but that increases in production are outpacing these efficiency gains.

Trends for Use of hazardous substances are dominated by the quantity of these substances shipped as (or in) product. In 2001, hazardous substances shipped in products accounted for 87% of the total Use of hazardous substances. The quantity of hazardous substances shipped in product increased using both unadjusted and adjusted quantities.

Table ES1. Summary of Statewide Use Trends

	USE		Nonproduct Output		Shipped in/as Product		Consumed		Weighted Production Index	
Year	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	Yearly	Cumu-lative
1994	13,824,248,003	13,824,248,003	217,888,932	217,888,932	10,797,827,924	10,797,827,924	2,808,531,147	2,808,531,147	1.00	1.00
1995	13,912,432,280	14,635,878,759	234,629,257	246,829,978	10,950,895,804	11,520,342,386	2,726,907,220	2,868,706,395	1.05	1.05
1996	13,583,697,063	15,261,772,663	204,113,465	229,328,826	10,858,465,089	12,199,876,432	2,521,118,509	2,832,567,405	1.07	1.12
1997	13,929,267,302	15,728,283,434	198,860,752	224,544,350	11,152,069,754	12,592,400,602	2,578,336,796	2,911,338,482	1.01	1.13
1998	14,751,666,831	17,989,450,799	170,570,751	208,008,639	12,226,122,998	14,909,585,517	2,354,973,082	2,871,856,643	1.08	1.22
1999	12,994,103,799	15,592,589,296	163,793,596	196,548,089	10,784,721,167	12,941,387,142	2,045,589,037	2,454,654,066	0.98	1.20
2000	13,957,313,926	15,944,492,599	175,981,389	201,036,816	11,575,371,315	13,223,419,868	2,205,961,222	2,520,035,916	0.95	1.14
2001	13,597,144,743	14,911,722,405	146,205,649	160,340,872	11,277,406,658	12,367,711,068	2,173,532,438	2,383,670,466	0.96	1.10
Total Change	-227,103,260	1,087,474,402	-71,683,283	-57,548,060	479,578,734	1,569,883,144	-634,998,709	-424,860,681	10% increase	
Percent Change	2% reduction	8% increase	33% reduction	26% reduction	4% increase	15% increase	23% reduction	15% reduction		

Figure ES1. Summary of Use Trends (production adjusted)



Findings on NPO Generation

The generation of NPO decreased by 33% or 71.7 million pounds when adjusted for production (see Table ES2). This is the biggest percent reduction of the three components of Use tracked in this report. Reductions were driven by decreases in both on-site management and off-site transfers of hazardous substances (see Figure ES2).

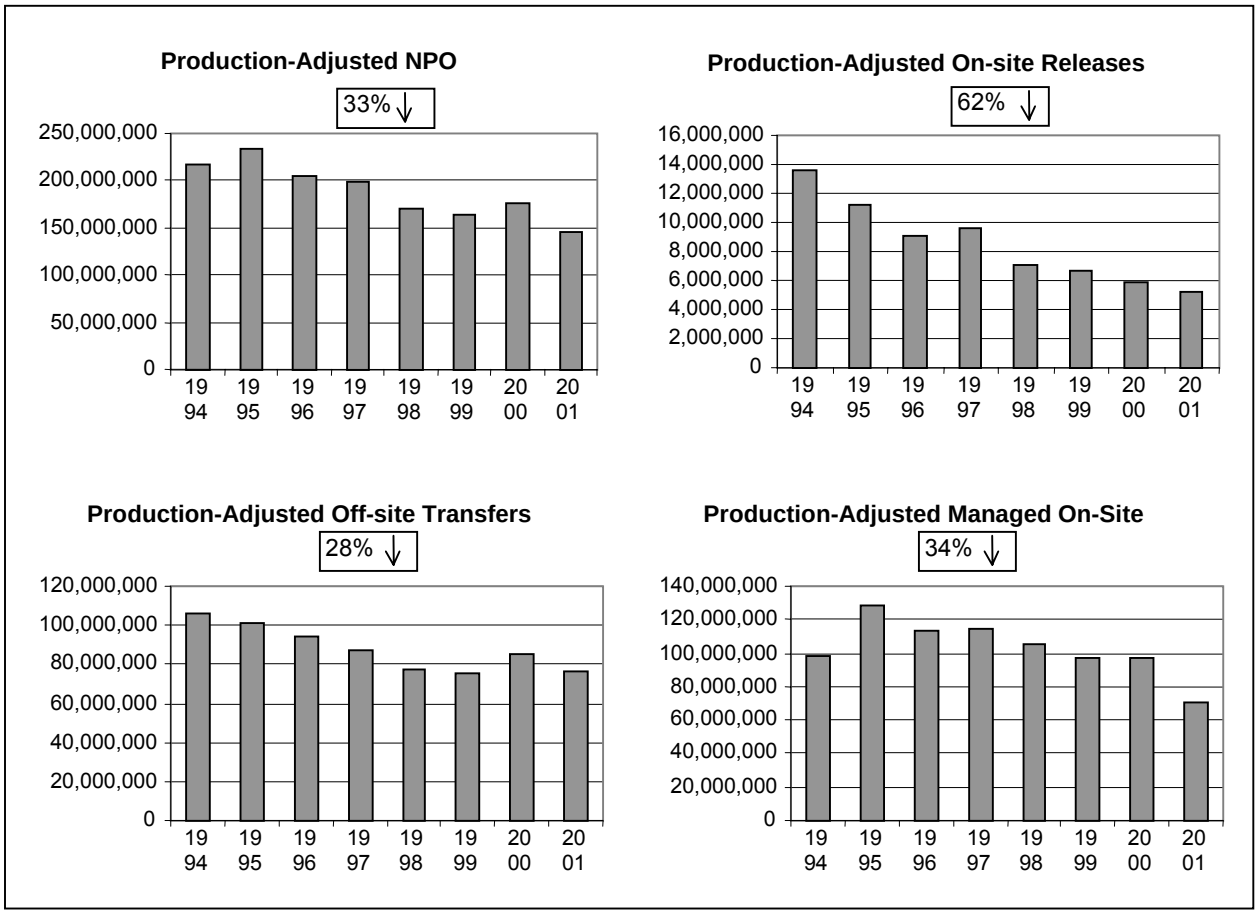
NPO decreased by 26% using unadjusted quantities. For comparison, we estimated national reductions for the same period as reported on the federal Toxic Chemical Release Inventory (TRI).[1] Reductions for total production-related waste (the TRI tern for NPO) nationally are estimated to be 6% between 1994 and 2001 using unadjusted quantities. These data show that reductions in New Jersey exceeded the national average.

[1] This comparison was done by downloading data from USEPA's TRI explorer web site using the 1991 core chemicals and original industries filters.

Table ES2. Summary of Statewide NPO Trends

	Nonproduct Output		On-site Releases		Off-Site Transfers		Managed On-Site	
Year	NPO (Adjusted)	NPO	On-site Releases (Adjusted)	On-site Releases	Off-Site Transfers (Adjusted)	Off-Site Transfers	Managed On-Site (Adjusted)	Managed On-Site
1994	217,888,932	217,888,932	13,659,206	13,659,206	106,055,181	106,055,181	98,174,545	98,174,545
1995	234,629,257	246,829,978	11,235,382	11,819,622	101,416,374	106,690,025	121,977,501	128,320,331
1996	204,113,465	229,328,826	9,049,432	10,167,363	94,635,652	106,326,562	100,428,381	112,834,901
1997	198,860,752	224,544,350	9,651,815	10,898,382	87,568,937	98,878,788	101,640,000	114,767,180
1998	170,570,751	208,008,639	7,099,577	8,657,834	77,237,168	94,189,643	86,234,007	105,161,162
1999	163,793,596	196,548,089	6,713,684	8,056,247	75,767,613	90,919,181	81,312,299	97,572,661
2000	175,981,389	201,036,816	5,923,341	6,766,679	85,306,036	97,451,520	84,752,011	96,818,616
2001	146,205,649	160,340,872	5,193,272	5,695,360	76,275,429	83,649,769	64,736,948	70,995,743
Total Change	-71,683,283	-57,548,060	-8,465,934	-7,963,846	-29,779,752	-22,405,412	-33,437,597	-27,178,802
Percent Change	33% reduction	26% reduction	62% reduction	58% reduction	28% reduction	21% reduction	34% reduction	28% reduction

Figure ES2. Summary of NPO Trends (production adjusted)



Findings on On-site Releases

In Table ES3 we see On-site Releases decreased by 62% or 8.5 million pounds when adjusted for production. Stack air emissions are the biggest component of on-site releases accounting for 65% of on-site releases in 2001. Stack air emissions decreased by 56% or 3.9 million pounds. Surface water discharges, though much smaller in magnitude compared to air emissions, increased during the period 1994-2001, with quantities going significantly against the statewide reduction trends. Surface water discharges increased by 95%, using adjusted quantities.

On-site releases decreased by 58% using unadjusted quantities. By comparison, national data for total on-site releases for the same period decreased by 40% for the entire country. It is evident that New Jersey facilities have reduced releases more than the national average.

Table ES3. Summary of On-site Release Trends

Report Year	On-site Releases		Stack Air Emissions (Adjusted)	Stack Air Emissions	Fugitive Air Emissions (Adjusted)	Fugitive Air Emissions	Surface Water Discharge (Adjusted)	Surface Water Discharge	Land Disposal On-site (Adjusted)	Land Disposal On-Site
	On-site Releases (Adjusted)	On-site Releases								
1994	13,659,206	13,659,206	6,913,919	6,913,919	6,156,716	6,156,716	128,623	128,623	459,942	459,942
1995	11,235,382	11,819,622	6,563,747	6,905,062	4,415,784	4,645,405	158,053	166,272	96,647	101,673
1996	9,049,432	10,167,363	5,568,945	6,256,910	2,987,085	3,356,098	201,386	226,264	291,994	328,066
1997	9,651,815	10,898,382	5,821,820	6,573,730	2,851,770	3,220,087	194,811	219,971	783,407	884,587
1998	7,099,577	8,657,834	4,268,612	5,205,513	2,516,608	3,068,968	116,263	141,781	198,082	241,558
1999	6,713,684	8,056,247	3,668,297	4,401,862	2,745,752	3,294,831	165,377	198,448	134,251	161,098
2000	5,923,341	6,766,679	3,447,364	3,938,184	2,207,389	2,521,667	164,452	187,866	104,128	118,953
2001	5,193,272	5,695,360	3,015,450	3,306,985	1,692,313	1,855,927	250,468	274,683	235,037	257,760
Total Change	-8,465,934	-7,963,846	-3,898,469	-3,606,934	-4,464,403	-4,300,789	121,845	146,060	-224,905	-202,182
Percent Change	- 62% reduction	- 58% reduction	- 56% reduction	- 52% reduction	- 73% reduction	- 70% reduction	+ 95% increase	+ 114% increase	-49% reduction	44% reduction

Chemical-specific Changes

To better understand changes underpinning reductions seen at the state level, we evaluated statewide increases and decreases for each chemical. Facilities often switch substances from year to year, or increase one chemical but decrease another, and it is important to evaluate the combined impacts of these changes. In the chemical-specific analysis, we wanted to know if statewide changes could be attributed to only a few facilities or if changes were part of a broader trend where several facilities were making similar changes. This analysis identified the number of chemicals that increased and decreased across the state. It also identified the top 10 chemicals with increases and decreases.

Table ES4 shows that more chemicals decreased compared to those that increased. Of the 197 core chemicals reported, over 60% of the chemicals decreased statewide. Chemical releases decreased the most, with 70% of chemicals showing decreases.

Table ES4: Summary of Chemical Increases and Decreases

Change Category	Use	NPO	Release
Decrease	134	121	137
No Change	0	9	17
Increase	63	67	43
Percent of chemicals with Decreases	68%	61%	70%
Percent of chemicals with Increases	32%	34%	22%

Table ES5 identifies the top 10 chemical changes for releases. The full report also presents a similar analysis for Use and NPO. All increases in releases for the top 10 chemicals are due primarily to a single facility for each chemical, where a separate facility accounted for essentially all of the increase for 9 out of the top 10 chemical increases. There are no instances where a large number of facilities are reporting increases of a specific chemical. Reductions, on the other hand, are more often due to the actions of numerous facilities combined to reduce statewide releases.

Table ES5. Summary of Chemical-specific Changes in Release

CAS Number	Chemical Name	# of Facilities Increase	# of Facilities Decrease	Ratio of Increase to Decrease	Release 1994	Release 2001	Change
Increase							
N982	ZINC COMPOUNDS	34	31	1.10	53,614	163,351	109,737
108-95-2	PHENOL	3	10	0.30	22,889	72,609	49,720
100-42-5	STYRENE	10	17	0.59	146,385	171,402	25,017
110-82-7	CYCLOHEXANE	7	6	1.17	34,453	58,073	23,620
N106	CYANIDE COMPOUNDS	1	3	0.33	18,238	39,060	20,822
306-83-2	2,2-DICHLORO-1,1,1-TRIFLUOROETHANE	1	1	1.00	9	19,270	19,261
N450	MANGANESE COMPOUNDS	8	9	0.89	4,146	21,245	17,099
N100	COPPER COMPOUNDS [WITH EXCEPTIONS]	9	13	0.69	3,471	19,247	15,776
107-21-1	ETHYLENE GLYCOL	11	35	0.31	27,080	37,048	9,968
106-89-8	EPICHLOROHYDRIN	3	2	1.50	1,614	11,491	9,877
Decrease							
67-56-1	METHANOL	34	79	0.43	1,987,962	430,114	-1,557,848
108-88-3	TOLUENE	37	101	0.37	1,694,730	866,762	-827,968
1330-20-7	XYLENE (MIXED ISOMERS)	29	83	0.35	1,412,245	650,706	-761,539
75-09-2	DICHLOROMETHANE	8	34	0.24	824,913	141,483	-683,430
71-55-6	1,1,1-TRICHLOROETHANE	1	39	0.03	483,599	5	-483,594
78-93-3	METHYL ETHYL KETONE	24	66	0.36	737,827	365,613	-372,214
71-36-3	N-BUTYL ALCOHOL	15	44	0.34	558,676	199,557	-359,119
79-01-6	TRICHLOROETHYLENE	3	9	0.33	385,607	106,393	-279,214
76-13-1	FREON 113		11		279,594	6,377	-273,217
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	28	59	0.47	696,021	467,863	-228,158

Facility-specific Changes

We also evaluated increases and decreases at specific facilities to complement the chemical-specific review. The facility-specific analysis is useful to highlight facilities with the biggest changes and to pinpoint geographically where reductions and increases are taking place.

Table ES6 shows the majority of facilities decreased their quantities of hazardous substances between 1994 and 2001. The analysis shows that the number of facilities reporting reductions is in a consistent range between 70% – 80% for the quantities used, generated as NPO, and released.

Table ES6. Summary of Facility Increases and Decreases

Change Category	Use	NPO	Release
Decrease	442	421	444
No Change	1	26	45
Increase	141	137	95
Percent of Facilities with Decreases	76%	72%	76%
Percent of Facilities with Increases	24%	23%	16%
Number of Nonreporters *	258	258	258
Percent of decreases that are Nonreporters	58%	61%	58%

* Nonreporters are facilities that reported in 1994 but not in 2001.

Table ES7 identifies the top 10 facilities based on changes for releases. The full report also presents a similar analysis for Use and NPO. The top 10 facilities reduced 3.6 million pounds of releases out of the 7.9 million pounds statewide, accounting for 46% of the release reductions. This is much smaller compared to the top facilities for Use or NPO. Reductions in releases statewide are more the result of changes by a larger number of facilities compared to Use and NPO.

Table ES7. Summary of Facility Changes in Release

ID	Facility Name	City	1994 Release	2001 Release	Release Difference
Increase					
00118500002	ROCHE VITAMINS INC.	WHITE TWP	113,596	390,589	276,993
00115401005	CHEVRON PRODUCTS COMPANY	PERTH AMBOY	7,978	85,588	77,610
27789100000	FRY'S METALS INC.	JERSEY CITY	5	41,300	41,295
00457000006	REICHHOLD CHEMICALS INC.	NEWARK	4,168	36,695	32,527
01122800002	MONSANTO COMPANY	LOGAN TWP	59,463	86,254	26,791
18174500000	VIKING YACHT CO CORP	NEW GRETNA	34,000	60,380	26,380
32502200000	NEWCO INC	NEWTON	16,556	34,460	17,904
04595700000	NATIONAL MANUFACTURING CO INC	CHATHAM	14,122	31,440	17,318
71236100000	BWAY CORPORATION	ELIZABETH	7,263	21,241	13,978
00000004082	GLACIER GARLOCK BEARINGS, L.L.C.	THOROFARE	4,412	16,130	11,718
		TOTAL	261,563	804,077	542,514
Decrease					
84980600000	FRUTAROM MEER CORPORATION	NORTH BERGEN	1,173,000	*NR	-1,173,000
00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	1,627,423	727,344	-900,079
18048200002	TEVA PHARMACEUTICALS USA	WALDWICK	521,913	NR	-521,913
00315601000	FORD MOTOR COMPANY	EDISON	795,205	428,017	-367,188
15738800004	NATIONAL CAN COMPANY	PISCATAWAY	293,353	NR	-293,353
00006500000	PEERLESS TUBE COMPANY	BLOOMFIELD	268,160	33,043	-235,117
47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	401,426	202,402	-199,024
40103700000	ATLANTIC STATES CAST IRON PIPE CO.	PHILLIPSBURG	194,561	17,098	-177,463
00004010001	GENERAL MOTORS CORPORATION	LINDEN	394,273	221,842	-172,431
00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	211,615	68,774	-142,841
		TOTAL	5,880,929	1,698,520	-4,182,409
				DIFFERENCE	-3,639,895
				Statewide Change	-7,963,885
				% OF STATEWIDE CHANGE FROM TOP FACILITIES	46%

*NR= nonreporters are facilities that reported in 1994 but not in 2001

Chemicals of Concern

Releases of Carcinogens

The NJDEP has compiled a list of 111 chemicals that have potential links to causing cancer. These chemicals have been identified through a review of toxicology research conducted by various federal and state agencies. The NJDEP assesses cancer risks from releases of these chemicals to the environment in its regulatory decisions, such as developing air permit limits. Only 55 of these carcinogens are reported on the RPPR. Appendix G lists these 55 chemicals, along with references and citations for scientific research on those chemicals.

Carcinogens accounted for 14% of statewide releases in 2001 (788,934 pounds out of 5.7 million pounds – see Table ES8). Most of the releases of carcinogens are emissions to the air. In 2001, air emissions accounted for over 90% of the releases of carcinogens.

On-site releases of carcinogens decreased by 65% or 1.5 million pounds between 1994 and 2001 using unadjusted quantities (see Figure ES3). This decrease is slightly more than the statewide reduction of 58% for all chemicals.

Table ES8. Release of Carcinogens

Report Year	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site	Total On-site Releases
1994	1,134,883	826,484	20,930	3	257,636	2,239,936
1995	1,108,391	955,063	10,971	2	31,296	2,105,723
1996	1,151,538	663,911	27,490	17	180,935	2,023,891
1997	1,219,767	648,043	18,981	1	339,357	2,226,149
1998	535,267	476,590	21,334	1	111,707	1,144,899
1999	672,261	419,016	27,812	1	124,566	1,243,656
2000	781,938	412,697	47,430	1	25,781	1,267,847
2001	467,717	266,660	19,958	1	34,598	788,934

Figure ES3. Trends for Release of Carcinogens

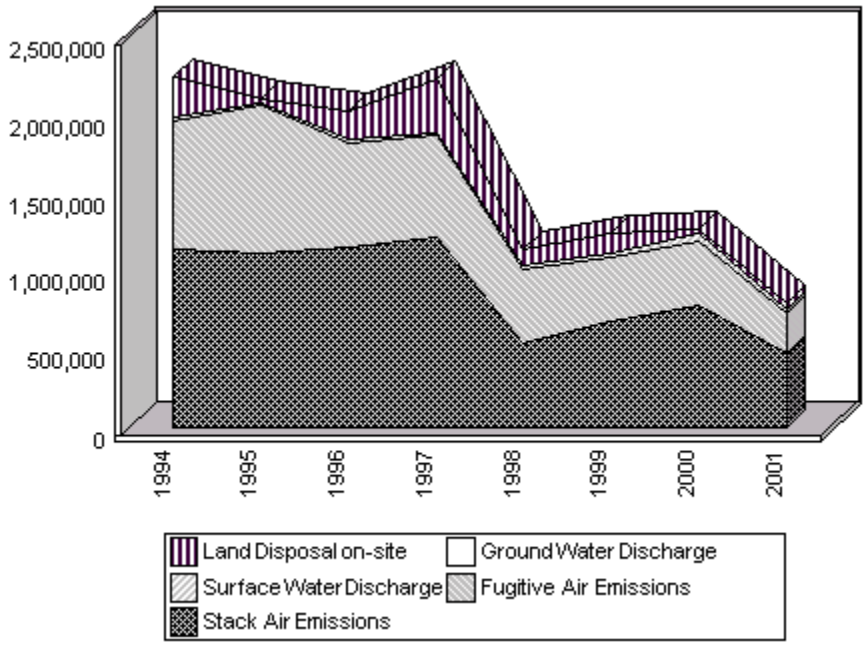


Table ES9 compares the top 10 carcinogens released in 1994 to the top 10 released in 2001. There were two changes in the top 10 lists. Chromium compounds and chloroform replaced tetrachloroethylene and formaldehyde. Releases have substantially decreased for most of the top 10 carcinogens, with 6 of the chemicals reporting reductions over 50%. Only one chemical, styrene, increased. Increases in styrene air emissions are mainly due to two boat manufacturing facilities.

Table ES9. Comparison of Top 10 On-site Releases of Carcinogens (All)

Reporting Year 1994

CAS Number	Chemical Name	On-site Releases
75-09-2	DICHLOROMETHANE	825,835
79-01-6	TRICHLOROETHYLENE	385,607
N495	NICKEL COMPOUNDS	228,540
78-87-5	1,2-DICHLOROPROPANE	155,011
100-42-5	STYRENE	146,385
74-85-1	ETHYLENE	86,822
71-43-2	BENZENE	60,994
50-00-0	FORMALDEHYDE	58,311
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]	45,586
75-01-4	VINYL CHLORIDE	43,363

Reporting Year 2001

CAS Number	Chemical Name	On-site Releases
100-42-5	STYRENE	171,418
75-09-2	DICHLOROMETHANE	141,848
79-01-6	TRICHLOROETHYLENE	106,444
71-43-2	BENZENE	63,647
78-87-5	1,2-DICHLOROPROPANE	63,472
74-85-1	ETHYLENE	61,725
75-01-4	VINYL CHLORIDE	30,481
67-66-3	CHLOROFORM	25,940
N495	NICKEL COMPOUNDS	24,914
N090	CHROMIUM COMPOUNDS	18,063

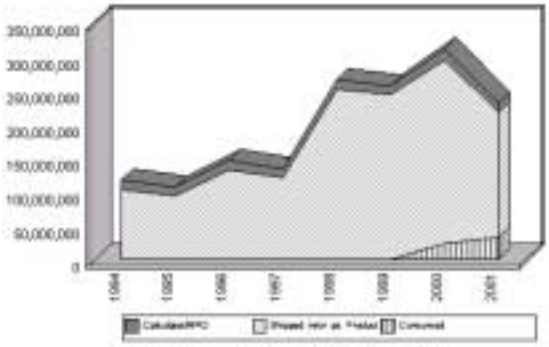
Persistent, Bioaccumulative, Toxic Substances (PBTs)

Chemicals that are persistent, bioaccumulative and toxic (PBT) are of particular concern not only because they are toxic, but also because they remain in the environment for long periods of time, and build up or accumulate in body tissue. Through a series of recent rule changes, EPA established a list of 18 chemicals and compounds that are considered PBTs for TRI reporting purposes and lowered the threshold for reporting for these chemicals.

Due to these changes in reporting requirements and the short time period that most of the PBT chemicals have been reported, it is difficult to track a "core" universe of facilities for PBT chemicals. Data presented below includes all reports submitted by facilities for chemicals classified as PBT. Consequently, trends are driven more by changes in reporting requirements, not actual increases or decreases of hazardous substances Used or generated by facilities.

Figure ES4 presents Use trends for PBTs and shows that most of the PBTs are shipped as (or in) product. A closer look at the data shows that the majority of PBTs shipped in product are lead and polycylic aromatic compounds (PACs). Lead is shipped, for example, in product by several battery manufacturers, metal recyclers and cable and electronics board manufacturers. PACs are shipped as a chemical component in petroleum products.

Figure ES4. Summary of PBT Use Trends



Year	Consumed	In Product	NPO	Calculated Use
1994	0	103,187,744	15,452,481	118,640,225.00
1995	1,385,267	92,993,740	12,601,512	106,980,519.00
1996	32,041	132,297,645	15,486,422	147,816,108.14
1997	0	121,717,112	12,952,927	134,670,039.14
1998	0	252,051,141	14,641,538	266,692,678.71
1999	0	245,505,718	12,836,084	258,341,801.60
2000	25,167,686	271,859,450	16,132,851	313,159,986.88
2001	33,403,941	184,262,017	14,917,403	232,583,361.06

Table ES10 presents trends for releases and transfers of PBTs. The two most important PBT chemicals in New Jersey are lead and mercury. Lead also accounted for 72% of all PBT releases in 2001 and for other years, a much higher percentage (e.g., 99.9% in 1994 and 98.6% in 1995).

Table ES10. Summary of PBT Releases and Transfers

Report Year	1994	1995	1996	1997	1998	1999	2000	2001
Recycled & Reused on-site	9,071	23,509	13,971	125,619	321,868	2,243	1,661	41,853
Destroyed on-site	5,010	4,874	510	697	386,249	284,907	323,054	211,089
Energy Recovered on-site	0	0	0	0	0	0	15,146	24,850
Stack Air Emissions	17,695	13,705	14,023	13,139	13,535	7,883	8,081	10,458
Fugitive Air Emissions	2,695	1,631	1,775	2,035	2,210	993	1,604	1,183
Surface Water Discharge	899	602	2,700	2,703	841	2,867	2,772	1,141
Ground Water Discharge	1	1	1	1	1	1	2	0
POTW Discharge	34,311	11,151	1,670	754	906	637	500	351
Land Disposal on-site	57,642	49,136	43,526	108,690	55,712	26,340	3,535	12,436
Total Waste Transfer	12,652,776	12,375,995	15,377,096	12,700,470	13,605,804	12,016,143	15,768,389	14,669,723
S(NPO) - S2(NPO)	2,672,181	120,905	31,150	-1,181	254,412	494,059	8,105	-55,683

In 2001, 14% of the mercury NPO was released through stack air emissions, 1% land disposal, 2% discharged to surface waters and the remainder of the 84% is transferred off-site. Table ES11 shows how these off-site wastes were managed. For reporting year 2001, 88% of the mercury transferred off-site was recycled, 1% was transferred off-site for further treatment, and 11% was transferred off-site for disposal.

Table ES11. Components of NPO (Mercury)

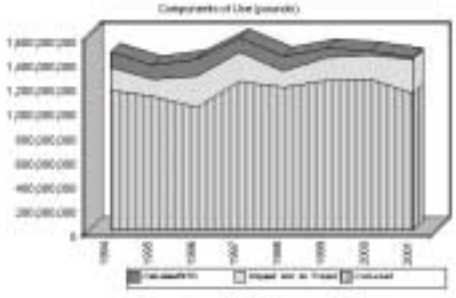
Report Year	2000	2001
Recycled & Reused on-site	0	0
Destroyed on-site	0	0
Energy Recovered on-site	0	0
Stack Air Emissions	937	756
Fugitive Air Emissions	1	0
Surface Water Discharge	3	12
Ground Water Discharge	1	0
POTW Discharge	7	0
Land Disposal on-site	17	74
Total Waste Transfer	5,387	4,365
EI(NPO) - SI(NPO)	631	5

Extraordinarily Hazardous Substances (TCPA)

Under the Toxic Catastrophe Prevention Act (TCPA) N.J.S.A. 13:1K-19 et seq., the NJDEP regulates 215 chemicals that are considered extraordinarily hazardous substances (EHS). The goal of the TCPA is to protect the public from catastrophic accidental releases of EHSs into the environment. Under the TCPA program, facilities do not report the quantity of substance used. Instead, in this analysis we are relying on data reported on the RPPR as a surrogate for quantities of these substances used throughout the state. The list of EHS chemicals that are also reported under the W&CRTK is found in Appendix I.

Use of TCPA chemicals accounted for 9% of the total Use for all chemicals statewide (1.4 billion out of 15.6 billion) in 2001 (see Figure ES5). Use of TCPA substances decreased by 2% or 35.5 million pounds between 1994 and 2001. The reduction for Use of TCPA substances is an improvement compared to the statewide increase of 8% for all chemicals.

Figure ES5. Trends for EHS Use



Year	Consumed	In Product	NPO	Calculated Use
1994	1,157,107,789	183,998,332	125,047,266	1,466,153,387.00
1995	1,102,517,069	139,411,753	116,143,117	1,358,071,939.00
1996	1,014,581,068	253,343,581	145,197,208	1,413,121,857.00
1997	1,232,503,135	235,395,533	119,952,678	1,587,851,346.00
1998	1,181,135,262	134,557,537	119,141,264	1,434,834,063.32
1999	1,235,341,431	196,047,178	70,102,139	1,501,490,746.67
2000	1,243,605,178	201,000,571	33,298,099	1,477,903,847.80
2001	1,131,120,477	277,205,733	22,371,843	1,430,698,053.00

Summary of the 2001 Annual Report

Along with analyzing trends over time, this report also evaluates all data reported for calendar year 2001. This single-year snapshot compliments the trend data by identifying the top contributors to Use, NPO and releases using the most recent data available. The analysis for 2001 is not limited to the core universe and uses all data submitted by each facility that submitted an RPPR. Table ES12 identifies the top 10 chemicals released into the environment in 2001. These 10 chemicals accounted for almost 80% of all releases in 2001. The full report provides additional analysis for Use, NPO, transfers, waste management activities and releases to air, water, and land.

Table ES12. Top 10 Substances Released in 2001

CAS Number	Substance Name	On-Site Releases	% of Total
7647-01-0	HYDROCHLORIC ACID	6,154,312	34.31 %
N511	NITRATE COMPOUNDS (WATER DISSOCIABLE)	3,099,303	17.28 %
7664-41-7	AMMONIA	1,330,004	7.41 %
108-88-3	TOLUENE	893,134	4.98 %
1330-20-7	XYLENE (MIXED ISOMERS)	666,530	3.72 %
7664-93-9	SULFURIC ACID	529,696	2.95 %
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	467,967	2.61 %
67-56-1	METHANOL	439,491	2.45 %
1634-04-4	METHYL TERT-BUTYL ETHER	372,410	2.08 %
78-93-3	METHYL ETHYL KETONE	366,225	2.04 %
	Sum of Top Ten:	**14,319,072**	**79.82 %**
	Sum Other:	**3,619,543**	**20.18 %**
	Sum All:	**17,938,615**	**100.00 %**

Table ES13 identifies the top 10 facilities with releases in 2001. These 10 facilities accounted for 67% of the releases in 2001. The list includes electric utilities (4), petroleum refineries (2), chemical manufacturers (2), a pharmaceutical company and an auto assembly plant.

Table ES13. Top 10 Facility Releases

Facility Name (City)	County	On-Site Releases	% of Total
PUBLIC SERVICE ELECTRIC & GAS CO (JERSEY CITY)	HUDSON	3,333,269	18.58 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	2,325,306	12.96 %
PSEG FOSSIL LLC (HAMILTON)	MERCER	2,320,471	12.94 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	1,674,347	9.33 %
CONECTIV (PENNSVILLE)	SALEM	548,040	3.06 %
CONECTIV (BEESLEYS POINT)	CAPE MAY	496,571	2.77 %
FORD MOTOR COMPANY (EDISON)	MIDDLESEX	429,325	2.39 %
ROCHE VITAMINS INC. (WHITE TWP)	WARREN	394,087	2.20 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	342,010	1.91 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	285,613	1.59 %
	Sum of Top Ten:	**12,149,038**	**67.73 %**
	Sum Other:	**5,789,577**	**32.27 %**
	Sum All:	**17,938,615**	**100.00 %**

I. Background

A. Worker and Community Right to Know Act

New Jersey was one of the first states in the country to require public reporting of chemical inventory and environmental release data. In passing the New Jersey Worker and Community Right to Know Act (W&CRTK Act) in 1983,[2] the New Jersey Legislature determined that:

> "…it is in the public interest to establish a comprehensive program for the disclosure of information about hazardous substances in the workplace and the community, and to provide a procedure whereby residents of this State may gain access to this information."

The W&CRTK Act established two separate public reporting programs. The first program requires covered facilities to report data on the quantity of hazardous substances stored in inventory at their facilities. This program covers approximately 20,000-30,000 facilities. Industrial facilities have been reporting information on the quantity of hazardous substance in inventories since 1985. The second program requires a smaller group of covered facilities to report additional information on the Use, generation, treatment and release of hazardous substances—more commonly called "materials accounting" data. This second program currently covers approximately 500 facilities. Materials accounting data have been collected since reporting year 1987. This report focuses on the materials accounting data submitted under the second program.

B. Pollution Prevention Act

The Pollution Prevention Act (P2 Act)[3] of 1991 expanded upon the requirements of the W&CRTK Act. The P2 Act requires covered facilities to investigate pollution prevention opportunities and report additional information to the public on their Use and generation of hazardous substances. The P2 Act established a statewide goal for reducing Use and generation of hazardous substances[4] by requiring covered facilities to prepare detailed pollution prevention plans every five years and make summaries of those plans publicly available.

Covered facilities are also required to annually report progress on achieving pollution prevention reductions outlined in their plans. Most of the facilities covered by the P2 Act have gone through two planning and reporting cycles. This means most facilities have prepared two pollution prevention plans to date.

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[2] N.J.S.A. 34:5A L.1983, c. 315, s. 1, effective Aug. 29, 1984

[3] N.J.S.A. 13:1D-35, 1991, c.25; 1991, c.235, s.17

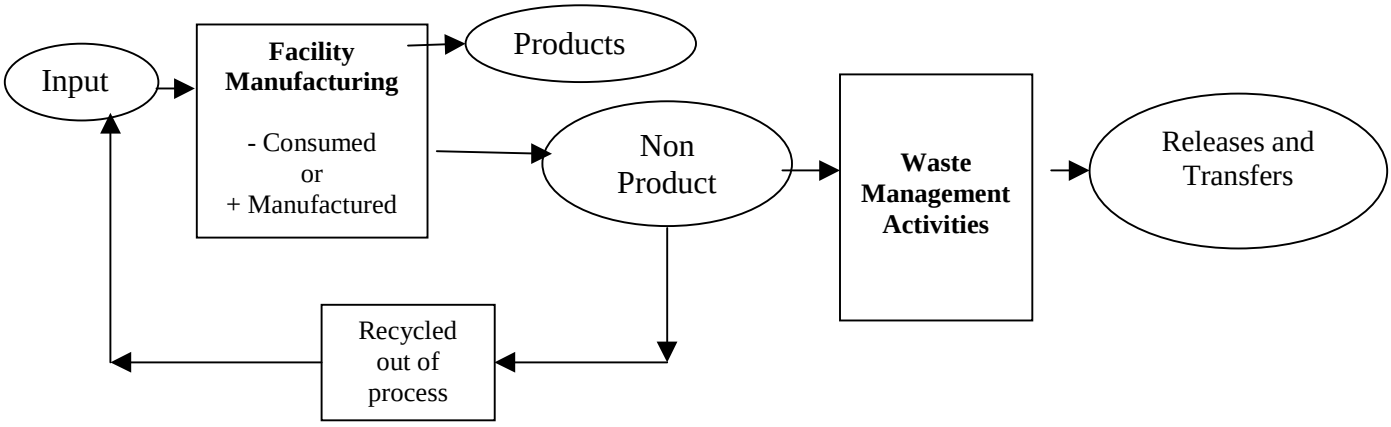
[4] "…a significant reduction over five years after the preparation of the pollution prevention plans required by this act, calculated on the basis of 1987 amounts, in the Use of hazardous substances at industrial facilities, and a 50% reduction over five years after the preparation of the pollution prevention plans required by this act, calculated on the basis of 1987 amounts, in the generation of hazardous substances as nonproduct output"

This report evaluates materials accounting data submitted by facilities between 1994 and 2001. Data submitted between 1987 to 1994 was previously evaluated by the NJDEP in a prior trends report.[5], One of the findings of that report determined that New Jersey facilities decreased Nonproduct Output (NPO) by at least 50% between 1987 and 1994, which was the statewide policy goal in the P2 Act. This report covers the next seven years to determine if these reductions have continued and where these reductions occurred.

C. What is Materials Accounting Data?

Materials accounting is a practical application of the chemical mass balance theory. Materials accounting is based on the simple scientific principal of the conservation of matter where all chemical inputs at a facility should balance with the outputs. Materials accounting data provide a complete picture on the Use of hazardous substances at many of New Jersey's larger manufacturing facilities. From chemicals transported through communities to an industrial facility, to the manufacture of intermediate and final products at the site, to chemicals shipped off-site as products or wastes, and chemicals released into the environment, materials accounting data identifies the quantity of toxic chemicals involved each step of the way. Figure 1 below outlines the basic structure for materials accounting data showing the flow of hazardous substances as they move through a facility. Public reporting based on this simple concept opens the door for a broader understanding of the various uses of toxic chemicals at industrial facilities and how they might impact area residents.

Figure 1. Overview of Materials Accounting Data



Facilities submit materials accounting data to the NJDEP on a form known as the Release and Pollution Prevention Report (RPPR). The RPPR includes a suite of over 20 specific data elements providing a complete picture for the flow of substances through a facility. In assessing and presenting data on trends for hazardous substances in the state, we use three measures throughout this report, either directly reported on the RPPR or calculated from data on the RPPR. These measures are:

[5] Aucott, Michael et al., "Industrial Pollution Prevention Trends In New Jersey," December 1996.

Use: Use is the quantity of hazardous substances processed at the facility. Use is not directly reported in materials accounting data. It is calculated by adding together three quantities that are reported: the quantity consumed, shipped as (or in) product, and NPO.

Nonproduct Output (NPO): NPO is the quantity of the reported substance that was generated prior to storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use as a product. NPO is calculated by adding on-site releases, managed on-site and off-site transfers.

On-site Releases: On-site releases include those quantities of hazardous substances that were released as stack emissions and fugitive air emissions, discharged to surface waters and ground waters, and on-site land disposal.

See Appendix A for a more detailed description of materials accounting data. This includes a listing and definition for all of the individual data elements reported on the RPPR and a sample of the RPPR reporting form.

D. How Can I Obtain and Use Materials Accounting Data?

Residents can now obtain a portion of the materials accounting data electronically through NJDEP's web site.[6] County summary reports containing environmental release and waste management data for calendar years 1994 to 2001 can be found and generated at *http://datamine.state.nj.us/wi*. These reports provide the public with the ability to search for facilities within their county and obtain facility-specific data summaries on the total air emissions, total water discharges, and total waste generation. Residents can use this information to understand more about the hazardous substances used and released in their communities.

Residents can also obtain data by contacting the Office of Pollution Prevention and Right to Know at the address and phone numbers listed below. Staff in these programs can also provide technical assistance to answer specific questions and interpret the data. If you have a specific question it is best to be as detailed as possible in your data request.

Office of Pollution Prevention and Right to Know
Station Plaza 4
22 S. Clinton Avenue 3rd Floor
P.O. Box 443
Trenton, NJ 08625-0443
Phone Numbers (609) 777-0518 or (609) 984-3219

[6] The NJDEP has imposed certain restrictions on facility-specific data available on the web site due to domestic security concerns.

E. How Does NJDEP Use This Information?

The NJDEP uses materials accounting data to help design policies and implement programs to reduce potential risks posed by the Use and release of hazardous substances. Data are used in two basic ways:

(1) to identify priorities for programs by conducting analyses of significant contributors to releases, variations over time, geographic patterns and other analyses; and

(2) to provide a better understanding of facility operations during permit reviews and compliance inspections.

Overall, NJDEP has made significant progress in upgrading our information technology infrastructure through the implementation of the New Jersey Environmental Management System (NJEMS). This new central computer system has improved our ability to compile and analyze materials accounting data and make the data available to NJDEP staff and the public. NJDEP will continue to make greater use of the information it receives to ensure that its programs and policies focus on priority issues and provide accountability to track progress over time. Below, we have outlined a few key uses of materials accounting information that we plan to build on in the future.

Risk Screening to Identify Priority Facilities

The NJDEP is using the environmental information submitted in the materials accounting data to evaluate facilities and assess priorities for compliance inspections, permit reviews and technical assistance. NJDEP is using simple risk screening techniques to help target the work of our current resources and design new programs. NJDEP will be inspecting new facilities not previously given a high priority, or looking more closely at permit limits for specific chemicals based on potential risk.

Chemical	Unit Risk Factor
2,3,7,8-Tetrachlorodibenzo(p)dioxin	3.3E+01
Chromium VI (total)	1.2E-02
Asbestos	7.7E-03
Hydrazine	4.9E-03
Arsenic (inorganic)	4.3E-03
Benzo(a)pyrene	1.1E-03
1,3-Butadiene	2.8E-04
Ethylene oxide	8.8E-05
Formaldehyde	1.3E-05
Benzene	7.8E-06
Tetrachloroethylene	5.9E-06
Styrene	5.7E-07
Dichloromethane	4.7E-07

Risk screening goes beyond evaluating the pounds of each chemical released to the environment and begins to consider the potency of each chemical. NJDEP is assessing air emissions of known or suspected carcinogens. This analysis uses chemical-specific Unit Risk Factors (URFs),[7] a toxicity factor that quantifies the relationship between the level of exposure and the lifetime probability of contracting cancer from an air toxics compound. The box highlights URFs for some common chemicals reported by New Jersey companies. This table illustrates the large differences in potency of chemicals released to the environment. For example, if exposures were similar, it would take 100,000,000 pounds of dichloromethane to create the same risk as only one

[7] Many of the Unit Risk Factors are taken from EPA's Integrated Risk Information System (IRIS)

pound of 2,3,7,8-tetrachlorodibenzo(p)dioxin. Even small releases of certain chemicals can create potential impacts. It is important to consider these differences in potency when identifying priorities and developing regulatory requirements.

A similar analysis of air toxics data developed by the federal USEPA known as the National-Scale Air Toxics Assessment (NATA) showed that releases of hydrazine from Fairmount Chemical in a densely populated area in Newark could potentially cause significant impacts. A closer review by NJDEP enforcement staff showed that the company was using and releasing hydrazine in equipment that had not received the necessary permits. NJDEP issued enforcement actions to correct the violations. The final resolution of these actions is that the company is no longer using the equipment that processed hydrazine.

Identifying Geographic Areas (including Environmental Justice)

The NJDEP is assessing how the Use and release of toxic substances varies geographically across New Jersey to identify areas disproportionately impacted by toxics. Results of this analysis will help design initiatives that target our resources geographically where they are needed the most. One of NJDEP's priorities in this area is to develop an Environmental Justice program for New Jersey's communities of color and low income that may be impacted from cumulative environmental releases. Materials accounting data are used in conjunction with other environmental data and linked to Census data to assess population diversity and income. Through this analysis, NJDEP plans to work with community stakeholders to identify priority concerns and develop action plans to improve environmental conditions in the community.

Evaluating Multi-media Releases for Facility-Wide Permits

NJDEP staff used materials accounting data extensively during the development of facility-wide permits (FWP).[8] In assessing the FWP program, the NJDEP found the greatest single factor distinguishing the FWP Program from all others was the requirement that participating facilities conduct an in-depth review of process-level materials accounting. NJDEP uses this information to establish permit limits that not only drive reductions in releases over time but also provide flexibility for changes in production. Materials accounting data were used in conjunction with existing permitting data and were extremely valuable in uncovering environmental discrepancies including unregulated releases, transfers of pollutants from one environmental media to another, and revising permit limits to be protective of human health.

Expanding Multi-Media Reviews

NJDEP is combining lessons learned from the FWP program with new capabilities of NJEMS. We are designing new and smarter data reports enabling permit and enforcement staff to conduct FWP-type reviews in a fraction of the time it previously took with paper file reviews as the FWPs were developed. The upcoming computer-generated, Multi-Media Release Report (MMRR) will include materials accounting data along with data on actual and permitted releases

[8] The P2 Act also directed NJDEP to undertake a pilot program to issue multi-media permits that combined the individual air, water and hazardous waste permitting requirements into a single, holistic document, for a set of volunteer industrial facilities.

used in the permitting process. The MMRR will, for the first time, give NJDEP staff a complete picture of releases and permit requirements for a facility in a single report.

Training for Permit Writers and Enforcement Staff

In addition to the standard release and transfer data collected by USEPA on TRI, the materials accounting data tracks amounts of hazardous substances for the following categories: *Brought on site, Beginning, Ending and Maximum Inventory, Produced on-site, Shipped off-site as (or in) Product* and *Consumed*. By collecting these data, NJDEP knows the amount of hazardous substances shipped through New Jersey neighborhoods and how much ends up in products that we buy and use.

The NJDEP P2 Program developed a database tool that allows NJDEP staff to generate various reports using the materials accounting data. P2 Program staff conducted a half-day training session for permit writers and enforcement inspectors to understand the different types of data available, and how to use the new tool to generate reports.

In New Jersey, as with most states and the USEPA, the focus of much of our resources is on permitting and controlling stack air emissions. Table 1 illustrates one use of this new tool. The numbers in the table represent actual values reported from a facility in New Jersey. Note that fugitive releases, which are typically not regulated through the permit process, are significantly greater than stack releases. Knowing that fugitive releases exceed stack emissions, a permit writer can now ask the facility more detailed question on the sources of fugitives, including whether these releases are more appropriately classified as stack releases and should be regulated in the permit.

Table 1. Enforcement Training Report Example for Chloroethane

Chloroethane		CAS # 75-00-3	
Report Year	Stack Air Emissions (pounds)	Fugitive Air Emissions (pounds)	Multimedia Treatment On-site (pounds)
1998	1,588	54,418	0
1999	1,522	51,113	0
2000	1,473	36,061	14,481
2001	3,252	43,160	107

Quality Assurance/Quality Control Review for Data Accuracy

The NJDEP reviews the "raw" data reported by facilities to identify mistakes and improve the quality of the data. From the reported data, total input and output quantities were calculated. Using these two calculated values, an assessment was made of the balance, or closure, achieved in the materials accounting process. The resultant discrepancies in materials accounting were then addressed as either a quantitative difference or a percent error. Facilities are only required to provide their best estimates of reported values; not necessarily an exact accounting of every pound for every chemical. That is, they are not required to measure or monitor for any value beyond the requirements of existing federal or state permitting requirements or conditions.

The department annually investigates such discrepancies, especially the large ones, to gain a better understanding of the underlying reasons for any errors. Facilities that report large quantitative or percent errors are contacted and NJDEP staff discusses the calculated discrepancies. These discussions prove to be beneficial in at least three ways. First, facility personnel receive direct technical guidance from department staff. Second, revised reports may then have been submitted, improving the overall quality of the database. Third, NJDEP staff is alerted to misunderstandings or misinterpretations of the instructions and in the completion of the reporting form. While most facilities revise data to correct discrepancies, a few facilities do not so the database does contain data that is inaccurate.

II. Who is required to report materials accounting information?

A. Regulatory requirements

The New Jersey reporting requirements are closely linked to the requirements for the federal Toxic Chemical Release Inventory (TRI) Reporting Form (Form R) pursuant to the federal Emergency Planning and Community Right To Know Act of 1986 (EPCRA) Section 313. Any New Jersey facility required to complete at least one federal TRI Form R is also subject to the materials accounting reporting requirements and must submit an RPPR. Owners and operators of facilities that meet all three of the following criteria must file the Form R and the RPPR:

- the facility's business activity is included in Standard Industrial Classification (SIC) codes 20 through 39, 4911 (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce), 4931 (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce), 4939 (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce), 4953 (limited to facilities regulated under RCRA subtitle C, 42 U.S.C. section 6921 et seq.), 5169, and 5171; and

- the facility has 10 or more full-time employees (or the equivalent; that is, the facility's payroll includes 20,000 or more work-hours for the year); and

- the facility manufactures (defined to include imported), processes, or otherwise uses any listed chemical in quantities equal to or greater than the established threshold (for most substances the thresholds are 25,000 pounds for manufacture or process, and 10,000 pounds for otherwise use; however for persistent, bioaccumulative and toxic (PBT) substances the threshold may be 100 or 10 pounds, or even 0.1 gram for "Dioxins and dioxin-like compounds").

Facilities are not required to monitor or sample the various processes and or waste streams that comprise their materials accounting report. Instead, quantities reported are often based on best estimates rather than actual measurements. If a facility is required to test a waste stream or discharge pipe under other federal or state laws, regulations, or permits, they will often use those results in developing their materials accounting data. There are four methods by which industry

can report these hazardous substance quantities: 1) an estimate based on monitoring data or measurements for the substance; 2) an estimate based on mass balance calculations; 3) an estimate based on published emission factors; and 4) an estimate based on other approaches such as engineering calculations or best engineering judgement. Inherently, different methods for reporting may introduce some level of variation into the data set. Different methods of calculating releases and transfers may also be employed and affect the final estimates. Similar to Form R reporting, these estimated figures might be rounded to two significant integers, although the NJDEP does not encourage the practice of rounding in the materials accounting process.

Reporting facilities are required to provide on the RPPR estimated quantities of the on-site releases and off-site transfers for each toxic chemical meeting the state's 10,000-pound annual threshold or the lower PBT threshold, as appropriate. One report is required for each toxic chemical that was manufactured, processed or otherwise used in excess of the thresholds. A release is an on-site discharge of a toxic chemical to the environment. An off-site transfer is a transfer of a toxic chemical as, or in, a waste to a facility that is geographically or physically separate from the facility that is submitting the RPPR. Off-site transfers include discharges to POTWs.

New Jersey's Right to Know program allows facility owners and operators to claim materials throughput data as trade secret, thereby protecting sensitive and confidential business information. Trade secret information is not entered into the computerized database and is therefore not part of these analyses. Environmental release, on-site management of non-product output and off-site transfer data, however, may not be claimed as confidential. For 2001, seven facilities claimed throughput confidentiality for 48 of their reported chemicals. Therefore, the materials accounting data summaries in this report exclude certain data elements from these facilities and reported chemicals.

B. How have the Reporting Requirements Changed Over Time?

The RPPR reporting requirements have changed over the years. These changes have mirrored modifications to the federal TRI reporting program. Changes were made in three areas: addition/deletion of specific substances, adding new SIC codes, and lowering of chemical reporting thresholds.

Several changes (i.e., additions, deletions, and modifications) have occurred to the list of reportable substances over the reporting period. The biggest expansion occurred in 1995 with the addition of over 283 new chemicals, including hydrochlorofluorocarbon (HCFC) compounds. Because of these and other changes, it is necessary to follow trends for only those substances (Core Chemicals) that were consistently reported from 1994 to 2001. This list of Core Chemicals is found in Appendix B.

The list of SIC codes has also changed over the reporting period. For reporting year 1998 EPA expanded TRI to include facilities in SIC code major groups 10 and 12 and industry numbers 4911, 4931, 4939, 4953, 5169, 5171, and 7389. Facilities in these SIC codes began submitting TRI reports for all TRI substances that exceed the annual reporting thresholds.

On October 29, 1999, EPA published a final rule under Section 313 of EPCRA, which lowered the thresholds for certain persistent, bioaccumulative and toxic (PBT) chemicals and added certain other PBT chemicals to the list of toxic chemicals effective reporting year 2000. These PBT chemicals are of particular concern not only because they are toxic, but also because they remain in the environment for long periods of time, are not readily destroyed, and build up or accumulate in body tissue. See section V. of this report for full details of PBT trends in New Jersey.

Table 2 below shows how these reporting changes impacted reporting from 1994 through 2001. The number of different hazardous substance has increased by 20%. The number of facilities reporting during this same time period has decreased by 20%. The number of Section B substance-specific reports of the RPPR submitted by these facilities has decreased by 1%.

Table 2. Number of Substances, Facilities and Reports

YEAR	# OF SUBSTANCES	# OF FACILITIES	# OF REPORTS
1994	189	652	2,386
1995	217	558	2,184
1996	183	550	2,009
1997	209	487	1,978
1998	233	534	2,394
1999	224	485	2,233
2000	235	506	2,402
2001	228	522	2,363

C. Tracking Different Universes of Facilities and Chemicals

As reporting requirements changed through time, it became necessary to develop a strategy to make valid comparisons from year to year. We do not want to count new chemicals being reported for the first time as an "increase" or to count chemicals being deleted as a "decrease". To account for these changes and to present as complete a picture as possible, the NJDEP currently track trends in four separate reporting "universes" that include different lists of chemicals and industry types.

First, the broadest universe tracks all facilities and chemicals required to report in any given year. This universe tracks the quantities of hazardous substances reported by every facility each year. While this has the advantage of providing the public with the most complete information available, it has the disadvantage that increases or decreases over time is the result of simply adding or deleting chemicals or facilities. We excluded certain data from the database to ensure that our analysis captures true and actual changes in hazardous substances. During our analysis, we identified three types of changes that were large enough to affect statewide trends, but are more accurately characterized as reporting changes or errors by specific facilities. These changes include:

1) *Combining the Amerada Hess refinery and bulk terminal as a single facility.* From 1994 to 2000, the company reported data for two separate but adjacent sites—their

petroleum refining operations at one site, and a bulk petroleum storage terminal at another. During this period, the transfer of product from the refinery to the terminal was essentially being "double counted" towards use. In 2001, the company combined these sites into one facility. With only one site reporting, this eliminated the double counting. This change would appear as a large Use reduction if it were included in the database;

2) *Excluding propylene and ethylene from the Valero and Coastal refineries.* From 1994 to 1997, these refineries reported ethylene and propylene as "burned for energy recovery." In 2001 the NJDEP met with the refineries to establish consistent reporting requirements and agreed to have these data reported as "consumed." This change means that these chemicals are no longer considered NPO. This change in reporting would appear as large reductions if they were not excluded from the database, when in fact, no actual changes in operation took place at these facilities; and

3) *Excluding benzene from Coastal refinery that artificially inflated 1994 base year Use.* In 1994, this facility reported a large quantity of benzene consumed that increased the quantity Used to over 1 billion pounds beyond that reported for any prior year. Also, the input/output balance for this year was off by over 1 billion pounds or 223%. Therefore, we excluded benzene for all years.

The second universe tracks the Core SIC codes and Core chemicals. This universe is comprised of the Core Chemicals consistently reported from 1994-2001 and Core SIC codes 20-39, excluding those facilities that claim trade secrets. This universe tracks a consistent group of chemicals and industries over the reporting period (1994-2001). This universe is the primary universe NJDEP uses to measure overall statewide trends.

The third universe includes the core universe minus the six (6) petroleum refineries in the state. The refineries use large quantities of hazardous substances compared to other facilities in the state and dominate the statewide trends. Their data can mask important trends in the other SIC sectors. This universe, and additional issues concerning refineries, is included in Appendix C.

The last universe, which is the smallest and most consistent universe tracked by the NJDEP, includes facilities that have reported the same chemical each year between 1994 and 2001. This "matched facility/chemical" universe includes chemicals that are very important to the operations at these facilities since they are reported each and every year. Consistent reporting in the matched facility universe allows a more in-depth review of trends for these facilities.

Table 3 shows how the number of facilities in these separate universes changed between 1994 and 2001. The total number of facilities has decreased over time from 652 to 522. The number of facilities covered in the Core universe has dropped from 585 to 420 from 1994 to 2001; a net decrease of 165 facilities. Some factors that contribute to this reduction include: 1) facilities reducing their annual hazardous substance usage below the regulatory threshold; 2) delisting of chemicals; 3) implementation of pollution prevention; and 4) the discontinuance of operations.

Some factors that could contribute to facilities becoming newly covered include new businesses, facilities exceeding thresholds, or enforcement actions.

Table 3. Number of Reporting Facilities in Tracked Universes

YEAR	ALL FACILITIES	CORE UNIVERSE	CORE MINUS REFINERIES*	MATCHED FACILITY/CHEMICALS
1994	652	585	576	145
1995	558	510	501	145
1996	550	505	497	145
1997	487	450	442	145
1998	534	447	439	145
1999	485	404	396	145
2000	506	401	393	145
2001	522	420	413	145

* See Appendix C for further discussion of petroleum refineries.

The remainder of this report summarizes and presents materials accounting data for these separate universes. Data used for this report was updated on December 6, 2003, and has since been locked to ensure that the data set remains consistent.

D. Meaningful Metrics--Adjusting for changes in production

Another important factor to consider when analyzing and presenting trends in industrial Use of hazardous substances is how to account for changes in economic activity--typically measured as the quantity of products produced by a facility. Changes in hazardous substance Use, generation of NPO or releases to the environment can be the result of many different factors. For example, a decrease in chemical Use may be caused by a slowdown in production. Fewer products produced one year simply requires the Use of less hazardous substances compared to the previous year. Alternatively, a decrease in chemical Use may be the result of improvements to operations allowing a facility to produce each unit of product using a smaller quantity of chemical. The goal of our data analysis is to identify whether reductions in Use or NPO are the result of economic changes or true process efficiency improvements (pollution prevention).

While it is difficult to be certain of the true cause for a change in chemical Use, there are quantitative methods available to adjust reported quantities to account for changes in production from year to year. We used the Production Index (PI) reported by facilities for each chemical on EPA's TRI Form R to adjust for production. The PI is a ratio of the quantity of products produced the current year compared to the previous year. If the PI is greater than one, production has increased relative to the previous year. Conversely, if the PI is less than one, production has decreased compared to the previous year.

The PI is typically used to measure facility/chemical specific changes. However, we needed a method to help measure statewide trends and adjust for production. To accomplish this, the individual PI's reported by each facility had to be aggregated and weighted to account for the

differences in Use reported by each facility.[9] The result of this aggregation and weighting is a statewide average production index that can be used to adjust statewide Use and NPO quantities. The TRI statewide cumulative production ratio calculated for our analysis shows good correlation with other general economic indicators for the manufacturing sectors in New Jersey. See Appendix D for additional details on how these indices were calculated and used to adjust statewide quantities and for correlation to other statewide economic activity indicators. The remainder of this report uses both the adjusted quantities and unadjusted quantities to present trends in statewide Use, NPO generation, and release of hazardous substances.

III. Statewide Trends in Use, NPO and Release

A. Use

Tracking the quantity of hazardous substances used over time and adjusted for production can be a useful measure of pollution prevention progress providing insights that cannot be seen through tracking wastes or releases alone. Regardless of the function of a chemical in manufacturing operations—whether it is consumed in a process, repackaged into a product, or used as a cleaning solvent and becomes a waste—tracking the quantity of substance used can help document pollution prevention achievements. Facilities do not directly report quantities used on the RPPR. However, Use can be calculated by adding three data elements reported on the RPPR. These data elements are: Nonproduct Output, Shipped off-site as (or in) Product, and Consumed. The NJDEP has calculated Use quantities for each chemical record submitted by covered facilities.

Use Trends for Core Universe

Table 4 presents trends in statewide Use of hazardous substances between 1994 and 2001, including the total annual pounds and production-adjusted quantities calculated by NJDEP. This trend shows that the quantities used increased at a slow rate between 1994 and 1997, but saw the biggest increase in 1998. Use decreased in 1999, increased again in 2000, and then decreased in 2001. Overall for the period, quantities of hazardous substance Use increased by 8% or 1.1 billion pounds using unadjusted quantities.

When impacts from production are considered, the trend in Use reverses, and shows a slight decrease. This means that facilities are being more efficient in their Use of hazardous substances; however production increases are outpacing these efficiency gains. Overall for the period, Use of hazardous substances decreased by 2% when production adjustments are considered.

[9] The method used to calculate the statewide, weighted average production index is similar to the method used by the State of Massachusetts, Toxics Use Reduction Program. Please see "Measuring Progress in Toxic Use Reduction and Pollution Prevention," Technical Report No. 30, 1996, p. 7-5.

Toxics in product comprise the majority of hazardous substances used, accounting for approximately 87% of all substances used in 2001. Therefore, the trend for quantities shipped as (or in) product closely follows the trend in Use. Quantities of hazardous substances shipped in products increased by 4% between 1994 and 2001 using adjusted quantities. This increase in the quantity of toxics shipped in product is responsible for the general lack of progress in reducing Use. Due to the importance of this issue, the NJDEP is now conducting a more detailed analysis focused on toxics in products and plans to publish a separate report. An initial analysis of the Core Universe shows that refinery products (gasoline, fuel oil, etc) account for 90% of the toxics in products and accounts for most of the increases. An initial review of the Core Universe excluding refineries shows the same lack of progress in reducing toxics in product when compared to NPO and Release trends (see Appendix C for more details on the impacts of refineries). While some of the remaining toxics may be in products where exposure to the public is not likely—such as metal fabrication—others may be contained in products where potential exposures do exist. It is important to use New Jersey's unique materials accounting data to take a closer look at trends and potential exposures from toxics contained in products.

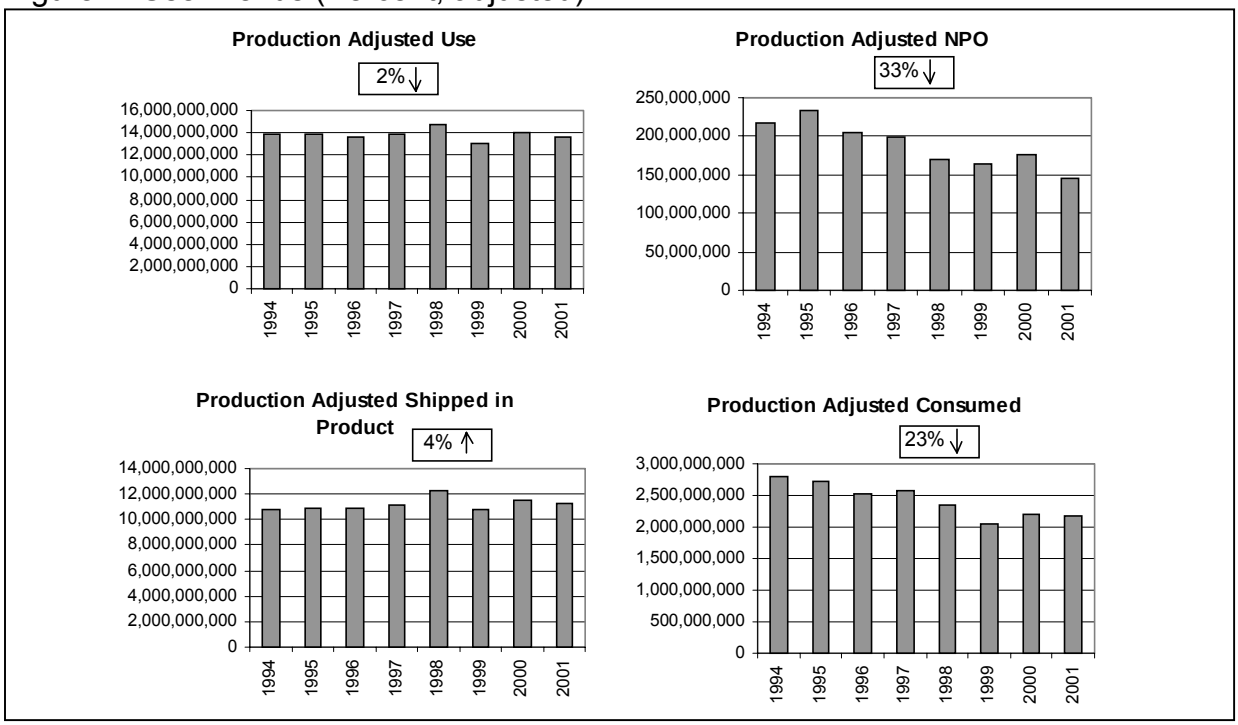
The trend for quantities consumed in manufacturing operations moved in the opposite direction compared to quantities shipped in products, decreasing by 23% (production adjusted) for the period. The trends in quantities consumed showed a fluctuating but certain decline of 635 million pounds for the period.

Quantities of hazardous substances generated as NPO showed the biggest percentage declines for the period—achieving a 33 % reduction using adjusted quantities. However, since NPO is a much smaller component of Use, accounting for only 1% of Use in 2001, reductions in NPO do not drive trends in Use reduction.

Table 4. Components of Use (pounds, Core)

	USE		**Nonproduct Output**		**Shipped as (or in) Product**		**Consumed**		**Weighted Production Index**	
Year	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	**Yearly**	**Cum**
1994	13,824,248,003	13,824,248,003	217,888,932	217,888,932	10,797,827,924	10,797,827,924	2,808,531,147	2,808,531,147	1.00	1.00
1995	13,912,432,280	14,635,878,759	234,629,257	246,829,978	10,950,895,804	11,520,342,386	2,726,907,220	2,868,706,395	1.05	1.05
1996	13,583,697,063	15,261,772,663	204,113,465	229,328,826	10,858,465,089	12,199,876,432	2,521,118,509	2,832,567,405	1.07	1.12
1997	13,929,267,302	15,728,283,434	198,860,752	224,544,350	11,152,069,754	12,592,400,602	2,578,336,796	2,911,338,482	1.01	1.13
1998	14,751,666,831	17,989,450,799	170,570,751	208,008,639	12,226,122,998	14,909,585,517	2,354,973,082	2,871,856,643	1.08	1.22
1999	12,994,103,799	15,592,589,296	163,793,596	196,548,089	10,784,721,167	12,941,387,142	2,045,589,037	2,454,654,066	0.98	1.20
2000	13,957,313,926	15,944,492,599	175,981,389	201,036,816	11,575,371,315	13,223,419,868	2,205,961,222	2,520,035,916	0.95	1.14
2001	13,597,144,743	14,911,722,405	146,205,649	160,340,872	11,277,406,658	12,367,711,068	2,173,532,438	2,383,670,466	0.96	1.10
Total Change	-227,103,260	+ 1,087,474,402	-71,683,283	-57,548,060	+ 479,578,734	+ 1,569,883,144	-634,998,709	-424,860,681	**10% increase**	
Percent Change	- 2%	+ 8%	- 33%	- 26%	+ 4%	+ 15%	- 23%	- 15%		
	reduction	increase	reduction	reduction	increase	increase	reduction	reduction		

Figure 2. Use Trends (Percent, adjusted)

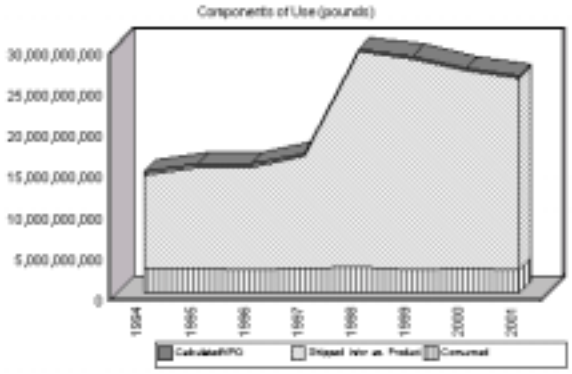


Use Trends for All Reporting Facilities

Figure 3 below presents the Use trends for all facilities, expanding beyond the Core Universe previously discussed. This analysis presents all data reported to NJDEP and includes data on new chemicals and SIC codes as they were added through changes in reporting requirements over time. Figure 3 shows a significant increase in the shipped as (or in) product category beginning in 1998, followed by a gradual decrease for years 1999, 2000, and 2001.

This increase is due largely to EPA adding SIC codes to the reporting universe. These new reporters included SIC code 5171, petroleum bulk storage facilities that store finished petroleum products and began reporting the RPPR in 1998. SIC code 5171 reported 10.2 billion pounds of Use of hazardous substances in 1998 and accounts for 80% of the increase for that year.

Figure 3. Components of Use (All)



Year	Consumed	In Product	NPO	Calculated Use
1994	3,029,353,313	11,334,710,812	371,807,774	14,735,871,899
1995	2,975,410,538	12,316,514,586	361,834,152	15,653,759,276
1996	2,922,657,107	12,414,086,344	326,599,996	15,663,343,447
1997	3,049,328,851	13,663,159,717	326,788,969	17,039,277,537
1998	3,221,778,825	26,136,202,039	376,680,274	29,734,661,138
1999	2,797,006,686	25,688,854,855	357,476,578	28,843,138,118
2000	2,966,364,916	24,049,753,085	353,159,837	27,369,277,840
2001	2,796,891,299	23,316,399,163	281,096,379	26,394,386,841

B. NPO

NPO is a measure of hazardous substances generated prior to any sort of treatment or control at industrial facilities. By measuring NPO quantities before treatment, it provides additional insight into whether reductions are due to pollution prevention (i.e., making production processes more efficient) or to the installation of more effective treatment or control devices. Much of the NPO generated at industrial facilities is subsequently treated in some way to reduce the amount of hazardous substances released to the environment.

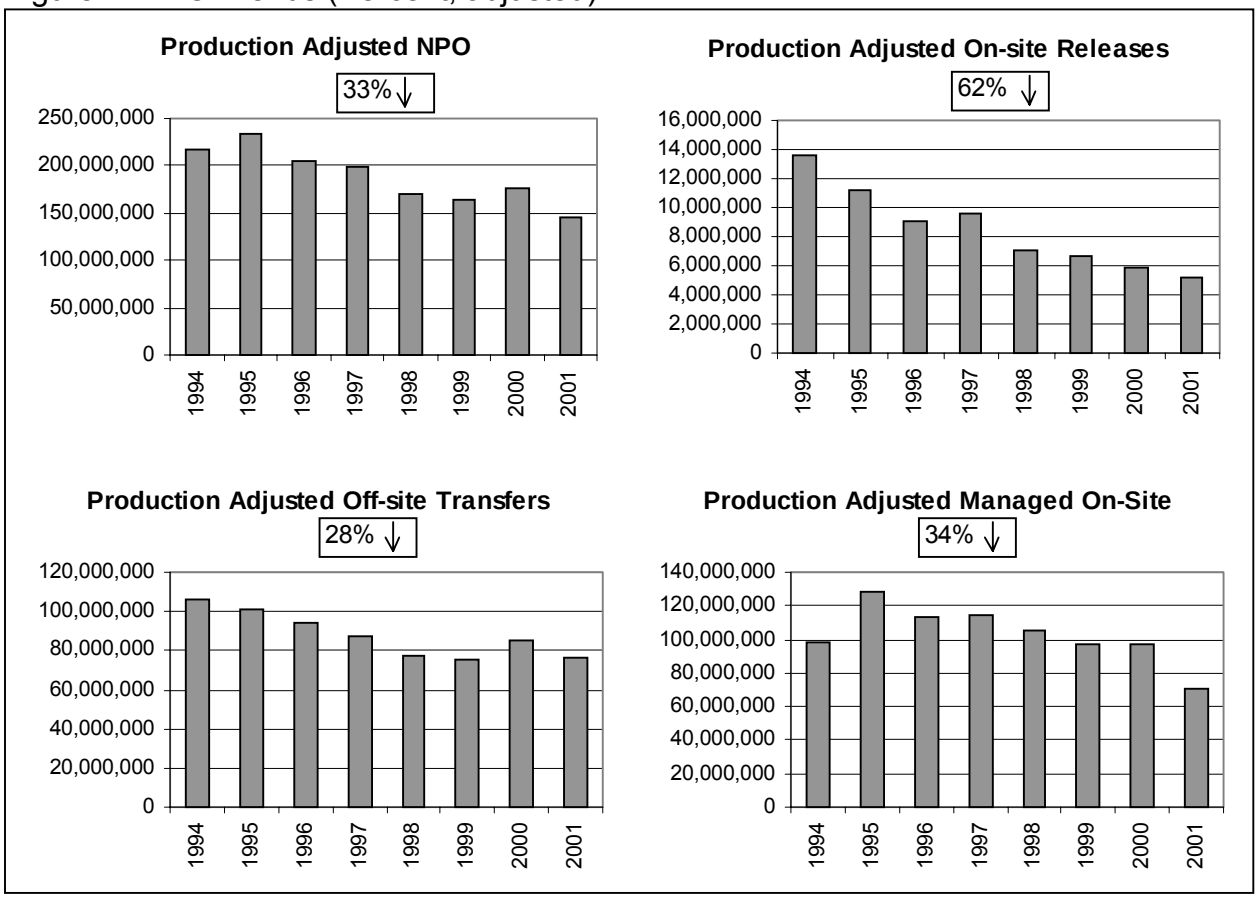
NPO Trends for Core Universe

Table 5 below presents the trends in the statewide generation of NPO including adjusted and unadjusted quantities. This table shows that the generation of NPO peaked in 1995 and has shown consistent reductions each year from 1995 to 2001, with 2000 the only year with an increase. Overall, facilities reduced the generation of NPO by 33% or nearly 71.7 million pounds during the period when adjusted for production.

Table 5. NPO indexed for Production (Core)

	Nonproduct Output		On-Site Releases		Off-Site Transfers		Managed On-Site	
Year	NPO (Adjusted)	NPO	On-Site Releases (Adjusted)	On-Site Releases	Off-Site Transfers (Adjusted)	Off-Site Transfers	Managed On-Site (Adjusted)	Managed On-Site
1994	217,888,932	217,888,932	13,659,206	13,659,206	106,055,181	106,055,181	98,174,545	98,174,545
1995	234,629,257	246,829,978	11,235,382	11,819,622	101,416,374	106,690,025	121,977,501	128,320,331
1996	204,113,465	229,328,826	9,049,432	10,167,363	94,635,652	106,326,562	100,428,381	112,834,901
1997	198,860,752	224,544,350	9,651,815	10,898,382	87,568,937	98,878,788	101,640,000	114,767,180
1998	170,570,751	208,008,639	7,099,577	8,657,834	77,237,168	94,189,643	86,234,007	105,161,162
1999	163,793,596	196,548,089	6,713,684	8,056,247	75,767,613	90,919,181	81,312,299	97,572,661
2000	175,981,389	201,036,816	5,923,341	6,766,679	85,306,036	97,451,520	84,752,011	96,818,616
2001	146,205,649	160,340,872	5,193,272	5,695,360	76,275,429	83,649,769	64,736,948	70,995,743
Total Change	-71,683,283	-57,548,060	-8,465,934	-7,963,846	-29,779,752	-22,405,412	-33,437,597	-27,178,802
Percent Change	- 33% reduction	- 26% reduction	- 62% reduction	- 58% reduction	- 28% reduction	- 21% reduction	- 34% reduction	- 28% reduction

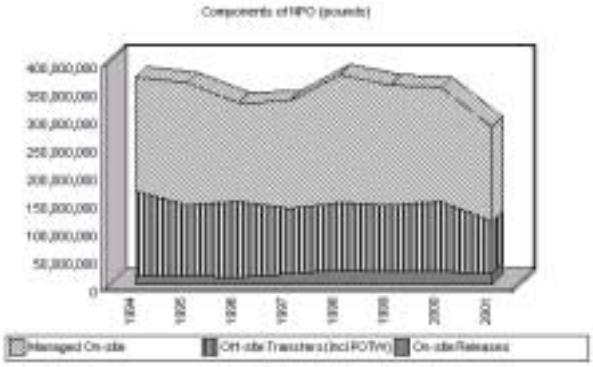
Figure 4. NPO Trends (Percent, adjusted)



NPO Trends for All Reporting Facilities

Figure 5 illustrates the NPO trend for all facilities in New Jersey and includes the new SICs and chemicals as they were added through time. Even with the addition of these new facilities, the trend for NPO still is decreasing through time. Off-site transfers and on-site management both show decreases; however, releases show increases over time—increasing from 15.2 million (1994) to 17.9 million pounds (2001). This means that the new reporting requirements are capturing additional releases and providing additional information to the public.

Figure 5. Components of NPO (All)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	371,807,774	15,235,088	150,770,659	205,802,027
1995	361,834,152	14,337,979	127,964,755	219,531,418
1996	326,599,996	12,099,429	135,382,826	179,117,741
1997	326,788,969	17,985,047	117,918,421	190,885,501
1998	376,680,274	24,337,507	121,231,466	231,111,301
1999	357,476,578	23,098,076	118,888,526	215,489,976
2000	353,159,837	23,116,185	124,970,153	205,073,499
2001	281,096,379	17,894,039	95,402,586	167,799,754

C. Releases and Transfers

Hazardous substances released into the environment are of particular importance due to potential exposure to residents and impacts to the environment. This section presents trends for releases to all environmental media; air, water, and land. This section also reviews trends for off-site transfers of waste for treatment at other facilities. Reductions in releases can be the result of pollution prevention or more effective treatment, but it is not possible to pinpoint the activity leading to the reduction.

Trends in Releases in Core Group

Table 6 presents statewide trends for on-site air, water and land releases. Stack air emissions comprise most of the releases in the state, accounting for 65% of all releases in 2001. Stack air emissions decreased between 1994 to 1996, but saw a slight increase in 1997. Then stack emissions continued a steady decline from 1997 to 2001. Overall, stack air emissions decreased by 56% or 3.9 million pounds for the period when adjusted for production. Fugitive air emissions (adjusted) steadily decreased by 73% or 4.5 million pounds during this period.

Surface water discharges moved in the opposite direction and have generally increased. Surface water discharges comprise a smaller portion of releases in the state, accounting for 20% of all releases in 2001. Surface water releases increased between 1994 to 1996, then decreased in 1997 and 1998. Surface water discharges increased from 1998 to 2001, when surface water releases increased to their highest levels for the period. Overall, surface water discharges increased by 95% or 121.8 thousand pounds when adjusted for production. This increase is mainly due to increases in glycol ether discharges (over 180,000 lbs.) from DuPont Chambersworks in Pennsville.

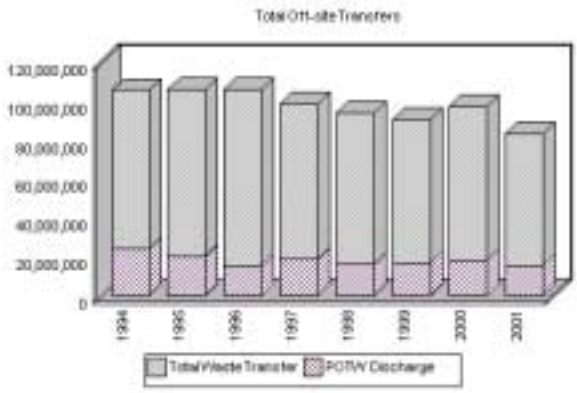
Table 6. Components of On-Site Releases (Core Group)

Report Year	Stack Air Emissions (Adjusted)	Stack Air Emissions	Fugitive Air Emissions (Adjusted)	Fugitive Air Emissions	Surface Water Discharge (Adjusted)	Surface Water Discharge	Ground Water Discharge (Adjusted)	Ground Water Discharge	Land Disposal On-site (Adjusted)	Land Disposal On-Site
1994	6,913,919	6,913,919	6,156,716	6,156,716	128,623	128,623	6	6	459,942	459,942
1995	6,563,747	6,905,062	4,415,784	4,645,405	158,053	166,272	1,150	1,210	96,647	101,673
1996	5,568,945	6,256,910	2,987,085	3,356,098	201,386	226,264	22	25	291,994	328,066
1997	5,821,820	6,573,730	2,851,770	3,220,087	194,811	219,971	6	7	783,407	884,587
1998	4,268,612	5,205,513	2,516,608	3,068,968	116,263	141,781	11	14	198,082	241,558
1999	3,668,297	4,401,862	2,745,752	3,294,831	165,377	198,448	6	7	134,251	161,098
2000	3,447,364	3,938,184	2,207,389	2,521,667	164,452	187,866	9	10	104,128	118,953
2001	3,015,450	3,306,985	1,692,313	1,855,927	250,468	274,683	4	4	235,037	257,760
Total Change	-3,898,469	-3,606,934	-4,464,403	-4,300,789	+ 121,845	+ 146,060	-2	-2	-224,905	-202,182
Percent Change	- 56% reduction	- 52% reduction	- 73% reduction	- 70% reduction	+ 95% increase	+ 114% increase	- 39% reduction	- 33% reduction	- 49% reduction	- 44% reduction

Trends in Transfers in Core Group

Figure 6 presents trends for components of off-site transfers. Total off-site transfers decreased by 21.1% or 22.4 million pounds. While this is a significant reduction, off-site transfers showed the smallest percent reduction for any of the components of NPO.

Figure 6. Off-site Transfers (Core Group)



Report Year	POTW Discharge	Total Waste Transfer	Total Off-site Transfers
1994	24,348,874	81,706,307	106,055,181
1995	20,050,673	86,639,352	106,690,025
1996	15,370,432	90,956,130	106,326,562
1997	18,746,897	80,131,891	98,878,788
1998	16,254,541	77,935,102	94,189,643
1999	16,803,459	74,115,722	90,919,181
2000	17,983,487	79,468,033	97,451,520
2001	15,605,616	68,044,153	83,649,769

Trends in Releases and Transfers - All Reporting Facilities

Table 7 illustrates the components of on-site releases and off-site transfers for all facilities. Even with the expanded list of industries and chemicals covered by this reporting universe, most of the categories show reductions. However, stack air emissions and surface water discharges are two categories that show increased compared to the earlier years. This indicates that the new reporting requirements are bringing previously unreported releases into public view.

Table 7. On-Site Releases and Off-Site Transfers (All)

Report Year	1994	1995	1996	1997	1998	1999	2000	2001
Recycled & Reused on-site	15,266,099	18,610,478	23,116,859	24,851,665	16,222,699	19,302,399	22,624,554	15,581,709
Destroyed on-site	157,038,791	159,230,955	130,203,181	138,863,087	193,127,556	171,996,078	176,114,768	145,898,567
Energy Recovered on-site	20,533,479	20,412,465	21,661,213	20,671,187	15,786,239	8,533,210	5,534,295	6,441,236
Stack Air Emissions	7,738,947	7,831,440	7,052,802	7,527,299	14,023,011	13,324,884	14,483,253	11,704,903
Fugitive Air Emissions	6,429,953	6,016,125	3,501,371	3,440,805	3,482,573	3,719,205	2,928,334	2,237,531
Surface Water Discharge	606,072	1,387,531	1,174,910	6,063,047	6,241,746	5,473,355	5,544,036	3,657,867
Ground Water Discharge	6	1,210	25	7	14	7	10	4
POTW Discharge	30,010,338	39,761,290	44,119,249	35,692,985	34,279,273	36,828,811	36,707,581	21,616,630
Land Disposal on-site	460,110	101,673	370,521	953,889	590,163	580,624	160,551	293,734
Total Waste Transfer	120,760,321	88,203,465	91,263,577	82,225,436	86,952,193	82,059,715	88,262,573	73,785,956
EI(NPO) - SI(NPO)	12,963,658	21,277,520	4,136,488	6,499,562	5,974,807	15,658,289	799,882	-121,757

D. Summary of Statewide Trends

The most obvious finding from assessing trends for the Core Universe statewide is that these facilities substantially decreased hazardous substances generated as NPO and released into the environment. Even though production levels increased by 10%, these facilities decreased their NPO generation by 26% and decreased releases of hazardous substances by 58%. When you adjust the quantities for production, NPO decreased by 33% and releases decreased by 62%. This means that these facilities achieved statewide reductions by improving efficiency and implementing pollution prevention measures.

Overall, New Jersey facilities in the Core Universe made less progress reducing the Use of hazardous substances compared to NPO and releases. These facilities actually increased the Use of hazardous substances by 8%, when using unadjusted quantities. When you adjust the quantities for production, Use decreased by 2%. This means that increases in production have outpaced any efficiency improvements. The lack of progress in reducing Use is caused by increases in the quantity of toxics shipped as (or in) product. The quantity of hazardous substances shipped in product is the only component that increased during the period using both annual pounds and production-adjusted quantities, which increased by 15% using unadjusted quantities and 4% when adjusted for production. Refinery products (gasoline, fuel oil, etc) account for 90% of the toxics in products and also account for most of the increases. An initial review of the Core Universe excluding refineries shows the same lack of progress reducing toxics in product when compared to NPO and release trends (see Appendix C for a more details on the impacts of refineries). Due to the importance of this issue the NJDEP is currently conducting a more detailed analysis of toxics in product and plans to publish a separate report on the subject.

IV. Chemical, Facility, and SIC Code Analysis

Previous sections of this report analyzed trends broadly for the state as a whole by looking at the total quantity of hazardous substances for all facilities combined. This combined analysis showed significant downward trends at the state level for hazardous substance NPO generation and releases, with mixed progress reducing Use. Trends seen at the state level are, of course, based on changes occurring at individual facilities located in communities throughout the state. This section begins to look at how changes at specific facilities relate to trends seen at the state level. This analysis looks at decreases and increases in NPO, Releases, and Use for specific chemicals and facilities to help highlight changes that are consistent with and may be driving statewide trends as well as changes that are moving in the opposite direction. The NJDEP uses this analysis and other information to help identify priorities to address in the future through actions such as new or modified regulations, changes to compliance inspection schedules, additional compliance and technical assistance or review of permit limits.

A. Chemical Specific Changes

In evaluating statewide trends for specific chemicals, this section of the report looks at how changes at multiple facilities impact a single chemical. Are increases or decreases for a chemical primarily the result of a single facility, or are changes part of a broader trend where a larger number of facilities are making similar changes? To determine the pattern of changes for specific chemicals, we first developed a statewide distribution for the number of chemicals with increases, decreases, or no changes. This chemical specific analysis uses unadjusted quantities and is also limited to the core group of chemicals and SIC codes and includes all facilities that reported these chemicals.

Table 8 below presents the results of this distribution. As expected, more chemicals decreased compared to those that increased. Of the 197 core chemicals reported, over 60% of the chemicals decreased statewide. Chemical releases decreased the most, with 70% of chemicals showing decreases.

The distribution also shows that certain chemicals increased statewide. For example, 34% of the chemicals increased NPO generation and 22% increased on-site releases. It is important to take a closer look at chemicals that are increasing through time to determine if there are any trends that warrant additional action to reduce potential impacts to human health and the environment.

Table 8. Distribution of Chemical Increases and Decreases

Change Category	Use	NPO	Release
Decrease	134	121	137
No Change	0	9	17
Increase	63	67	43
Percent of chemicals with Decreases	68%	61%	70%
Percent of chemicals with Increases	32%	34%	22%

Top 10 Chemical-specific changes in Use, NPO Generation, and Releases

In this section we take a closer look at specific chemicals that decreased and increased the most statewide. This analysis included three steps:

- First, we ranked the data to identify chemicals with the top 10 increases and top 10 decreases for Use, NPO generation, and on-site releases.

- Second, we counted the number of facilities that increased or decreased for each chemical. These rankings and counts are presented in Tables 9, 10, and 11 for Use, NPO, and releases, respectively.

- Finally, we identified the specific facilities that are the biggest contributors to these changes statewide. These facility-specific changes are found in tables in Appendix E. Tables in Appendix E include the top 5 facilities for each top 10 chemical.

Table 9 identifies chemicals with the top 10 increases and decreases in quantities used. Due to domestic security concerns, we will not discuss quantities of individual hazardous substances used by specific facilities and there are no corresponding tables in Appendix E. However, we can discuss broad categories of changes in Use.

Large decreases or increases are often caused by changes in the quantities used by a small group of large facilities, such as refineries. This is particularly the case for increases, where refineries are responsible for 8 out of the top 10 chemical increases.

Reductions in Use for specific chemicals are similarly attributed to only a few facilities. However, refineries do not drive Use decreases. Only two of the top 10 reductions (propylene and naphthalene) are largely attributed to decreases at refineries. The largest reductions in Use are from chemical and plastics manufacturers.

Five chemicals (methyl-tert-butyl-ether, 1,2,4-trimethylbenzene, cyclohexane, lead, and lead compounds[10]) had more facilities reporting increases than decreases (ratio of increase/decrease greater than 1). For all other chemicals, the number of facilities reporting decreases exceeded the number of increases. Seven chemicals had ratios less than 0.5—meaning that the number of decreasers more than doubled the increasers.

[10] Changes for lead and lead compounds are impacted by changes in reporting where lower reporting thresholds required additional facilities to report beginning in 1998. These facilities show up as increases in this analysis.

Table 9. Top Ten Chemical Increases and Decreases in Use (pounds, unadjusted)

CAS Number	Chemical Name	# of Facilities Increase	# of Facilities Decrease	Ratio of Increases to Decrease	1994 Use	2001 Use	Change
Increase							
1330-20-7	XYLENE (MIXED ISOMERS)	38	77	0.49	2,649,058,891	3,010,173,029	361,114,138
1634-04-4	METHYL TERT-BUTYL ETHER	5	3	1.67	2,050,474,112	2,362,853,592	312,379,480
95-63-6	1,2,4-TRIMETHYLBENZENE	27	22	1.23	544,413,470	761,297,679	216,884,209
110-82-7	CYCLOHEXANE	9	6	1.50	349,396,075	546,444,492	197,048,417
7440-66-6	ZINC (FUME OR DUST)	5	8	0.63	12,086,097	207,231,035	195,144,938
98-82-8	CUMENE	10	11	0.91	205,872,772	378,220,443	172,347,671
108-88-3	TOLUENE	40	102	0.39	2,168,948,406	2,330,446,825	161,498,419
100-41-4	ETHYLBENZENE	22	25	0.88	751,778,453	856,413,186	104,634,733
74-85-1	ETHYLENE	3	3	1.00	147,857,990	229,550,416	81,692,426
7439-92-1	LEAD	53	15	3.53	13,868,046	68,764,405	54,896,359
Decrease							
115-07-1	PROPYLENE [PROPENE]	3	7	0.43	1,123,813,940	749,631,541	-374,182,399
108-05-4	VINYL ACETATE	6	11	0.55	203,085,709	107,193,756	-95,891,953
75-01-4	VINYL CHLORIDE		3		495,787,786	429,518,079	-66,269,707
91-20-3	NAPHTHALENE	13	14	0.93	382,019,213	327,859,560	-54,159,653
7697-37-2	NITRIC ACID	22	30	0.73	120,758,162	76,679,614	-44,078,548
N420	LEAD COMPOUNDS	52	31	1.68	104,624,545	70,857,878	-33,766,667
85-44-9	PHTHALIC ANHYDRIDE	3	16	0.19	82,546,496	57,400,616	-25,145,880
78-93-3	METHYL ETHYL KETONE	29	62	0.47	32,676,842	10,498,919	-22,177,923
96-33-3	METHYL ACRYLATE	3	5	0.60	21,435,220	1,998,136	-19,437,084
100-44-7	BENZYL CHLORIDE	1	5	0.20	75,878,711	57,040,397	-18,838,314

Due to the large impact that refineries have on chemical Use statewide, this section also evaluates changes in chemical Use excluding the refineries. The results excluding refineries are presented in Table 9A. New chemicals in the top 10 increase list are used in a variety of industries including metals (zinc compounds, aluminum, and antimony compounds), plastics (styrene, methyl methacrylate), and chemicals (phosgene, and ethylene glycols).

New chemicals on the top 10 decrease list include methanol, toluene, and xylene. Plastics and chemical manufacturers are common users of these chemicals.

Table 9A. Top Ten Chemical Increases and Decreases in Use (pounds, unadjusted) Excluding Refineries

CAS Number	Chemical Name	# of Facilities Increase	# of Facilities Decrease	Ratio of Increase to Decrease	1994 Use	2001Use	Change
Increase							
7440-66-6	ZINC (FUME OR DUST)	5	8	0.63	12,086,097	207,231,035	195,144,938
7439-92-1	LEAD	51	15	3.40	13,868,046	68,756,243	54,888,197
7439-96-5	MANGANESE	7	18	0.39	2,224,245	36,510,586	34,286,341
N982	ZINC COMPOUNDS	47	48	0.98	21,051,696	49,839,291	28,787,595
100-42-5	STYRENE	12	15	0.80	175,117,871	203,018,412	27,900,541
75-44-5	PHOSGENE	1	1	1.00	57,933,401	73,492,923	15,559,522
N010	ANTIMONY COMPOUNDS	13	20	0.65	4,895,074	15,778,055	10,882,981
7429-90-5	ALUMINUM (FUME OR DUST)	6	5	1.20	1,102,087	9,452,754	8,350,667
80-62-6	METHYL METHACRYLATE	8	10	0.80	7,690,164	15,231,192	7,541,028
107-21-1	ETHYLENE GLYCOL	21	46	0.46	174,002,375	181,220,904	7,218,529
Decrease							
115-07-1	PROPYLENE [PROPENE]	2	5	0.40	351,762,680	147,647	-351,615,033
108-05-4	VINYL ACETATE	6	10	0.60	203,017,140	107,126,197	-95,890,943
75-01-4	VINYL CHLORIDE		3		495,787,786	429,518,079	-66,269,707
7697-37-2	NITRIC ACID	22	30	0.73	120,758,162	76,679,614	-44,078,548
N420	LEAD COMPOUNDS	48	31	1.55	104,596,942	70,739,542	-33,857,400
85-44-9	PHTHALIC ANHYDRIDE	3	16	0.19	82,546,496	57,400,616	-25,145,880
78-93-3	METHYL ETHYL KETONE	28	61	0.46	32,666,571	10,494,739	-22,171,832
67-56-1	METHANOL	42	74	0.57	64,073,498	42,682,075	-21,391,423
108-88-3	TOLUENE	35	101	0.35	94,972,803	74,485,028	-20,487,775
1330-20-7	XYLENE (MIXED ISOMERS)	33	75	0.44	56,694,880	36,516,795	-20,178,085

Table 10 identifies chemicals with the top 10 increases and decreases in NPO generation. Similar to the Use trends, increases in NPO are often caused by a few large facilities. Increases for 8 of the top 10 chemicals are mainly due to a single facility—with the top facility accounting for over 50% of the statewide increase. (See Table E1 in Appendix E for facility-specific details of the top 5 increases.)

NPO reductions are also driven by large changes at a few facilities, with a single facility accounting for over 50% of statewide reductions for 8 of 10 chemicals. (See Table E2 in Appendix E for facility-specific data.)

Only three chemicals (lead, acetonitrile, and aluminum (fume or dust)) have more facilities reporting increases than decreases. For all other chemicals, the number of facilities reporting decreases exceeded those reporting increases with seven chemicals having twice the number of facilities reporting decreases compared to increases.

Table 10. Top Ten Chemical Increases and Decreases in NPO (pounds, unadjusted)

CAS Number	Chemical Name	# of Facilities Increase	# of Facilities Decrease	Ratio of Increase to Decrease	NPO 1994	NPO 2001	Change
Increase							
N982	ZINC COMPOUNDS	45	48	0.94	1,526,008	4,621,935	3,095,927
107-21-1	ETHYLENE GLYCOL	16	46	0.35	2,183,994	3,629,349	1,445,355
7439-92-1	LEAD	47	10	4.70	921,770	1,977,010	1,055,240
75-65-0	TERT-BUTYL ALCOHOL	3	4	0.75	228,035	1,233,015	1,004,980
108-88-3	TOLUENE	45	97	0.46	20,820,828	21,739,870	919,042
7550-45-0	TITANIUM TETRACHLORIDE	1	1	1.00	7,074	851,789	844,715
75-05-8	ACETONITRILE	5	3	1.67	190,380	980,304	789,924
7429-90-5	ALUMINUM (FUME OR DUST)	6	5	1.20	83,576	731,301	647,725
100-41-4	ETHYLBENZENE	20	27	0.74	1,065,923	1,577,263	511,340
7440-47-3	CHROMIUM	17	21	0.81	1,088,094	1,554,425	466,331
Decrease							
115-07-1	PROPYLENE [PROPENE]	3	5	0.60	19,141,382	3,217,536	-15,923,846
67-56-1	METHANOL	41	76	0.54	35,700,787	26,291,599	-9,409,188
7697-37-2	NITRIC ACID	23	27	0.85	19,935,276	12,320,903	-7,614,373
7440-66-6	ZINC (FUME OR DUST)	1	9	0.11	9,785,837	4,981,381	-4,804,456
7664-39-3	HYDROGEN FLUORIDE	6	6	1.00	8,563,041	3,814,439	-4,748,602
75-09-2	DICHLOROMETHANE	8	35	0.23	5,439,978	1,079,845	-4,360,133
N100	COPPER COMPOUNDS [WITH EXCEPTIONS]	13	26	0.50	3,663,717	215,988	-3,447,729
95-50-1	1,2-DICHLOROBENZENE		3		3,428,645	470,072	-2,958,573
78-93-3	METHYL ETHYL KETONE	30	60	0.50	8,233,724	6,451,040	-1,782,684
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	30	67	0.45	4,232,177	2,462,601	-1,769,576

Table 11 identifies chemicals with the top 10 increases and decreases in on-site releases. Release increases follow the same "large facility" trend, with a single facility accounting for essentially all of the increases for 9 out of the top 10 chemicals. Six out of the top 10 chemical increases (zinc compounds, cyclohexane, manganese compounds, copper compounds, ethylene glycol, and epichlorohydrin) are due to one facility, the DuPont Chambersworks facility in Salem County. While DuPont significantly reduced releases of other chemicals resulting in overall reductions for the facility, increases for these six chemicals outpaced reductions achieved by other facilities statewide. Other facilities contributing to large release increases include phenol at the Hess Refinery in Woodbridge, styrene at two boat manufacturing facilities (Viking Yacht in New Gretna and Post Marine Co. in Mays Landing), cyanide compounds at Coastal Eagle Point in West Deptford, and 2,2-dichloro-1,1,1-trifluoroethane at Solvay Solexix in Thorofare (see Table E3 in Appendix E for additional details).

Decreases in releases are the only situation that does not follow the "large facility" model driving statewide trends. Instead of large reductions by a few facilities, release reductions for the states' top 10 chemicals are more often the result of the actions of numerous smaller decreases. Only two chemicals have reductions over 75% attributed to a single facility—methanol and dichloromethane. Reductions for six of the 10 chemicals, are the result of the combined actions

of over 40 facilities for each chemical, with the top reduction accounting for less than 40% of the state total (see Table E4 in Appendix E for facility-specific data).

Only three chemicals (zinc compounds, cyclohexane, and epichlorohydrin) have more facilities reporting increases compared to decreases. The chemical-specific analysis of releases shows there are no apparent shifts by a large number of facilities reporting increases of a specific chemical. Instead, increases are caused by only one or two facilities.

Table 11. Top Ten Chemical Increases and Decreases in Release (pounds, unadjusted)

CAS Number	Chemical Name	# of Facilities Increase	# of Facilities Decrease	Ratio of Increase to Decrease	Release 1994	Release 2001	Change
Increase							
N982	ZINC COMPOUNDS	34	31	1.10	53,614	163,351	109,737
108-95-2	PHENOL	3	10	0.30	22,889	72,609	49,720
100-42-5	STYRENE	10	17	0.59	146,385	171,402	25,017
110-82-7	CYCLOHEXANE	7	6	1.17	34,453	58,073	23,620
N106	CYANIDE COMPOUNDS	1	3	0.33	18,238	39,060	20,822
306-83-2	2,2-DICHLORO-1,1,1-TRIFLUOROETHANE	1	1	1.00	9	19,270	19,261
N450	MANGANESE COMPOUNDS	8	9	0.89	4,146	21,245	17,099
N100	COPPER COMPOUNDS [WITH EXCEPTIONS]	9	13	0.69	3,471	19,247	15,776
107-21-1	ETHYLENE GLYCOL	11	35	0.31	27,080	37,048	9,968
106-89-8	EPICHLOROHYDRIN	3	2	1.50	1,614	11,491	9,877
Decrease							
67-56-1	METHANOL	34	79	0.43	1,987,962	430,114	-1,557,848
108-88-3	TOLUENE	37	101	0.37	1,694,730	866,762	-827,968
1330-20-7	XYLENE (MIXED ISOMERS)	29	83	0.35	1,412,245	650,706	-761,539
75-09-2	DICHLOROMETHANE	8	34	0.24	824,913	141,483	-683,430
71-55-6	1,1,1-TRICHLOROETHANE	1	39	0.03	483,599	5	-483,594
78-93-3	METHYL ETHYL KETONE	24	66	0.36	737,827	365,613	-372,214
71-36-3	N-BUTYL ALCOHOL	15	44	0.34	558,676	199,557	-359,119
79-01-6	TRICHLOROETHYLENE	3	9	0.33	385,607	106,393	-279,214
76-13-1	FREON 113		11		279,594	6,377	-273,217
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	28	59	0.47	696,021	467,863	-228,158

B. Facility Specific Changes

The previous section of this report looked at changes to specific chemicals showing how multiple facilities impact statewide trends. In this section, we take a different look at the data and evaluate trends for multiple chemicals at individual facilities. Facilities often switch substances from year to year, or increase one chemical but decrease another, and it is important to evaluate the combined impacts of these changes. The facility-specific analysis is useful to highlight

facilities with the biggest changes, and to pinpoint geographically where increases and decreases are taking place.

The facility-specific analysis evaluates total core hazardous substances reported by each facility and is limited to the core universe of chemicals and SIC codes. If a facility reported a chemical in 1994 but not in 2001, this would count as a reduction in this analysis. New facilities that began reporting after 1994 are not included in this analysis. As a caveat, due to changes in facility ownership and minor differences in facility identification information reported in different years it is sometimes difficult to match facilities through time and be certain it is the same facility. We have attempted to match as many facilities as possible in completing this analysis.[11] As our data systems improve over time, our ability to accurately match the total universe of facilities will also improve.

Number of Facilities With Increases and Decreases (unadjusted)

Like the chemical analysis, we first developed a statewide distribution to count the number of facilities reporting increases, decreases, or no changes to determine the pattern of facility changes. Table 12 presents the results of this distribution. As expected, the majority of facilities decreased their quantities of hazardous substances between 1994 and 2001. The analysis shows that the number of facilities reporting reductions is in a consistent range between 70% –80% for the quantities used, generated as NPO, and released.

Table 12. Number of Facilities with Increases and Decreases

Change Category	Use	NPO	Release
Decrease	442	421	444
No Change	1	26	45
Increase	141	137	95
Percent of Facilities with Decreases	76%	72%	76%
Percent of Facilities with Increases	24%	23%	16%
Number of Nonreporters *	258	258	258
Percent of decreases that are Nonreporters	58%	61%	58%

* Nonreporters are facilities that reported in 1994 but not in 2001.

Top 10 Facility-specific changes in Use, NPO, and Release

After developing the distribution for facility changes, we conducted a more detailed analysis to evaluate increases and decreases at specific facilities. We conducted a two-step analysis similar to the chemical analysis:

[11] Our current analysis matches a total of 326 facilities - 270 facilities by ID number and 56 facilities by address matching and manual review of facility identification information. The total core universe in 1994 included 584 facilities, therefore 258 facilities stopped reporting or changed facility identification information so they cannot be matched at this time.

- First, we ranked the data to identify facilities with the top 10 increases and top 10 decreases for Use, NPO generation, and on-site releases. These rankings are presented in Tables 13, 14, and 15.

- Second, we identified the specific chemicals that changed over time at these facilities. The chemical specific-data are found in Appendix F.

Table 13 identifies facilities with the top 10 increases and decreases in Use. Due to domestic security issues we will not discuss the quantity of specific chemicals used at these facilities, but we can discuss a few general issues to highlight these changes. As expected, petroleum refineries are the top contributors to changes in Use throughout the state. Refineries account for a large percentage of both increases and decreases in Use. Four refineries increased Use (Coastal Eagle Point, ConnocoPhillips, Valero, and Chevron), while one decreased Use (Amerada Hess).

Total increases and decreases in Use for the top facilities increased Use by 2.0 billion pounds. If these top facilities are excluded from the core universe, the trend for the remaining facilities shows a 10% decrease in Use instead of an 8% increase. This means that the top facilities in the state completely drive the trends for chemical Use. Increases in Use at these large facilities are masking decreases in Use reported by other facilities.

Table 13. Top 10 Facility Increases and Decreases in Use (Unadjusted)

ID	Facility Name	City	1994 Use	2001 Use	Use Difference
Increase					
62726900000	COASTAL EAGLE POINT OIL COMPANY	WEST DEPTFORD TWP	1,517,313,732	2,185,472,286	668,158,554
82980100000	CONOCOPHILLIPS COMPANY	LINDEN	5,339,506,309	5,855,898,807	516,392,498
00000001127	VALERO REFINING COMPANY NEW JERSEY	GREENWICH TWP	1,818,800,307	2,241,196,013	422,395,706
47667600000	CO-STEEL SAYREVILLE	SAYREVILLE	3,463,233	287,499,982	284,036,749
00115401005	CHEVRON PRODUCTS COMPANY	PERTH AMBOY	4,326,103	46,252,673	41,926,570
48990900011	BASF CORPORATION DEL	SOUTH BRUNSWICK TWP	153,229,481	178,741,112	25,511,631
60415600000	AMROD CORP	NEWARK	146,465,066	169,700,864	23,235,798
26715900000	OLD BRIDGE CHEMICALS, INC.	OLD BRIDGE TWP	17,498,402	37,931,630	20,433,228
87115100000	HONEYWELL-PRESTONE PRODUCTS	FREEHOLD TWP	142,699,566	162,938,811	20,239,245
91136700000	MADISON INDUSTRIES INC	OLD BRIDGE TWP	7,645,692	18,864,225	11,218,533
		TOTAL INCREASE	9,150,947,891	11,184,496,403	2,033,548,512
Decrease					
81411900000	HUNTSMAN POLYPROPYLENE CORP.	WEST DEPTFORD	351,724,469	NR	-351,724,469
67829000000	HOECHST CELANESE CHEMICAL GROUP	NEWARK	133,882,631	NR	-133,882,631
61372700000	AMERADA-HESS PORT READING-CORPORATION	PORT READING	1,619,928,184	1,564,830,064	-55,098,120
01122800002	MONSANTO COMPANY	LOGAN TWP	260,695,726	212,293,175	-48,402,551
90840700000	COLORITE SPECIALTY RESINS	BURLINGTON	102,760,968	60,124,918	-42,636,050
76248000000	HERCULES INCORPORATED	PARLIN	74,458,210	36,429,533	-38,028,677
83946800000	POLYONE CORPORATION	OLDMANS TWP	400,787,285	373,059,646	-27,727,639
00457000005	REICHHOLD CHEMICAL, INC.	NEWARK	20,214,760	NR	-20,214,760
49888100002	THE OKONITE CO. INC. -NEW-	PATERSON	19,722,725	NR	-19,722,725
33610600000	CIBA SPECIALTY CHEMICALS	OLD BRIDGE TOWNSHIP	21,349,835	5,543,163	-15,806,672
		TOTAL DECREASE	3,005,524,793	2,231,493,905	-753,244,294
		DIFFERENCE			1,280,304,218
		Statewide Change			1,087,474,402
		% OF STATEWIDE CHANGE FROM TOP FACILITIES			118%

The analysis in Table 13 above identified four facilities in the top 10 reductions that are "Nonreporters"—facilities that reported in 1994 but not in 2001. To give appropriate credit to facilities that reported in both years, we also identified additional facilities. If nonreporters are excluded from the analysis, the four facilities that would replace the nonreporters would be:

- NESOR ALLOY CORPORATION, WEST CALDWELL -12,407,140
- HATCO CORPORATION, FORDS -9,652,476
- AMSPEC CHEMICAL CORPORATION, GLOUCESTER CITY -9,047,241
- AIR PRODUCTS POLYMERS, L.P. SOUTH BRUNSWICK TWP -8,208,389

Table 14 lists facilities with the top 10 increases and decreases in NPO generation. These top facilities reduced NPO by 36 million pounds and account for 63% of all NPO reductions statewide. If these top facilities are excluded from the core universe the remaining facilities reduced NPO by 13% compared to the 26% reduction statewide. The top facilities and the remaining universe are both reducing NPO. The state's largest facilities account for most of the NPO reductions.

Table F1 in Appendix F presents chemical-specific data reported by the top 10 facilities for NPO increases. This table includes all chemicals reported by each facility providing a complete picture of NPO generation at the facility. Changes at most facilities were due to increases for one or two key chemicals, offset by smaller decreases for others. Methanol was the chemical that increased at three facilities (Fairmount, Chem-Fleur, Ferro and Siegfried). Toluene drove increases at Permacel and Merck. Changes at Merck appear to show broader shifts in chemicals with reductions in methanol and dichloromethane, but even larger increases in toluene outpaced these reductions to drive total NPO generation upward for the site as a whole.

Table F2 in Appendix F presents chemical-specific data for the top 10 facilities with the biggest reductions in NPO. Two facilities, Cookson Pigments and Hoffman LaRoche, reported large reductions in methanol, offsetting increases previously discussed. Reductions at several sites, including Cookson, were due to the shutdown of the facilities.

Table 14. Top 10 Facility Increases and Decreases in NPO

ID	Facility Name	City	1994 NPO	2001 NPO	NPO Difference
Increase					
61463000000	PRECISION ROLLED PRODUCTS INC	EAST HANOVER TWP	972	3,213,901	3,212,929
02314100000	FAIRMOUNT CHEMICAL CO.	NEWARK	1,297,183	3,871,108	2,573,925
20968100000	GRIFFIN PIPE PRODUCTS CO.	FLORENCE	79,805	2,304,868	2,225,063
00555601000	MERCK & CO INC	RAHWAY	6,261,943	8,486,894	2,224,951
16335900001	CHEM-FLEUR INC	NEWARK	116,745	2,331,679	2,214,934
06520700000	KEARNY SMELTING & REFINING CORP.	KEARNY	166	1,731,089	1,730,923
47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	6,058,827	7,765,534	1,706,707
44567000003	FERRO CORP	SOUTH PLAINFIELD	2,668,083	4,245,876	1,577,793
00000004283	DELPHI AUTOMOTIVE SYSTEMS	NEW BRUNSWICK	10,802,952	12,273,316	1,470,364
00059800002	SIEGFRIED(USA), INC.	PENNSVILLE	339,309	1,711,913	1,372,604
TOTAL INCREASE			27,625,985	47,936,178	20,310,193
Decrease					
81411900000	HUNTSMAN POLYPROPYLENE CORP.	WEST DEPTFORD	16,849,619	NR	-16,849,619
00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	22,263,641	13,760,609	-8,503,032
76248000000	HERCULES INCORPORATED	PARLIN	17,060,970	9,235,493	-7,825,477
59423500000	COOKSON PIGMENTS	NEWARK	3,773,637	NR	-3,773,637
00118500001	HOFFMANN-LAROCHE INC	NUTLEY	5,495,233	1,745,826	-3,749,407
18048200002	TEVA PHARMACEUTICALS USA	WALDWICK	3,462,950	NR	-3,462,950
47667600000	CO-STEEL SAYREVILLE	SAYREVILLE	3,463,233	7,461	-3,455,772
11021600000	YATES FOIL USA, INC	BORDENTOWN TWP	3,405,767	NR	-3,405,767
00732501001	DRIVER-HARRIS ALLOYS, INC.	HARRISON	3,034,791	NR	-3,034,791
82980100000	CONOCOPHILLIPS COMPANY	LINDEN	7,333,529	4,990,488	-2,343,041
		TOTAL DECREASE	86,143,370	22,106,467	-56,403,493
		DIFFERENCE			-36,093,300
		Statewide Change			-57,548,060
		% OF STATEWIDE CHANGE FROM TOP FACILITIES			63%

The analysis in Table 14 identified five "nonreporters" in the top 10 reductions; if nonreporters are excluded from the analysis, the next five facilities that would rank in the top 10 reductions would be:

-	GERDAU AMERISTEEL, PERTH AMBOY	-2,027,940
-	HATCO CORPORATION, FORDS	-1,505,316
-	NOVUS FINE CHEMICALS, LLC, CARLSTADT	-1,441,872
-	PHELPS DODGE SPECIALTY COPPER PRODUCTS, ELIZABETH	-1,336,691
-	FORD MOTOR COMPANY, EDISON	-1,153,252

Table 15 identifies facilities with the top 10 increases and decreases in on-site releases. These top facilities decreased releases by 3.6 million pounds, accounting for 46% of the release reductions statewide. If these top facilities are excluded from the universe the remaining facilities reduced releases by 58%, which is the same as the statewide reduction. The top facilities and remaining universe are both reducing releases. The top facilities accounted for a smaller percentage of statewide release reductions when compared to contributions for the top facilities for Use and NPO.

Table F3 in Appendix F presents the chemical specific data for increases in releases. Increases in methanol and toluene at Roche Vitamins Inc. (Roche) in White Township outpaced all other release increases. Roche did reduce chloroform and chlorine releases from their facility, but these decreases could not overcome the increases of methanol and toluene.

Styrene releases at Viking Yacht Company contributed significantly to statewide increases helping to rank styrene as the number three chemical increase statewide. Also, cyclohexane at Chevron Products Company helped drive statewide trends of that chemical ranking it the fourth chemical statewide. Increases in dichloromethane at Fry's Metals in Jersey City, go significantly against statewide trends where this chemical ranks fourth in overall reductions.

Table F4 in Appendix F presents chemical specific data for the top 10 release reductions. Two facilities that no longer report accounted for significant reductions in methanol and dichloromethane, Frutarom Meer Corporation and Teva Pharmaceuticals USA, respectively. Frutarom remains in operation, but now uses ethanol, a non-TRI chemical, in place of methanol. The Teva facility is no longer in operation. These facilities helped drive statewide trends for these two chemicals.

DuPont reported reductions for several chemicals including three CFCs and nickel compounds, although none were high enough to drive statewide reductions of a top 10 chemical. Decreases of trichloroethylene at Peerless helped drive statewide trends for that chemical, ranking it eighth in reductions statewide. The two automakers, Ford and GM, reduced releases of xylene, which contributed to the statewide ranking of number three for this chemical. Reductions of n-butyl alcohol and glycol ethers at National Can Company helped drive statewide reductions for both chemicals, ranking seventh and 10th statewide.

Table 15. Top 10 Facility Increases and Decreases in On-site Release

ID	Facility Name	City	1994 Release	2001 Release	Release Difference
Increase					
00118500002	ROCHE VITAMINS INC.	WHITE TWP	113,596	390,589	276,993
00115401005	CHEVRON PRODUCTS COMPANY	PERTH AMBOY	7,978	85,588	77,610
27789100000	FRY'S METALS INC.	JERSEY CITY	5	41,300	41,295
00457000006	REICHHOLD CHEMICALS INC.	NEWARK	4,168	36,695	32,527
01122800002	MONSANTO COMPANY	LOGAN TWP	59,463	86,254	26,791
18174500000	VIKING YACHT CO CORP	NEW GRETNA	34,000	60,380	26,380
32502200000	NEWCO INC	NEWTON	16,556	34,460	17,904
04595700000	NATIONAL MANUFACTURING CO INC	CHATHAM	14,122	31,440	17,318
71236100000	BWAY CORPORATION	ELIZABETH	7,263	21,241	13,978
00000004082	GLACIER GARLOCK BEARINGS, L.L.C.	THOROFARE	4,412	16,130	11,718
		TOTAL	261,563	804,077	542,514
Decrease					
84980600000	FRUTAROM MEER CORPORATION	NORTH BERGEN	1,173,000	NR	-1,173,000
00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	1,627,423	727,344	-900,079
18048200002	TEVA PHARMACEUTICALS USA	WALDWICK	521,913	NR	-521,913
00315601000	FORD MOTOR COMPANY	EDISON	795,205	428,017	-367,188
15738800004	NATIONAL CAN COMPANY	PISCATAWAY	293,353	NR	-293,353
00006500000	PEERLESS TUBE COMPANY	BLOOMFIELD	268,160	33,043	-235,117
47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	401,426	202,402	-199,024
40103700000	ATLANTIC STATES CAST IRON PIPE CO.	PHILLIPSBURG	194,561	17,098	-177,463
00004010001	GENERAL MOTORS CORPORATION	LINDEN	394,273	221,842	-172,431
00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	211,615	68,774	-142,841
		TOTAL	5,880,929	1,698,520	-4,182,409
		DIFFERENCE			-3,639,895
		Statewide Change			-7,963,846
		% OF STATEWIDE CHANGE FROM TOP FACILITIES			46%

The analysis in Table 15 identifies three facilities that are non-reporters. If these facilities are excluded, the three facilities that would be identified in the top 10 decreases are:

- PENICK CORPORATION, NEWARK -130,357
- SYBRON CHEMICALS INC, PEMBERTON TWP. -122,975
- COASTAL EAGLE POINT OIL COMPANY, WEST DEPTFORD TWP -118,206

Overall, the analysis of top 10 facilities shows that these facilities drive statewide trends. This dominance is apparent especially for the quantity of substances used, where increases by the top facilities mask decreases in Use by the remaining universe of facilities. NPO reductions by the top facilities account for 63% of the reductions statewide. However, the top facilities account for a substantially smaller portion of statewide release reductions, where these facilities account for 46% of the statewide reductions.

Facility Changes Indexed to Production

In the previous section we evaluated facility-specific changes using data that was not adjusted for production. Therefore, many of the changes identified could be due to changes in production at the facilities. Since one of our goals is to highlight pollution prevention accomplishments, it is useful to estimate impacts from changes in production. When a facility reduces Use or NPO relative to production it is likely that pollution prevention activities contributed to those reductions.

To determine impacts from production, we used the Production/Activity Index reported on TRI to calculate a weighted average production index for the site.[12] As discussed previously, a production index is a ratio of the quantity of products produced the current year compared to the previous year. An index greater than one indicates production levels increased. An index less than one indicates production levels decreased. This analysis is limited to a smaller universe of facility/chemical reports compared to the prior facility analysis. This smaller universe includes only facility-chemical combinations that have consistent non-zero reporting of production indices each year from 1994 to 2001 and includes a total of 145 facilities with 447 records. The smaller number of facilities in this universe does limit our ability to consider impacts from production, and therefore still make some valid comparisons. The NJDEP is working to improve our ability to match facility records from year to year, which will increase the size of this universe and expand our ability to measure pollution prevention accomplishments.

After calculating site production indices (Site PI) for each site, we took a closer look at facilities previously identified as the top 10 decreases and increases to determine if these changes were due to changes in production. We were specifically interested in determining if the decreases were the result of pollution prevention measures.

Table 16 presents production-adjusted data for facilities previously identified in the top 10 increases and decreases in Use statewide (Table 13). We were able to match 11 of these 20 facilities. These data indicate two of the largest decreasers, Hercules in Sayreville and Ciba Specialty Chemicals in Old Bridge, reduced Use relative to production, with negative numbers for the percent change in adjusted Use. Reductions at these facilities are likely attributed to pollution prevention. However, a closer look at the data for Hercules shows that they sold one of their processes to Greentree Chemicals and it is possible that changes in reporting between these facilities accounts for the majority of reductions.

In addition, Table 16 shows that three facilities with large Use increases (Amrod, Old Bridge Chemicals and Prestone Products) actually reduced Use when adjusted for production. This means these facilities likely achieved pollution prevention, but increases in production outpaced these improvements to drive Use up for the site using unadjusted data.

[12] Refer to the Release and Pollution Prevention Report Instructions on the methods used for calculating weighted average production indices. Also, please see additional details in Appendix D on the calculations used to adjust for production.

Table 16. Facility Increases and Decreases in Use (adjusted)

FACILITY NAME	Municipality	Site PI	1994 Use (pounds)	2001 Use (pounds)	Use Change (pounds)	2001 Adjusted Use (pounds)	Use Change Adjusted (pounds)	Use Change Percent Adjusted
INCREASES								
COASTAL EAGLE POINT OIL CO.	WEST DEPTFORD TWP	1.39	1,520,213,321	2,186,071,420	665,858,099	1,568,520,762	48,307,441	3.18%
BASF CORP.	SOUTH BRUNSWICK TWP	0.80	153,027,055	178,557,620	25,530,565	222,389,854	69,362,799	45.33%
AMROD CORP.	NEWARK	1.90	146,465,066	169,700,864	23,235,798	89,388,873	-57,076,193	-38.97%
OLD BRIDGE CHEMICALS INC.	OLD BRIDGE TWP	2.36	23,019,009	44,606,332	21,587,323	18,920,879	-4,098,130	-17.80%
PRESTONE PRODS. CORP.	FREEHOLD TWP	1.22	142,699,566	153,416,652	10,717,086	125,405,416	-17,294,150	-12.12%
CHEVRON PRODS. CO.	PERTH AMBOY	1.93	4,326,103	10,566,849	6,240,746	5,486,015	1,159,912	26.81%
DECREASES								
HERCULES INC. PARLIN PLANT	SAYREVILLE	0.61	74,116,084	15,642,939	-58,473,145	25,649,931	-48,466,153	-65.39%
CIBA SPECIALTY CHEMICALS CORP.	OLD BRIDGE TWP	0.42	17,143,219	4,984,400	-12,158,819	11,776,231	-5,366,988	-31.31%
AIR PRODS. POLYMERS L.P.	SOUTH BRUNSWICK TWP	0.90	88,575,077	80,138,340	-8,436,737	89,444,084	869,007	0.98%
POLYONE CORP.	OLDMANS TWP	0.12	400,416,576	79,988,234	-320,428,342	666,256,843	265,840,267	66.39%
AMERADA HESS CORP. PORT READING REFY.	WOODBRIDGE TWP	0.69	1,616,856,374	1,533,742,066	-83,114,308	2,219,424,776	602,568,402	37.27%

Table 17 presents production-adjusted data for the top NPO changes previously identified. We were able to match 12 of the top 20 facility changes. Data for the largest decreasers shows that these facilities all reduced NPO adjusted for production and these reductions are likely the result of pollution prevention measures. Data for large increasers also show that two facilities (Merck & Co. in Rahway and Ganes Chemicals in Pennsville) reduced NPO relative to production. It appears that large increases in production accounted for increases in NPO generation at these sites, even though these facilities likely achieved pollution prevention. (See Table F5 in Appendix F for chemical-specific data.)

Table 17. Facility Increases and Decreases in NPO (adjusted)

FACILITY NAME	Municipality	Site PI	1994 NPO (pounds)	2001 NPO (pounds)	NPO Change (pounds)	2001 NPO Adjusted	NPO Change Adjusted	NPO Change Percent Adjusted
INCREASES								
MERCK & CO. INC.	RAHWAY	3.06	4,387,468	7,613,094	3,225,626	2,487,775	-1,899,693	-43.30%
CHEM-FLEUR / FIRMENICH INC.	NEWARK	4.62	116,541	2,331,306	2,214,765	504,548	388,007	332.94%
PERMACEL	NORTH BRUNSWICK TWP	0.96	5,999,577	7,700,210	1,700,633	8,003,688	2,004,111	33.40%
KEARNY SMELTING & REFINING CORP.	KEARNY	1.94	10	1,693,912	1,693,902	871,613	871,603	8716025.93%
GANES CHEMICALS INC.	PENNSVILLE TWP	9.69	284,444	1,392,919	1,108,475	143,793	-140,651	-49.45%
DECREASES								
HERCULES INC. PARLIN PLANT	SAYREVILLE	0.61	17,046,259	1,602,083	-15,444,176	2,626,956	-14,419,303	-84.59%
DU PONT CHAMBERSWORKS	PENNSVILLE TWP	1.51	13,398,051	7,206,008	-6,192,043	4,758,150	-8,639,901	-64.49%
HOFFMANN-LA ROCHE INC.	NUTLEY	0.94	5,163,461	1,648,021	-3,515,440	1,751,083	-3,412,378	-66.09%
CO-STEEL RARITAN	PERTH AMBOY	0.98	7,698,229	5,660,819	-2,037,410	5,799,328	-1,898,901	-24.67%
PHELPS DODGE SPECIALTY COPPER PRODS.	ELIZABETH	3.80	3,109,504	1,770,237	-1,339,267	465,401	-2,644,103	-85.03%
FORD EDISON ASSEMBLY PLANT	EDISON TWP	1.03	2,328,682	1,148,680	-1,180,002	1,117,007	-1,211,675	-52.03%
NOVUS FINE CHEMICALS	CARLSTADT	24,537.81	1,152,906	129,751	-1,023,155	5	-1,152,901	-100.00%

Table 18 presents production-adjusted data for the top release changes previously identified. Similar to the NPO data, this review shows that many of the state's largest release reductions are due to pollution prevention measures. All of the facilities with the top 10 reductions decreased their releases relative to production. For increases, the data show that these facilities each increased releases relative to production and also increased production. It appears these facilities have not implemented pollution prevention. (See Table F6 in Appendix F for chemical-specific data.)

Table 18. Facility Release Reductions (adjusted)

FACILITY NAME	Municipality	Site PI	1994 Release (pounds)	2001 Releases (pounds)	Release Change (pounds)	2001 Release Adjusted	Release Change Adjusted	Release Change Percent Adjusted
INCREASES								
ROCHE VITAMINS INC.	WHITE TWP	1.91	115,283	232,565	117,282	122,003	6,720	5.83%
REICHHOLD INC.	NEWARK	1.67	4,107	35,736	31,629	21,403	17,296	421.13%
VIKING YACHT CO.	BASS RIVER TWP	1.40	34,000	60,380	26,380	43,268	9,268	27.26%
CHEVRON PRODS. CO.	PERTH AMBOY	1.93	7,978	26,701	18,723	13,862	5,884	73.76%
DECREASES								
DU PONT CHAMBERSWORKS	PENNSVILLE TWP	1.51	1,288,324	495,986	-792,338	327,501	-960,823	-74.58%
FORD EDISON ASSEMBLY PLANT	EDISON TWP	1.03	764,854	410,419	-354,435	399,103	-365,751	-47.82%
GMTG LINDEN ASSEMBLY	LINDEN	93.31	303,612	159,348	-144,264	1,708	-301,904	-99.44%
PERMACEL	NORTH BRUNSWICK TWP	0.96	398,522	197,224	-201,298	204,997	-193,525	-48.56%
COASTAL EAGLE POINT OIL CO.	WEST DEPTFORD TWP	1.39	304,590	176,367	-128,223	126,544	-178,046	-58.45%
SYBRON CHEMICALS INC.	PEMBERTON TWP	2.68	164,207	69,302	-94,905	25,849	-138,358	-84.26%
REXAM BEVERAGE CAN CO. BRUNSWICK PLANT	SOUTH BRUNSWICK TWP	0.55	211,582	68,774	-142,808	125,015	-86,567	-40.91%
PENICK CORP.	NEWARK	10.68	2,780	696	-2,084	65	-2,715	-97.66%

Overall, the analysis of production-adjusted data is consistent with the findings from our prior analysis. Facilities made more progress reducing NPO and releases—and these reductions were more likely to be pollution prevention. Facilities made less progress reducing Use and Use reductions are less likely to be from pollution prevention.

C. SIC Code Analysis

The Pollution Prevention Act required facilities in five priority two-digit Standard Industrial Classification (SIC) codes to be the first to prepare and implement pollution prevention plans. These facilities had to prepare plans and submit public summaries of their plans detailing their Use of hazardous substances during calendar year 1993 and establishing five-year reduction goals for Use and NPO. All other facilities covered under the Act were given two additional years to prepare and implement plans covering calendar year 1995. Facilities in the five priority SIC codes represented a majority of the facilities covered under the Act and also contributed to a large portion of the Use and NPO of hazardous substances, excluding the petroleum refineries in New Jersey. In 2001, these five SIC codes combined accounted for approximately 20% of Use, and 80% of NPO statewide and are considered a priority for the state. Evaluating trends for these SIC codes separately helps identify how different industrial sectors increased or decreased their Use, NPO and Releases and how they have contributed to statewide trends.

Five Priority SICs
26: paper products
28: chemical and allied products
30: rubber and miscellaneous plastics
33: primary metals
34: fabricated metals

Summary of SIC Analysis

Table 19 presents the percent change in Use, NPO, and releases for each of the five SIC Codes along with the statewide changes for comparison. Trends for releases and NPO show reductions across all five SIC codes. No SIC code increased releases or NPO. While there were no increases seen, there is obvious variation in NPO reductions, with SIC codes 26, 30, and 34 achieving much smaller reductions compared to 28 and 33. Release reductions are generally in a consistent range near the statewide averages for each SIC code.

Trends for Use show more variation between the SIC codes ranging from an 81% increase in SIC codes 33 to a 62% decrease in SIC 30. Three SIC codes reported decreases and two reported increases.

Table 19. Percent Change per SIC Code (1994 – 2001)

SIC Code	# of Facilities 1994	# of Facilities 2001	Use	NPO	Releases
State Trend			**+ 8 %**	**- 26%**	**- 58 %**
26	23	20	10%	-4%	-49%
28	250	156	-13%	-39%	-53%
30	54	35	-62%	-1%	-71%
33	63	47	81%	-13%	-69%
34	72	50	-53%	-1%	-68%

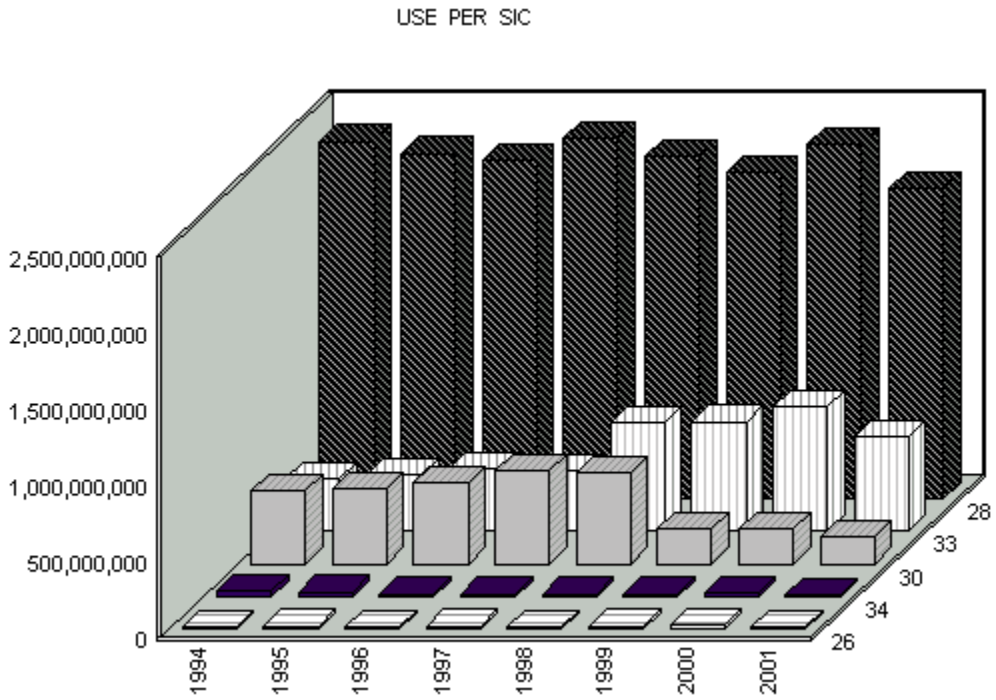
SIC Use Analysis

Figure 7 presents annual Use for each of the priority SIC codes. SIC 28 was the largest user of hazardous substances in the five priority codes. SIC Code 28 includes a wide range of industrial manufacturers including pharmaceuticals, chemicals, soaps, perfumes and cosmetics, adhesives

and sealants, plastics materials, resins and synthetic rubber. Use for SIC Code 28 has remained relatively constant with a slight decrease in 2001. Overall for the period, SIC code 28 reduced Use by 13% which translates into over 312 million pounds of hazardous substances.

	1994	1995	1996	1997	1998	1999	2000	2001
28	2,339,610,137	2,262,364,959	2,211,552,842	2,364,657,070	2,243,019,536	2,142,165,242	2,322,232,914	2,027,238,766
33	344,463,900	369,618,831	414,089,102	391,238,950	708,165,996	717,305,243	820,675,006	621,669,242
30	477,874,419	487,132,278	526,143,249	609,240,375	595,708,635	232,013,235	230,544,241	182,106,468
34	32,124,860	29,609,488	17,711,516	17,192,430	17,963,464	17,754,553	19,457,477	15,025,883
26	16,988,904	21,211,934	19,187,081	19,942,966	19,608,077	20,268,418	22,886,937	18,631,786

Figure 7. Use of Hazardous Substances by SIC Code



SIC code 33 increased Use of hazardous substances beginning in 1998 and remained relatively constant with a slight decrease in 2001. The overall increase was 81% or 277.2 million pounds.

SIC code 30 saw a slight increase from 1994-1998 followed by a significant decrease in 1999 with an overall reduction of 62% or 295.8 million pounds.

SIC code 34 industries are much smaller users of hazardous substances and had overall reductions of 53% or 17.1 million pounds.

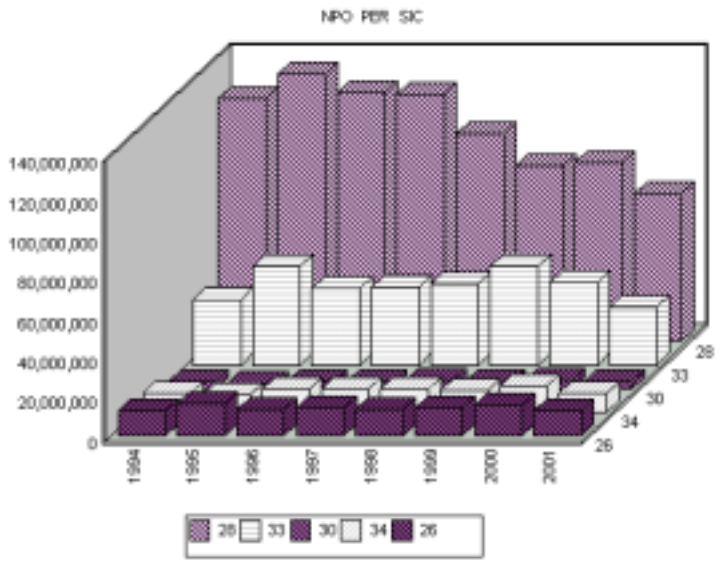
SIC code 26, a smaller user of hazardous substances realized an increase of 10% or 1.7 million pounds.

SIC Code NPO Analysis

Figure 8 below presents annual NPO quantities for each SIC code. Again SIC 28 generated the most NPO of the five SIC codes. NPO generation for SIC code 28 remained relatively constant between 1994 and 1998 and then decreased between 1998 and 2001. Overall SIC code 28 reduced NPO by 39% or 47 million pounds. NPO generation for SIC code 33 increased, compared to the base year, for all reporting years except the final year in 2001. Reductions in 2000 and 2001 were sufficient to provide an overall 13% reduction or 4.3 million pounds. SIC code 30 saw a consistent trend in the generation of NPO with a 1% reduction or 0.4 million pounds. SIC code 34 also realized a slight reduction of 1% or 0.1 million pounds. SIC code 26 remained constant in NPO with slight increases in 1995 and 2000. The overall reduction was 4% or 0.5 million pounds.

Figure 8. NPO by SIC Code

	1994	1995	1996	1997	1998	1999	2000	2001
28	121,557,839	134,074,039	124,814,146	123,710,550	104,480,133	87,853,222	89,685,035	74,515,049
33	32,942,268	49,131,475	38,433,953	39,346,717	40,635,001	49,212,795	41,488,467	28,666,123
30	3,440,515	2,736,394	3,646,153	3,351,622	3,965,831	3,585,708	3,753,361	3,403,978
34	9,602,974	8,668,109	11,145,238	11,158,126	11,708,380	10,659,554	13,056,594	9,460,970
26	12,395,673	15,897,637	12,808,762	13,549,060	13,085,275	13,497,398	15,509,866	11,943,206



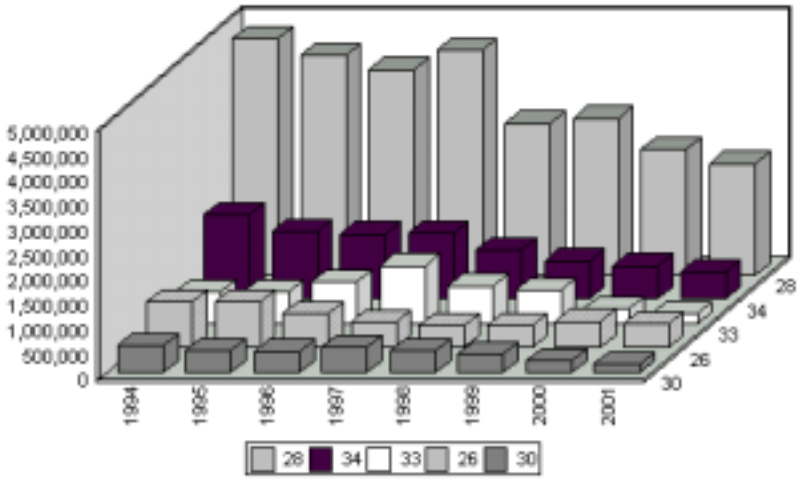
SIC Code Release Analysis

Figure 9 presents the releases by SIC. Releases for all SIC codes decreased from 1994 to 2001. SIC Code 28 released the most hazardous substances, followed by SIC code 34. The order of the remaining three SICs changes from year to year. SIC code 28 decreased releases in pounds more than the other SICs, 53% or 2.5 million pounds. SIC code 33 had significant increases in 1996 and 1997 followed by decreases for the remaining years. Overall, SIC code 33 had a 69%

reduction or 0.4 million pounds. SIC code 30 remained relatively constant from 1994-1997 with reductions in 1998-2001. The overall reduction was 71% or 0.4 million pounds. SIC code 34 followed a similar pattern as SIC code 30 with overall reductions of 68% or 1.2 million pounds. SIC code 26 reductions started in 1996 and continued through 1999 and leveled off with an overall reduction of 49% or 0.5 million pounds.

Figure 9. Releases Per SIC Codes Big 5

	1994	1995	1996	1997	1998	1999	2000	2001
28	4,770,868.00	4,429,354.00	4,132,030.00	4,531,026.00	3,057,086.92	3,151,595.88	2,535,091.21	2,241,561.52
33	638,206.00	643,630.00	832,211.00	1,155,788.00	753,332.24	672,176.40	298,443.86	196,139.76
30	531,291.00	446,325.00	415,226.00	512,761.00	441,780.00	360,024.00	236,199.00	153,641.90
34	1,698,867.00	1,350,583.00	1,312,431.00	1,318,357.00	992,046.04	766,399.05	666,229.00	537,669.10
26	925,462.00	921,064.00	677,317.00	509,586.00	451,307.00	448,245.00	534,849.00	473,315.00



V. Analysis of Important Chemicals of Concern

Three groups of hazardous substances are of particular concern in New Jersey and trends for these chemicals are tracked separately to inform the public and to help ensure appropriate regulations and policies are in place to reduce potential impacts from these chemicals. The first group of chemicals are known or suspected carcinogens. These chemicals are either proven to cause cancer in humans or animals, or suspected to cause cancer. The second group of chemicals are Persistent, Bioaccumulative, and Toxic substances (PBTs). This group of hazardous substances is of particular concern because they are toxic, remain in the environment for long periods of time, and accumulate in body tissue. The third group of chemicals are Extraordinarily Hazardous Substances (EHS) regulated by the Toxic Catastrophe Prevention Act (TCPA). These chemicals could cause serious and catastrophic public health impacts if accidentally released. The following sections discuss statewide trends for important chemicals of concern.

A. Carcinogens

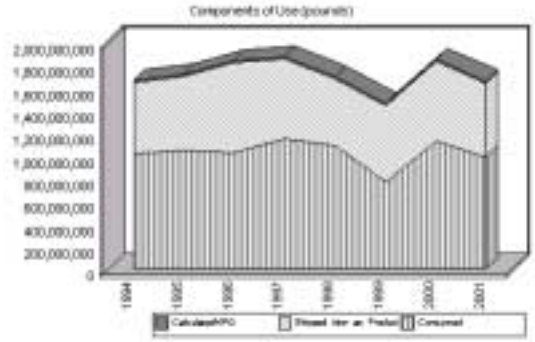
Cancer is an important health concern in New Jersey. In 2000, 44,562 cases of invasive cancers were diagnosed in the state. In 1999, 18,177 people died of the disease.[13] The average annual age-adjusted mortality rate for cancer deaths per 100,000 persons in New Jersey is 211.7, while the national average is 202.3. New Jersey ranks 16th highest overall in cancer mortality rates among the 50 states and Washington, D.C.[14]

While it is difficult to make conclusive cause-effect associations between environmental releases and individual cases of cancer, many of the chemicals regulated by NJDEP and reported on the RPPR have known or suspected links to this disease. The NJDEP has compiled a list of 111 chemicals that have potential links to causing cancer. These chemicals have been identified through a review of toxicology research conducted by various federal and state agencies. The NJDEP assesses cancer risks from releases of these chemicals into the environment in its regulatory decisions, such as developing air permit limits. Only 55 out of the 111 cancer-causing chemicals have been reported on the RPPR. Appendix G lists these 55 chemicals along with references and citations for scientific research on those chemicals.

Use of Carcinogens

Figure 10 presents trends in the Use of carcinogens between 1994 and 2001 for the core universe. Use of carcinogens decreased slightly by 1% or 8 million pounds between 1994 and 2001. However, there were significant changes over the trend period. The Use of carcinogens increased slightly from 1994 through 1997, decreased in 1998 and significantly in 1999, increased again in 2000 and then decreased in 2001.

Figure 10. Total Use (Core Group, Carcinogens)



Year	Consumed	In Product	NPO	Calculated Use
1994	1,022,246,999	623,843,671	26,992,624	1,673,083,294.00
1995	1,045,063,475	656,035,001	23,217,718	1,724,316,194.00
1996	1,027,822,933	795,943,416	24,721,420	1,848,487,769.00
1997	1,154,754,573	703,511,504	20,909,031	1,879,175,108.00
1998	1,086,920,169	596,062,028	18,218,722	1,701,200,919.74
1999	765,849,059	677,898,696	17,554,822	1,461,302,576.55
2000	1,129,087,506	708,288,955	21,740,089	1,859,116,550.51
2001	992,455,206	652,792,097	20,359,787	1,665,607,090.13

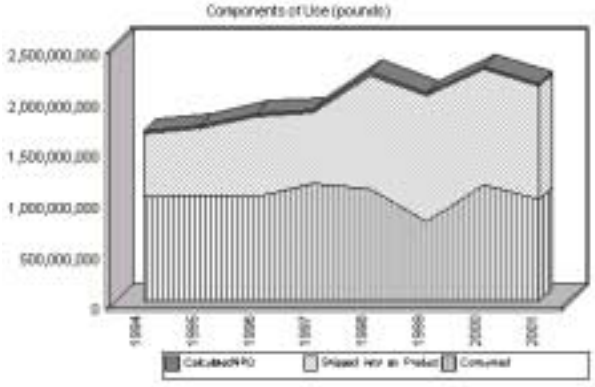
[13] Cancer Incidence and Mortality in New Jersey 1996 – 2000, Cancer Epidemiology Services, New Jersey Department of Health and Senior Services, December 2002.
[14] CDC Center for Health Statistics and the American Cancer Society State Fact Sheets

Similar to the larger core chemical universe, the lack of progress for reducing Use of carcinogens is caused by increases in the quantity of toxics shipped as (or in) product, which increased by 4% or 29 million pounds. Carcinogens shipped as (or in) product is the only component of Use that increased between 1994 and 2001. The shipped in product component accounts for much less of the total Use of carcinogens compared to the total core chemical list in 2001 (87% for all core chemicals, but 39% for carcinogens).

The biggest component of Use for carcinogens is the quantity consumed in manufacturing operations. Consumption accounts for 60% of carcinogens but only 12% for all core chemicals. Quantities of carcinogens consumed decreased by 3% or 30 million pounds.

Figure 11 below illustrates the components of Use for all reporting facilities, presenting all data including new SIC codes added through changes in reporting requirements. The new reporting requirements are capturing additional carcinogens shipped as (or in) product —which increased by 44% or 485 million pounds. The biggest increase occurred in 1998 with the addition of several SIC codes. The other components of Use are not impacted as much as shipped in products and have similar trends as the core universe.

Figure 11. Total Use (All Carcinogens)

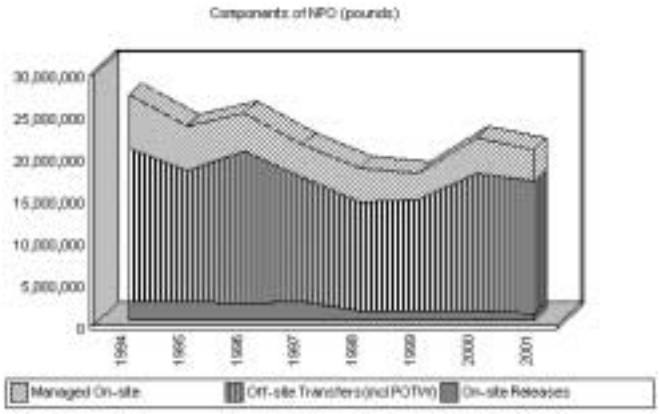


Year	Consumed	In Product	NPO	Calculated Use
1994	1,022,260,153	625,391,417	27,012,611	1,674,664,181
1995	1,045,063,475	656,035,001	23,217,718	1,724,316,194
1996	1,027,822,933	795,943,416	24,721,420	1,848,487,769
1997	1,154,754,573	703,511,504	20,909,031	1,879,175,108
1998	1,108,953,794	1,114,738,169	27,635,077	2,251,327,040
1999	776,788,184	1,244,616,237	29,024,806	2,050,429,227
2000	1,138,022,062	1,141,748,961	28,604,142	2,308,375,165
2001	1,004,023,208	1,109,941,295	24,071,653	2,138,036,156

NPO for Carcinogens

Figure 12 presents NPO trends for carcinogens in the Core Group. This trend shows that NPO decreased in 1995 followed by a one-year increase in 1996. There was a three-year decrease followed by an increase in 2000 ending with a slight decrease in 2001. Off-site transfers and managed on-site followed this general trend. Off-site transfers decreased by 13% or 2.4 million pounds. Quantities managed on-site realized a decrease of 42% or 2.8 million pounds. On-site releases show a large decrease of 66% or 1.5 million pounds.

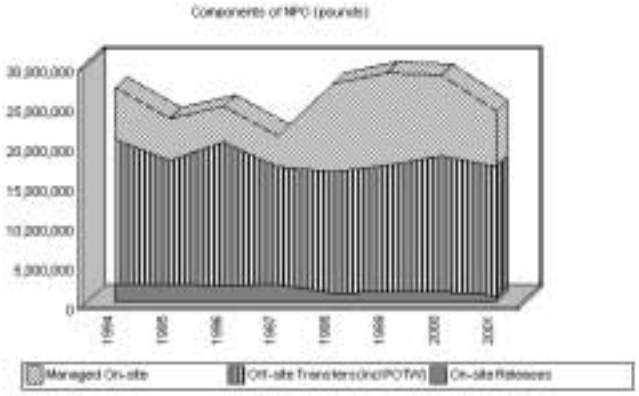
Figure 12. Components of NPO (Core Group, Carcinogens)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	26,992,624	2,238,528	18,234,451	6,519,645
1995	23,217,718	2,105,723	15,797,832	5,314,163
1996	24,721,420	2,023,891	18,157,334	4,540,195
1997	20,909,031	2,226,149	14,823,666	3,859,216
1998	18,218,722	1,018,547	12,998,738	4,201,438
1999	17,554,822	1,095,205	13,348,490	3,111,126
2000	21,740,089	1,046,110	16,560,265	4,133,714
2001	20,359,787	753,564	15,843,970	3,762,253

The components of NPO for all carcinogens show the same general trend (Figure 13) as the core carcinogens. NPO shows a decrease of 25% or 6.6 million pounds. On-site releases show the largest decrease percentage wise of 65% or 1.5 million pounds. Off-site transfers demonstrate a decrease of 13% or 2.4 million pounds. Managed on-site decreased between 1994 and 1997, then fluctuated up and down for the remaining four years. Overall, there was a decrease of 42% or 2.8 million pounds.

Figure 13. Components of NPO (All Carcinogens)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	27,012,611	2,239,936	18,253,030	6,519,645
1995	23,217,718	2,105,723	15,797,832	5,314,163
1996	24,721,420	2,023,891	18,157,334	4,540,195
1997	20,909,031	2,226,149	14,823,666	3,859,216
1998	27,635,077	1,144,899	15,346,490	11,143,688
1999	29,024,806	1,243,656	15,950,779	11,830,371
2000	28,604,142	1,267,847	17,151,831	10,184,464
2001	24,071,653	788,934	16,250,432	7,032,287

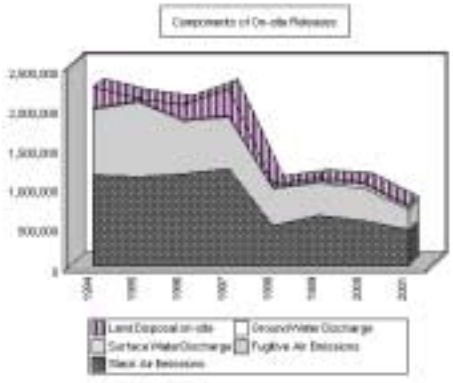
Releases and Transfers of Carcinogens

Figure 14 shows the trend for on-site releases of the core group carcinogens. Overall, on-site releases decreased by 66% or 1.5 million pounds. This trends shows that releases remained relatively constant from 1994 to 1997. Between 1997 and 1998 releases decreased dramatically. The decrease in 1998 was mainly due to reductions in dichloromethane stack air emissions from Teva Pharmaceuticals in Waldwick Borough and from Kern Foam Products in South Plainfield.

Stack air emissions overall decreased by 61% or 690 thousand pounds. Fugitive emissions decreased by 68% or 560 thousand pounds. Surface water discharges decreased by 15% or

slightly over three thousand pounds. Land disposal realized the greatest percent reduction of 89% or 230 thousand pounds.

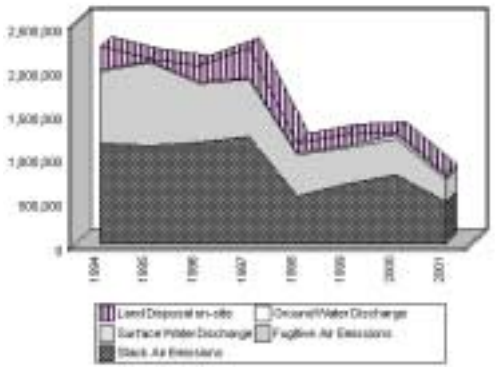
Figure 14. On-Site Releases (Core Group Carcinogens)



Report Year	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site
1994	1,134,707	825,252	20,930	3	257,636
1995	1,108,391	955,063	10,971	2	31,296
1996	1,151,530	663,911	27,480	17	180,935
1997	1,219,767	648,043	18,981	1	339,357
1998	502,133	469,494	17,886	1	29,034
1999	630,018	410,457	23,757	1	30,972
2000	566,304	407,401	46,543	1	25,781
2001	445,426	261,379	17,758	1	29,000

Figure 15 presents the on-site release trends for all carcinogens reported from 1994 to 2001. This analysis was performed to determine if there were large release increases compared to the core group and to investigate potential exposure to New Jersey residents. While most increases were not large, on-site land disposals did increase substantially in 1997 and 1998. Overall, on-site land disposal decreased 223 thousand pounds or 87%. Stack Air and Fugitive Air decreased by 667 thousand pounds or 59% and 560 thousand pounds or 68% respectively.

Figure 15. On-Site Releases (All Carcinogens)



Report Year	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site	Total On-site Releases
1994	1,134,883	826,484	20,930	3	257,636	2,239,936
1995	1,108,391	955,063	10,971	2	31,296	2,105,723
1996	1,151,530	663,911	27,480	17	180,935	2,023,891
1997	1,219,767	648,043	18,981	1	339,357	2,226,149
1998	535,267	476,590	21,334	1	111,707	1,144,899
1999	672,281	419,016	27,812	1	124,566	1,243,656
2000	781,938	412,897	47,430	1	25,781	1,267,847
2001	467,717	266,990	19,958	1	34,588	788,934

Table 20 compares the top 10 carcinogens released in 1994 to the top 10 released in 2001. There has been a significant decrease in many of the top 10 carcinogens for On-site Releases. Six of the chemicals reporting reductions over 50%.

Styrene and benzene were the only chemical in the top 10 list that increased between 1994 and 2001. Increases in styrene air emissions were mainly due to two boat manufacturing facilities. Styrene replaced dichloromethane as the number one release of carcinogens. The increase in benzene is the result of the petroleum refineries.

Two new chemicals made the top list in 2001 compared to 1994. Chromium compounds and chloroform replaced tetrachloroethylene and formaldehyde. These changes were not caused by emission increases. Instead, certain chemicals decreasing more than others caused the changes. Chromium and chloroform releases decreased (by 23,000 and 16,000 pounds respectively), tetrachloroethylene and formaldehyde releases decreased even more (approximately 40,000 pounds each) resulting in the changes to the top 10 lists.

Table 20. Comparison of Top 10 On-site Releases (All Carcinogens)

Reporting Year 1994

CAS Number	Chemical Name	On-site Releases
75-09-2	DICHLOROMETHANE	825,835
79-01-6	TRICHLOROETHYLENE	385,607
N495	NICKEL COMPOUNDS	228,540
78-87-5	1,2-DICHLOROPROPANE	155,011
100-42-5	STYRENE	146,385
74-85-1	ETHYLENE	86,822
71-43-2	BENZENE	60,994
50-00-0	FORMALDEHYDE	58,311
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]	45,586
75-01-4	VINYL CHLORIDE	43,363

Reporting Year 2001

CAS Number	Chemical Name	On-site Releases
100-42-5	STYRENE	171,418
75-09-2	DICHLOROMETHANE	141,848
79-01-6	TRICHLOROETHYLENE	106,444
71-43-2	BENZENE	63,647
78-87-5	1,2-DICHLOROPROPANE	63,472
74-85-1	ETHYLENE	61,725
75-01-4	VINYL CHLORIDE	30,481
67-66-3	CHLOROFORM	25,940
N495	NICKEL COMPOUNDS	24,914
N090	CHROMIUM COMPOUNDS	18,063

B. PBTs

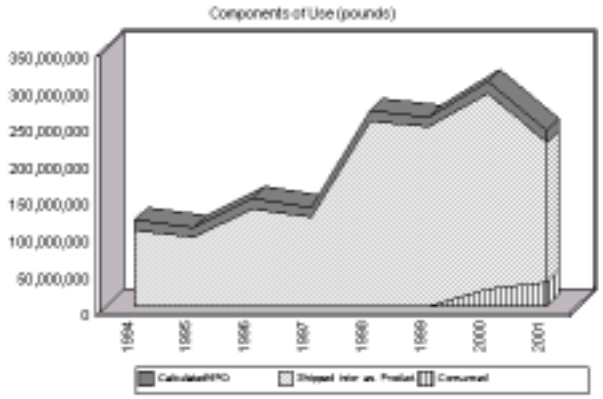
Chemicals and compounds that are persistent, bioaccumulative and toxic (PBT) are of particular concern not only because they are toxic, but also because they remain in the environment for long periods of time, and build up or accumulate in body tissue. On October 29, 1999, USEPA published a final rule under the Toxic Chemical Release Inventory (TRI), Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, which lowered the thresholds for certain PBT chemicals and added certain other PBTs to the EPCRA Section 313 list of toxic chemicals. This list contains 18 chemicals and chemical categories. New reporting requirements for these chemicals began in reporting year 2000 (see Appendix H). The following year, the reporting thresholds for lead and lead compounds were also reduced, making 2001 the first year companies reported using these new threshold.

Due to these changes in reporting requirements and the short time period that most of the chemicals have been reported, it is difficult to track a "core" universe of facilities for PBTs. The data presented below includes all reports submitted by facilities for chemicals classified as PBTs. Therefore, the results are driven more by changes in reporting requirements and not actual increases or decreases of the hazardous substances used or generated as NPO by facilities.

Use of PBTs

Figure 16 illustrates the trend in Use for PBTs. There are essentially three substantial increases: in 1996, 1998, and 2000 and a significant decrease in 2001. The increase in 1996 is due to a few lead battery-manufacturing facilities. The large increase in 1998 is a result of several petroleum bulk storage facilities (SIC code 5171) reporting PACs for the first time and one metal recycler reporting lead for the first time. The increase in 2000 is largely due to the addition of SIC codes 4911, 4931, and 4939 for Electricity Generating Industries. The large decrease in 2001 is the result of a single facility reporting 50 million pounds less of polycyclic aromatic compounds (PACs).

Figure 16. Components of Use (All PBTs)



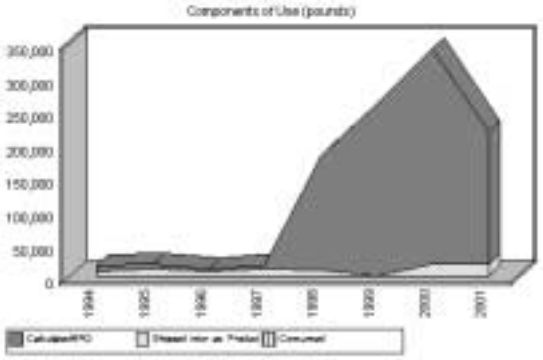
Year	Consumed	In Product	NPO	Calculated Use
1994	0	103,187,744	15,452,481	118,640,225.00
1995	1,385,267	92,993,740	12,601,512	106,980,519.00
1996	32,041	132,297,645	15,486,422	147,816,108.14
1997	0	121,717,112	12,952,927	134,670,039.14
1998	0	252,051,141	14,641,538	266,692,678.71
1999	0	245,508,399	12,836,130	258,344,528.60
2000	25,171,734	265,613,650	16,132,885	306,918,268.88
2001	33,428,395	190,096,221	15,897,261	239,423,877.23

Similar to the core chemical universe, Figure 16 also shows that the biggest component of Use is shipped as (or in) product. For example, in reporting year 2001, 79% of the PBTs were shipped

in product, while 14% were consumed and 7% of PBTs were generated as NPO. A closer look at the data shows that the majority of PBTs shipped in product are lead and PACs. Lead is shipped in product by several battery manufacturers, metal recyclers and cable manufacturers. PACs are shipped in petroleum products.

Figure 17 presents the trends for PBT Use when lead and PACs are not included. Without these two PBTs there is a significant shift from shipped as (or in) product to the majority of PBTs being generated as NPO (91% in 2001). Greater than 95% of the NPO is managed on site and can be accounted for by one facility, Safety Kleen. This facility began reporting in 1998 when TRI was expanded to include waste treatment facilities in SIC code 4953. This facility closed during 2001 and the quantities reported cover only the months that the facility was in operation, which may account for the reduction in 2001.

Figure 17. Components of PBT Use (minus Pb, PACs)

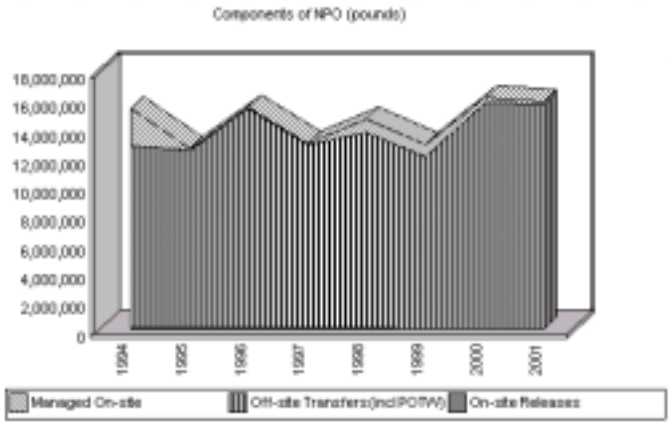


Report Year	Consumed	In Product	NPO	Calculated Use
1994	0	8,685	8,935	17,620.00
1995	0	11,025	8,412	19,437.00
1996	0	8,160	3,095	11,255.00
1997	0	11,157	6,804	17,961.00
1998	0	9,084	172,781	181,865.00
1999	0	0	259,801	259,801.00
2000	0	19,578	323,354	342,931.81
2001	0	19,244	199,106	218,349.93

NPO for PBTs

Figure 18 presents NPO trends for PBTs showing that NPO increased by 3% or 445 thousand pounds. The data also shows that most of the NPO is shipped off-site for additional treatment. Similar to Use, NPO is dominated by lead and lead compounds. Trends for both on-site and off-site treatment show increases—but that likely means the new reporting requirements are capturing additional data, rather than facilities are increasing their waste quantities over time.

Figure 18. Components of NPO (PBTs)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	15,452,481	79,132	12,687,087	2,686,262
1995	12,601,512	65,075	12,387,146	149,291
1996	15,486,422	62,025	15,378,766	45,631
1997	12,952,927	126,568	12,701,224	125,135
1998	14,641,538	72,299	13,606,710	962,529
1999	12,836,130	38,111	12,016,800	781,219
2000	16,132,885	15,993	15,768,893	347,999
2001	15,897,261	24,815	15,651,086	221,360

Releases and Transfers of PBTs

Table 21 presents release and transfer data for PBTs showing that management activities increased while releases decreased over time. Management activities that increased include: recycled and reused (78% or 32.8 thousand pounds); destroyed on site, which significantly increased in 1998, continued to increase in 2000 but dropped off in 2001 with an overall increase of 97%; and energy recovery on site which increased from 0 (1994-1999) to 24,850 pounds in 2001.

Stack and fugitive emissions decreased by 44% and 54% respectively. Surface water discharges increased 21%. POTW discharges decreased by 99%, while land disposal on site decreased by 77%.

Table 21. Release and Transfers (PBTs)

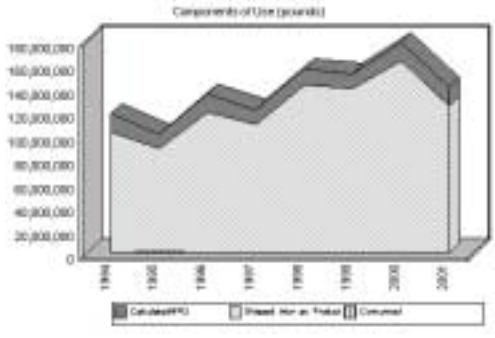
Report Year	1994	1995	1996	1997	1998	1999	2000	2001
Recycled & Reused on-site	9,071	23,509	13,971	125,819	321,868	2,243	1,681	41,853
Destroyed on-site	5,010	4,874	510	697	386,249	284,907	323,054	211,089
Energy Recoveredon-site	0	0	0	0	0	0	15,145	24,850
Stack Air Emissions	17,695	13,705	14,023	13,139	13,535	7,909	8,081	9,988
Fugitive Air Emissions	2,895	1,631	1,775	2,035	2,210	993	1,604	1,248
Surface Water Discharge	899	602	2,700	2,703	841	2,867	2,772	1,142
Ground Water Discharge	1	1	1	1	1	1	2	0
POTW Discharge	34,311	11,151	1,670	754	906	537	500	352
Land Disposalon-site	57,842	49,136	43,526	108,890	55,712	26,340	3,535	12,438
Total Waste Transfer	12,652,776	12,375,995	15,377,096	12,700,470	13,605,804	12,016,163	15,768,393	15,650,733
EI(NPO) - SI(NPO)	2,672,181	120,908	31,150	-1,181	254,412	494,069	8,138	-56,431

Lead

Lead is a PBT of special concern because of its adverse effects on children. Exposure to lead at very low levels can have lasting harmful health effects in terms of learning disabilities, neurotoxic effects and other adverse health effects.

Figure 19 below presents trends for the components of Use for lead and lead compounds. It shows that the Use of lead and lead compounds has increased from 1994 to 2001 by 16% or 22.5 million pounds. However it has not been a steady increase, but rather a series of increases and decreases over time. As previously stated, most of the lead (consistently in the high 80% range) used in New Jersey is shipped in products which has increased by 22%. NPO has remained relatively constant over time.

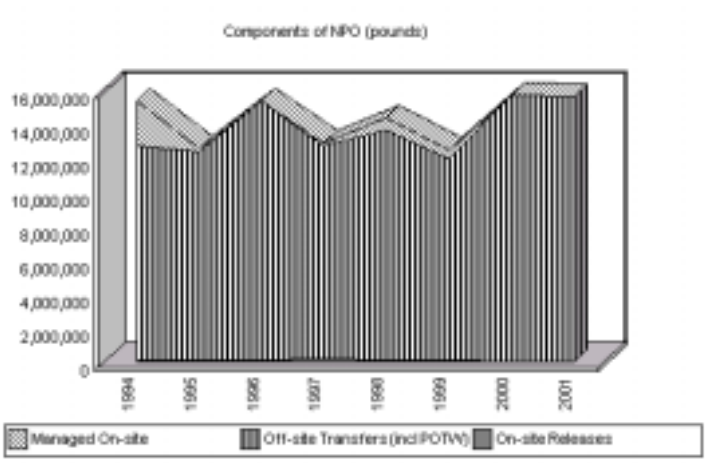
Figure 19. Components of Use (Lead)



Year	Consumed	In Product	NPO	Calculated Use
1994	0	103,179,059	15,443,546	118,622,605.00
1995	1,385,267	87,434,482	12,592,315	101,412,064.00
1996	32,041	119,912,054	15,482,824	135,426,919.14
1997	0	109,044,003	12,946,085	121,990,088.14
1998	0	142,786,804	14,455,070	157,241,973.71
1999	0	140,113,354	12,547,920	152,661,274.34
2000	31,686	163,792,111	15,774,172	179,597,970.74
2001	22,034	125,424,469	15,642,966	141,089,488.74

Figure 20 presents the components of NPO for lead and lead compounds. While NPO has only increased by 1% since 1994, there are significant variations as demonstrated by the peaks and valleys in the graph. The largest variation is in the Managed On-site component, which realized a reduction of greater than 100% or 2.7 million pounds. This occurs when Starting Inventory as NPO is larger than ending inventory resulting in a negative number for Managed On-site. Off-site transfers account for over 80% of total NPO and increased 23%. On-site releases demonstrated a reduction of 77%.

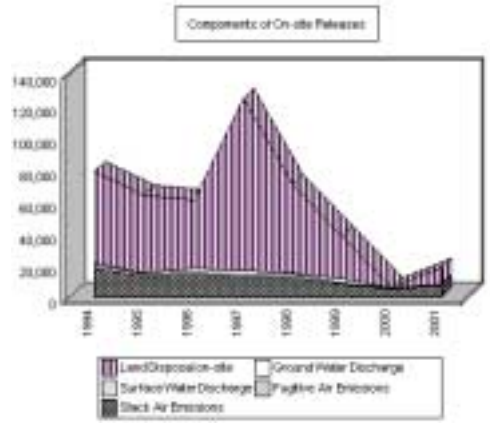
Figure 20. Components of NPO (Lead)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	15,443,546	79,072	12,680,422	2,684,052
1995	12,592,315	64,120	12,382,668	145,527
1996	15,462,824	61,214	15,375,969	45,641
1997	12,946,085	125,182	12,696,465	124,438
1998	14,455,070	70,721	13,601,137	783,212
1999	12,547,920	37,949	12,013,720	496,251
2000	15,774,172	5,816	15,759,637	8,717
2001	15,642,966	18,286	15,643,296	-18,616

Figure 21 presents data for releases of lead. Taken as a whole, all of the components of releases have decreased between 1994 to 2001 by 77% percent or 60,000 pounds. Releases decreased from a high of 125,182 pounds in 1997 to 18,286 in 2001. The large spike in 1997 for land disposal on-site is a result of one facility disposing lead on-site. Air releases for both stack and fugitive emissions have decreased by 61% and 85% respectively.

Figure 21. Components of Releases (Lead)



Report Year	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site
1994	17,635	2,695	899	1	57,842
1995	12,776	1,605	602	1	49,136
1996	13,323	1,670	2,699	1	43,521
1997	11,931	1,857	2,703	1	108,690
1998	12,203	1,964	841	1	55,712
1999	7,829	912	2,867	1	26,340
2000	4,938	850	29	1	0
2001	6,864	415	793	0	10,214

The lower reporting threshold that became effective in 2001 captured 34 additional facilities that released lead and lead compounds. Prior to this change in reporting, lead and lead compound releases decreased by 77% or over 60 thousand pounds between 1994 and 2000. However, between 2000 and 2001, lead and lead compound releases increased by 68%. Instead of this increase being driven by the new facilities that began reporting, a closer evaluation shows that DuPont Chambersworks reported over 10,000 pounds of lead releases in 2001 and nothing in 2000. This accounts for the majority of increase from 2000 to 2001. The surface water discharge fluctuations can also be attributed to reporting of lead from DuPont Chambersworks.

Mercury

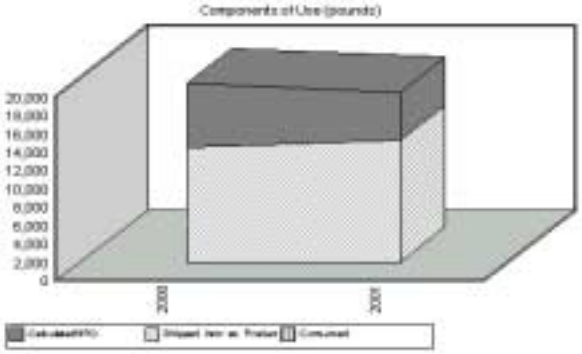
Mercury is another PBT of special concern because the organic form (methylmercury) has been found at unacceptably high levels in certain fish taken from lakes and rivers throughout New Jersey. Mercury is a highly toxic material to adults, but the main concern is its potentially profound impact on the developing nervous system. Even low levels of mercury in a mother's diet can significantly alter fetal development.

Due to these concerns, New Jersey formed a task force to address potential risks posed by mercury releases. The Mercury Task Force (MTF) issued a report that established goals to reduce mercury air emissions, including an overall reduction of 75% from 1990 to 2006 and 85% from 1990 to 2011.[15] Currently, NJDEP is evaluating its progress towards achieving these goals.

The MTF estimates that major sources of mercury include iron and steel manufacturing, coal combustion, mercury-containing products, municipal waste combustion, sludge incineration, oil refining, and many other combustion sources. At the time of the MTF report, no facilities had submitted RPPR data on mercury wastes or emissions prior to 2000. It was only after the reporting thresholds were lowered in 2000, that facilities began publicly reporting their Use and release of mercury.

Figure 22 presents data for Use of mercury and mercury compounds. Most of the mercury is shipped in product (72% in reporting year 2001)—with one facility, shipping over 90% of the mercury in electrical switches.

Figure 22. Components of Use (Mercury)



Year	Consumed	In Product	NPO	Calculated Use
2000	0	13,061	6,988	20,049
2001	0	13,706	5,218	18,925

NPO accounts for 28% of total Use for 2001. Table 22 demonstrates how the mercury is managed and disposed of once it is generated as NPO. In 2001, 14% of the mercury NPO was released through stack air emissions, 1% land disposal, 2% discharged to surface waters and the remainder of the 84% is transferred off-site.

[15] See Volume 1 of the NJ Mercury Task Force Report (2001)

Table 22. Components of NPO (Mercury)

Report Year	2000	2001
Recycled & Reused on-site	0	0
Destroyed on-site	0	0
Energy Recovered on-site	0	0
Stack Air Emissions	937	756
Fugitive Air Emissions	1	1
Surface Water Discharge	3	12
Ground Water Discharge	1	0
POTW Discharge	7	1
Land Disposal on-site	17	74
Total Waste Transfer	5,391	4,369
EI(NPO) - SI(NPO)	631	5

Table 23 shows how these off-site wastes were treated. For reporting year 2001, 88% of the mercury that was transferred off-site was recycled, 1% was transferred off-site for further treatment, and 11% was transferred off-site for disposal. The 3000 pound difference in Waste Transfer is the result of one company, Comus, not reporting mercury in 2001.

Table 23. Components of Waste Transfer (Mercury)

Report Year	Total Waste Transfer	Waste Transfer - Recycling	Waste Transfer - Energy Recovery	Waste Transfer - Treatment	Waste Transfer - Disposal	Waste Transfer - Other
2000	5,387	2,124	0	3,054	209	0
2001	4,365	3,823	2	53	487	0

These data could be an important source for collaborating or verifying some of the source identification done by the Mercury Task Force (MTF). For example, the MTF estimates that 935 pounds of mercury was released to the air from steel and iron manufacturing sector. These estimates are based on permit information as well as stack test results from regulated facilities. The new RPPR data indicate that iron and steel facilities released approximately 202 pounds of mercury into the air in 2001. Table 24 below presents stack air data by SIC code. Four separate SIC codes reported stack air emissions of mercury. Utilities (4911 and 4931) released the most, followed by iron and steel (3312), and lastly petroleum refining (2911).

Table 24. Stack Air Emissions of Mercury by SIC

SIC	SIC Description	Year	Stack Air
2911	Petroleum Refining	2000	12
		2001	13
3312	Iron and Steel	2000	259
		2001	202
4911	Electric Services	2000	221
		2001	152
4931	Electric Services and Other Services	2000	343
		2001	292

C. Extraordinarily Hazardous Substances (TCPA)

The Toxic Catastrophe Prevention Act (TCPA) N.J.S.A. 13:1K-19 et seq. was signed into law in 1985 and became effective in January 1986. The goal of the TCPA program is to protect the public from catastrophic accidental releases of extraordinarily hazardous substances (EHS) into the environment. TCPA requires owners or operators of facilities having EHSs at certain threshold quantities to anticipate the circumstances that could result in accidental EHS releases and to take precautionary or preemptive actions to prevent such releases. The TCPA Act specifies the key elements of a risk management program needed to minimize the threat of an accidental EHS release at a regulated facility.

The Toxic Catastrophe Prevention Act identified 13 chemicals and the Department added 93 additional chemicals to the EHS list when it adopted the original TCPA rules in 1988. The EHS list was further expanded in 1998 when the Department incorporated most of the flammable substances regulated by USEPA into its rules by reference.

Facilities do not report materials accounting data directly to the TCPA program. Instead, this report analyzed those substances covered by both the TCPA program and the RPPR reporting requirements. Substances covered under both programs are listed in Appendix I. Even when a facility reports a TCPA-covered substance on the RPPR, it does not mean the facility is regulated by the TCPA program.

A total of 31 different substances were reported on the RPPR for 1994; the total dropped to 28 for 2001. The number of facilities reporting TCPA substances ranged from 121 facilities for 1994 to 93 facilities for 2001. The total number of Section B reports ranged from 195 for 1994 down to 143 for 2001. This data is presented in Table 25.

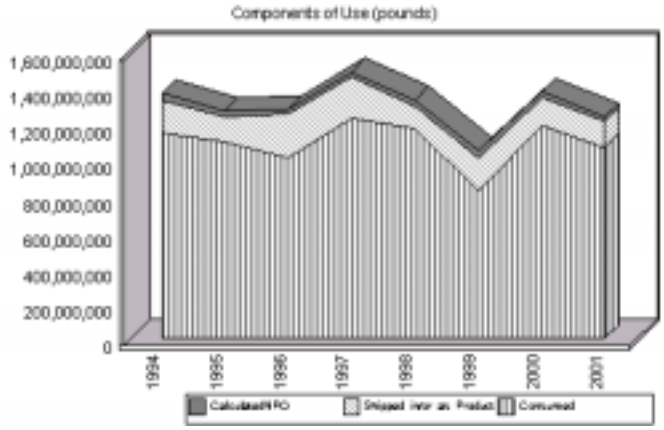
Table 25. Comparison of RPPR (Core Group) and TCPA Universe

	# of Different TCPA Substances	# of Facilities Reporting on TCPA Substances	Total number of Reports on TCPA Substances
1994	31	121	195
1995	31	106	175
1996	30	108	165
1997	30	105	156
1998	29	106	160
1999	29	96	150
2000	28	100	154
2001	28	93	143

Figure 23 presents data for the Use of TCPA-covered substances. Overall, Use of TCPA substances decreased below the statewide trends. Facilities reduced the Use of TCPA substances by 10%, 131 million pounds, compared to the statewide increase of 8% for unadjusted quantities.

The quantity of TCPA substances shipped as (or in) product decreased by 21% or 37.8 million pounds. The state average increased by 15% unadjusted.

Figure 23. Components of Use (TCPA substances)



Year	Consumed	In Product	HPO	Calculated Use
1994	1,157,107,789	183,708,368	33,792,596	1,374,608,753.00
1995	1,103,817,955	139,099,725	38,731,552	1,281,649,232.00
1996	1,017,715,015	241,236,142	29,938,123	1,288,889,280.00
1997	1,235,766,415	233,027,013	29,238,705	1,498,032,133.00
1998	1,181,770,796	124,155,446	34,747,155	1,340,673,397.32
1999	829,331,277	187,072,746	35,733,159	1,052,137,182.13
2000	1,197,559,038	156,815,791	33,174,410	1,387,549,239.00
2001	1,075,748,626	145,927,637	22,139,184	1,243,815,447.00

VI. Annual Report of 2001 Use, NPO and Release

Previous sections of this report analyzed trends in hazardous substance Use, NPO generation and releases between 1994 and 2001 to show how quantities changed over time. While it is important to look at past trends to identify decreases and increases and to evaluate the underlying reasons for those changes, it is also important to evaluate the latest available information. In this section we take a detailed look at the data for a single calendar year—2001, the most recent year available. This single-year "snap shot" provides a summary of the 2001 data as received on the RPPR by the NJDEP. This evaluation provides residents a more complete picture of hazardous substances in their communities since we do not need to parse the data to account for changes in reporting requirements to assure valid comparisons through time. This current year evaluation also helps establish a new baseline and sets the stage for tracking future progress.

The NJDEP has prepared a detailed "2001 Materials Accounting Data Release" which is included as Appendix K of this report. This data includes over 200 individual tables and charts detailing how specific chemicals and facilities contributed to the various activities for hazardous substances throughout the state. This section does not attempt to summarize all these data, but instead provides a highlight of the most important data and findings.

A. Number of Facilities and Reports

For reporting year 2001, 522 New Jersey facilities reported on 228 of the 609 listed chemicals and compound categories. In total, 2,363 RPPR Section B chemical-specific reports were submitted for 2001. Table 26 summarizes the number of facilities that submitted only one RPPR Section B, the number of facilities that reported 10 or more toxic chemicals, and the highest number of toxic chemicals reported by any one facility.

In addition, 205 facilities submitted 372 RPPR reports for carcinogens; 195 facilities submitted 335 RPPR reports for persistent, bioaccumulative, toxic (PBT) substances; and 152 facilities submitted 264 reports for TCPA extraordinarily hazardous substances (EHS).

Table 26. Number of Facilities submitting NJ RPPR Chemical Reports

	All Chemicals
Number of Section B Chemical Reports	2,363
Facilities with One Chemical Report	158
Facilities with Ten or more Chemical Reports	58
Maximum number of Reports by one Facility	91

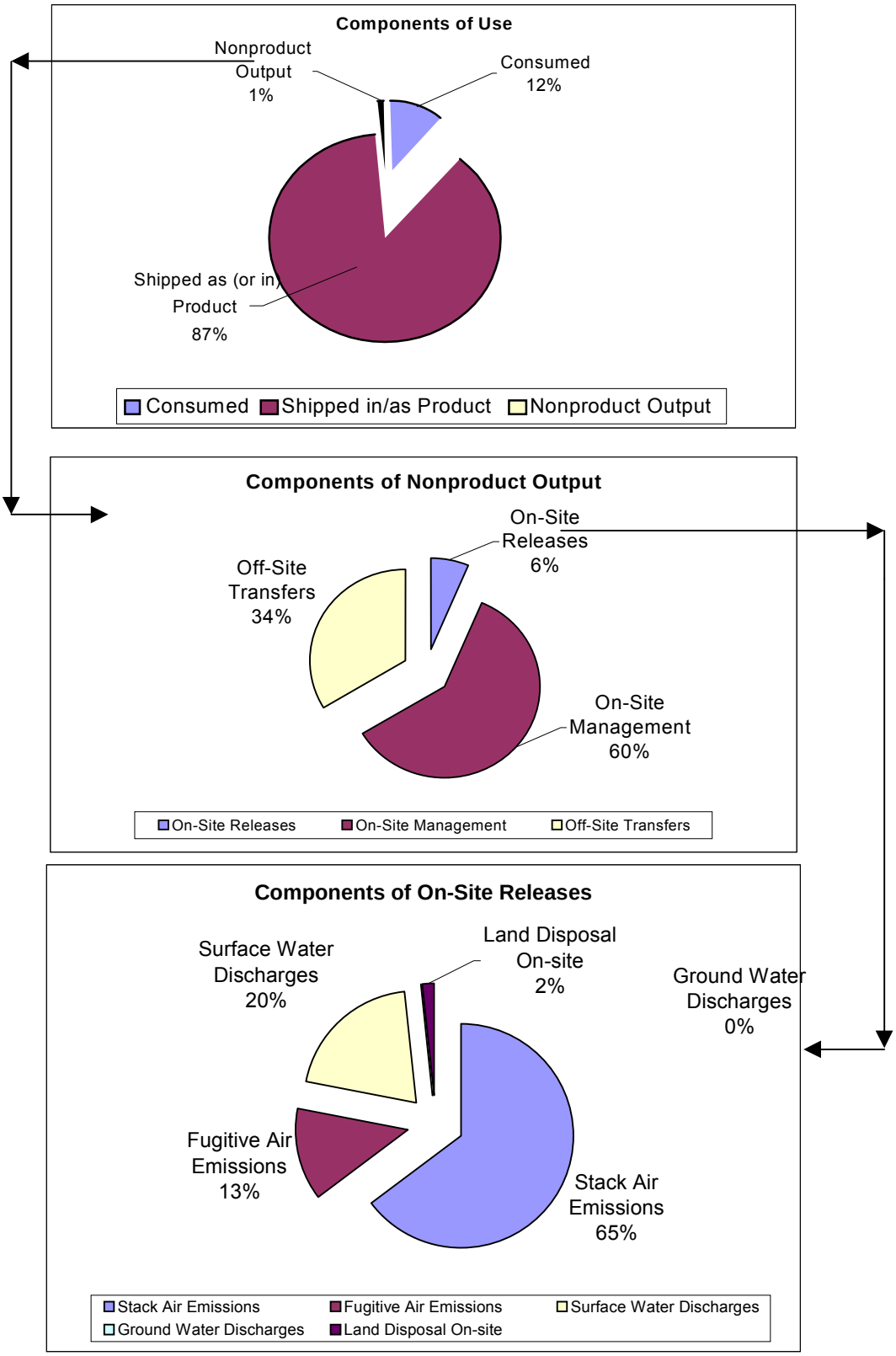
B. Throughput, Use, NPO and Release Data Summaries

Hazardous substance Use exceeded 27 billion pounds in 2001. More than 9.5 billion pounds of the reported chemicals were manufactured and more than 17.4 billion pounds were brought on site in 2001. These same facilities reported that about 3.2 billion pounds of chemicals were consumed in processes and more than 23.6 billion pounds were shipped off site as (or in) product. Nonproduct output exceeded 281 million pounds.

Figure 24 presents the overall picture for hazardous substance throughput in the state for 2001. The majority of hazardous substances used in the state (87%) were shipped in the products manufactured by covered facilities. Approximately 12% of the hazardous substances were consumed in on-site production processes. Only one percent of hazardous substances was generated as NPO.

Facilities used on-site treatment methods to manage most (60%) of this NPO. Off-site methods were used to manage 34% of the NPO. Approximately 6% of the generated NPO was released to the environment. Stack air emissions accounted for the majority (65%) of these releases. Surface water discharges accounted for 20% of releases statewide.

Figure 24. Statewide Percentages of Hazardous Substance Throughput



C. Chemicals (all chemicals)

Use

Table 27 lists the top 10 substances used in 2001. These top 10 substances accounted for 82.9% of total statewide Use, or 22,394,218,281 pounds. Methyl tert-butyl ether was the largest hazardous substances used in New Jersey, accounting for 19.65% of all chemicals. Petroleum refineries report all top ten substances.

Table 27. Top 10 Hazardous Substances Used in 2001 (all chemicals)

CAS Number	Substance Name	Calculated Use	% of Total
1634-04-4	METHYL TERT-BUTYL ETHER	5,308,753,819	19.65 %
1330-20-7	XYLENE (MIXED ISOMERS)	4,625,014,527	17.12 %
108-88-3	TOLUENE	4,163,478,827	15.41 %
110-54-3	N-HEXANE	2,037,529,026	7.54 %
95-63-6	1,2,4-TRIMETHYLBENZENE	1,296,941,270	4.80 %
100-41-4	ETHYLBENZENE	1,251,039,975	4.63 %
71-43-2	BENZENE	1,127,816,785	4.17 %
115-07-1	PROPYLENE [PROPENE]	1,047,040,375	3.88 %
91-20-3	NAPHTHALENE	878,949,973	3.25 %
110-82-7	CYCLOHEXANE	657,653,704	2.43 %
	Sum of Top Ten:	**22,394,218,281**	**82.89 %**
	Sum Other:	**4,622,831,851**	**17.11 %**
	Sum All:	**27,017,050,131**	**100.00 %**

Nonproduct Output

Table 28 shows the top 10 substances generated as NPO in 2001. The top 10 substances accounted for 71.9% of all NPO and amounted to 202,722,162 pounds. Hydrochloric acid had the highest reported quantities of NPO in the state, accounting for 22.5% of all NPO. Only two of these chemicals (toluene and xylene) made the top 10 lists for both Use and NPO.

Table 28. Top 10 Hazardous Substances Generated as NPO in 2001 (all chemicals)

CAS Number	Substance Name	NPO	% of Total
7647-01-0	HYDROCHLORIC ACID	63,476,733	22.52 %
67-56-1	METHANOL	30,377,601	10.78 %
108-88-3	TOLUENE	24,276,309	8.61 %
7439-92-1 & N420	LEAD & COMPOUNDS	15,642,499	5.55 %
7664-41-7	AMMONIA	14,989,452	5.32 %
N511	NITRATE COMPOUNDS (WATER DISSOCIABLE)	12,321,459	4.37 %
7697-37-2	NITRIC ACID	12,320,908	4.37 %
1330-20-7	XYLENE (MIXED ISOMERS)	9,993,037	3.55 %
7440-66-6 & N982	ZINC & COMPOUNDS	9,682,791	3.44 %
7440-50-8 & N100	COPPER & COMPOUNDS (WITH EXCEPTIONS)	9,641,373	3.42 %
	Sum of Top 10:	**202,722,162**	**71.92 %**
	Sum Other:	**79,140,400**	**28.08 %**
	Sum All:	**281,862,562**	**100.00 %**

Releases

Table 29 shows the top 10 substances released on site in 2001. On-site releases amounted to 17,938,615 pounds or about 6.5% of the total NPO reported. The top 10 substances accounted for 79.8% of all on-site releases. Hydrochloric acid had the highest amount of on-site releases reported in the state, accounting for 34.3% of all releases.

Table 29. Top 10 Hazardous Substances Released in 2001 (all chemicals)

CAS Number	Substance Name	On-Site Releases	% of Total
7647-01-0	HYDROCHLORIC ACID	6,154,312	34.31 %
N511	NITRATE COMPOUNDS (WATER DISSOCIABLE)	3,099,303	17.28 %
7664-41-7	AMMONIA	1,330,004	7.41 %
108-88-3	TOLUENE	893,134	4.98 %
1330-20-7	XYLENE (MIXED ISOMERS)	666,530	3.72 %
7664-93-9	SULFURIC ACID	529,696	2.95 %
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	467,967	2.61 %
67-56-1	METHANOL	439,491	2.45 %
1634-04-4	METHYL TERT-BUTYL ETHER	372,410	2.08 %
78-93-3	METHYL ETHYL KETONE	366,225	2.04 %
	Sum of Top Ten:	**14,319,072**	**79.82 %**
	Sum Other:	**3,619,543**	**20.18 %**
	Sum All:	**17,938,615**	**100.00 %**

D. Chemicals of Concern

Carcinogens

Table 30 lists the top 10 carcinogens used in New Jersey in 2001. The top 10 carcinogens total 2,418,172,235 pounds of Use and accounted for about 97.6 of all carcinogens. Benzene, a constituent of petroleum products, topped the list at 45.5%.

Table 30. Top Ten Hazardous Substances for Use in 2001 (Carcinogens)

CAS Number	Substance Name	Calculated Use	% of Total
71-43-2	BENZENE	1,127,816,785	45.54 %
75-01-4	VINYL CHLORIDE	429,518,079	17.34 %
74-85-1	ETHYLENE	348,494,667	14.07 %
100-42-5	STYRENE	217,515,291	8.78 %
7439-92-1 & N420	LEAD & COMPOUNDS	72,309,907	2.92 %
75-21-8	ETHYLENE OXIDE	59,315,303	2.40 %
100-44-7	BENZYL CHLORIDE	57,448,844	2.32 %
98-95-3	NITROBENZENE	38,717,504	1.56 %
140-88-5	ETHYL ACRYLATE	37,274,484	1.51 %
75-56-9	PROPYLENE OXIDE	29,761,371	1.20 %
	Sum of Top Ten:	**2,418,172,235**	**97.64 %**
	Sum Other:	**58,444,108**	**2.36 %**
	Sum All:	**2,476,616,342**	**100.00 %**

Table 31 below presents the top 10 carcinogens generated as NPO in 2001. Nonproduct output amounted to 24,504,341 pounds. The top 10 substances accounted for 88.7% of all nonproduct output. Lead and lead compounds had the highest amount of reported nonproduct output in the state, accounting for 55.8% of all NPO.

Table 31. Top 10 Hazardous Substances as NPO in 2001 (Carcinogens)

CAS Number	Substance Name	NPO	% of Total
7439-92-1 & N420	LEAD & COMPOUNDS	13,665,486	55.77 %
74-85-1	ETHYLENE	2,750,880	11.23 %
75-09-2	DICHLOROMETHANE	1,388,381	5.67 %
100-44-7	BENZYL CHLORIDE	961,646	3.92 %
75-01-4	VINYL CHLORIDE	719,562	2.94 %
79-01-6	TRICHLOROETHYLENE	717,558	2.93 %
71-43-2	BENZENE	675,017	2.75 %
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]	330,304	1.35 %
67-66-3	CHLOROFORM	260,790	1.06 %
78-87-5	1,2-DICHLOROPROPANE	255,543	1.04 %
	Sum of Top 10:	**21,725,167**	**88.66 %**
	Sum Other:	**2,779,175**	**11.34 %**
	Sum All:	**24,504,341**	**100.00 %**

Table 32 shows the top 10 carcinogens reported as released on-site in 2001. On-site releases amounted to 820,015 pounds. The top 10 substances accounted for 90.1% of all releases for carcinogens. Styrene had the highest amount of on-site releases reported in the state with 20.9%.

Table 32. Top 10 Hazardous Substances Released On-Site in 2001 (Carcinogens)

CAS Number	Substance Name	On-Site Releases	% of Total
100-42-5	STYRENE	171,418	20.90 %
75-09-2	DICHLOROMETHANE	141,848	17.30 %
79-01-6	TRICHLOROETHYLENE	106,444	12.98 %
71-43-2	BENZENE	88,823	10.83 %
74-85-1	ETHYLENE	67,641	8.25 %
78-87-5	1,2-DICHLOROPROPANE	63,472	7.74 %
75-01-4	VINYL CHLORIDE	30,481	3.72 %
67-66-3	CHLOROFORM	25,940	3.16 %
7440-02-0 & N495	NICKEL & COMPOUNDS	24,914	3.04 %
7440-47-3 & N090	CHROMIUM & COMPOUNDS	18,063	2.20 %
	Sum of Top Ten:	**739,044**	**90.13 %**
	Sum Other:	**80,971**	**9.87 %**
	Sum All:	**820,015**	**100.00 %**

PBTs

Table 33 shows that substance Use for the top 10 PBTs accounted for essentially 100% of all PBTs reported and totaled 239,422,233 pounds. Lead and lead compounds accounted for 59% and polycyclic aromatic compounds (PACs), including benzo(g,h,i)perylene, accounted for the remaining 41%. As discussed previously in the PBT section of the report, the majority of these compounds were found in products shipped off site.

Table 33. Top Ten Hazardous Substances Used in 2001 (PBTs)

CAS Number	Substance Name	Calculated Use	Percentage
7439-92-1 & N420	LEAD & COMPOUNDS	141,088,534.74	58.93 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	94,825,984.74	39.61 %
191-24-2	BENZO(G,H,I)PERYLENE	3,289,655.02	1.37 %
118-74-1	HEXACHLOROBENZENE	87,202.00	0.04 %
57-74-9	CHLORDANE	75,292.50	0.03 %
76-44-8	HEPTACHLOR	32,860.40	0.01 %
7439-97-6 & N458	MERCURY & COMPOUNDS	18,924.55	0.01 %
72-43-5	METHOXYCHLOR	2,755.30	0.00 %
40487-42-1	PENDIMETHALIN	541.00	0.00 %
8001-35-2	TOXAPHENE [CAMPHECHLOR]	483.40	0.00 %
	Sum of Top Ten:	**239,422,233.65**	**100.00 %**
	Sum Other:	**689.58**	**0.00 %**
	Sum All:	**239,422,923.23**	**100.00 %**

Table 34 shows the top 10 PBTs reported as NPO in 2001. NPO amounted to 15,896,794 pounds. The top 10 substances accounted for essentially 100% of all NPO for PBTs. Lead and lead compounds had the highest amount of reported nonproduct output in the state, accounting for 98.4% of all NPO for PBTs.

Table 34. Top 10 Hazardous Substances Reported as NPO in 2001 (PBTs)

CAS Number	Substance Name	NPO	% of Total
7439-92-1 & N420	LEAD & COMPOUNDS	15,642,499	98.40 %
118-74-1	HEXACHLOROBENZENE	81,285	0.51 %
57-74-9	CHLORDANE	75,293	0.47 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	54,937	0.35 %
76-44-8	HEPTACHLOR	32,860	0.21 %
7439-97-6 & N458	MERCURY & COMPOUNDS	5,218	0.03 %
72-43-5	METHOXYCHLOR	2,755	0.02 %
40487-42-1	PENDIMETHALIN	541	0.00 %
8001-35-2	TOXAPHENE [CAMPHECHLOR]	483	0.00 %
191-24-2	BENZO(G,H,I)PERYLENE	247	0.00 %
	Sum of Top 10:	**15,896,119**	**100.00 %**
	Sum Other:	**675**	**0.00 %**
	Sum All:	**15,896,794**	**100.00 %**

Table 35 shows the top 10 PBTs reported as released on site in 2001. On-site releases of PBTs amounted to 24,804 pounds. The top 10 substances accounted for 99.99% of all on-site releases of PBTs. Lead and lead compounds had the highest amount of on-site releases reported in the state, accounting for 73.7% of all releases of PBTs.

Table 35. Top 10 Hazardous Substances Released in 2001 (PBTs)

CAS Number	Substance Name	On-Site Releases	% of Total
7439-92-1 & N420	LEAD & COMPOUNDS	18,275	73.68 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	3,833	15.45 %
7439-97-6 & N458	MERCURY & COMPOUNDS	843	3.40 %
118-74-1	HEXACHLOROBENZENE	668	2.69 %
40487-42-1	PENDIMETHALIN	541	2.18 %
57-74-9	CHLORDANE	518	2.09 %
608-93-5	PENTACHLOROBENZENE	60	0.24 %
191-24-2	BENZO(G,H,I)PERYLENE	26	0.11 %
1582-09-8	TRIFLURALIN	25	0.10 %
N150	DIOXIN AND DIOXIN-LIKE COMPOUNDS	11	0.04 %
	Sum of Top Ten:	**24,801**	**99.99 %**
	Sum Other:	**3**	**0.01 %**
	Sum All:	**24,804**	**100.00 %**

Extraordinarily Hazardous Substances (EHS-TCPA)

Table 36 shows the top 10 TCPA EHSs reported for Use in 2001. The top 10 total 1,453,827,126 pounds and accounted for 95.1% of all EHSs used. Vinyl chloride is the number one chemical reported at 28.1% of the total or 429,518,079 pounds.

Table 36. Top Ten Hazardous Substances for Use in 2001 (EHSs)

CAS Number	Substance Name	Calculated Use	% of Total
75-01-4	VINYL CHLORIDE	429,518,079	28.11 %
74-85-1	ETHYLENE	348,494,667	22.81 %
7782-50-5	CHLORINE	166,521,890	10.90 %
108-05-4	VINYL ACETATE	107,193,756	7.01 %
7647-01-0	HYDROCHLORIC ACID	94,076,079	6.16 %
7697-37-2	NITRIC ACID	77,654,601	5.08 %
75-44-5	PHOSGENE	73,492,923	4.81 %
7664-41-7	AMMONIA	67,798,457	4.44 %
75-21-8	ETHYLENE OXIDE	59,315,303	3.88 %
75-56-9	PROPYLENE OXIDE	29,761,371	1.95 %
	Sum of Top 10:	**1,453,827,126**	**95.14 %**
	Sum Other:	**74,250,859**	**4.86 %**
	Sum All:	**1,528,077,985**	**100.00 %**

Table 37 shows the top 10 substances reported as NPO for EHSs in 2001. NPO for all EHSs amounted to 102,140,245 pounds. The top 10 substances accounted for 98.7% of all nonproduct output of EHSs. Hydrochloric acid had the highest amount of reported NPO in the state, accounting for 62.15% of all NPO of EHSs.

Table 37. Top 10 Hazardous Substances Reported as NPO in 2001 (EHSs)

CAS Number	Substance Name	NPO	% of Total
7647-01-0	HYDROCHLORIC ACID	63,476,733	62.15 %
7664-41-7	AMMONIA	14,989,452	14.68 %
7697-37-2	NITRIC ACID	12,320,908	12.06 %
7664-39-3	HYDROGEN FLUORIDE	4,458,714	4.37 %
74-85-1	ETHYLENE	2,750,880	2.69 %
7550-45-0	TITANIUM TETRACHLORIDE	851,789	0.83 %
75-01-4	VINYL CHLORIDE	719,562	0.70 %
75-44-5	PHOSGENE	533,372	0.52 %
7782-50-5	CHLORINE	417,127	0.41 %
108-05-4	VINYL ACETATE	280,609	0.27 %
	Sum of Top 10:	**100,799,146**	**98.69 %**
	Sum Other:	**1,341,099**	**1.31 %**
	Sum All:	**102,140,245**	**100.00 %**

Table 38 shows the top 10 EHS substances reported as released on site in 2001. On-site releases of the top 10 EHSs amounted to 8,050,251 pounds. The top 10 EHS substances accounted for 99.1% of all on-site releases of EHSs. Hydrochloric acid had the highest amount of on-site releases reported in the state, accounting for 75.8% of all releases of EHSs.

Table 38. Top 10 Substances Released On-Site in 2001 (EHSs)

CAS Number	Substance Name	On-Site Releases	% of Total
7647-01-0	HYDROCHLORIC ACID	6,154,312	75.77 %
7664-41-7	AMMONIA	1,330,004	16.37 %
7664-39-3	HYDROGEN FLUORIDE	269,945	3.32 %
74-85-1	ETHYLENE	67,641	0.83 %
75-00-3	CHLOROETHANE	53,845	0.66 %
108-05-4	VINYL ACETATE	46,515	0.57 %
74-87-3	CHLOROMETHANE	37,919	0.47 %
7697-37-2	NITRIC ACID	33,649	0.41 %
75-01-4	VINYL CHLORIDE	30,481	0.38 %
67-66-3	CHLOROFORM	25,940	0.32 %
	Sum of Top Ten:	**8,050,251**	**99.11 %**
	Sum Other:	**71,924**	**0.89 %**
	Sum All:	**8,122,175**	**100.00 %**

E. Facilities (all chemicals)

Similarly as shown in the chemical summaries, the top 10 facilities accounted for the majority of the total quantity reported in each category. For Use, the top 10 facilities reported 20,304,919,305 pounds and accounted for over 75% of all chemicals. All top 10 facilities are related to the petroleum refining and marketing industries.

Use

Table 39. Top Ten Facilities for Use in 2001 (all chemicals)

Facility Name (City)	County	Calculated Use	% of Total
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	6,235,847,523	23.08 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	2,846,313,619	10.54 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	2,626,777,494	9.72 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	2,528,832,646	9.36 %
AMERADA-HESS PORT READING-CORPORATION (PORT READING)	MIDDLESEX	1,672,437,577	6.19 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	1,253,249,271	4.64 %
EXXON MOBIL OIL CORPORATION (LINDEN)	UNION	1,095,920,957	4.06 %
MOBIL OIL CORPORATION (PAULSBORO)	GLOUCESTER	702,043,235	2.60 %
BP PRODUCTS NORTH AMERICA INC (CARTERET)	MIDDLESEX	680,415,969	2.52 %
MOTIVA ENTERPRISES, LLC (NEWARK)	ESSEX	663,081,014	2.45 %
	Sum of Top Ten:	**20,304,919,305**	**75.16 %**
	Sum Other:	**6,712,130,826**	**24.84 %**
	Sum All:	**27,017,050,131**	**100.00 %**

NPO

Table 40 illustrates the top 10 facilities that generated NPO in 2001. These top 10 facilities generated 141,274,961 pounds of NPO and accounted for over 50% of all NPO generated in New Jersey in 2001. DuPont Chambersworks tops the list with 48,269,309 pounds of NPO, which accounted for over 17% of all NPO generated in the state.

Table 40. Top 10 Facilities Generating Nonproduct Output in 2001 (all chemicals)

Facility Name (City)	County	NPO	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	48,269,309	17.13 %
SAFETY-KLEEN INC (LOGAN TOWNSHIP)	GLOUCESTER	17,269,085	6.13 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	14,927,204	5.30 %
DELPHI AUTOMOTIVE SYSTEMS (NEW BRUNSWICK)	MIDDLESEX	12,325,801	4.37 %
MERCK & CO INC (RAHWAY)	UNION	11,990,561	4.25 %
INFINEUM USA (LINDEN)	UNION	8,446,292	3.00 %
PERMACEL, A NITTO DENKO COMPANY (NORTH BRUNSWICK TWP)	MIDDLESEX	7,765,534	2.76 %
GREENTREE CHEMICAL TECHNOLOGIES (SAYREVILLE)	MIDDLESEX	7,722,319	2.74 %
ASAHI GLASS FLUOROPOLYMERS USA, INC (BAYONNE)	HUDSON	6,858,950	2.43 %
GERDAU AMERISTEEL (PERTH AMBOY)	MIDDLESEX	5,699,906	2.02 %
	Sum of Top Ten:	**141,274,961**	**50.12 %**
	Sum Other:	**140,587,601**	**49.88 %**
	Sum All:	**281,862,562**	**100.00 %**

Releases

Table 41 shows the top 10 facilities that reported on-site releases in 2001. The top 10 facilities accounted for 67.7% of all on-site releases. PSE&G's Hudson Generating facility had the highest amount of on-site releases reported in the state, accounting for 18.6% of all releases.

Table 41. Top 10 On-Site Releasers in 2001 (all chemicals)

Facility Name (City)	County	On-Site Releases	% of Total
PUBLIC SERVICE ELECTRIC & GAS CO (JERSEY CITY)	HUDSON	3,333,269	18.58 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	2,325,306	12.96 %
PSEG FOSSIL LLC (HAMILTON)	MERCER	2,320,471	12.94 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	1,674,347	9.33 %
CONECTIV (PENNSVILLE)	SALEM	548,040	3.06 %
CONECTIV (BEESLEYS POINT)	CAPE MAY	496,571	2.77 %
FORD MOTOR COMPANY (EDISON)	MIDDLESEX	429,325	2.39 %
ROCHE VITAMINS INC. (WHITE TWP)	WARREN	394,087	2.20 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	342,010	1.91 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	285,613	1.59 %
	Sum of Top Ten:	**12,149,038**	**67.73 %**
	Sum Other:	**5,789,577**	**32.27 %**
	Sum All:	**17,938,615**	**100.00 %**

F. Facilities (chemicals of concern)

Carcinogens

Table 42 shows the top 10 facilities that used carcinogens in 2001. The top 10 facilities used 1,804,589,086 pounds of carcinogens and account for almost 73% of all carcinogens used in New Jersey. ConocoPhillips used over 18% of all carcinogens at 449,022,659 pounds.

Table 42. Top Ten Facilities for Use in 2001 (Carcinogens)

Facility Name (City)	County	Calculated Use	% of Total
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	449,022,659	18.13 %
OXY VINYLS LP (PEDRICKTOWN)	SALEM	293,071,412	11.83 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	283,935,977	11.46 %
BASF CORPORATION DEL (SOUTH BRUNSWICK TWP)	MIDDLESEX	178,557,620	7.21 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	144,840,698	5.85 %
AMERADA-HESS PORT READING-CORPORATION (PORT READING)	MIDDLESEX	114,933,171	4.64 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	93,522,001	3.78 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	89,678,507	3.62 %
POLYONE CORPORATION (OLDMANS TWP)	SALEM	78,926,843	3.19 %
GULF OIL LIMITED PARTNERSHIP (LINDEN)	UNION	78,100,198	3.15 %
	Sum of Top Ten:	**1,804,589,086**	**72.87 %**
	Sum Other:	**672,027,256**	**27.13 %**
	Sum All:	**2,476,616,342**	**100.00 %**

Table 43 illustrates the top 10 facilities that generated carcinogens as NPO. The top 10 facilities generated 20,774,286 pounds and accounted for nearly 85% of all carcinogens that were generated as NPO in New Jersey in 2001. Delphi Automotive Systems generated 12,236,999 pounds of carcinogens and accounted for 50% of the total.

Table 43. Top 10 Facilities NPO in 2001 (Carcinogens)

Facility Name (City)	County	NPO	% of Total
DELPHI AUTOMOTIVE SYSTEMS (NEW BRUNSWICK)	MIDDLESEX	12,236,999	49.94 %
SAFETY-KLEEN INC (LOGAN TOWNSHIP)	GLOUCESTER	3,263,757	13.32 %
AIR PRODUCTS POLYMERS, L.P. (SOUTH BRUNSWICK TWP)	MIDDLESEX	1,425,733	5.82 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	950,859	3.88 %
COLORITE SPECIALTY RESINS (BURLINGTON)	BURLINGTON	677,875	2.77 %
FERRO CORP. (LOGAN TWP)	GLOUCESTER	552,694	2.26 %
MERCK & CO INC (RAHWAY)	UNION	497,486	2.03 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	455,696	1.86 %
CLEAN EARTH OF NEW JERSEY (KEARNY)	HUDSON	357,787	1.46 %
MADISON INDUSTRIES INC (OLD BRIDGE TWP)	MIDDLESEX	355,400	1.45 %
	Sum of Top Ten:	**20,774,286**	**84.78 %**
	Sum Other:	**3,730,055**	**15.22 %**
	Sum All:	**24,504,341**	**100.00 %**

Table 44 shows the top 10 facilities that reported on-site releases of Carcinogens in 2001. The top 10 facilities accounted for 59.3% of all on-site releases of Carcinogens. Silverton Marine Corporation, located in Millville, had the highest amount of on-site releases of Carcinogens reported in the state, accounting for 9.6% of all releases.

Table 44. Top 10 Facilities Generating Releases in 2001 (Carcinogens)

Facility Name (City)	County	On-Site Releases	% of Total
SILVERTON MARINE CORPORATION (MILLVILLE)	CUMBERLAND	78,400	9.56 %
SYBRON CHEMICALS INC NEW (PEMBERTON TWP)	BURLINGTON	69,327	8.45 %
VIKING YACHT CO CORP (NEW GRETNA)	BURLINGTON	60,380	7.36 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	56,523	6.89 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	52,419	6.39 %
FRY'S METALS INC. (JERSEY CITY)	HUDSON	41,000	5.00 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	38,377	4.68 %
NATIONAL MANUFACTURING CO INC (CHATHAM)	MORRIS	31,440	3.83 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	30,021	3.66 %
PEERLESS TUBE COMPANY (BLOOMFIELD)	ESSEX	28,635	3.49 %
	Sum of Top Ten:	**486,522**	**59.33 %**
	Sum Other:	**333,493**	**40.67 %**
	Sum All:	**820,015**	**100.00 %**

PBTs

Table 45 illustrates the top ten facilities that used PBTs in 2001. Use for the top 10 totaled 208,154,513 pounds and accounted for nearly 87% of all PBTs used in New Jersey. Delphi Automotive Systems used 63,995,429 pounds and accounted for 26.7% of the total Use of PBTs.

Table 45. Top Ten Facilities for Use in 2001 (PBTs)

Facility Name (City)	County	Calculated Use	% of Total
DELPHI AUTOMOTIVE SYSTEMS (NEW BRUNSWICK)	MIDDLESEX	63,995,429	26.73 %
CO-STEEL SAYREVILLE (SAYREVILLE)	MIDDLESEX	50,388,067	21.05 %
AMERADA-HESS PORT READING-CORPORATION (PORT READING)	MIDDLESEX	22,071,176	9.22 %
BP PRODUCTS NORTH AMERICA INC. (NEWARK)	ESSEX	20,335,176	8.49 %
PG&E GENERATING (CARNEYS POINT)	SALEM	15,029,057	6.28 %
U.S. GENERATING CO. (LOGAN TWP)	GLOUCESTER	11,662,542	4.87 %
COASTAL OIL NEW YORK INC (BAYONNE)	HUDSON	6,799,799	2.84 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	6,476,572	2.71 %
THE OKONITE CO, INC (PATERSON)	PASSAIC	5,845,935	2.44 %
AMERADA HESS CORP. (PENNSAUKEN)	CAMDEN	5,550,760	2.32 %
	Sum of Top Ten:	**208,154,513**	**86.94 %**
	Sum Other:	**31,268,410**	**13.06 %**
	Sum All:	**239,422,923**	**100.00 %**

Table 46 lists the top 10 facilities that generated PBTs as NPO. The top 10 facilities generated 15,273,450 pounds of PBTs and accounted for over 96% of all PBTs in New Jersey. Delphi Automotive Systems generated 12,236,999 pounds of PBTs as NPO and accounted for nearly 77% of all PBTs generated as NPO in New Jersey.

Table 46. Top 10 Facilities NPO in 2001 (PBTs)

Facility Name (City)	County	NPO	% of Total
DELPHI AUTOMOTIVE SYSTEMS (NEW BRUNSWICK)	MIDDLESEX	12,236,999	76.98 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	672,160	4.23 %
ELECTRUM RECOVERY WORKS INC (RAHWAY)	UNION	565,403	3.56 %
THE OKONITE CO, INC (PATERSON)	PASSAIC	384,786	2.42 %
MADISON INDUSTRIES INC (OLD BRIDGE TWP)	MIDDLESEX	355,400	2.24 %
CLEAN EARTH OF NEW JERSEY (KEARNY)	HUDSON	304,666	1.92 %
GERDAU AMERISTEEL (PERTH AMBOY)	MIDDLESEX	250,039	1.57 %
SAFETY-KLEEN INC (LOGAN TOWNSHIP)	GLOUCESTER	209,858	1.32 %
RHEIN CHEMIE CORP. (TRENTON)	MERCER	157,974	0.99 %
UNITED STATES PIPE AND FOUNDRY CO INC (BURLINGTON)	BURLINGTON	136,165	0.86 %
	Sum of Top Ten:	**15,273,450**	**96.08 %**
	Sum Other:	**623,344**	**3.92 %**
	Sum All:	**15,896,794**	**100.00 %**

Table 47 shows the top 10 facilities that reported on-site releases of PBTs in 2001. The top 10 facilities accounted for nearly 87.6% of all on-site releases of PBTs. The DuPont Chambersworks facility, Pennsville, had the highest amount of on-site releases of PBTs reported in the state, accounting for 52.2% of all releases.

Table 47. Top 10 On-Site Releasers in 2001 (PBTs)

Facility Name (City)	County	On-Site Releases	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	12,947	52.20 %
BP PRODUCTS NORTH AMERICA INC. (NEWARK)	ESSEX	1,932	7.79 %
CO-STEEL SAYREVILLE (SAYREVILLE)	MIDDLESEX	1,412	5.69 %
UNITED STATES PIPE AND FOUNDRY CO INC (BURLINGTON)	BURLINGTON	1,287	5.19 %
PUBLIC SERVICE ELECTRIC & GAS CO (JERSEY CITY)	HUDSON	1,177	4.74 %
GRIFFIN PIPE PRODUCTS CO. (FLORENCE)	BURLINGTON	993	4.00 %
ATLANTIC STATES CAST IRON PIPE CO. (PHILLIPSBURG)	WARREN	572	2.31 %
PSEG FOSSIL LLC (HAMILTON)	MERCER	554	2.23 %
DELPHI AUTOMOTIVE SYSTEMS (NEW BRUNSWICK)	MIDDLESEX	499	2.01 %
GERDAU AMERISTEEL (PERTH AMBOY)	MIDDLESEX	343	1.38 %
	Sum of Top Ten:	**21,715**	**87.55 %**
	Sum Other:	**3,089**	**12.45 %**
	Sum All:	**24,804**	**100.00 %**

Extraordinarily Hazardous Substances

Table 48 shows the top 10 facilities that used EHSs in New Jersey for 2001. They used 1,171,986,082 pounds that accounted for 76.7% of all EHSs used in New Jersey. Oxy Vinyls LP used 293,071,412 pounds that accounted for over 19% of all EHSs used in New Jersey in 2001.

Table 48. Top 10 Facilities for Use in 2001 (EHSs)

Facility Name (City)	County	Calculated Use	% of Total
OXY VINYLS LP (PEDRICKTOWN)	SALEM	293,071,412	19.18 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	217,324,674	14.22 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	146,786,233	9.61 %
AMERADA-HESS PORT READING-CORPORATION (PORT READING)	MIDDLESEX	82,790,204	5.42 %
AIR PRODUCTS POLYMERS, L.P. (SOUTH BRUNSWICK TWP)	MIDDLESEX	80,046,103	5.24 %
POLYONE CORPORATION (OLDMANS TWP)	SALEM	78,926,843	5.17 %
BASF CORPORATION -DEL- (WASHINGTON)	WARREN	76,880,062	5.03 %
KUEHNE CHEMICAL CO INC (KEARNY)	HUDSON	72,104,629	4.72 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	63,914,078	4.18 %
COLORITE SPECIALTY RESINS (BURLINGTON)	BURLINGTON	60,141,844	3.94 %
	Sum of Top Ten:	**1,171,986,082**	**76.70 %**
	Sum Other:	**356,091,903**	**23.30 %**
	Sum All:	**1,528,077,985**	**100.00 %**

Table 49 shows the top 10 facilities that generated EHSs as NPO. These top 10 facilities generated 78,481,965 pounds of EHSs as NPO, which accounted for 76.8% of all EHSs generated as NPO. DuPont Chambersworks generated 34,092,724 pounds of EHSs as NPO, which accounted for over 33% of all EHSs generated as NPO.

Table 49. Top 10 Facilities NPO in 2001 (EHSs)

Facility Name (City)	County	NPO	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	34,092,724	33.38 %
CONOCOPHILLIPS COMPANY (LINDEN)	UNION	8,786,233	8.60 %
GREENTREE CHEMICAL TECHNOLOGIES (SAYREVILLE)	MIDDLESEX	7,632,493	7.47 %
INFINEUM USA (LINDEN)	UNION	7,284,714	7.13 %
ASAHI GLASS FLUOROPOLYMERS USA, INC (BAYONNE)	HUDSON	6,726,700	6.59 %
FERRO CORP. (LOGAN TWP)	GLOUCESTER	3,394,075	3.32 %
PUBLIC SERVICE ELECTRIC & GAS CO (JERSEY CITY)	HUDSON	3,143,701	3.08 %
HOFFMANN LA ROCHE INC (NUTLEY)	ESSEX	2,869,152	2.81 %
COASTAL EAGLE POINT OIL COMPANY (WEST DEPTFORD TWP)	GLOUCESTER	2,317,954	2.27 %
PSEG FOSSIL LLC (HAMILTON)	MERCER	2,234,219	2.19 %
	Sum of Top Ten:	**78,481,965**	**76.84 %**
	Sum Other:	**23,658,280**	**23.16 %**
	Sum All:	**102,140,245**	**100.00 %**

Table 50 shows the top 10 facilities that reported on-site releases of EHSs in 2001. The top 10 facilities accounted for 78,481,965 pounds (or 88.4%) of all on-site releases of EHSs. PSE&G's Hudson Generating facility had the highest amount of on-site releases of EHSs reported in the state, accounting for 38.7% of all releases.

Table 50: Top 10 On-Site Releasers in 2001 (EHSs)

Facility Name (City)	County	On-Site Releases	% of Total
PUBLIC SERVICE ELECTRIC & GAS CO (JERSEY CITY)	HUDSON	3,143,689	38.71 %
PSEG FOSSIL LLC (HAMILTON)	MERCER	2,234,219	27.51 %
CONECTIV (PENNSVILLE)	SALEM	544,594	6.71 %
CONECTIV (BEESLEYS POINT)	CAPE MAY	358,432	4.41 %
COGEN TECHNOLOGIES LINDEN VENTURE, L.P (LINDEN CITY)	UNION	210,798	2.60 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	185,508	2.28 %
SGPPL-MICKLETON (MICKLETON)	GLOUCESTER	156,914	1.93 %
JOHNS MANVILLE CORPORATION (WINSLOW)	CAMDEN	153,871	1.89 %
CAMDETT CORP (CAMDEN)	CAMDEN	124,014	1.53 %
INFINEUM USA (LINDEN)	UNION	65,600	0.81 %
	Sum of Top Ten:	**7,177,639**	**88.37 %**
	Sum Other:	**944,536**	**11.63 %**
	Sum All:	**8,122,175**	**100.00 %**

G. Industries (SIC)

The Standard Industrial Classification (SIC) code system was developed to classify establishments based on the nature of the business activity. All manufacturing sector activities and certain non-manufacturing activities are subject to reporting on the RPPR as long as other reporting criteria are met as well. Table 51 summarizes the number of reporting facilities submitted by each major SIC group. For reporting year 2001, the Chemicals and Allied Products industry (SIC 28) accounted for 31% of the facilities and 40% of the RPPR substance reports. The Apparel and Other Finished Products industry (SIC 23) had one facility and two substance reports in 2001.

Table 51 *(SIC throughput)* also presents the reported 2001 throughput data summary by SIC code. The Petroleum Refining and Related Industries (SIC 29) were by far responsible for the largest quantity of substance Use (or chemical throughput) with nearly 13.5 billion pounds or 50% of the total. The state's five oil refineries were the major contributors in this category. The Apparel and Other Finished Products industry (SIC 23) used the smallest quantity of substances (166,850 pounds). The Chemicals and Allied Products industry (SIC 28) reported the largest quantities for nonproduct output (NPO) at 136,824,108 pounds or 48.4%. The Lumber and Wood Products, Except Furniture industry (SIC 24) reported the least amount of NPO (22,298 pounds).

Table 52 *(SIC releases and transfers)* presents the reported 2001 on-site release and off-site transfer data summary by SIC code. The Electric, Gas, and Sanitary Services sector (SIC 49) reported the most on-site releases to the environment with 7,276,866 pounds (40%). Air emissions alone of hydrochloric acid (aerosols) from electricity generators in this sector were more than six million pounds. The Chemical industry (SIC 28) reported the largest quantities for off-site transfers with 47,364,189 pounds or 49.6% of the transfers. The Miscellaneous Manufacturing Industries (SIC 39) reported the least amount of total on-site releases to the environment (7,364 pounds). The Apparel and Other Finished Products industry (SIC 23) reported the lowest amount of off-site transfers (220 pounds).

Table 51. Throughput Data Per Two Digit SIC Code

		INPUTS				OUTPUTS				
SIC CODE	# of Facilities	Starting Inventory	Manufactured	Brought on Site	Recycled & Reused on-site	Consumed	Shipped in/or as Product	Ending Inventory	Nonproduct Output	Use
20	15	336,804	493,733	862,705	220,600	186,502	325,622	224,128	992,791	1,504,915
22	10	66,115	0	1,049,711	4,346	48,218	135,174	52,730	872,037	1,055,429
23	1	4,500	38,332	80,846	0	0	128,288	4,500	38,562	166,850
24	2	633,384	0	8,285,168	0	1,398,503	7,079,484	423,471	22,298	8,500,285
26	20	675,233	232,499	10,821,767	1,093,649	2,746,838	4,129,208	767,017	12,013,121	18,889,167
27	17	414,400	0	2,258,214	3,800	332,287	338	423,655	1,828,018	2,160,643
28	158	102,439,353	765,791,334	1,807,630,752	5,758,859	1,615,181,433	822,036,491	93,589,046	136,824,108	2,574,042,032
29	14	559,261,866	8,761,130,348	4,717,997,059	54,998	1,299,412,671	12,168,340,379	552,660,043	31,157,703	13,498,910,753
30	35	3,605,244	157,560	182,089,855	535,128	150,378,121	29,573,837	3,377,362	3,751,342	183,703,300
31	2	124,883	80,392	1,050,558	0	595,160	232,795	61,181	147,336	975,291
32	14	322,428	443,280	5,979,520	530	1,041,525	3,937,409	343,931	1,425,031	6,403,965
33	49	72,002,328	10,242,042	541,746,125	6,904,314	4,112,217	590,752,516	59,452,607	30,766,771	625,631,504
34	50	1,753,413	317,593	15,320,881	24,167	187,920	5,388,223	1,773,940	9,966,217	15,542,360
35	17	2,338,406	68,911	13,935,401	26,103	660,396	12,641,683	1,940,883	1,107,750	14,409,829
36	33	601,238	53,541	73,323,232	0	37,664	59,933,026	570,656	13,561,107	73,531,797
37	7	6,506,809	89,385	25,407,866	728,604	115,503	25,702,437	3,855,594	3,051,327	28,869,267
38	12	263,227	373,977	2,752,873	187	176,612	1,375,492	289,646	1,552,476	3,104,580
39	5	45,971	0	435,764	7,680	166,858	227,185	49,177	23,501	417,544
49	24	8,096,450	25,659,605	80,064,797	0	73,327,096	1,499,563	8,235,424	31,786,700	106,613,359
51	37	416,904,659	671,756	9,862,491,290	218,743	0	9,851,642,896	438,039,487	974,367	9,852,617,263
Sum:	522	1,176,396,712	9,565,844,288	17,353,584,383	15,581,709	3,150,105,523	23,585,082,046	1,166,134,477	281,862,562	27,017,050,131

Table 52. Release and Transfer Data Per Two Digit SIC Code

SIC CODE	# of Facilities	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site	On-Site Releases	POTW Discharge	Waste Transfer - Recycling	Waste Transfer - Energy Recovery	Waste Transfer - Treatment	Waste Transfer - Disposal	Off-Site Transfers
20	15	86,071	45,675	0	0	0	131,746	307,619	5,737	22,234	18,059	1,490	355,139
22	10	24,747	2,499	815	0	0	28,061	26,472	108,888	79,069	8,243	0	222,672
23	1	28,754	9,588	0	0	0	38,342	0	0	0	0	220	220
24	2	11,616	5,371	0	0	0	16,987	2,302	0	2,168	0	841	5,311
26	20	286,571	187,119	1	0	3,096	476,787	240,136	50,301	1,966,318	172,558	181,628	2,610,941
27	17	172,865	26,364	0	0	0	199,229	0	169,101	53,540	63,129	13,404	299,174
28	158	1,258,345	829,235	1,517,199	3	244,533	3,849,315	16,591,262	3,410,848	21,451,026	4,314,186	1,596,867	47,364,189
29	14	643,034	606,900	2,065,610	0	4	3,315,548	1,315	146,059	400,523	249,803	40,987	838,687
30	35	266,582	54,036	64,812	0	0	385,430	61,121	236,229	234,475	22,621	41,601	596,047
31	2	2,720	9,059	0	0	0	11,779	28,048	0	0	0	107,509	135,557
32	14	158,516	4,574	14	0	11,402	174,506	2	190,078	368	488,448	243,263	922,159
33	49	114,813	95,427	192	1	0	210,434	3,451,386	12,740,204	344,895	433,651	3,354,142	20,324,278
34	50	378,140	167,957	0	0	0	546,097	400,692	2,476,644	1,032,732	63,791	142,247	4,116,107
35	17	28,056	7,115	0	0	0	35,171	287,068	638,825	11,943	7,592	30,719	976,147
36	33	22,320	4,444	14	0	0	26,778	214	13,404,700	2,018	11,475	13,856	13,436,421
37	7	759,185	52,943	0	0	0	812,128	209,117	890,501	87,412	10,806	41,268	1,239,104
38	12	22,230	2,067	0	0	0	24,297	9,615	697,395	139,642	24,030	7,157	877,840
39	5	6,094	1,270	0	0	0	7,364	8	0	58	2,380	6,053	8,499
49	24	7,223,264	10,453	8,450	0	34,699	7,276,866	11	170,054	1	20	531,500	701,586
51	37	246,593	124,349	808	0	0	371,750	242	161,995	83,011	73,265	54,258	372,771
Sum:	522	11,740,517	2,246,445	3,657,915	4	293,734	17,938,615	21,616,630	35,497,559	25,911,434	5,964,057	6,409,010	95,402,848

H. Counties

Geographic analyses are valuable in assessing the density of reporting facilities in an area, the prevalence of industrial activity, the density of sources for environmental releases, and communities impacted the most by hazardous substances. Figure 25 shows a map of New Jersey indicating the number of facilities that reported by county and the number or reports submitted for 2001. Middlesex County had 87 of the 522 reporting facilities (16.7%) while Cape May had only one facility. Middlesex County also had the highest number (462) of substance reports submitted. Atlantic County's two facilities each submitted one report for a total of two substances.

Table 53 *(county throughput)* summarizes the chemical throughput data elements by county. These numbers loosely reflect the industrial activity that occurred in each county in 2001 (based upon the mix of facilities and industries that reported). The largest amount of substance Use (chemical throughput) occurred in Union County (34.2% of the total). Atlantic County's two facilities used the smallest quantity of substances (67,154 pounds). Middlesex County's industries reported the largest quantities for NPO at 64,526,886 pounds. Again, Atlantic County's two facilities generated the least amount of NPO (11,815 pounds).

Table 54 *(county release & transfers)* summarizes the chemical release and transfer data elements by county. The two columns, "on-site releases" and "off-site transfers," summarize and quickly display the fate of reported nonproduct output within each county. Hudson County had the highest amount of reported on-site releases to the environment with 3,478,615 pounds. PSE&G's Hudson Generating facility, Jersey City accounted for more than 3.3 million pounds of this. Middlesex County's industries reported the largest quantities for off-site transfers with 37,166,189 pounds. Atlantic County's two facilities generated the least amount of both on-site releases (11,636 pounds) and off-site transfers (179 pounds).

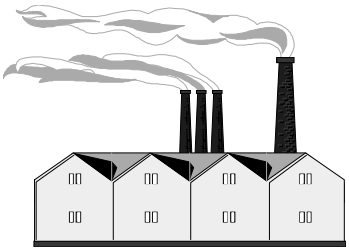
Table 53. Throughput Data Per County

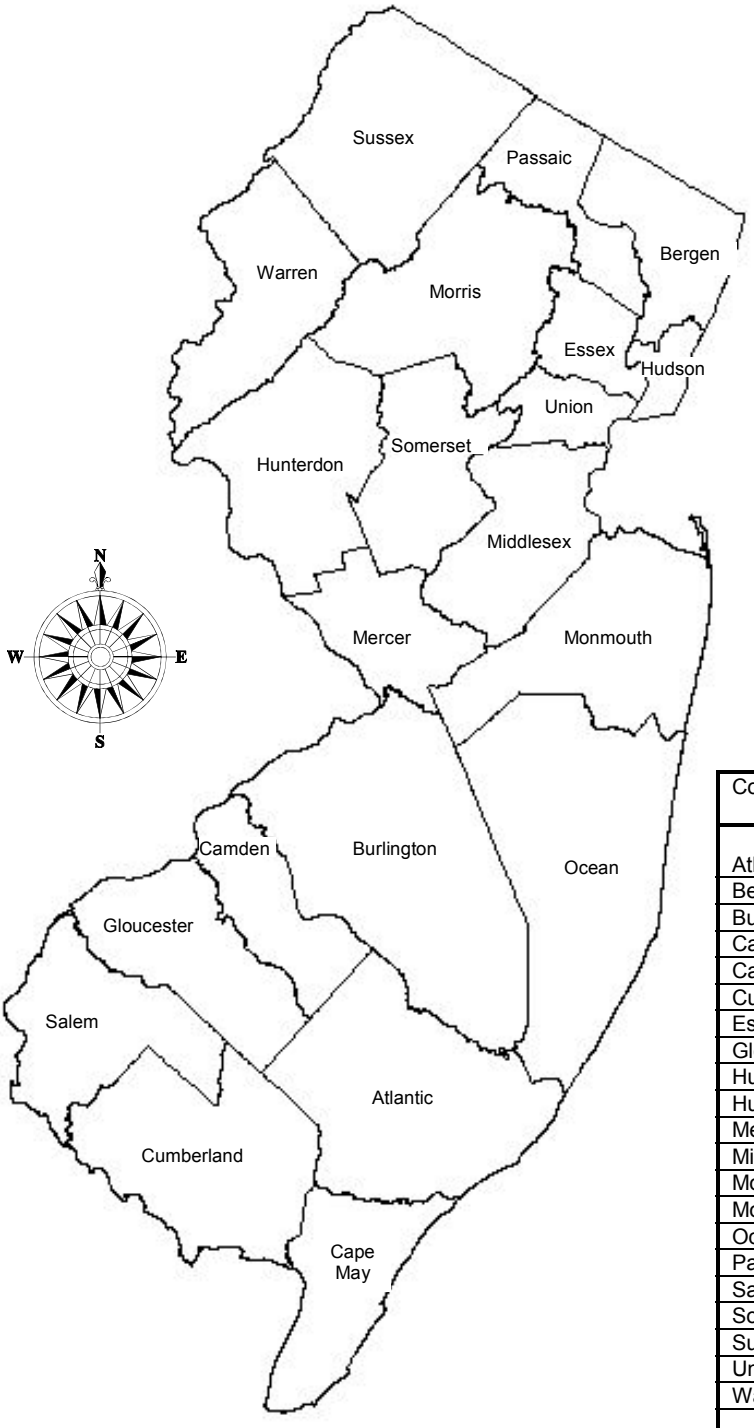
	INPUTS				OUTPUTS				
County	Starting Inventory	Manufactured	Brought on Site	Recycled & Reused on-site	Consumed	Shipped in/or as Product	Ending Inventory	Nonproduct Output	Use
ATLANTIC	1,921	0	66,073	0	55,098	241	580	11,815	67,154
BERGEN	4,023,211	773,856	65,074,435	308,044	15,594,571	46,121,372	4,297,963	4,098,448	65,814,391
BURLINGTON	4,942,015	2,389,477	105,992,644	187,200	89,961,618	14,068,342	4,752,409	5,340,764	109,370,724
CAMDEN	31,046,255	1,157,281	339,060,583	843,932	5,319,153	329,215,639	35,355,023	3,319,161	337,853,953
CAPE MAY	408,567	1,974,689	783,906	0	1,034,838	390,721	444,719	1,296,948	2,722,507
CUMBERLAND	140,391	71,910	1,060,134	0	121,046	592,677	218,524	422,226	1,135,948
ESSEX	71,809,937	311,755,988	1,303,660,997	1,153,772	42,759,436	1,621,307,005	59,793,666	21,244,608	1,685,311,049
GLOUCESTER	241,771,007	3,773,456,243	3,490,100,486	20,951	938,602,075	6,322,131,047	208,225,891	37,718,991	7,298,452,112
HUDSON	7,857,042	12,635,248	162,705,438	1,569,081	76,252,386	76,140,521	10,291,564	14,793,386	167,186,292
HUNTERDON	2,371,094	3,391,007	1,246,812	2,415	519,614	5,222,029	1,413,952	463,831	6,205,474
MERCER	3,631,197	12,888,859	261,399,138	4,559	11,914,025	258,534,572	3,582,529	3,959,482	274,408,079
MIDDLESEX	365,309,005	988,594,713	5,489,985,169	2,777,290	548,152,323	5,886,437,288	353,572,456	64,526,886	6,499,116,497
MONMOUTH	11,162,143	1,384	168,571,096	1,514,731	163,650	169,080,563	10,287,446	1,795,768	171,039,981
MORRIS	10,494,044	80,553	35,741,886	4,121,134	3,439,809	35,576,118	4,829,901	6,534,778	45,550,705
OCEAN	78,429	0	782,681	1,806	171,250	433,037	179,839	905,976	1,510,263
PASSAIC	3,128,832	918,059	48,578,587	778,742	8,926,687	32,649,975	2,730,475	9,076,300	50,652,962
SALEM	28,325,721	244,617,712	610,538,935	9,947	760,281,945	39,919,133	24,071,254	52,999,502	853,200,580
SOMERSET	4,622,111	2,257,490	82,655,942	227,103	56,714,325	21,509,921	9,105,238	1,928,870	80,153,116
SUSSEX	92,823	0	388,144	2,201	0	0	82,270	390,848	390,848
UNION	377,442,233	4,208,023,725	5,068,747,329	2,016,959	510,422,813	8,691,792,923	425,962,922	47,025,376	9,249,241,112
WARREN	7,738,734	856,093	116,443,967	41,841	79,698,861	33,958,923	6,935,858	4,008,599	117,666,383
Sum:	1,176,396,712	9,565,844,288	17,353,584,383	15,581,709	3,150,105,523	23,585,082,046	1,166,134,477	281,862,562	27,017,050,131

Table 54. Release and Transfer Data Per County

County	Stack Air Emissions	Fugitive Air Emissions	Surface Water Discharge	Ground Water Discharge	Land Disposal on-site	On-Site Releases	POTW Discharge	Waste Transfer - Recycling	Waste Transfer - Energy Recovery	Waste Transfer - Treatment	Waste Transfer - Disposal	Off-Site Transfers
ATLANTIC	9,309	2,327	0	0	0	11,636	0	0	0	178	1	179
BERGEN	172,846	47,761	1	0	0	220,608	505,625	586,591	724,636	142,022	233,584	2,192,459
BURLINGTON	206,441	46,308	65,292	0	0	318,040	41,490	223,835	627,320	143,159	3,043,728	4,079,532
CAMDEN	339,293	32,546	1	0	0	371,841	227	60,021	404,005	72,453	15,965	552,672
CAPE MAY	495,046	0	1,525	0	0	496,571	0	0	0	0	61,042	61,042
CUMBERLAND	182,544	48,652	26	0	0	231,222	0	249	401	0	5,493	6,143
ESSEX	208,080	152,556	6	0	0	360,642	8,829,995	2,444,007	2,731,316	56,251	92,619	14,154,188
GLOUCESTER	689,749	332,901	248,077	0	0	1,270,727	56,912	371,994	1,598,313	833,939	315,299	3,176,457
HUDSON	3,388,772	51,025	4,119	0	34,699	3,478,615	42,313	696,381	14,028	99,456	575,652	1,427,829
HUNTERDON	13,363	11,853	0	1	0	25,217	745	110,782	85,878	0	110,379	307,784
MERCER	2,392,104	27,431	2,748	0	0	2,422,283	2	302,137	296,664	17,476	36,936	653,215
MIDDLESEX	1,306,004	494,479	4,061	3	3,130	1,807,678	10,592,602	19,340,453	5,793,965	969,952	469,217	37,166,189
MONMOUTH	12,078	26,528	0	0	0	38,606	1	192,716	0	37,387	7,767	237,871
MORRIS	68,132	37,385	10	0	0	105,528	72,942	1,267,132	74,511	2,165	505,439	1,926,347
OCEAN	8,379	12,469	0	0	0	20,848	961	83	38,406	20,391	492	60,333
PASSAIC	156,159	32,264	0	0	0	188,423	492,319	2,919,091	246,360	546,963	117,396	4,322,128
SALEM	775,371	148,661	1,180,229	0	244,503	2,348,764	112	882,993	1,710,401	1,646,638	668,985	4,909,130
SOMERSET	42,672	18,350	2	0	11,402	72,426	73,538	481,355	617,330	4,274	1,877	1,178,374
SUSSEX	37,454	24,870	0	0	0	62,324	0	25,723	8,475	25,795	0	59,993
UNION	967,864	462,744	1,924,447	0	0	3,355,055	670,931	5,169,035	10,178,822	1,175,547	79,604	17,273,940
WARREN	268,858	235,334	227,370	0	0	731,562	235,915	422,981	760,602	170,010	67,535	1,657,043
Sum:	11,740,517	2,246,445	3,657,915	4	293,734	17,938,615	21,616,630	35,497,559	25,911,434	5,964,057	6,409,010	95,402,848

Figure 25. Number of Facilities and Chemical Reports Submitted by County (2001)





County	2001 RPPR Facilities	2001 RPPR Reports
Atlantic	2	2
Bergen	61	182
Burlington	27	122
Camden	25	87
Cape May	1	19
Cumberland	6	20
Essex	55	235
Gloucester	29	285
Hudson	27	103
Hunterdon	11	26
Mercer	11	58
Milddlesex	87	462
Monmouth	9	22
Morris	34	66
Ocean	6	13
Passaic	38	118
Salem	14	159
Somerset	21	78
Sussex	3	4
Union	44	240
Warren	11	62
Total	522	2,363

Appendix A. Materials Accounting Data and the Release and Pollution Prevention Report

This Appendix lists each quantitative data element reported on the Release and Pollution Prevention Report (RPPR) form. The central theme of the RPPR is that materials accounting (or chemical throughput) data is compiled and the inputs should balance with the outputs. The specific data elements included in the balance are:

The input component includes:

- ✓ the starting inventory of the toxic chemical for the year;
- ✓ the quantity produced on site;
- ✓ the quantity brought on site; and
- ✓ the quantity recycled and reused 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 ending inventory; and
- ✓ all nonproduct output.

- starting inventory is the total quantity of the substance already on site as of the beginning of the year;
- starting inventory as NPO (SI (NPO)) is the total quantity of the substance on site at the beginning of the calendar year that is nonproduct output;
- produced is the total quantity of the substance produced on site during the calendar year;
- brought on site is the total quantity of the substance brought into the facility from all off-site suppliers, including other facility locations and divisions of a facility's own company, during the calendar year;
- brought on site as recycled is the total quantity of the substance brought into the facility as recycled substance from all off-site suppliers, including other facility locations and divisions of a facility's own company, during the calendar year;
- consumed is the total quantity of the substance consumed in production processes during the calendar year;
- shipped as (or in) product is the total quantity of the substance shipped off the facility site during the calendar year in a form suitable for final use, as intermediates subject to further processing leading to final use, or even shipped in its "raw" form as found in inventory;
- ending inventory is the total quantity of the substance remaining on site at the end of the calendar year;
- ending inventory as NPO (EI (NPO)) is the total quantity of the substance on site at the end of the calendar year that is nonproduct output;
- nonproduct output is the quantity of the reported substance that was generated prior to storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use as a product;
- stack air emissions are emissions that were released into the atmosphere from a readily-identifiable point source such as a stack, exhaust vent, duct, pipe, or other confined air stream, and storage tanks;
- fugitive air emissions are emissions that were not released through stack, vents, ducts, pipes or any other confined air stream;
- surface water discharges are releases to streams, rivers, lakes, oceans, and other bodies of water;

- groundwater discharges are releases such as spray irrigation on land, discharges to infiltration basins, and discharges to subsurface systems;
- on-site land releases (at the facility) are releases including, but not limited to: 1) surface impoundments, 2) on-site landfills, and 3) land treatment (land spreading), including other activities such as incorporating wastes into soil for treatment;
- recycled and reused on site is the quantity of the substance that was recycled out-of-process on site and then processed or otherwise used again at the facility during the calendar year;
- energy recovery on site is the total quantity of the substance that was destroyed through an on-site energy recovery process;
- destroyed through on-site treatment is the total quantity of the substance that was destroyed or neutralized through on-site treatment processes;
- transfers to publicly owned treatment works (POTW) are those discharges through pipes or ducts into a municipal sewer system or one owned by a municipal utilities authority, sewerage authority, or regional utilities authority; the substance may be treated at the POTW, may evaporate into the atmosphere, or may be collected and subsequently discharged by the POTW into a water body or to another treatment facility;
- off-site recycling is the quantity of the substance that is recovered or regenerated by a variety of recycling methods off site;
- off-site energy recovery is the quantity of the substance that is combusted off-site in industrial furnaces (including kilns) or boilers and that generates heat or energy for use at that location;
- off-site treatment is the quantity of the substance that is treated through a variety of methods, including biological treatment, neutralization, incineration, and physical separation;
- off-site disposal is the quantity of the substance that is generally either released to the land or injected underground; most disposal occurs at landfills;
- chemical throughput is the total quantity of the substance that is introduced into processes, chemically reacted or converted, blended into mixtures, or generated as a non-product output that is released to the environment, managed on site, or sent off site for further management or disposal.

RELEASE & POLLUTION PREVENTION REPORT FOR 2001

SECTION B. FACILITY-LEVEL SUBSTANCE-SPECIFIC INFORMATION

Submit one complete Section B for each reportable substance (listed in Appendices B and C of the instructions) that was manufactured, processed, or otherwise used in excess of 10,000 pounds or the lower PBT Threshold in 2001.

	1.1 CAS No. (Category No.)
	1.1 RTK Substance No.
1.3 Substance Name (or Category Name)	
1.4 Does this section contain any trade secret (confidential business information) claims for data in questions #5 through #10 (excluding #5.1 and #10.1)? ☐ Yes ☐ No	

2. ACTIVITIES AND USES OF THE SUBSTANCE AT THE FACILITY (Check all that apply.)

2.1	Manufacture the Substance:	a. ☐ Produce b. ☐ Import	If "a. produce" or "b. import" then: c. ☐ For on-site use/ processing d. ☐ For sale/distribution e. ☐ As a byproduct f. ☐ As an impurity
2.2	Process the Substance:	a. ☐ As a reactant d. ☐ Repackaging	b. ☐ As a formulation component c. ☐ As an article component e. ☐ As an impurity
2.3	Otherwise use the Substance:	a. ☐ As a chemical processing aid	b. ☐ As a manufacturing aid c. ☐ Ancillary or other use
3.1	Principal Method of Storage:		
3.2	Frequency of Transfer from Storage: _____ times per _____		
3.3	Methods of Transfer:		

INVENTORY AND THROUGHPUT INFORMATION

	INVENTORY	N/A	Quantity (in pounds*)	Basis of Estimate (circle one)
4.	Maximum Daily Inventory of the Substance			M C E O T
	INPUTS		Quantity	Basis of Estimate
5.	Starting Inventory of the Substance			M C E O T
5.1	Quantity of Starting Inventory that is Nonproduct Output (NPO)			M C E O
6.	Quantity Produced on Site			M C E O T
7.	Quantity Brought on Site			M C E O T
7.1	Quantity of #7 (above) that is Brought on Site as Recycled Substance			M C E O T
	OUTPUTS		Quantity (in pounds*)	Basis of Estimate (circle one)
8.	Quantity Consumed on Site (chemically reacted in process)			M C E O T
9.	Quantity Shipped off Site as (or in) Product			M C E O T
10.	Ending Inventory			M C E O T
10.1	Quantity of Ending Inventory that is Nonproduct Output (NPO)			M C E O
11.	Total Nonproduct Output			
	ON-SITE MANAGEMENT OF NONPRODUCT OUTPUT		Quantity (pounds*)	Basis of Estimate (circle one)
12.	Quantity Recycled Out-of-Process on Site and Used on Site			M C E O
13.	Quantity Destroyed through On-Site Treatment			M C E O
14.	Quantity Destroyed through On-Site Energy Recovery			M C E O

***** If this Section B is for "Dioxin and Dioxin-like Compounds," the unit of measurement is "grams/year" and not "pounds/year."

FAC_ID: _____ Page ____ of ____

Substance or Category Name: _____

RELEASE INFORMATION (Substance Specific)		N/A	Quantity (in pounds*)	Basis of Estimate (circle one)
15.	Total Stack or Point Source Air Emissions			M C E O
16.	Total Fugitive of Non-Point Source Air Emissions			M C E O
17.	Total Discharge to Publicly Owned Treatment Works (POTW)			M C E O
18.	Total Discharge to Surface Waters			M C E O
19.	Total Discharge to Groundwater			M C E O

20. On-Site Land Disposal: ☐ N/A

Storage Method	Total Quantity of NPO Disposed that contained the Substance (in pounds)	Quantity of Reported Substance within Disposed NPO (in pounds*)	Basis of Estimate (circle one)	Management Method
1. SM _____	_____	_____	M C E O	D _____
2. SM _____	_____	_____	M C E O	D _____
3. SM _____	_____	_____	M C E O	D _____

21. Transfers to Other Off-Site Locations: ☐ N/A

Receiving Facility Information ID#, Name & Address (street, city, state, zip)	Storage Method	Total Quantity of NPO Transferred that contained the Substance (in pounds)	Quantity of Substance within Transferred NPO (in pounds*)	Basis of Estimate (circle one)	Management Method
1. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	_____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
2. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	_____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
3. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	_____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
4. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	_____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
5. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	_____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
6. ID#_____	1. SM ____	_____	_____	M C E O	D _____
_____	2. SM ____	_____	____	M C E O	D _____
_____	3. SM ____	_____	_____	M C E O	D _____
_____			____		

22.	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds*/year)	

☐ *Check if additional pages containing information for questions 20 or 21 are attached.*

***** If this Section B is for "Dioxin and Dioxin-like Compounds," the unit of measurement is "grams/years" and not "pounds/year."

			Quantity	Units	Product Description
23.	2001 Quantity and Units of Production* Associated with the Reported Substance (list up to 4 on this page – see note below)	1.			
		2.			
		3.			
		4.			

*PRODUCTION: Whenever possible, "UNITS" should be mass or surface area units only, such as pounds of material manufactured or square footage of product involved.

☐ *Check if additional pages containing information for question 23 is attached (list up to six additional units of production).*

24. Has any reduction or elimination of either the use of the reported substance or the generation of the reported substance as nonproduct output (NPO) occurred during 2001 due to discontinuance of operations?

☐ Yes ☐ No If "Yes," fill in below:

	Quantity of Substance Reduced (in pounds*) (2000 to 2001)	Basis of Estimate
Quantity of substance reduced (2000 to 2001) due to the discontinuance of operations, Including operations transferred to or undertaken by another facility		M C E O

Pollution Prevention Activities

For the purposes of this question and Sections C and D and the P2-115 of this Report, pollution prevention means: the reduction or elimination of either the use of the reported substance or the generation of the reported substance as nonproduct output, prior to treatment, storage, out-of-process recycling, or disposal. Pollution prevention is not any type of treatment, out-of-process recycling, incineration, or the transfer of releases to different media.

25. Has any material-related change (change in the amount of the reported substance used due to substitution of a non-listed substance) been employed to reduce the quantity of this reported substance during 2001 relative to 2000 levels?

☐ Yes ☐ No If "Yes," fill in the table below:

POLLUTION PREVENTION METHODOLOGY	Quantity of Substance Reduced (in pounds*) (2000 to 2001)	Basis of Estimate
Material-Related Change (change in the amount of the substance used due to substitution of other non-listed substance)		M C E O

CAS Number, Substance Name and Quantity of Substitute Substance

CAS NUMBER	SUBSTANCE NAME	QUANTITY (pounds)
a) _____	_____	_____
b) _____	_____	_____
c) _____	_____	_____

***** If this Section B is for "Dioxin and Dioxin-like Compounds," the unit of measurement is "grams/year" and not "pounds/year."

Appendix B. List of Core Chemicals

CAS Number	Chemical Name
100-02-7	4-NITROPHENOL
100-25-4	DINITROBENZENE, P-
10034-93-2	HYDRAZINE SULFATE
100-41-4	ETHYLBENZENE
100-42-5	STYRENE
100-44-7	BENZYL CHLORIDE
101-14-4	4,4-METHYLENEBIS(2-CHLOROANILINE)
101-77-9	4,4-METHYLENEDIANILINE
101-80-4	4,4-DIAMINODIPHENYL ETHER
106-42-3	P-XYLENE
106-44-5	P-CRESOL
106-46-7	1,4-DICHLOROBENZENE
106-50-3	P-PHENYLENEDIAMINE
106-89-8	EPICHLOROHYDRIN
106-93-4	1,2-DIBROMOETHANE
106-99-0	1,3-BUTADIENE
107-05-1	ALLYL CHLORIDE
107-06-2	1,2-DICHLOROETHANE
107-13-1	ACRYLONITRILE
107-18-6	ALLYL ALCOHOL
107-21-1	ETHYLENE GLYCOL
107-30-2	CHLOROMETHYL METHYL ETHER
108-05-4	VINYL ACETATE
108-10-1	METHYL ISOBUTYL KETONE
108-31-6	MALEIC ANHYDRIDE
108-38-3	M-XYLENE
108-88-3	TOLUENE
108-90-7	CHLOROBENZENE
108-95-2	PHENOL
109-86-4	2-METHOXYETHANOL
110-80-5	2-ETHOXYETHANOL
110-82-7	CYCLOHEXANE
110-86-1	PYRIDINE
111-42-2	DIETHANOLAMINE
115-07-1	PROPYLENE [PROPENE]
1163-19-5	DECABROMODIPHENYL OXIDE
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]
118-74-1	HEXACHLOROBENZENE
119-90-4	3,3-DIMETHOXYBENZIDINE
119-93-7	3,3-DIMETHYLBENZIDINE
120-12-7	ANTHRACENE
120-71-8	P-CRESIDINE
120-80-9	CATECHOL
120-82-1	1,2,4-TRICHLOROBENZENE
120-83-2	2,4-DICHLOROPHENOL
12122-67-7	ZINEB
121-69-7	DIMETHYLANILINE, N,N-
123-31-9	HYDROQUINONE
123-38-6	PROPIONALDEHYDE
123-72-8	BUTYRALDEHYDE
123-91-1	1,4-DIOXANE
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]
131-11-3	DIMETHYL PHTHALATE
1313-27-5	MOLYBDENUM TRIOXIDE
1319-77-3	CRESOL (MIXED ISOMERS)
1330-20-7	XYLENE (MIXED ISOMERS)
133-06-2	CAPTAN
1332-21-4	ASBESTOS (FRIABLE)
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)
1344-28-1	ALUMINUM OXIDE (FIBROUS FORMS)
137-26-8	THIRAM
140-88-5	ETHYL ACRYLATE
141-32-2	BUTYL ACRYLATE
1582-09-8	TRIFLURALIN
1634-04-4	METHYL TERT-BUTYL ETHER
1717-00-6	1,1-DICHLORO-1-FLUOROETHANE (HCFC-141B)
1836-75-5	NITROFEN
25376-45-8	DIAMINOTOLUENE (MIXED ISOMERS)
26471-62-5	TOLUENE DIISOCYANATE (MIXED ISOMERS)
2837-89-0	2-CHLORO-1,1,1,2-TETRAFLUOROETHANE
302-01-2	HYDRAZINE
306-83-2	2,2-DICHLORO-1,1,1-TRIFLUOROETHANE
3118-97-6	C.I. SOLVENT ORANGE 7
354-25-6	1-CHLORO-1,1,2,2-TETRAFLUOROETHANE
50-00-0	FORMALDEHYDE
51-28-5	2,4-DINITROPHENOL
51-79-6	URETHANE
528-29-0	DINITROBENZENE, O-
542-88-1	BIS(CHLOROMETHYL) ETHER
55-63-0	NITROGLYCERIN
56-23-5	CARBON TETRACHLORIDE
569-64-2	C.I. BASIC GREEN 4
57-74-9	CHLORDANE
584-84-9	TOLUENE-2,4-DIISOCYANATE
60-09-3	4-AMINOAZOBENZENE
62-53-3	ANILINE (AND SALTS)
62-56-6	THIOUREA
64-18-6	FORMIC ACID
64-67-5	DIETHYL SULFATE
67-56-1	METHANOL
67-63-0	ISOPROPYL ALCOHOL (MFG-STRONG ACID PROCE

67-66-3	CHLOROFORM
67-72-1	HEXACHLOROETHANE
70-30-4	HEXACHLOROPHENE
71-36-3	N-BUTYL ALCOHOL
71-43-2	BENZENE
71-55-6	1,1,1-TRICHLOROETHANE
7429-90-5	ALUMINUM (FUME OR DUST)
7439-92-1	LEAD
7439-96-5	MANGANESE
7439-97-6	MERCURY
7440-02-0	NICKEL
7440-22-4	SILVER
7440-36-0	ANTIMONY
7440-38-2	ARSENIC
7440-39-3	BARIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
7440-48-4	COBALT
7440-50-8	COPPER
7440-66-6	ZINC (FUME OR DUST)
74-83-9	BROMOMETHANE
74-85-1	ETHYLENE
74-87-3	CHLOROMETHANE
75-00-3	CHLOROETHANE
75-01-4	VINYL CHLORIDE
75-05-8	ACETONITRILE
75-07-0	ACETALDEHYDE
75-09-2	DICHLOROMETHANE
75-15-0	CARBON DISULFIDE
75-21-8	ETHYLENE OXIDE
75-35-4	VINYLIDENE CHLORIDE
75-44-5	PHOSGENE
75-45-6	CHLORODIFLUOROMETHANE [HCFC-22]
7550-45-0	TITANIUM TETRACHLORIDE
75-55-8	PROPYLENEIMINE
75-56-9	PROPYLENE OXIDE
75-65-0	TERT-BUTYL ALCOHOL
75-68-3	1-CHLORO-1,1-DIFLUOROETHANE [HCFC-142B]
75-69-4	TRICHLOROFLUOROMETHANE [CFC-11]
75-71-8	DICHLORODIFLUOROMETHANE [CFC-12]
76-13-1	FREON 113
76-14-2	DICHLOROTETRAFLUOROETHANE [CFC-114]
76-15-3	MONOCHLOROPENTAFLUOROETHANE [CFC-115]
7664-39-3	HYDROGEN FLUORIDE
7697-37-2	NITRIC ACID
7723-14-0	PHOSPHORUS
77-78-1	DIMETHYL SULFATE
7782-49-2	SELENIUM
7782-50-5	CHLORINE

78-84-2	ISOBUTYRALDEHYDE
78-87-5	1,2-DICHLOROPROPANE
78-92-2	SEC-BUTYL ALCOHOL
78-93-3	METHYL ETHYL KETONE
79-01-6	TRICHLOROETHYLENE
79-06-1	ACRYLAMIDE
79-10-7	ACRYLIC ACID
79-11-8	CHLOROACETIC ACID
79-21-0	PERACETIC ACID
79-44-7	DIMETHYLCARBAMYL CHLORIDE
8001-58-9	CREOSOTE
80-05-7	4,4-ISOPROPYLIDENEDIPHENOL
80-15-9	CUMENE HYDROPEROXIDE
80-62-6	METHYL METHACRYLATE
81-88-9	C.I. FOOD RED 15
842-07-9	C.I. SOLVENT YELLOW 14
84-74-2	DIBUTYL PHTHALATE
85-44-9	PHTHALIC ANHYDRIDE
87-62-7	2,6-XYLIDINE
88-89-1	PICRIC ACID
90-04-0	O-ANISIDINE
90-43-7	2-PHENYLPHENOL
91-08-7	TOLUENE-2,6-DIISOCYANATE
91-20-3	NAPHTHALENE
91-94-1	3,3'-DICHLOROBENZIDINE
92-52-4	BIPHENYL
94-36-0	BENZOYL PEROXIDE
94-75-7	2,4-D [(2,4-DICHLOROPHENOXY)ACETIC AC?
95-47-6	O-XYLENE
95-48-7	O-CRESOL
95-50-1	1,2-DICHLOROBENZENE
95-53-4	O-TOLUIDINE
95-63-6	1,2,4-TRIMETHYLBENZENE
95-80-7	2,4-DIAMINOTOLUENE
95-95-4	2,4,5-TRICHLOROPHENOL
96-09-3	STYRENE OXIDE
961-11-5	TETRACHLORVINPHOS
96-33-3	METHYL ACRYLATE
96-45-7	ETHYLENE THIOUREA
97-56-3	C.I. SOLVENT YELLOW 3
98-07-7	BENZOIC TRICHLORIDE
98-82-8	CUMENE
98-86-2	ACETOPHENONE
98-87-3	BENZAL CHLORIDE
98-88-4	BENZOYL CHLORIDE
989-38-8	C.I. BASIC RED 1
98-95-3	NITROBENZENE
99-55-8	5-NITRO-O-TOLUIDINE
99-59-2	5-NITRO-O-ANISIDINE

99-65-0	DINITROBENZENE, M-
N010	ANTIMONY COMPOUNDS
N020	ARSENIC COMPOUNDS
N040	BARIUM COMPOUNDS [EXCEPT BARIUM SULFATE]
N078	CADMIUM COMPOUNDS
N084	CHLOROPHENOLS
N090	CHROMIUM COMPOUNDS
N096	COBALT COMPOUNDS
N100	COPPER COMPOUNDS [WITH EXCEPTIONS]
N106	CYANIDE COMPOUNDS
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)
N420	LEAD COMPOUNDS
N450	MANGANESE COMPOUNDS
N458	MERCURY COMPOUNDS
N495	NICKEL COMPOUNDS
N725	SELENIUM COMPOUNDS
N740	SILVER COMPOUNDS
N982	ZINC COMPOUNDS
207	

Appendix C. Impacts from Petroleum Refineries

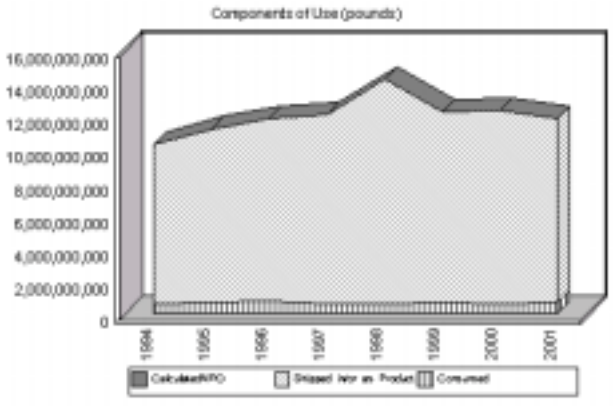
In any given reporting year, 7 to 9 facilities in SIC code 2911 have reported RPPRs to NJDEP. In reality, there are four major petroleum refineries in New Jersey that collectively report their Use of hazardous substances in the range of billions of pounds. A few other asphalt refining facilities and chemical manufacturers with much smaller Use quantities also report under SIC code 2911.

The Use of hazardous substances by these petroleum refineries represents 60% to 78% of the total Use of all hazardous substances reported in the state. Given the magnitude of this impact on statewide Use, and their potential to mask trends in all other SIC codes, it is essential to remove their contribution of Use from the data set in order to recognize trends from all other SIC codes. A small percentage increase in the refining sector can represent a very large quantity in terms of the total pounds of hazardous substances used and can dominate statewide trends.

Use

Figure C1 below presents the trends for components of Use in SIC 2911, showing that total Use of hazardous substances increased 13% or 1.6 billion pounds. Most of the hazardous substances used by the refineries (over 80%) are shipped as (or in) product.

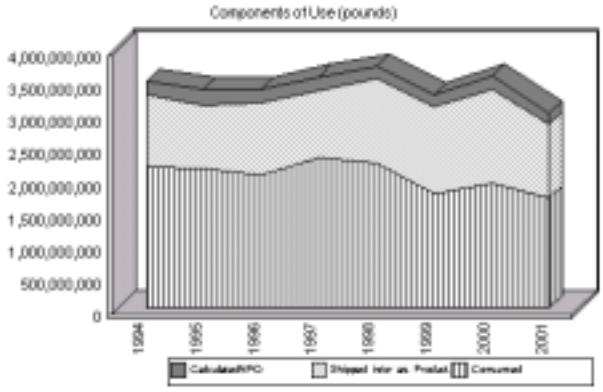
Figure C1. Use (CORE SIC 2911)



Year	Consumed	In Product	NPO	Calculated Use
1994	624,675,394	9,673,148,596	10,414,091	10,308,238,081
1995	714,343,238	10,529,415,756	10,223,391	11,253,982,385
1996	784,167,680	11,079,123,881	9,203,893	11,872,495,454
1997	591,122,278	11,548,743,614	9,875,868	12,149,741,760
1998	620,286,869	13,621,343,312	11,890,811	14,253,620,992
1999	683,322,283	11,591,996,830	11,596,919	12,286,916,032
2000	590,962,005	11,757,937,287	11,749,079	12,360,648,371
2001	679,555,538	11,216,248,283	9,581,989	11,907,385,810

Figure C2 presents Use data for the core universe without the refineries. Removing SIC code 2911 from the data set significantly changes the trends for hazardous substance Use. First, subtracting out Core SIC Code 2911 from the Core Group results in a decrease in Use of 15% or 510 million pounds instead of the increase in Use of 8% for the combined group. Second, the percentage of hazardous substances shipped as (or in) product was significantly reduced. The quantity shipped in product now accounted for 30% to 40% of total Use instead of 87% for the combined group. Hazardous substances consumed in process now account for the majority (50%-60%) of the components of Use. Consumed for the Core Group minus Core SIC Code 2911 decreased 22% or 480 million pounds. Shipped as (or in) product for that same group increased by 2% or 25 million pounds from 1994 to 2001. NPO for the Core Group minus Core SIC Code 2911 decreased by 27% or 56.7 million pounds over that same time frame.

Figure C2. Components of Use (Core Group minus Core SIC 2911)

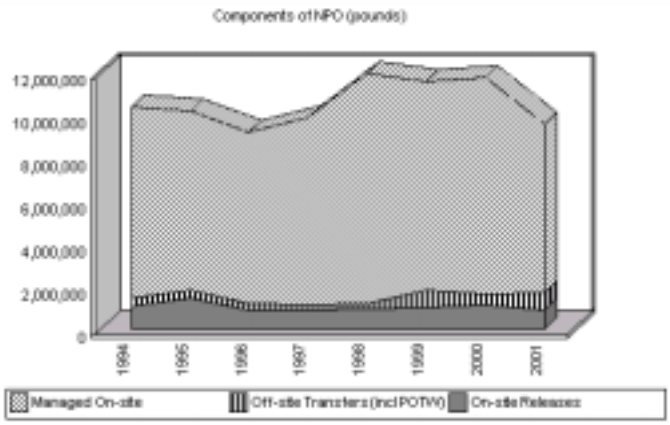


Year	Consumed	In Product	NPO	Calculated Use
1994	2,183,855,753	1,124,679,328	207,474,841	3,516,009,922.00
1995	2,154,363,157	990,926,630	236,606,587	3,381,896,374.00
1996	2,048,399,725	1,120,752,551	220,124,933	3,389,277,209.14
1997	2,320,216,204	1,043,656,988	214,668,482	3,578,541,674.14
1998	2,251,569,774	1,288,242,205	196,017,828	3,735,829,807.22
1999	1,771,331,783	1,349,390,312	184,951,170	3,305,673,264.85
2000	1,929,073,911	1,465,482,581	189,287,737	3,583,844,229.04
2001	1,704,114,928	1,149,462,785	150,758,883	3,004,336,595.85

NPO

Figure C3 illustrates the trends for the components of NPO for the petroleum refineries. SIC code 2911 decreased NPO by 8% or 830 thousand pounds. On site releases decreased by 13% or 130 thousand pounds. Off site transfers increased 53% or 426 thousand pounds. Managed On-site decreased 13% or 1.1 million pounds.

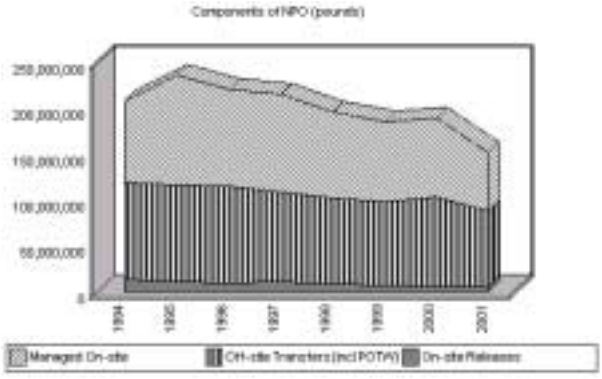
Figure C3. NPO for Core SIC 2911



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	10,414,091	1,032,082	379,102	9,002,907
1995	10,223,391	1,466,378	376,875	8,380,138
1996	9,203,893	873,569	302,739	8,027,585
1997	9,875,868	898,488	227,476	8,749,904
1998	11,990,811	939,343	245,993	10,805,476
1999	11,596,919	971,401	853,264	9,772,254
2000	11,749,079	1,108,114	511,939	10,129,026
2001	9,581,989	900,042	804,670	7,877,276

Figure C4 illustrates that when SIC Code 2911 is eliminated from the Core Group, there is still a significant reduction of 27% or 56.7 million pounds in all components of NPO. On-Site Releases for the Core Group minus Core SIC Code 2911 demonstrated a 62% reduction or 7.8 million pounds. Off-Site Transfers for this same group realized a 22% reduction or 22.8 million pounds. Managed On-Site for Core Group minus Core SIC Code 2911exhibited a 29% reduction or 26.1 million pounds from 1994 to 2001.

Figure C4. Components of NPO (Core minus Core SIC 2911)



Year	NPO	On-site Releases	Off-site Transfers (incl POTW)	Managed On-site
1994	207,474,841	12,627,124	105,676,079	89,171,638
1995	236,606,587	10,353,244	106,313,150	119,940,193
1996	220,124,933	9,293,794	106,023,823	104,807,316
1997	214,668,482	9,999,894	98,651,312	106,017,276
1998	196,017,828	7,718,491	93,943,650	94,355,686
1999	184,951,170	7,084,846	90,065,917	87,800,407
2000	189,287,737	5,658,566	96,939,581	86,689,590
2001	150,758,883	4,795,318	82,845,099	63,118,466

Adjusted for Production

Table C1 illustrates the components of Use for the Core Group minus Core SIC 2911 adjusted for production. Even though production increased by 17%, this manufacturing sector realized a 27% reduction in Use, 38% reduction in NPO, 13% reduction in Shipped as (or in) Product, and a 33% reduction in Consumed.

Table C1. Components of USE Adjusted for Production (Core minus Core SIC 2911)

	USE		Nonproduct Output		Shipped in/as Product		Consumed		Weighted Production Index	
Year	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	Yearly	Cum
1994	3,516,009,922	3,516,009,922	207,474,841	207,474,841	1,124,679,328	1,124,679,328	2,183,855,753	2,183,855,753	1.00	1.00
1995	3,006,130,110	3,381,896,374	210,316,966	236,606,587	880,823,671	990,926,630	1,914,989,473	2,154,363,157	1.13	1.13
1996	2,728,886,642	3,389,277,209	177,234,246	220,124,933	902,377,255	1,120,752,551	1,649,275,141	2,048,399,725	1.10	1.24
1997	2,844,297,620	3,578,541,674	170,622,870	214,668,482	829,519,776	1,043,656,988	1,844,154,974	2,320,216,204	1.01	1.26
1998	2,582,011,673	3,735,829,807	135,477,349	196,017,828	890,366,152	1,288,242,205	1,556,168,171	2,251,569,774	1.15	1.45
1999	2,752,662,404	3,305,673,264	154,010,421	184,951,170	1,123,648,856	1,349,390,312	1,475,003,128	1,771,331,783	0.83	1.20
2000	2,934,412,730	3,583,844,229	154,986,743	189,287,737	1,199,921,220	1,465,482,581	1,579,504,766	1,929,073,911	1.02	1.22
2001	2,565,086,729	3,004,336,595	128,717,139	150,758,883	981,405,259	1,149,462,785	1,454,964,332	1,704,114,928	0.96	1.17
Total Change	-950,923,193	-511,673,327	-78,757,702	-56,715,958	-143,274,069	24,783,457	-728,891,421	-479,740,825	17% increase	
Percent Change	27% reduction	15% reduction	38% reduction	27% reduction	13% reduction	2% increase	33% reduction	22% reduction		

Table C2 compares the components of Use for the Core Group to the Core Group minus the petroleum refineries (SIC 2911). Overall, the core group excluding refineries demonstrate larger reductions in all categories of the components of Use than the Core Group. Refineries have a greater impact on Use, where a 2% reduction in Use is increased to a 27% reduction. Quantities shipped as (or in) product changed from a 4% increase to a 13% decrease. Refineries have a smaller impact on NPO where a 33% reduction is a 38% reduction. The statewide trend for production for the Core Group was 10%. For the Core Group minus SIC 2911, production increased to 17%.

Table C2. Comparison of Use Components for Core Group to Core Group minus Core SIC 2911

	USE		Nonproduct Output		Shipped in/as Product		Consumed		Weighted Production Index
	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	Cum
Core Group									
Total Change	-227,103,260	1,087,474,402	-71,683,283	-57,548,060	479,578,734	1,569,883,144	-634,998,709	-424,860,681	10% increase
Percent Change	2% reduction	8% increase	33% reduction	26% reduction	4% increase	15% increase	23% reduction	15% reduction	
Core minus 2911									
Total Change	-950,923,193	-511,673,327	-78,757,702	-56,715,958	-143,274,069	24,783,457	-728,891,421	-479,740,825	17% increase
Percent Change	27% reduction	15% reduction	38% reduction	27% reduction	13% reduction	2% increase	33% reduction	22% reduction	

Appendix D. Adjusting for Impacts from Production

Normalizing for variations in production is an important consideration when determining if reductions in the Use of hazardous substances were the result of process efficiency methods or the result of changes in economic activity. A brief explanation was given in the section that discussed meaningful metrics. Normalization for production was done using the same methodology as The Massachusetts Toxics Use Reduction Program.[16] This methodology was chosen because it has been in use several years and has withstood scrutiny over time.

The calculation measures the actual change in reported quantities and compares them to a normalized or "adjusted" change based on TRI reported production levels. This methodology assumes that the TRI Form R reported production ratio (PR) accurately reflects the production change in the current year relative to the production in the previous year. It also assumes that changes in production are directly proportional to changes in both Use and generated NPO.

To determine a statewide production ratio, it is necessary to start with individual facility-chemical pairs that were matched when an actual quantity is reported both in the first and second. A weighted average production ratio was calculated using all the matched pairs that had a first year quantity and a second year production ratio using the following formula:

$$PR_{WA} = \frac{\sum (PR_{2i})\,(TU_{1i})}{\sum TU_{1i}} \qquad (1.1)$$

i = all records in universe with non-zero total Use in year 1 and PR>0 for year 2
PR_2 = production ratio for an individual record in year 2
TU_1 = total Use (consumed + shipped in product + NPO)

Equation 1.1 determines an approximation of the average production ratio for all matched pairs. Once the PR_{WA} has been calculated, it can be used to calculate the adjusted quantities for the entire state:

$$Q_A = \frac{Q_{T2}}{PR_{WA}} \qquad (1.2)$$

Q_A = production adjusted quantity
Q_{T2} = total quantity actually reported in year 2
PR_{WA} = weighted production ratio

[16] University of Massachusetts Lowell, The Massachusetts Toxics Use Reduction Institute, "Measuring Progress in Toxics Use Reduction and Pollution Prevention," Technical Report No. 30, 1996.

Table D1. Example for Calculating Adjusted Use

	USE		Nonproduct Output		Shipped in/as Product		Consumed		Weighted Production Index	
Year	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	Yearly	Cum
1994	13,824,248,003	13,824,248,003	217,888,932	217,888,932	10,797,827,924	10,797,827,924	2,808,531,147	2,808,531,147	1.00	1.00
1995	13,912,432,280	14,635,878,759	234,629,257	246,829,978	10,950,895,804	11,520,342,386	2,726,907,220	2,868,706,395	1.05	1.05
1996	13,583,697,063	15,261,772,663	204,113,465	229,328,826	10,858,465,089	12,199,876,432	2,521,118,509	2,832,567,405	1.07	1.12
1997	13,929,267,302	15,728,283,434	198,860,752	224,544,350	11,152,069,754	12,592,400,602	2,578,336,796	2,911,338,482	1.01	1.13
1998	14,751,666,831	17,989,450,799	170,570,751	208,008,639	12,226,122,998	14,909,585,517	2,354,973,082	2,871,856,643	1.08	1.22
1999	12,994,103,799	15,592,589,296	163,793,596	196,548,089	10,784,721,167	12,941,387,142	2,045,589,037	2,454,654,066	0.98	1.20
2000	13,957,313,926	15,944,492,599	175,981,389	201,036,816	11,575,371,315	13,223,419,868	2,205,961,222	2,520,035,916	0.95	1.14
2001	13,597,144,743	14,911,722,405	146,205,649	160,340,872	11,277,406,658	12,367,711,068	2,173,532,438	2,383,670,466	0.96	1.10
Total Change	-227,103,260	1,087,474,402	-71,683,283	-57,548,060	479,578,734	1,569,883,144	-634,998,709	-424,860,681	10% increase	
Percent Change	2%	8%	33%	26%	4%	15%	23%	15%		
	reduction	increase	reduction	reduction	increase	increase	reduction	reduction		

$$\text{Adjusted Use} = \frac{\text{Current year Use}}{\text{Cumulative Weighted Production Index}}$$

For example, in 1997 Current Year Use = 15,728.3 million pounds
Cumulative Weighted Production Index = 1.13

$$\text{Therefore Adjusted Use} = \frac{15{,}728.3}{1.13} = 13{,}918.8 \text{ million pounds}$$

The difference in the adjusted Use of 13,918.8 million pounds versus 13,929.3 reported in the table is due to rounding of the Use numbers.

Other Predictors of Economic Activity

To crosscheck the accuracy of the statewide weighted average indices calculated using this method, we reviewed data maintained by The New Jersey Council of Economic Activity (NJ CEA). This information was compiled by DRI-WEFA, a leading economic consulting firm for NJ CEA.

Table D2 illustrates the cumulative production ratio of 10% for the manufacturing SIC codes in New Jersey. The TRI statewide cumulative production ratio of 10% shows good correlation with other general economic indicators for the manufacturing sectors in New Jersey.

Table D2. New Jersey State Gross Product for Manufacturing Sectors

In nominal (current) $ billions	1994	1995	1996	1997	1998	1999	2000	2001
Manufacturing	38.38	39.32	40.52	39.39	38.82	39.34	42.89	42.72
Yearly Production ratio		1.02	1.03	0.97	0.99	1.01	1.08	1.00
Cumulative Production Ratio		1.02	1.06	1.03	1.01	1.02	1.12	1.11

Appendix E. Facility-Specific Data for Chemical Changes

Table E1. Top Facilities Contributing to the Top 10 Chemical for NPO Increases

Note: This table provides additional detail for the NPO increases presented in Table 10 on page 24

Substance	FACID	Facility Name	City	NPO 1994 (pounds)	NPO 2001 (pounds)	Change (pounds)	Percent Contribution to Statewide Change
ZINC COMPOUNDS	20968100000	GRIFFIN PIPE PRODUCTS CO.	FLORENCE	NR	1,397,107	1,397,107	45.1%
	00736700000	NEW JERSEY GALVANIZING & TINNING WORKS	NEWARK	0	768,083	768,083	24.8%
	06520700000	KEARNY SMELTING & REFINING CORP.	KEARNY	0	763,271	763,271	24.7%
	96362000000	FIVE ROSES COMPANY L L C	JERSEY CITY	NR	372,204	372,204	12.0%
	08391000000	VICTAULIC COMPANY OF AMERICA	FRANKLIN TOWNSHIP	NR	332,660	332,660	10.7%
ETHYLENE GLYCOL	87115100000	HONEYWELL-PRESTONE PRODUCTS	FREEHOLD TWP	392	1,057,209	1,056,817	73.1%
	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	20,784	788,268	767,484	53.1%
	18881400002	CROMPTON COLORS INCORPORATED	NEWARK	40,843	199,448	158,605	11.0%
	76248000000	HERCULES INCORPORATED	PARLIN	1,286,333	1,422,774	136,441	9.4%
	92721200000	UNITED STATES PIPE AND FOUNDRY CO INC	BURLINGTON	14,026	30,208	16,182	1.1%
	57836900003	CITGO ASPHALT REFINING CO.	WEST DEPTFORD TWP	NR	11,000	11,000	0.8%
LEAD	14967800000	ATLANTIC BATTERY CORP.	PATERSON	NR	672,160	672,160	63.7%
	43760900000	ELECTRUM RECOVERY WORKS INC	RAHWAY	NR	565,403	565,403	53.6%
	49888100000	THE OKONITE CO, INC	PATERSON	167,711	384,728	217,017	20.6%
	20304000000	PRUDENT PUBLISHING CO INC	LANDING	NR	115,330	115,330	10.9%
	27789100000	FRY'S METALS INC.	JERSEY CITY	135	77,300	77,165	7.3%
	68641600000	OXFORD SUPERCONDUCTING TECHNOLOGY	CARTERET	NR	50,992	50,992	4.8%
TERT-BUTYL ALCOHOL	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	1,119,176	1,119,176	111.4%
	33757700004	INFINEUM USA	LINDEN	NR	29,149	29,149	2.9%
	38761200000	JAME FINE CHEMICAL INC	BOUND BROOK	NR	2	2	0.0%
	00998202001	EQUISTAR CHEMICALS LP	NEWARK	88	0	-88	0.0%
TOLUENE	00555601000	MERCK & CO INC	RAHWAY	61,084	6,006,577	5,945,493	646.9%
	47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	5,618,832	7,335,016	1,716,184	186.7%
	00059800002	SIEGFRIED(USA), INC.	PENNSVILLE	186,204	579,729	393,525	42.8%
	00004501005	THE SHERWIN-WILLIAMS COMPANY	EDISON	450,778	664,028	213,250	23.2%
	13972500000	CLIFTON ADHESIVE INC	WAYNE	14,084	222,388	208,304	22.7%
	28128100000	JOHNSON MATTHEY INC	WEST DEPTFORD TWP	16,892	179,709	162,817	17.7%
TITANIUM TETRACHLORIDE	70023700001	AKZO NOBEL POLYMER CHEMICALS LLC	EDISON	7,073	851,789	844,716	100.0%
ACETONITRILE	38761200000	JAME FINE CHEMICAL INC	BOUND BROOK	NR	682,492	682,492	86.4%
	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	121,055	121,055	15.3%
	00431401000	MALLINCKRODT BAKER INC	PHILLIPSBURG	2,980	62,663	59,683	7.6%
	00555601000	MERCK & CO INC	RAHWAY	74,350	85,952	11,602	1.5%
	39678600000	FISHER SCIENTIFIC COMPANY LLC	FAIR LAWN	27,509	28,142	633	0.1%
ALUMINUM (FUME OR DUST)	20968100000	GRIFFIN PIPE PRODUCTS CO.	FLORENCE	NR	635,773	635,773	98.2%
	64866700000	REHEIS INC.	BERKELEY HEIGHTS	NR	63,257	63,257	9.8%
	40637500000	HOWMET CORPORATION	ROCKAWAY TWP	NR	16,320	16,320	2.5%
	11702700000	SHIELDALLOY MATALLURGICAL CORP	NEWFIELD	NR	9,740	9,740	1.5%

Substance	FACID	Facility Name	City	NPO 1994 (pounds)	NPO 2001 (pounds)	Change (pounds)	Percent Contribution to Statewide Change
	92721200000	UNITED STATES PIPE AND FOUNDRY CO INC	BURLINGTON	617	3,856	3,239	0.5%
	97226600000	BREEN COLOR CONCENTRATES INC	WEST AMWELL TWP	NR	105	105	0.0%
ETHYLBENZENE	96114700000	MORTON INTERNATIONAL	PATERSON	NR	215,849	215,849	42.2%
	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	202,175	202,175	39.5%
	89560200000	COOK COMPOSITES AND POLYMERS COMPANY	PENNSAUKEN	50,150	192,879	142,729	27.9%
	00306600004	MOBIL CHEMICAL COMPANY	EDISON	186,837	265,181	78,344	15.3%
	00004501005	THE SHERWIN-WILLIAMS COMPANY	EDISON	NR	69,826	69,826	13.7%
CHROMIUM	61463000000	PRECISION ROLLED PRODUCTS INC	EAST HANOVER TWP	228	764,765	764,537	163.9%
	40637500002	HOWMET CORPORATION	ROCKAWAY TWP	150,472	268,329	117,857	25.3%
	40637500000	HOWMET CORPORATION	ROCKAWAY TWP	4,730	86,707	81,977	17.6%
	05756000001	ENGINEERED PRECISION CASTING, CO.	MIDDLETOWN TOWNSHIP	225	65,313	65,088	14.0%
	04595700000	NATIONAL MANUFACTURING CO INC	CHATHAM	NR	61,484	61,484	13.2%
	92983400000	PICUT ACQUISITIONS	UNION	NR	49,039	49,039	10.5%

Table E2. Top Facilities Contributing to the Top 10 Chemical for NPO Decreases

Note: This table provides additional detail for the NPO decreases presented in Table 10 on page 24

Substance	FACID	Facility Name	City	NPO 1994 (pounds)	NPO 2001 (pounds)	NPO Change (pounds)	Percent Contribution to Statewide Change
PROPYLENE [PROPENE]	81411900000	HUNTSMAN POLYPROPYLENE CORP.	WEST DEPTFORD	16,770,291	NR	-16,770,291	-105.3%
	47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	55,167	NR	-55,167	-0.3%
	00306600013	MOBIL OIL CORPORATION	NR	13,996	NR	-13,996	-0.1%
	33757700004	INFINEUM USA	LINDEN	10,067	847	-9,220	-0.1%
	83946800000	POLYONE CORPORATION	OLDMANS TWP	98	NR	-98	0.0%
METHANOL	59423500000	COOKSON PIGMENTS	NR	3,343,129	NR	-3,343,129	-35.5%
	00118500001	HOFFMANN LA ROCHE INC	NUTLEY	4,323,825	1,098,804	-3,225,021	-34.3%
	00555601000	MERCK & CO INC	RAHWAY	4,252,034	1,520,565	-2,731,469	-29.0%
	46728100000	HATCO CORPORATION	FORDS	1,266,582	NR	-1,266,582	-13.5%
	84980600000	FRUTAROM MEER CORPORATION	NR	1,173,000	NR	-1,173,000	-12.5%
	14819700000	STEPAN COMPANY - MAYWOOD DIV	MAYWOOD	850,780	4,280	-846,500	-9.0%
NITRIC ACID	76248000000	HERCULES INCORPORATED	PARLIN	14,504,290	464	-14,503,826	-190.5%
	00165900002	ALLIANT TECHSYSTEMS	NR	591,529	NR	-591,529	-7.8%
	00850201002	E I DUPONT DENEMOURS & CO., INC.	NR	353,407	NR	-353,407	-4.6%
	01442200000	TUSCAN DAIRY FARMS INC	NR	137,334	NR	-137,334	-1.8%
	48015200006	AGFA CORPORATION	BRANCHBURG TWP	363,430	234,382	-129,048	-1.7%
ZINC (FUME OR DUST)	47667600000	CO-STEEL SAYREVILLE	SAYREVILLE	2,670,867	5,376	-2,665,491	-55.5%
	45937600000	GERDAU AMERISTEEL	PERTH AMBOY	6,985,430	4,956,844	-2,028,586	-42.2%
	01012900000	UNITED STATES BRONZE POWDERS INC.	RARITAN TOWNSHIP	87,592	NR	-87,592	-1.8%
	29915900000	ROTOR CLIP	FRANKLIN TWP	14,019	11	-14,008	-0.3%
	46504400000	GROW CHEMICAL CORP	NR	13,377	NR	-13,377	-0.3%
	50874100000	DIAMOND COMMUNICATION PRODUCTS INC	NR	1	NR	-1	0.0%
HYDROGEN FLUORIDE	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	6,756,430	1,092,905	-5,663,525	-119.3%
	01664900000	ASAHI GLASS FLUOROPOLYMERS USA, INC	BAYONNE	615,973	399,505	-216,468	-4.6%
	89773600002	THE GLASS GROUP INC	MILLVILLE	310,000	181,000	-129,000	-2.7%
	19310100000	SWEPCO TUBE, LLC	CLIFTON	91,172	14,269	-76,903	-1.6%
	00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	38,840	NR	-38,840	-0.8%
DICHLORO METHANE	18048200002	TEVA PHARMACEUTICALS USA	NR	3,462,950	NR	-3,462,950	-79.4%
	00555601000	MERCK & CO INC	RAHWAY	906,513	496,753	-409,760	-9.4%
	00326501001	SCHERING CORPORATION	UNION	228,528	NR	-228,528	-5.2%
	00118500001	HOFFMANN LA ROCHE INC	NUTLEY	158,211	NR	-158,211	-3.6%
	00732501001	DRIVER-HARRIS ALLOYS, INC.	NR	30,600	NR	-30,600	-0.7%
	04933600000	HOKE INC. C/O HRP ASSOC.	NR	28,110	NR	-28,110	-0.6%
COPPER COMPOUNDS [WITH EXCEPTIONS]	11021600000	YATES FOIL USA, INC	BORDENTOWN TWP	3,180,609	NR	-3,180,609	-92.3%
	40457300000	AMI-DODUCO, INC.	NR	220,181	NR	-220,181	-6.4%
	44567000003	FERRO CORP	SOUTH PLAINFIELD	58,137	31,892	-26,245	-0.8%
	33375700001	INTERNATIONAL PAINT, INC.	UNION	25,600	1,657	-23,943	-0.7%
	10890200000	C P CHEMICALS INC.	NR	22,703	NR	-22,703	-0.7%
1,2-DICHLORO BENZENE	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	3,252,986	470,072	-2,782,914	-94.1%
	00555601000	MERCK & CO INC	RAHWAY	108,909	NR	-108,909	-3.7%
	00200000001	INTERNATIONAL FLAVORS & FRAGRANCES INC	NR	66,750	NR	-66,750	-2.3%
METHYL ETHYL KETONE	48990900002	REICHHOLD CHEMICALS, INC.	NR	752,536	NR	-752,536	-42.2%
	60173500000	CONGOLEUM CORPORATION	NR	436,300	NR	-436,300	-24.5%
	00439200000	MANNINGTON MILLS INC	MANNINGTON TWP	360,653	NR	-360,653	-20.2%
	56716000000	NATIONAL METALLIZING DIVISION (NMD INC)	NR	279,007	NR	-279,007	-15.7%
	00200000001	INTERNATIONAL FLAVORS & FRAGRANCES INC	NR	238,104	NR	-238,104	-13.4%
GLYCOL ETHERS (EXCEPT SURFACTANTS)	76248000000	HERCULES INCORPORATED	PARLIN	1,187,384	144,235	-1,043,149	-58.9%
	00118500001	HOFFMANN LA ROCHE INC	NUTLEY	493,742	260,988	-232,754	-13.2%

Substance	FACID	Facility Name	City	NPO 1994 (pounds)	NPO 2001 (pounds)	NPO Change (pounds)	Percent Contribution to Statewide Change
	15738800004	NATIONAL CAN COMPANY	NR	153,861	NR	-153,861	-8.7%
	95194000000	GENTEK BUILDING PRODUCTS, INC.	AVENEL	330,927	186,847	-144,080	-8.1%
	71418500000	C P HALL CO CORP	CARTERET	137,592	NR	-137,592	-7.8%

Table E3. Top Facilities Contributing to the Top 10 Chemical Release Increases

Note: This table provides additional detail for the Release increases presented in Table 11 on page 26

Substance	FACID	Facility Name	City	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)	Percent Contribution to Statewide Change
ZINC COMPOUNDS	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	32,766	143,031	110,265	100.5%
	00000001127	VALERO REFINING COMPANY NEW JERSEY	GREENWICH TWP	NR	5,179	5,179	4.7%
	47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	0	3,108	3,108	2.8%
	00736700000	NEW JERSEY GALVANIZING & TINNING WORKS	NEWARK	0	2,100	2,100	1.9%
	04499600003	3 M CORPORATION	MONTGOMERY TWP	0	1,906	1,906	1.7%
PHENOL	61372700000	AMERADA-HESS PORT READING-CORPORATION	PORT READING	NR	50,014	50,014	100.6%
	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	250	10,039	9,789	19.7%
	10433300001	RHODIA INCORPORATED	NEW BRUNSWICK	2,134	2,450	316	0.6%
	18881400005	CROMPTON AND KNOWLES COLORS INCORPORATED	NUTLEY	4	NR	-4	0.0%
	00165900003	GEO SPECIALTY CHEMICALS	GIBBSTOWN	64	52	-12	0.0%
STYRENE	18174500000	VIKING YACHT CO CORP	NEW GRETNA	34,000	60,380	26,380	105.4%
	18776400000	POST MARINE CO INC.	MAYS LANDING	3,241	11,636	8,395	33.6%
	27765700000	HOBBY WORLD DEVELOPMENT INC	LITTLE FERRY	NR	6,319	6,319	25.3%
	48990900011	BASF CORPORATION DEL	SOUTH BRUNSWICK TWP	6,380	7,529	1,149	4.6%
	37540800000	ZINSSER CO., INC.	SOMERSET	141	665	524	2.1%
CYCLOHEXANE	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	2,305	14,868	12,563	53.2%
	00115401005	CHEVRON PRODUCTS COMPANY	PERTH AMBOY	5,854	15,788	9,934	42.1%
	00118500002	ROCHE VITAMINS INC.	WHITE TWP	1,027	10,010	8,983	38.0%
	33610600000	CIBA SPECIALTY CHEMICALS	OLD BRIDGE TOWNSHIP	NR	1,228	1,228	5.2%
	85171800004	ASHLAND DISTRIBUTION CO	CARTERET	NR	248	248	1.0%
CYANIDE COMPOUNDS	62726900000	COASTAL EAGLE POINT OIL COMPANY	WEST DEPTFORD TWP	NR	31,760	31,760	152.5%
2,2-DICHLORO-1,1,1-TRIFLUORO ETHANE	65543300003	SOLVAY SOLEXIS	THOROFARE	NR	19,270	19,270	100.0%
MANGANESE COMPOUNDS	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	12,777	12,777	74.7%
	04499600003	3 M CORPORATION	MONTGOMERY TWP	1,220	6,320	5,100	29.8%
	57699400000	F W WINTER INC & CO	DELAWARE AVE & ELM ST	NR	533	533	3.1%
	11702700000	SHIELDALLOY MATALLURGICAL CORP	NEWFIELD	NR	386	386	2.3%
	09772200000	HOEGANAES CORPORATION	CINNAMINSON	144	268	124	0.7%
COPPER COMPOUNDS [WITH EXCEPTIONS]	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	18,109	18,109	114.8%
	26715900000	OLD BRIDGE CHEMICALS, INC.	OLD BRIDGE TWP	0	265	265	1.7%
	33757700004	INFINEUM USA	LINDEN	27	275	248	1.6%
	04351600000	MC WILLIAMS FORGE COMPANY INC	ROCKAWY	NR	212	212	1.3%
	00369800000	HOMASOTE COMPANY	EWING	NR	120	120	0.8%
ETHYLENE GLYCOL	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	953	13,981	13,028	130.7%
	92721200000	UNITED STATES PIPE AND FOUNDRY CO INC	BURLINGTON	2,158	11,796	9,638	96.7%
	74250700000	DEGUSSA CORPORATION	PISCATAWAY TWP	0	4,303	4,303	43.2%
	70120500000	KELSTAR INTERNATIONAL ENTERPRISES	CINNAMINSON	294	1,020	726	7.3%

Substance	FACID	Facility Name	City	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)	Percent Contribution to Statewide Change
	33757700004	INFINEUM USA	LINDEN	1,842	2,396	554	5.6%
EPICHLORO HYDRIN	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	NR	9,075	9,075	91.9%
	61466500000	CARDOLITE CORPORATION	NEWARK	1,400	2,400	1,000	10.1%
	63336100000	CVC SPECIALTY CHEMICALS, INC.	MAPLE SHADE	NR	16	16	0.2%

Table E4. Top Facilities Contributing to the Top 10 Chemical Release Decreases

Note: This table provides additional detail for the Release decreases presented in Table 11 on page 26

Substance	FACID	Facility Name	City	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)	Percent Contribution to Statewide Change
METHANOL	84980600000	FRUTAROM MEER CORPORATION	NR	1,173,000	NR	-1,173,000	-75.3%
	45302100000	PENICK CORPORATION	NEWARK	141,717	11,360	-130,357	-8.4%
	85512600000	PGM PRODUCTS LLC	NR	83,189	NR	-83,189	-5.3%
	00315601000	FORD MOTOR COMPANY	EDISON	39,000	10,348	-28,652	-1.8%
	45371300000	AMERCHOL CORPORATION	EDISON	31,704	5,129	-26,575	-1.7%
TOLUENE	47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	381,123	172,545	-208,578	-25.2%
	40103700000	ATLANTIC STATES CAST IRON PIPE CO.	PHILLIPSBURG	193,548	NR	-193,548	-23.4%
	62726900000	COASTAL EAGLE POINT OIL COMPANY	WEST DEPTFORD TWP	121,000	24,153	-96,847	-11.7%
	54444300000	NETCONG INVESTMENTS INC	NR	48,221	NR	-48,221	-5.8%
	20968100000	GRIFFIN PIPE PRODUCTS CO.	FLORENCE	42,063	NR	-42,063	-5.1%
XYLENE (MIXED ISOMERS)	00315601000	FORD MOTOR COMPANY	EDISON	377,462	167,013	-210,449	-27.6%
	00004010001	GENERAL MOTORS CORPORATION	LINDEN	162,413	66,764	-95,649	-12.6%
	92721200000	UNITED STATES PIPE AND FOUNDRY CO INC	BURLINGTON	90,689	7,112	-83,577	-11.0%
	96114700000	MORTON INTERNATIONAL	PATERSON	106,652	38,080	-68,572	-9.0%
	62726900000	COASTAL EAGLE POINT OIL COMPANY	WEST DEPTFORD TWP	77,000	28,500	-48,500	-6.4%
DICHLORO METHANE	18048200002	TEVA PHARMACEUTICALS USA	NR	521,913	NR	-521,913	-76.4%
	00732501001	DRIVER-HARRIS ALLOYS, INC.	NR	30,600	NR	-30,600	-4.5%
	00326501001	SCHERING CORPORATION	UNION	21,193	NR	-21,193	-3.1%
	61712700001	CAMFIL FARR INC.	RIVERDALE	20,600	NR	-20,600	-3.0%
	00004010002	GENERAL MOTORS CORP	NR	20,284	NR	-20,284	-3.0%
1,1,1-TRICHLORO ETHANE	05808600000	DUREX INCORPORATED	NR	74,580	NR	-74,580	-15.4%
	62102000000	ELASTIC STOP NUT	NR	52,140	NR	-52,140	-10.8%
	07442700003	AMES RUBBER CORP	WANTAGE TWP	51,019	NR	-51,019	-10.5%
	47627000001	BANKS BROTHERS CORP.	BLOOMFIELD	35,048	NR	-35,048	-7.2%
	00000005125	ACCURATE FORMING DIV. OF SHAN INDUST	HAMBURG	25,523	NR	-25,523	-5.3%
METHYL ETHYL KETONE	60173500000	CONGOLEUM CORPORATION	NR	75,300	NR	-75,300	-20.2%
	86374400001	TEKNI-PLEX	FLEMINGTON JUNCTION	41,565	2,421	-39,144	-10.5%
	48990900002	REICHHOLD CHEMICALS, INC.	NR	34,062	NR	-34,062	-9.2%
	04499600005	3 M CORPORATION (FREEHOLD PLANT)	NR	27,467	NR	-27,467	-7.4%
	71280100000	RUSSELL-STANLEY CORP	WOODBRIDGE	36,623	13,183	-23,440	-6.3%
N-BUTYL ALCOHOL	15738800004	NATIONAL CAN COMPANY	NR	143,600	NR	-143,600	-40.0%
	00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	102,761	29,494	-73,267	-20.4%
	71418500000	C P HALL CO CORP	CARTERET	29,600	1,400	-28,200	-7.9%
	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	28,890	2,768	-26,122	-7.3%
	00315601000	FORD MOTOR COMPANY	EDISON	92,734	68,744	-23,990	-6.7%
TRICHLORO ETHYLENE	00006500000	PEERLESS TUBE COMPANY	BLOOMFIELD	224,481	28,635	-195,846	-70.1%
	68662700001	ELECTROLUX HOME PRODUCTS NA	EDISON	77,798	NR	-77,798	-27.9%
	00798209002	THE TRANE COMPANY	HAMILTON TWP	24,375	NR	-24,375	-8.7%
	55779400000	U S FUJI ELECTRIC, INC.	PISCATAWAY TOWNSHIP	23,130	NR	-23,130	-8.3%
	40493300013	RMP CINNAMINSON	NR	11,494	NR	-11,494	-4.1%

Substance	FACID	Facility Name	City	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)	Percent Contribution to Statewide Change
FREON 113	00850201001	E I DUPONT DE NEMOURS & CO INC	PENNSVILLE	102,875	6,377	-96,498	-35.3%
	47052900002	JOHNSON & JOHNSON CONSUMER PRODUCTS INC.	NORTH BRUNSWICK TWP	78,476	NR	-78,476	-28.7%
	73673100002	KEARFOTT GUID & NAV CORP	NR	33,242	NR	-33,242	-12.2%
	90224800002	NE&SS SURFACE SYSTEMS	MOORESTOWN	22,563	NR	-22,563	-8.3%
	21039600001	DATASCOPE CORP.	NR	21,500	NR	-21,500	-7.9%
	66481100000	S S WHITE BURS INC	NR	16,405	NR	-16,405	-6.0%
	83993000002	LOCKHEED MARTIN, PTB-176	NR	3,333	NR	-3,333	-1.2%
	39678600000	FISHER SCIENTIFIC COMPANY LLC	FAIR LAWN	810	NR	-810	-0.3%
	00431401000	MALLINCKRODT BAKER INC	PHILLIPSBURG	295	NR	-295	-0.1%
	01068701003	PERMABOND	NR	75	NR	-75	0.0%
	01068701004	PERMABOND INTERNATIONAL	BRIDGEWATER TWP	20	NR	-20	0.0%
GLYCOL ETHERS (EXCEPT SURFACTANTS)	15738800004	NATIONAL CAN COMPANY	NR	149,735	NR	-149,735	-65.6%
	00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	108,821	39,280	-69,541	-30.5%
	16623600000	UNITED WIRE HANGER CORP.	NR	43,012	NR	-43,012	-18.9%
	00004010001	GENERAL MOTORS CORPORATION	LINDEN	47,642	9,676	-37,966	-16.6%
	83153900000	ANCHOR HOCKING PACKAGING COMPANY	NR	32,291	NR	-32,291	-14.2%

Appendix F. Chemical-Specific Data for Facility Changes

Table F1. Chemical Specific Data for Top 10 NPO Increases

Note: This table provides additional detail on the facility increases identified in Table 14 on Page 30

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
61463000000	PRECISION ROLLED PRODUCTS INC	EAST HANOVER TWP	NICKEL	636	2,015,708	2,015,072
			CHROMIUM	228	764,765	764,537
			COBALT	108	433,428	433,320
02314100000	FAIRMOUNT CHEMICAL CO.	NEWARK	METHANOL	1,188,686	3,841,370	2,652,684
			HYDRAZINE	6,013	29,738	23,725
			HYDRAZINE SULFATE	2,276		-2,276
			ETHYLENE GLYCOL	18,115		-18,115
			1,2,4-TRIMETHYLBENZENE	82,093	0	-82,093
20968100000	GRIFFIN PIPE PRODUCTS CO.	FLORENCE	ZINC COMPOUNDS		1,397,107	1,397,107
			ALUMINUM (FUME OR DUST)		635,773	635,773
			MANGANESE COMPOUNDS		216,927	216,927
			LEAD COMPOUNDS		55,040	55,040
			MERCURY COMPOUNDS		21	21
			CHROMIUM	0		0
			LEAD	37,742		-37,742
			TOLUENE	42,063		-42,063
00555601000	MERCK & CO INC	RAHWAY	TOLUENE	61,084	6,006,577	5,945,493
			METHYL ISOBUTYL KETONE	191,236	216,258	25,022
			CHLORODIFLUOROMETHANE [HCFC-22]	0	18,210	18,210
			ACETONITRILE	74,350	85,952	11,602
			LEAD COMPOUNDS	0	733	733
			MERCURY COMPOUNDS	0	263	263
			BENZOYL CHLORIDE	28		-28
			2,4-DICHLOROPHENOL	105		-105
			ANILINE (AND SALTS)	2,810		-2,810
			CHLOROFORM	33,729		-33,729
			TERT-BUTYL ALCOHOL	40,065		-40,065
			CARBON DISULFIDE	43,997		-43,997
			ETHYLENE GLYCOL	60,781		-60,781
			N-BUTYL ALCOHOL	229,868	141,583	-88,285
			1,2-DICHLOROBENZENE	108,909		-108,909
			BENZENE	256,434		-256,434
			DICHLOROMETHANE	906,513	496,753	-409,760
			METHANOL	4,252,034	1,520,565	-2,731,469
16335900001	CHEM-FLEUR INC	NEWARK	METHANOL	116,541	2,331,306	2,214,765
			METHYL ETHYL KETONE		315	315
			ACETALDEHYDE		25	25
			DIMETHYL SULFATE	3		-3
			STYRENE OXIDE	4		-4

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
			FORMALDEHYDE	90	22	-68
			PROPIONALDEHYDE	107	11	-96
06520700000	KEARNY SMELTING & REFINING CORP.	KEARNY	COPPER	10	885,754	885,744
			ZINC COMPOUNDS	0	763,271	763,271
			NICKEL	0	44,887	44,887
			LEAD	156	37,177	37,021
47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	TOLUENE	5,618,832	7,335,016	1,716,184
			PROPYLENE OXIDE		36,285	36,285
			ETHYLBENZENE		21,407	21,407
			METHANOL	20,093	38,896	18,803
			N-BUTYL ALCOHOL	12,335	16,991	4,656
			ZINC COMPOUNDS	0	4,141	4,141
			ANTIMONY COMPOUNDS		2,406	2,406
			DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	1,571	3,947	2,376
			VINYL ACETATE		391	391
			ACRYLIC ACID		308	308
			BUTYL ACRYLATE	4,083	386	-3,697
			XYLENE (MIXED ISOMERS)	244,422	226,332	-18,090
			METHYL ETHYL KETONE	102,324	79,028	-23,296
			PROPYLENE [PROPENE]	55,167		-55,167
44567000003	FERRO CORP	SOUTH PLAINFIELD	METHANOL	2,205,609	3,874,334	1,668,725
			NITRIC ACID	101,100	202,314	101,214
			CHLORINE	172	65,997	65,825
			HYDRAZINE	2,240	16,520	14,280
			FORMALDEHYDE	5,000	16,607	11,607
			FORMIC ACID	150	3,304	3,154
			COPPER COMPOUNDS [WITH EXCEPTIONS]	58,137	31,892	-26,245
			CADMIUM COMPOUNDS	33,248	3,412	-29,836
			CADMIUM	33,248		-33,248
			SILVER COMPOUNDS	85,521	31,496	-54,025
			COPPER	58,137		-58,137
			SILVER	85,521		-85,521
00000004283	DELPHI AUTOMOTIVE SYSTEMS	NEW BRUNSWICK	LEAD COMPOUNDS	10,690,697	12,236,999	1,546,302
			ANTIMONY	112,255	36,317	-75,938
00059800002	SIEGFRIED(USA), INC.	PENNSVILLE	METHANOL	98,240	813,190	714,950
			TOLUENE	186,204	579,729	393,525
			XYLENE (MIXED ISOMERS)		232,276	232,276
			DICHLOROMETHANE		42,843	42,843
			ETHYLBENZENE		34,842	34,842
			FORMIC ACID		57	57
			ALLYL CHLORIDE	11,865	8,976	-2,889
			2-ETHOXYETHANOL	43,000		-43,000

Table F2. Chemical-Specific Data for Top 10 NPO Decreases

Note: This table provides additional detail on the facility decreases identified on Table 14 Page 30

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
81411900000	HUNTSMAN POLYPROPYLENE CORP.	WEST DEPTFORD	PROPYLENE [PROPENE]	16,770,291		-16,770,291
			CYCLOHEXANE	79,122		-79,122
			ZINC COMPOUNDS	205		-205
			TITANIUM TETRACHLORIDE	1		-1
00850201001	E I DUPONT DE NEMOURS & CO INC (DUPONT CHAMBERSWORKS)	PENNSVILLE	HYDROGEN FLUORIDE	6,756,430	1,092,905	-5,663,525
			1,2-DICHLOROBENZENE	3,252,986	470,072	-2,782,914
			LEAD COMPOUNDS	2,115,842	64,243	-2,051,599
			FREON 113	1,250,800	6,377	-1,244,423
			DICHLOROTETRAFLUOROETHANE [CFC-114]	368,734	0	-368,734
			ACRYLAMIDE	300,000		-300,000
			MONOCHLOROPENTAFLUOROETHANE [CFC-115]	370,013	105,806	-264,207
			2-CHLORO-1,1,1,2-TETRAFLUOROETHANE	281,833	23,495	-258,338
			NICKEL COMPOUNDS	223,658	19,166	-204,492
			N-BUTYL ALCOHOL	276,070	79,890	-196,180
			M-DINITROBENZENE	604,261	412,803	-191,458
			TOLUENE	350,440	162,047	-188,393
			METHYL METHACRYLATE	158,433	2,279	-156,154
			CHLORODIFLUOROMETHANE [HCFC-22]	144,349		-144,349
			NITROBENZENE	96,056	6,720	-89,336
			DICHLORODIFLUOROMETHANE [CFC-12]	73,044	50	-72,994
			CHLORINE	72,547	2,040	-70,507
			HYDRAZINE	69,671		-69,671
			CHLOROMETHANE	91,834	38,051	-53,783
			DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	49,921	1,675	-48,246
			O-TOLUIDINE	36,824		-36,824
			P-PHENYLENEDIAMINE	38,800	3,770	-35,030
			4,4-DIAMINODIPHENYL ETHER	25,662		-25,662
			CARBON TETRACHLORIDE	23,040		-23,040
			1,2-DIBROMOETHANE	22,970		-22,970
			TRICHLOROFLUOROMETHANE [CFC-11]	35,251	14,804	-20,447
			DICHLOROMETHANE	13,248		-13,248
			CHROMIUM COMPOUNDS	40,809	29,390	-11,419
			BENZENE	67,111	58,228	-8,883
			2,2-DICHLORO-1,1,1-TRIFLUOROETHANE	4,226		-4,226
			STYRENE	2,071		-2,071
			CHLOROETHANE	2,054		-2,054
			2,6-XYLIDINE	1,768		-1,768
			CARBON DISULFIDE	2,469	729	-1,740
			ETHYLENE	7,830	6,393	-1,437
			NAPHTHALENE	423		-423
			N,N-DIMETHYLANILINE	331		-331

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
			ETHYLENE OXIDE	478	163	-315
			VINYL CHLORIDE	29		-29
			VINYLIDENE CHLORIDE	100	86	-14
			P-CRESOL	8		-8
			TITANIUM TETRACHLORIDE	0	0	0
			O-XYLENE		0	0
			DIETHYL SULFATE		0	0
			2-PHENYLPHENOL	0		0
			MERCURY COMPOUNDS		102	102
			TRIFLURALIN		227	227
			DIMETHYL SULFATE	55	337	282
			P-DINITROBENZENE	17,765	18,191	426
			BENZYL CHLORIDE	315	744	429
			CHLORDANE		835	835
			HEXACHLOROBENZENE		1,276	1,276
			O-DINITROBENZENE	65,138	66,703	1,565
			CYANIDE COMPOUNDS	17,039	19,061	2,022
			ACRYLIC ACID	0	8,826	8,826
			EPICHLOROHYDRIN		11,137	11,137
			CHLOROACETIC ACID		13,428	13,428
			NITRIC ACID	2,606,102	2,622,175	16,073
			4-NITROPHENOL		17,255	17,255
			FORMIC ACID		17,485	17,485
			2,4-D [(2,4-DICHLOROPHENOXY)ACETIC ACI		18,686	18,686
			URETHANE		19,491	19,491
			DIETHANOLAMINE	180	19,855	19,675
			ACETALDEHYDE		20,785	20,785
			2,4,5-TRICHLOROPHENOL		24,297	24,297
			DIMETHYLCARBAMYL CHLORIDE		25,980	25,980
			XYLENE (MIXED ISOMERS)	163,704	195,466	31,762
			2,4-DINITROPHENOL		32,021	32,021
			ALLYL ALCOHOL		35,977	35,977
			COPPER COMPOUNDS [WITH EXCEPTIONS]		36,237	36,237
			MANGANESE COMPOUNDS		42,237	42,237
			FORMALDEHYDE		42,583	42,583
			CYCLOHEXANE	136,678	186,328	49,650
			1,1-DICHLORO-1-FLUOROETHANE (HCFC-141B)		70,730	70,730
			ANILINE (AND SALTS)	136,064	209,770	73,706
			CATECHOL		86,093	86,093
			HYDROQUINONE		100,069	100,069
			CRESOL (MIXED ISOMERS)		103,636	103,636
			ACETONITRILE		121,055	121,055
			PHENOL	30,186	183,009	152,823
			PHOSGENE	371,203	533,372	162,169
			ZINC COMPOUNDS	32,870	221,477	188,607
			METHYL ETHYL KETONE		191,799	191,799

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
			PICRIC ACID	163,329	359,371	196,042
			ETHYLBENZENE		202,175	202,175
			METHYL ISOBUTYL KETONE	517,294	853,499	336,205
			2-METHOXYETHANOL		344,267	344,267
			GLYCOL ETHERS (EXCEPT SURFACTANTS)		546,526	546,526
			ETHYLENE GLYCOL	20,784	788,268	767,484
			METHANOL	752,511	1,627,410	874,899
			TERT-BUTYL ALCOHOL		1,119,176	1,119,176
76248000000	HERCULES INCORPORATED	PARLIN	NITRIC ACID	14,504,290	7,632,957	-6,871,333
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	1,187,384	144,235	-1,043,149
			TERT-BUTYL ALCOHOL	66,991	33,960	-33,031
			N-BUTYL ALCOHOL	14,711	917	-13,794
			ETHYLENE OXIDE	1,261	650	-611
			ETHYLENE GLYCOL	1,286,333	1,422,774	136,441
59423500000	COOKSON PIGMENTS	NEWARK	METHANOL	3,343,129		-3,343,129
			LEAD COMPOUNDS	360,751		-360,751
			CHROMIUM COMPOUNDS	59,938		-59,938
			BARIUM COMPOUNDS [EXCEPT BARIUM SULFATE]	3,566		-3,566
			ANTIMONY COMPOUNDS	3,168		-3,168
			ANILINE (AND SALTS)	1,560		-1,560
			NITRIC ACID	670		-670
			MANGANESE COMPOUNDS	615		-615
			CHLOROMETHANE	217		-217
			COPPER COMPOUNDS [WITH EXCEPTIONS]	23		-23
00118500001	HOFFMANN LA ROCHE INC	NUTLEY	METHANOL	4,323,825	1,098,804	-3,225,021
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	493,742	260,988	-232,754
			DICHLOROMETHANE	158,211		-158,211
			TOLUENE	345,894	288,229	-57,665
			ISOBUTYRALDEHYDE	44,171		-44,171
			METHYL ETHYL KETONE	40,212		-40,212
			CHLOROFORM	26,231		-26,231
			COBALT COMPOUNDS	15,325		-15,325
			PYRIDINE	15,191		-15,191
			BROMOMETHANE	17,629	25,640	8,011
			COPPER COMPOUNDS [WITH EXCEPTIONS]	14,802	27,305	12,503
			2-METHOXYETHANOL		44,860	44,860
18048200002	TEVA PHARMACEUTICALS USA	WALDWICK	DICHLOROMETHANE	3,462,950		-3,462,950
47667600000	CO-STEEL SAYREVILLE	SAYREVILLE	ZINC (FUME OR DUST)	2,670,867	5,376	-2,665,491
			LEAD	462,988	1,345	-461,643
			MANGANESE	262,171	673	-261,498
			ALUMINUM (FUME OR DUST)	67,207		-67,207
			MERCURY		67	67
11021600000	YATES FOIL USA, INC	BORDENTOWN TWP	COPPER COMPOUNDS [WITH EXCEPTIONS]	3,180,609		-3,180,609
			LEAD	147,243		-147,243

FACID	Facility Name	City	Substance	NPO (1994) (pounds)	NPO (2001) (pounds)	NPO Difference
			ZINC COMPOUNDS	53,166		-53,166
			ANTIMONY	10,565		-10,565
			CHROMIUM COMPOUNDS	9,743		-9,743
			NICKEL COMPOUNDS	4,441		-4,441
00732501001	DRIVER-HARRIS ALLOYS, INC.	HARRISON	NICKEL	2,385,367		-2,385,367
			CHROMIUM	370,165		-370,165
			COPPER	154,810		-154,810
			NITRIC ACID	71,276		-71,276
			DICHLOROMETHANE	30,600		-30,600
			MANGANESE	22,573		-22,573
82980100000	CONOCOPHILLIPS COMPANY	LINDEN	1,2,4-TRIMETHYLBENZENE	1,389,267	15,514	-1,373,753
			XYLENE (MIXED ISOMERS)	718,425	75,533	-642,892
			TOLUENE	406,640	100,681	-305,959
			NAPHTHALENE	254,819	7,140	-247,679
			CYCLOHEXANE	299,193	53,702	-245,491
			PHENOL	304,065	84,176	-219,889
			CHLORINE	117,550		-117,550
			ETHYLBENZENE	124,984	23,004	-101,980
			METHANOL	81,170		-81,170
			BENZENE	110,905	62,414	-48,491
			ANTIMONY COMPOUNDS	16,805	1,146	-15,659
			MOLYBDENUM TRIOXIDE	7,970	701	-7,269
			1,3-BUTADIENE	165	143	-22
			ETHYLENE GLYCOL		0	0
			MERCURY COMPOUNDS		25	25
			LEAD COMPOUNDS		834	834
			CUMENE	3,606	5,826	2,220
			TETRACHLOROETHYLENE [PERCHLOROETHYLENE]		2,226	2,226
			ISOPROPYL ALCOHOL (MFG-STRONG ACID PROCE		3,591	3,591
			METHYL ETHYL KETONE		4,180	4,180
			NICKEL COMPOUNDS		6,342	6,342
			ETHYLENE	863,620	878,900	15,280
			METHYL TERT-BUTYL ETHER	371,285	590,410	219,125
			PROPYLENE [PROPENE]	2,263,060	3,074,000	810,940

Table F3. Chemical-Specific Data for Top 10 Release Increases

Note: This table provides additional detail on the facility increases identified on Table 15 Page 32

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
00118500002	ROCHE VITAMINS INC.	WHITE TWP	METHANOL	180	161,522	161,342
			TOLUENE	79,300	200,346	121,046
			CYCLOHEXANE	1,027	10,010	8,983
			FORMIC ACID	0	0	0
			ZINC COMPOUNDS	403	143	-260
			NICKEL COMPOUNDS	417	153	-264
			CHLORINE	4,210	448	-3,762
			CHLOROFORM	28,059	17,967	-10,092
00115401005	CHEVRON PRODUCTS COMPANY	PERTH AMBOY	XYLENE (MIXED ISOMERS)		26,912	26,912
			TOLUENE		24,328	24,328
			CYCLOHEXANE	5,854	15,788	9,934
			BENZENE	2,124	10,913	8,789
			ETHYLBENZENE		7,643	7,643
			LEAD COMPOUNDS		3	3
			MERCURY COMPOUNDS		1	1
27789100000	FRY'S METALS INC.	JERSEY CITY	DICHLOROMETHANE	5	41,000	40,995
			LEAD	0	300	300
			ANTIMONY	0		0
00457000006	REICHHOLD CHEMICALS INC.	NEWARK	XYLENE (MIXED ISOMERS)	384	16,471	16,087
			SEC-BUTYL ALCOHOL	246	8,503	8,257
			ETHYLBENZENE	31	3,761	3,730
			TOLUENE	498	3,170	2,672
			N-BUTYL ALCOHOL	57	2,610	2,553
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	136	919	783
			1,2,4-TRIMETHYLBENZENE		535	535
			METHANOL		378	378
			ETHYLENE GLYCOL	14	39	25
			MALEIC ANHYDRIDE	47	7	-40
			PHTHALIC ANHYDRIDE	2,755	302	-2,453
01122800002	MONSANTO COMPANY	LOGAN TWP	CHLOROETHANE	34,596	46,415	11,819
			TOLUENE	7,648	16,003	8,355
			N-BUTYL ALCOHOL	7,320	15,185	7,865
			BENZYL CHLORIDE	536	2,530	1,994
			PERACETIC ACID	18	250	232
			BENZAL CHLORIDE	16	208	192
			PROPYLENE OXIDE	50	239	189
			BENZOIC TRICHLORIDE	0	0	0
			HEXACHLOROBENZENE	60	34	-26
			CHLORINE	211	130	-81
			PHENOL	1,975	960	-1,015
			PHTHALIC ANHYDRIDE	7,033	4,300	-2,733
18174500000	VIKING YACHT CO CORP	NEW GRETNA	STYRENE	34,000	60,380	26,380
			LEAD		0	0

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
32502200000	NEWCO INC	NEWTON	METHYL ISOBUTYL KETONE	7,864	17,575	9,711
			METHYL ETHYL KETONE	8,692	16,885	8,193
04595700000	NATIONAL MANUFACTURING CO INC	CHATHAM	TRICHLOROETHYLENE		31,440	31,440
			MANGANESE		0	0
			COPPER		0	0
			CHROMIUM		0	0
			NICKEL		0	0
			1,1,1-TRICHLOROETHANE	4,464		-4,464
			DICHLOROMETHANE	9,658		-9,658
71236100000	BWAY CORPORATION	ELIZABETH	GLYCOL ETHERS (EXCEPT SURFACTANTS)	3,388	10,448	7,060
			XYLENE (MIXED ISOMERS)	1,439	7,005	5,566
			METHYL ISOBUTYL KETONE		3,788	3,788
			1,2,4-TRIMETHYLBENZENE	802		-802
			N-BUTYL ALCOHOL	1,634		-1,634
00000004082	GLACIER GARLOCK BEARINGS, L.L.C.	THOROFARE	TOLUENE	4,400	16,130	11,730
			COPPER	0	0	0
			LEAD	12	0	-12

Table F4. Chemical Specific Data for Top 10 Release Decreases

Note: This table provides additional detail on the facility decreases identified on Table 15 Page 32

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
84980600000	FRUTAROM MEER CORPORATION	NORTH BERGEN	METHANOL	1,173,000		-1,173,000
00850201001	E I DUPONT DE NEMOURS & CO INC (DUPONT CHAMBERSWORKS)	PENNSVILLE	NICKEL COMPOUNDS	223,054	14,871	-208,183
			2-CHLORO-1,1,1,2-TETRAFLUOROETHANE	217,973	17,515	-200,458
			DICHLOROTETRAFLUOROETHANE [CFC-114]	172,661	0	-172,661
			MONOCHLOROPENTAFLUOROETHANE [CFC-115]	266,103	105,806	-160,297
			CHLORODIFLUOROMETHANE [HCFC-22]	131,524		-131,524
			M-DINITROBENZENE	100,663	728	-99,935
			FREON 113	102,875	6,377	-96,498
			DICHLORODIFLUOROMETHANE [CFC-12]	52,633	50	-52,583
			1,2-DICHLOROBENZENE	39,743	1,650	-38,093
			CHLOROMETHANE	74,677	37,918	-36,759
			N-BUTYL ALCOHOL	28,890	2,768	-26,122
			CARBON TETRACHLORIDE	23,040		-23,040
			METHANOL	20,647	2,158	-18,489
			CHROMIUM COMPOUNDS	21,647	7,383	-14,264
			DICHLOROMETHANE	12,263		-12,263
			LEAD COMPOUNDS	22,302	10,386	-11,916
			CYANIDE COMPOUNDS	16,937	7,300	-9,637
			P-PHENYLENEDIAMINE	6,045	56	-5,989
			TOLUENE	7,985	2,400	-5,585
			METHYL METHACRYLATE	3,174	13	-3,161
			CHLOROETHANE	2,049		-2,049
			1,2-DIBROMOETHANE	1,841		-1,841
			4,4-DIAMINODIPHENYL ETHER	1,524		-1,524
			ETHYLENE	7,830	6,393	-1,437
			HYDROGEN FLUORIDE	1,335	61	-1,274
			NITRIC ACID	2,745	2,032	-713
			BENZENE	1,024	388	-636
			O-DINITROBENZENE	725	93	-632
			O-TOLUIDINE	625		-625
			CARBON DISULFIDE	412	46	-366
			ETHYLENE OXIDE	478	159	-319
			STYRENE	307		-307
			ACRYLAMIDE	300		-300
			N,N-DIMETHYLANILINE	248		-248
			NITROBENZENE	2,004	1,788	-216
			P-DINITROBENZENE	197	83	-114
			VINYLIDENE CHLORIDE	100	30	-70
			2,6-XYLIDINE	68		-68
			NAPHTHALENE	39		-39
			VINYL CHLORIDE	29		-29
			CHLORINE	173	150	-23
			2,2-DICHLORO-1,1,1-TRIFLUOROETHANE	9		-9

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
			P-CRESOL	8		-8
			BENZYL CHLORIDE	3	1	-2
			HYDRAZINE	0		0
			2-PHENYLPHENOL	0		0
			CHLOROACETIC ACID		0	0
			PICRIC ACID	0	0	0
			HYDROQUINONE		0	0
			DIETHYL SULFATE		0	0
			O-XYLENE		0	0
			TITANIUM TETRACHLORIDE	0	0	0
			CATECHOL		0	0
			ACRYLIC ACID	0	8	8
			DIMETHYL SULFATE	2	13	11
			URETHANE		14	14
			TRIFLURALIN		25	25
			DIETHANOLAMINE	2	36	34
			DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	588	662	74
			MERCURY COMPOUNDS		84	84
			DIMETHYLCARBAMYL CHLORIDE		100	100
			ALLYL ALCOHOL		109	109
			2,4-D [(2,4-DICHLOROPHENOXY)ACETIC ACI		114	114
			ACETALDEHYDE		146	146
			1,1-DICHLORO-1-FLUOROETHANE (HCFC-141B)		154	154
			XYLENE (MIXED ISOMERS)	1,485	1,698	213
			4-NITROPHENOL		286	286
			CRESOL (MIXED ISOMERS)		296	296
			FORMIC ACID		359	359
			CHLORDANE		512	512
			FORMALDEHYDE		596	596
			HEXACHLOROBENZENE		628	628
			ETHYLBENZENE		708	708
			ACETONITRILE		769	769
			2,4-DINITROPHENOL		807	807
			TRICHLOROFLUOROMETHANE [CFC-11]	13,951	14,800	849
			ANILINE (AND SALTS)	674	1,600	926
			PHOSGENE	1,167	2,480	1,313
			METHYL ETHYL KETONE		2,535	2,535
			2-METHOXYETHANOL		3,718	3,718
			2,4,5-TRICHLOROPHENOL		3,722	3,722
			TERT-BUTYL ALCOHOL		4,182	4,182
			METHYL ISOBUTYL KETONE	4,371	12,720	8,349
			EPICHLOROHYDRIN		9,075	9,075
			PHENOL	250	10,039	9,789
			CYCLOHEXANE	2,305	14,868	12,563
			MANGANESE COMPOUNDS		12,777	12,777
			ETHYLENE GLYCOL	953	13,981	13,028

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
			COPPER COMPOUNDS [WITH EXCEPTIONS]		18,109	18,109
			ZINC COMPOUNDS	32,766	143,031	110,265
			GLYCOL ETHERS (EXCEPT SURFACTANTS)		222,980	222,980
18048200002	TEVA PHARMACEUTICALS USA	WALDWICK	DICHLOROMETHANE	521,913		-521,913
00315601000	FORD MOTOR COMPANY	EDISON	XYLENE (MIXED ISOMERS)	377,462	167,013	-210,449
			METHYL ISOBUTYL KETONE	111,460	60,973	-50,487
			ETHYLBENZENE	45,200	16,427	-28,773
			METHANOL	39,000	10,348	-28,652
			N-BUTYL ALCOHOL	92,734	68,744	-23,990
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	68,700	53,107	-15,593
			METHYL ETHYL KETONE	30,300	16,838	-13,462
			TOLUENE	13,880	6,222	-7,658
			METHYL TERT-BUTYL ETHER	338	227	-111
			BENZENE	50	25	-25
			CYCLOHEXANE	1	1	0
			BARIUM COMPOUNDS [EXCEPT BARIUM SULFATE]	0		0
			COPPER COMPOUNDS [WITH EXCEPTIONS]	0		0
			ETHYLENE GLYCOL	0	0	0
			LEAD COMPOUNDS		0	0
			MANGANESE COMPOUNDS	0	0	0
			ZINC COMPOUNDS	0	26	26
			NITRIC ACID	0	63	63
			NICKEL COMPOUNDS	0	671	671
			1,2,4-TRIMETHYLBENZENE	16,080	27,332	11,252
15738800004	NATIONAL CAN COMPANY	PISCATAWAY TWP	GLYCOL ETHERS (EXCEPT SURFACTANTS)	149,735		-149,735
			N-BUTYL ALCOHOL	143,600		-143,600
			HYDROGEN FLUORIDE	18		-18
			MANGANESE	0		0
00006500000	PEERLESS TUBE COMPANY	BLOOMFIELD	TRICHLOROETHYLENE	224,481	28,635	-195,846
			METHYL ETHYL KETONE	11,896		-11,896
			METHYL ISOBUTYL KETONE	11,350		-11,350
			TOLUENE	8,590		-8,590
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	8,629	4,408	-4,221
			XYLENE (MIXED ISOMERS)	3,214		-3,214
47034000000	PERMACEL, A NITTO DENKO COMPANY	NORTH BRUNSWICK TWP	TOLUENE	381,123	172,545	-208,578
			PROPYLENE [PROPENE]	2,760		-2,760
			XYLENE (MIXED ISOMERS)	4,477	2,252	-2,225
			BUTYL ACRYLATE	144	17	-127
			N-BUTYL ALCOHOL	373	259	-114
			ANTIMONY COMPOUNDS		0	0
			ACRYLIC ACID		12	12
			VINYL ACETATE		14	14
			DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	0	64	64

FACID	Facility Name	City	Substance	Releases 1994 (pounds)	Releases 2001 (pounds)	Release Difference (pounds)
			ETHYLBENZENE		213	213
			METHANOL	770	1,396	626
			PROPYLENE OXIDE		1,814	1,814
			ZINC COMPOUNDS	0	3,108	3,108
			METHYL ETHYL KETONE	11,779	20,708	8,929
40103700000	ATLANTIC STATES CAST IRON PIPE CO.	PHILLIPSBURG	TOLUENE	193,548		-193,548
			BARIUM	1,013		-1,013
			BARIUM COMPOUNDS [EXCEPT BARIUM SULFATE]		171	171
			LEAD		572	572
			XYLENE (MIXED ISOMERS)		16,355	16,355
00004010001	GENERAL MOTORS CORPORATION	LINDEN	XYLENE (MIXED ISOMERS)	162,413	66,764	-95,649
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	47,642	9,676	-37,966
			1,2,4-TRIMETHYLBENZENE	90,661	61,757	-28,904
			ETHYLBENZENE	23,496	13,644	-9,852
			N-BUTYL ALCOHOL	55,017	48,628	-6,389
			ETHYLENE GLYCOL	2,106	0	-2,106
			LEAD COMPOUNDS		0	0
			MANGANESE COMPOUNDS		0	0
			NICKEL COMPOUNDS		0	0
			NITRIC ACID		0	0
			ZINC COMPOUNDS		0	0
			BENZENE	0	58	58
			METHYL TERT-BUTYL ETHER		737	737
			TOLUENE	6,524	9,059	2,535
			METHANOL	6,414	11,519	5,105
00060201002	REXAM BEVERAGE CAN COMPANY	MONMOUTH JUNCTION	N-BUTYL ALCOHOL	102,761	29,494	-73,267
			GLYCOL ETHERS (EXCEPT SURFACTANTS)	108,821	39,280	-69,541
			HYDROGEN FLUORIDE	33		-33
			MANGANESE	0	0	0

Table F5. Facility NPO (adjusted)

Note: This table provides chemical specific details for facilities identified in Table 17

FACILITY NAME	Municipality	CHEMICAL NAME	Site PI	1994 NPO (pounds)	2001 NPO (pounds)	2001 NPO adjusted (pounds)	NPO change adjusted	NPO percent change adjusted
MERCK & CO. INC.	RAHWAY	METHANOL	0.07	4,252,034	1,520,565	21,867,831	17,615,797	414.29%
		ACETONITRILE	0.08	74,350	85,952	1,046,407	972,057	1307.41%
		TOLUENE	214.86	61,084	6,006,577	27,955	-33,129	-54.23%
CHEM-FLEUR / FIRMENICH INC.	NEWARK	METHANOL	4.62	116,541	2,331,306	504,548	388,007	332.94%
PERMACEL	NORTH BRUNSWICK TWP	TOLUENE	0.86	5,618,832	7,335,016	8,529,050	2,910,218	51.79%
		XYLENE (MIXED ISOMERS)	0.90	244,422	226,332	252,795	8,373	3.43%
		N-BUTYL ALCOHOL	0.96	12,335	16,991	17,650	5,315	43.08%
		DI(2-ETHYLHEXYL) PHTHALATE	0.72	1,571	3,947	5,482	3,911	248.96%
		METHANOL	25.67	20,093	38,896	1,515	-18,578	-92.46%
		METHYL ETHYL KETONE	1.88	102,324	79,028	42,064	-60,260	-58.89%
KEARNY SMELTING & REFINING CORP.	KEARNY	COPPER	1.94	10	885,754	456,574	456,564	4565642.27%
		ZINC COMPOUNDS	1.96	0	763,271	389,424	389,424	
		NICKEL	1.87	0	44,887	24,004	24,004	
GANES CHEMICALS INC.	PENNSVILLE TWP	METHANOL	4.56	98,240	813,190	178,507	80,267	81.71%
		TOLUENE	15.89	186,204	579,729	36,478	-149,726	-80.41%
NOVUS FINE CHEMICALS	CARLSTADT	TOLUENE	12502.52	165,408	64,309	5	-165,403	-100.00%
		METHANOL	5.45	419,140	59,807	10,974	-408,166	-97.38%
		METHYL ISOBUTYL KETONE	46132.00	568,358	5,635	0	-568,358	-100.00%
FORD EDISON ASSEMBLY PLANT	EDISON TWP	1,2,4-TRIMETHYLBENZENE	1.03	31,080	111,931	108,845	77,765	250.21%
		ETHYLENE GLYCOL	1.03	1,800	2,136	2,077	277	15.39%
		METHYL TERT-BUTYL ETHER	1.03	995	399	388	-607	-61.01%
		TOLUENE	1.03	17,705	15,521	15,093	-2,612	-14.75%
		ZINC COMPOUNDS	1.03	19,557	12,365	12,024	-7,533	-38.52%
		N-BUTYL ALCOHOL	1.03	167,375	158,778	154,400	-12,975	-7.75%
		CERTAIN GLYCOL ETHERS	1.03	156,700	131,251	127,632	-29,068	-18.55%
		METHANOL	1.03	73,000	23,360	22,716	-50,284	-68.88%
		ETHYLBENZENE	1.03	168,200	69,270	67,360	-100,840	-59.95%
		METHYL ISOBUTYL KETONE	1.03	532,530	197,136	191,700	-340,830	-64.00%
		XYLENE (MIXED ISOMERS)	1.03	1,159,740	426,533	414,772	-744,968	-64.24%
PHELPS DODGE SPECIALTY COPPER PRODS.	ELIZABETH	COPPER	3.80	3,109,504	1,770,237	465,401	-2,644,103	-85.03%
CO-STEEL RARITAN	PERTH AMBOY	MANGANESE COMPOUNDS	0.98	407,314	454,072	464,863	57,549	14.13%
		LEAD COMPOUNDS	0.96	305,485	249,903	261,285	-44,200	-14.47%
		ZINC (FUME OR DUST)	0.98	6,985,430	4,956,844	5,074,645	-1,910,785	-27.35%
HOFFMANN-LA ROCHE INC.	NUTLEY	TOLUENE	0.25	345,894	288,229	1,148,776	802,882	232.12%
		CERTAIN GLYCOL ETHERS	1.04	493,742	260,988	250,229	-243,513	-49.32%
		METHANOL	0.98	4,323,825	1,098,804	1,119,853	-3,203,972	-74.10%
		METHYL ISOBUTYL KETONE	0.14	517,294	853,499	6,050,186	5,532,892	1069.58%
		XYLENE (MIXED ISOMERS)	0.10	163,704	195,466	1,932,180	1,768,476	1080.29%
		METHANOL	0.98	752,511	1,627,410	1,663,281	910,770	121.03%
DU PONT CHAMBERS WORKS	PENNSVILLE TWP	ETHYLENE GLYCOL	1.52	20,784	788,278	519,904	499,120	2401.46%

FACILITY NAME	Municipality	CHEMICAL NAME	Site PI	1994 NPO (pounds)	2001 NPO (pounds)	2001 NPO adjusted (pounds)	NPO change adjusted	NPO percent change adjusted
		CHROMIUM COMPOUNDS	0.18	40,809	29,390	163,942	123,133	301.73%
		PICRIC ACID	1.32	163,329	359,371	272,983	109,654	67.14%
		DIETHANOLAMINE	0.62	180	19,855	31,837	31,657	17587.34%
		ANILINE	1.37	136,064	209,770	152,612	16,548	12.16%
		VINYLIDENE CHLORIDE	0.03	100	86	2,704	2,604	2603.52%
		ACRYLIC ACID	5.86	0	8,826	1,505	1,505	
		DIMETHYL SULFATE	0.39	55	337	866	811	1474.34%
		BENZYL CHLORIDE	1.06	315	744	700	385	122.37%
		ETHYLENE OXIDE	0.31	478	163	533	55	11.55%
		TITANIUM TETRACHLORIDE	1.81	0	0	0	0	
		CARBON DISULFIDE	1.14	2,469	729	641	-1,828	-74.03%
		P-DINITROBENZENE	1.32	17,765	18,191	13,818	-3,947	-22.22%
		ETHYLENE	6.28	7,830	6,393	1,019	-6,811	-86.99%
		O-DINITROBENZENE	1.32	65,138	66,703	50,668	-14,470	-22.21%
		BENZENE	1.32	67,111	58,228	44,231	-22,880	-34.09%
		P-PHENYLENEDIAMINE	2.72	38,800	3,770	1,384	-37,416	-96.43%
		CHLOROMETHANE	1.05	91,834	38,051	36,336	-55,498	-60.43%
		CYCLOHEXANE	2.65	136,678	186,328	70,280	-66,398	-48.58%
		CHLORINE	1.36	72,547	2,040	1,503	-71,044	-97.93%
		NITROBENZENE	1.31	96,056	6,720	5,114	-90,942	-94.68%
		PHOSGENE	2.25	371,203	533,372	237,394	-133,809	-36.05%
		METHYL METHACRYLATE	1.68	158,433	2,286	1,357	-157,076	-99.14%
		TOLUENE	1.00	350,440	162,047	161,897	-188,543	-53.80%
		N-BUTYL ALCOHOL	1.05	276,070	80,320	76,168	-199,902	-72.41%
		M-DINITROBENZENE	1.32	604,261	412,803	313,571	-290,690	-48.11%
		MONOCHLOROPENTAFLUOROETHANE	1.64	370,013	105,806	64,604	-305,409	-82.54%
		AMMONIA	1.41	499,816	253,773	180,498	-319,318	-63.89%
		DICHLOROTETRAFLUOROETHANE (CFC-114)	1.40	368,734	0	0	-368,734	-100.00%
		FREON 113	0.21	1,250,800	6,377	30,233	-1,220,567	-97.58%
		HYDROGEN FLUORIDE	0.58	6,756,430	1,168,876	2,009,121	-4,747,309	-70.26%
HERCULES INC. PARLIN PLANT	SAYREVILLE	ETHYLENE OXIDE	1.14	1,261	650	569	-692	-54.87%
		TERT-BUTYL ALCOHOL	1.14	66,991	33,960	29,735	-37,256	-55.61%
		ETHYLENE GLYCOL	1.14	1,286,333	1,422,774	1,245,746	-40,587	-3.16%
		CERTAIN GLYCOL ETHERS	1.14	1,187,384	144,235	126,289	-1,061,095	-89.36%
		NITRIC ACID	0.52	14,504,290	464	894	-14,503,396	-99.99%

Table F6. Facility Releases (adjusted)

Note: This table provides chemical-specific data for facilities identified in Table 18

FACILITY NAME	Municipality	CHEMICAL NAME	Cum PI	1994 Release (pounds)	2001 Releases (pounds)	2001 Release Adjusted	Release change Adjusted	Release Percent Adjusted
ROCHE VITAMINS INC.	WHITE TWP	TOLUENE	2.14	79,300	200,346	93,591	14,291	18.02%
		CYCLOHEXANE	2.14	1,027	10,010	4,676	3,649	355.32%
		AMMONIA	1.98	1,867	3,498	1,770	-97	-5.22%
		ZINC COMPOUNDS	1.33	403	143	107	-296	-73.42%
		NICKEL COMPOUNDS	1.31	417	153	117	-300	-71.90%
		CHLORINE	1.64	4,210	448	273	-3,937	-93.52%
		CHLOROFORM	2.14	28,059	17,967	8,393	-19,666	-70.09%
REICHHOLD INC.	NEWARK	XYLENE (MIXED ISOMERS)	1.78	384	16,471	9,275	8,891	2315.29%
		SEC-BUTYL ALCOHOL	1.78	246	8,503	4,788	4,542	1846.34%
		ETHYLBENZENE	1.78	31	3,761	2,118	2,087	6731.61%
		N-BUTYL ALCOHOL	1.78	57	2,610	1,470	1,413	2478.38%
		TOLUENE	1.78	498	3,170	1,785	1,287	258.44%
		CERTAIN GLYCOL ETHERS	1.78	136	919	517	381	280.50%
		PHTHALIC ANHYDRIDE	1.62	2,755	302	187	-2,568	-93.23%
VIKING YACHT CO.	BASS RIVER TWP	STYRENE	1.40	34,000	60,380	43,268	9,268	27.26%
CHEVRON PRODS. CO.	PERTH AMBOY	BENZENE	1.93	2,124	10,913	5,666	3,542	166.75%
		CYCLOHEXANE	1.93	5,854	15,788	8,197	2,343	40.02%
PENICK CORP.	NEWARK	AMMONIA	10.68	2,780	696	65	-2,715	-97.66%
SYBRON CHEMICALS INC.	PEMBERTON TWP	ETHYL ACRYLATE	0.53	1,335	1,280	2,418	1,083	81.09%
		STYRENE	2.24	7,861	4,552	2,035	-5,826	-74.11%
		1,2-DICHLOROPROPANE	5.27	155,011	63,470	12,054	-142,957	-92.22%
COASTAL EAGLE POINT OIL CO.	WEST DEPTFORD TWP	AMMONIA	1.36	7,360	24,730	18,226	10,866	147.64%
		CUMENE	1.27	15,900	30,986	24,320	8,420	52.95%
		CYCLOHEXANE	1.16	8,200	3,147	2,710	-5,490	-66.95%
		METHYL TERT-BUTYL ETHER	1.35	38,330	43,400	32,258	-6,072	-15.84%
		ETHYLBENZENE	1.26	16,300	12,232	9,718	-6,582	-40.38%
		1,2,4-TRIMETHYLBENZENE	1.47	20,500	9,219	6,256	-14,244	-69.48%
		XYLENE (MIXED ISOMERS)	1.34	77,000	28,500	21,246	-55,754	-72.41%
		TOLUENE	1.57	121,000	24,153	15,340	-105,660	-87.32%
REXAM BEVERAGE CAN CO. BRUNSWICK PLANT	SOUTH BRUNSWICK TWP	MANGANESE	0.55	0	0	0	0	
		CERTAIN GLYCOL ETHERS	0.54	108,821	39,280	72,865	-35,956	-33.04%
		N-BUTYL ALCOHOL	0.55	102,761	29,494	53,291	-49,470	-48.14%
GMTG LINDEN ASSEMBLY	LINDEN	BENZENE	93.31	0	58	1	1	
		ETHYLENE GLYCOL	93.31	2,106	0	0	-2,106	-100.00%
		METHANOL	93.31	6,414	11,519	123	-6,291	-98.08%
		TOLUENE	93.31	6,524	9,059	97	-6,427	-98.51%
		ETHYLBENZENE	93.31	23,496	13,644	146	-23,350	-99.38%
		CERTAIN GLYCOL ETHERS	93.31	47,642	9,676	104	-47,538	-99.78%
		N-BUTYL ALCOHOL	93.31	55,017	48,628	521	-54,496	-99.05%
		XYLENE (MIXED ISOMERS)	93.31	162,413	66,764	716	-161,697	-99.56%

FACILITY NAME	Municipality	CHEMICAL NAME	Cum PI	1994 Release (pounds)	2001 Releases (pounds)	2001 Release Adjusted	Release change Adjusted	Release Percent Adjusted
PERMACEL	NORTH BRUNSWICK TWP	DI(2-ETHYLHEXYL) PHTHALATE	0.72	0	64	89	89	
		N-BUTYL ALCOHOL	0.96	373	259	269	-104	-27.87%
		METHANOL	25.67	770	1,396	54	-716	-92.94%
		METHYL ETHYL KETONE	1.88	11,779	20,708	11,022	-757	-6.42%
		XYLENE (MIXED ISOMERS)	0.90	4,477	2,252	2,515	-1,962	-43.82%
		TOLUENE	0.86	381,123	172,545	200,633	-180,490	-47.36%
FORD EDISON ASSEMBLY PLANT	EDISON TWP	1,2,4-TRIMETHYLBENZENE	1.03	16,080	27,332	26,578	10,498	65.29%
		ZINC COMPOUNDS	1.03	0	26	25	25	
		ETHYLENE GLYCOL	1.03	0	0	0	0	
		METHYL TERT-BUTYL ETHER	1.03	338	227	221	-117	-34.69%
		TOLUENE	1.03	13,880	6,222	6,050	-7,830	-56.41%
		CERTAIN GLYCOL ETHERS	1.03	68,700	53,107	51,643	-17,057	-24.83%
		N-BUTYL ALCOHOL	1.03	92,734	68,744	66,849	-25,885	-27.91%
		METHANOL	1.03	39,000	10,348	10,063	-28,937	-74.20%
		ETHYLBENZENE	1.03	45,200	16,427	15,974	-29,226	-64.66%
		METHYL ISOBUTYL KETONE	1.03	111,460	60,973	59,292	-52,168	-46.80%
		XYLENE (MIXED ISOMERS)	1.03	377,462	167,013	162,408	-215,054	-56.97%
DU PONT CHAMBERSWORKS	PENNSVILLE TWP	HYDROGEN FLUORIDE	0.58	1,335	152,084	261,409	260,074	19481.23%
		METHYL ISOBUTYL KETONE	0.14	4,371	12,720	90,168	85,797	1962.87%
		CHROMIUM COMPOUNDS	0.18	21,647	7,383	41,184	19,537	90.25%
		XYLENE (MIXED ISOMERS)	0.10	1,485	1,698	16,785	15,300	1030.28%
		ETHYLENE GLYCOL	1.52	953	13,991	9,228	8,275	868.28%
		CYCLOHEXANE	2.65	2,305	14,868	5,608	3,303	143.30%
		VINYLIDENE CHLORIDE	0.03	100	30	943	843	843.09%
		ANILINE	1.37	674	1,600	1,164	490	72.70%
		DIETHANOLAMINE	0.62	2	36	58	56	2786.27%
		ETHYLENE OXIDE	0.31	478	159	520	42	8.82%
		DIMETHYL SULFATE	0.39	2	13	33	31	1570.11%
		ACRYLIC ACID	5.86	0	8	1	1	
		PICRIC ACID	1.32	0	0	0	0	
		TITANIUM TETRACHLORIDE	1.81	0	0	0	0	
		BENZYL CHLORIDE	1.06	3	1	1	-2	-68.62%
		CHLORINE	1.36	173	150	111	-62	-36.12%
		PHOSGENE	2.25	1,167	2,480	1,104	-63	-5.42%
		P-DINITROBENZENE	1.32	197	83	63	-134	-68.00%
		CARBON DISULFIDE	1.14	412	46	40	-372	-90.18%
		NITROBENZENE	1.31	2,004	1,788	1,361	-643	-32.10%
		O-DINITROBENZENE	1.32	725	93	71	-654	-90.26%
		BENZENE	1.32	1,024	388	295	-729	-71.22%
		METHYL METHACRYLATE	1.68	3,174	20	12	-3,162	-99.63%
		TOLUENE	1.00	7,985	2,400	2,398	-5,587	-69.97%
		P-PHENYLENEDIAMINE	2.72	6,045	56	21	-6,024	-99.66%
		ETHYLENE	6.28	7,830	6,393	1,019	-6,811	-86.99%

FACILITY NAME	Municipality	CHEMICAL NAME	Cum PI	1994 Release (pounds)	2001 Releases (pounds)	2001 Release Adjusted	Release change Adjusted	Release Percent Adjusted
		METHANOL	0.98	20,647	2,158	2,206	-18,441	-89.32%
		N-BUTYL ALCOHOL	1.05	28,890	3,198	3,033	-25,857	-89.50%
		CHLOROMETHANE	1.05	74,677	37,918	36,209	-38,468	-51.51%
		FREON 113	0.21	102,875	6,377	30,233	-72,642	-70.61%
		M-DINITROBENZENE	1.32	100,663	728	553	-100,110	-99.45%
		DICHLOROTETRAFLUOROETHANE (CFC-114)	1.40	172,661	0	0	-172,661	-100.00%
		MONOCHLOROPENTAFLUOROETHANE	1.64	266,103	105,806	64,604	-201,499	-75.72%
		AMMONIA	1.41	457,717	121,313	86,285	-371,432	-81.15%

Appendix G. List of Carcinogens reported on the RPPR

CAS Number	Chemical Name	Cancer Class	Reference
79-00-5	1,1,2-TRICHLOROETHANE	C	IRIS
107-06-2	1,2-DICHLOROETHANE	B2	IRIS
78-87-5	1,2-DICHLOROPROPANE	B2	Cal 03
106-99-0	1,3-BUTADIENE	B2	IRIS
542-75-6	1,3-DICHLOROPROPYLENE	B2	IRIS
106-46-7	1,4-DICHLOROBENZENE		Cal 02
88-06-2	2,4,6-TRICHLOROPHENOL	B2	IRIS
121-14-2	2,4-DINITROTOLUENE	B2	Cal 02
79-46-9	2-NITROPROPANE	B2	HEAST97
80-05-7	4,4-ISOPROPYLIDENEDIPHENOL		US 85
101-14-4	4,4-METHYLENEBIS(2-CHLOROANILINE)	B2	Cal 02
75-07-0	ACETALDEHYDE	B2	IRIS
79-06-1	ACRYLAMIDE	B2	IRIS
107-13-1	ACRYLONITRILE	B1	IRIS
309-00-2	ALDRIN	B2	IRIS
107-05-1	ALLYL CHLORIDE	C	Cal 02
7440-38-2	ARSENIC	A	IRIS
N020	ARSENIC COMPOUNDS		
1332-21-4	ASBESTOS (FRIABLE)	A	IRIS
71-43-2	BENZENE	A	IRIS
100-44-7	BENZYL CHLORIDE	B2	Cal 02
7440-43-9	CADMIUM	B1	Cal 02
N078	CADMIUM COMPOUNDS		
56-23-5	CARBON TETRACHLORIDE	B2	IRIS
57-74-9	CHLORDANE	B2	IRIS
67-66-3	CHLOROFORM	B2	IRIS
N090	CHROMIUM COMPOUNDS		
75-09-2	DICHLOROMETHANE	B2	IRIS
77-78-1	DIMETHYL SULFATE	B2	Cal 93
106-89-8	EPICHLOROHYDRIN	B2	IRIS
140-88-5	ETHYL ACRYLATE	B2	US 85
74-85-1	ETHYLENE		US 85
75-21-8	ETHYLENE OXIDE	B1	Cal 02
96-45-7	ETHYLENE THIOUREA		Cal 02
50-00-0	FORMALDEHYDE	B1	IRIS
76-44-8	HEPTACHLOR	B2	IRIS
87-68-3	HEXACHLORO-1,3-BUTADIENE	C	IRIS
118-74-1	HEXACHLOROBENZENE	B2	IRIS
67-72-1	HEXACHLOROETHANE	C	IRIS
302-01-2	HYDRAZINE	B2	IRIS
N420	LEAD COMPOUNDS	B2	Cal 02
N495	NICKEL COMPOUNDS		
87-86-5	PENTACHLOROPHENOL (PCP)	B2	Cal 02
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	B2	IRIS

75-56-9	PROPYLENE OXIDE	B2	IRIS
100-42-5	STYRENE	B2	HEAST91
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]	B2	Cal 02
584-84-9	TOLUENE-2,4-DIISOCYANATE		Cal 02
8001-35-2	TOXAPHENE [CAMPHECHLOR]	B2	IRIS
79-01-6	TRICHLOROETHYLENE	B2	Cal 02
51-79-6	URETHANE		Cal 02
75-01-4	VINYL CHLORIDE	A	IRIS

Appendix H. List of PBT Chemicals

Persistent, Bioaccumulative, and Toxic Chemicals covered by the USEPA October 29, 1999 PBT Rule and the January 17, 2001 Lead Rule and reportable on the Toxic Chemical Release Inventory (TRI)

Chemical Name or Chemical Category	*RTK Number*	*CAS # (Group #)*	*Section 313 Reporting Threshold (in pounds unless noted otherwise)*
Aldrin	0033	309-00-2	100
Benzo(g,h,i)perylene	2968	191-24-2	10
Chlordane	0361	57-74-9	10
Dioxin and dioxin-like compounds category[1, 3]	3760	N150	0.1 gram
Heptachlor	0974	76-44-8	10
Hexachlorobenzene	0978	118-74-1	10
Isodrin	2499	465-73-6	10
Lead [2]	1096	7439-92-1	100
Lead compounds category [2]	2266	N420	100
Mercury	1183	7439-97-6	10
Mercury compounds	2414	N458	10
Methoxychlor	1210	72-43-5	100
Octachlorostyrene	3761	29082-74-4	10
Pendimethalin	3415	40487-42-1	100
Pentachlorobenzene	3417	608-93-5	10
Polychorinated biphenyls (PCBs)	1554	1336-36-3	10
Polycyclic aromatic compounds category [3,4]	3758	N590	100
Tetrabromobisphenol A	3763	79-94-7	100
Toxaphene	1871	8001-35-2	10
Trifluralin	1918	1582-09-8	100

1. Qualifier: “manufacturing; and the processing or otherwise use of dioxin and dioxin-like compounds if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacturing of that chemical”.
2. The lower reporting thresholds apply to lead and all lead compounds, except for lead contained in stainless steel, brass, and bronze alloys. For the federal TRI, lead contained in stainless steel, brass, and bronze alloys remains reportable under the 25,000-pound manufacture and process reporting threshold and the 10,000-pound otherwise use reporting threshold. For the state RPPR, lead contained in stainless steel, brass, and bronze alloys remains reportable under the 10,000-pound manufacture, process and otherwise use reporting threshold.
3. See Appendix C for the specific substances reportable under this category.
4. Two chemicals, benzo(j,k)fluorene (206-44-0) and 3-methylcholanthrene (56-49-5), were added to this category effective RY 2000.

Appendix I. Chemicals that are both TCPA EHS and RPPR

CAS Number	SUBSTANCE NAME
75-07-0	ACETALDEHYDE
107-02-8	ACROLEIN
107-13-1	ACRYLONITRILE
107-18-6	ALLYL ALCOHOL
107-11-9	ALLYLAMINE
107-05-1	ALLYL CHLORIDE
7664-41-7	AMMONIA
542-88-1	BIS(CHLOROMETHYL) ETHER
10294-34-5	BORON TRICHLORIDE
7637-07-2	BORON TRIFLUORIDE
7726-95-6	BROMINE
106-99-0	1,3-BUTADIENE
75-15-0	CARBON DISULFIDE
463-58-1	CARBONYL SULFIDE [CARBON OXYSULFIDE]
7782-50-5	CHLORINE
10049-04-4	CHLORINE DIOXIDE
67-66-3	CHLOROFORM
107-30-2	CHLOROMETHYL METHYL ETHER
76-06-2	CHLOROPICRIN
126-99-8	CHLOROPRENE
334-88-3	DIAZOMETHANE
124-40-3	DIMETHYLAMINE
57-14-7	1,1-DIMETHYL HYDRAZINE
106-89-8	EPICHLOROHYDRIN
75-00-3	CHLOROETHANE
74-85-1	ETHYLENE
107-15-3	ETHYLENEDIAMINE
151-56-4	ETHYLENEIMINE
75-21-8	ETHYLENE OXIDE
7782-41-4	FLUORINE
50-00-0	FORMALDEHYDE
302-01-2	HYDRAZINE
7647-01-0	HYDROCHLORIC ACID
74-90-8	HYDROGEN CYANIDE [HYDROCYANIC ACID]
7664-39-3	HYDROGEN FLUORIDE
13463-40-6	IRON PENTACARBONYL
126-98-7	METHACRYLONITRILE
74-83-9	BROMOMETHANE
74-87-3	CHLOROMETHANE
79-22-1	METHYL CHLOROCARBONATE
60-34-4	METHYL HYDRAZINE
74-88-4	METHYL IODIDE
624-83-9	METHYL ISOCYANATE
7697-37-2	NITRIC ACID

20816-12-0	OSMIUM TETROXIDE
10028-15-6	OZONE
594-42-3	PERCHLOROMETHYL MERCAPTAN
79-21-0	PERACETIC ACID
75-44-5	PHOSGENE
7803-51-2	PHOSPHINE
75-55-8	PROPYLENEIMINE
75-56-9	PROPYLENE OXIDE
2699-79-8	SULFURYL FLUORIDE [VIKANE]
7550-45-0	TITANIUM TETRACHLORIDE
91-08-7	TOLUENE-2,6-DIISOCYANATE
584-84-9	TOLUENE-2,4-DIISOCYANATE
108-05-4	VINYL ACETATE
75-01-4	VINYL CHLORIDE
75-35-4	VINYLIDENE CHLORIDE
4170-30-3	CROTONALDEHYDE
26471-62-5	TOLUENE DIISOCYANATE (MIXED ISOMERS)

NOTE: A form, condition or physical state qualifier may differentiate the substance, as it is reportable under the RPPR versus the TCPA requirements. For example, on the RPPR hydrochloric acid is reportable in an “aerosol form only” while TCPA regulates hydrochloric acid at “36% by weight or more HCl.” The analyses in this report did not distinguish among the various forms.

Appendix J. Regulated SIC Codes

20		FOOD AND KINDRED PRODUCTS
21		TOBACCO PRODUCTS
22		TEXTILE MILL PRODUCTS
23		APPAREL AND OTHER FINISHED PRODUCTS MADE FROM FABRICS AND SIMILAR MATERIALS
24		LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE
25		FURNITURE AND FIXTURES
26		PAPER AND ALLIED PRODUCTS
27		PRINTING,PUBLISHING AND ALLIED INDUSTRIES
28		CHEMICALS AND ALLIED PRODUCTS
29		PETROLEUM REFINING AND RELATED INDUSTRIES
30		RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS
31		LEATHER AND LEATHER PRODUCTS
32		STONE,CLAY,GLASS AND CONCRETE PRODUCTS
33		PRIMARY METAL INDUSTRIES
34		FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND TRANSPORTATION EQUIPMENT
35		INDUSTRIAL AND COMMERCIAL MACHINERY AND COMPUTER EQUIPMENT
36		ELECTRONIC AND OTHER ELECTRICAL EQUIPMENT AND COMPONETS, EXCEPT COMPUTER EQUIPMENT
37		TRANSPORTATION EQUIPMENT
38		MEASURING, ANALYZING AND CONTROLLING INSTRUMENTS; PHOTOGRAPHIC, MEDICAL AND OPTICAL GOODS; WATCHES AND CLOCKS
39		MISCELLANEOUS MANUFACTURING INDUSTRIES
49*		ELECTRIC, GAS, AND SANITARY SERVICES (Entire Major Group)
51		WHOLESALE TRADE - NONDURABLE GOODS
	5169	Chemicals & Allied Products, Not Elsewhere Classified
	5171	Petroleum Bulk Stations and Terminals