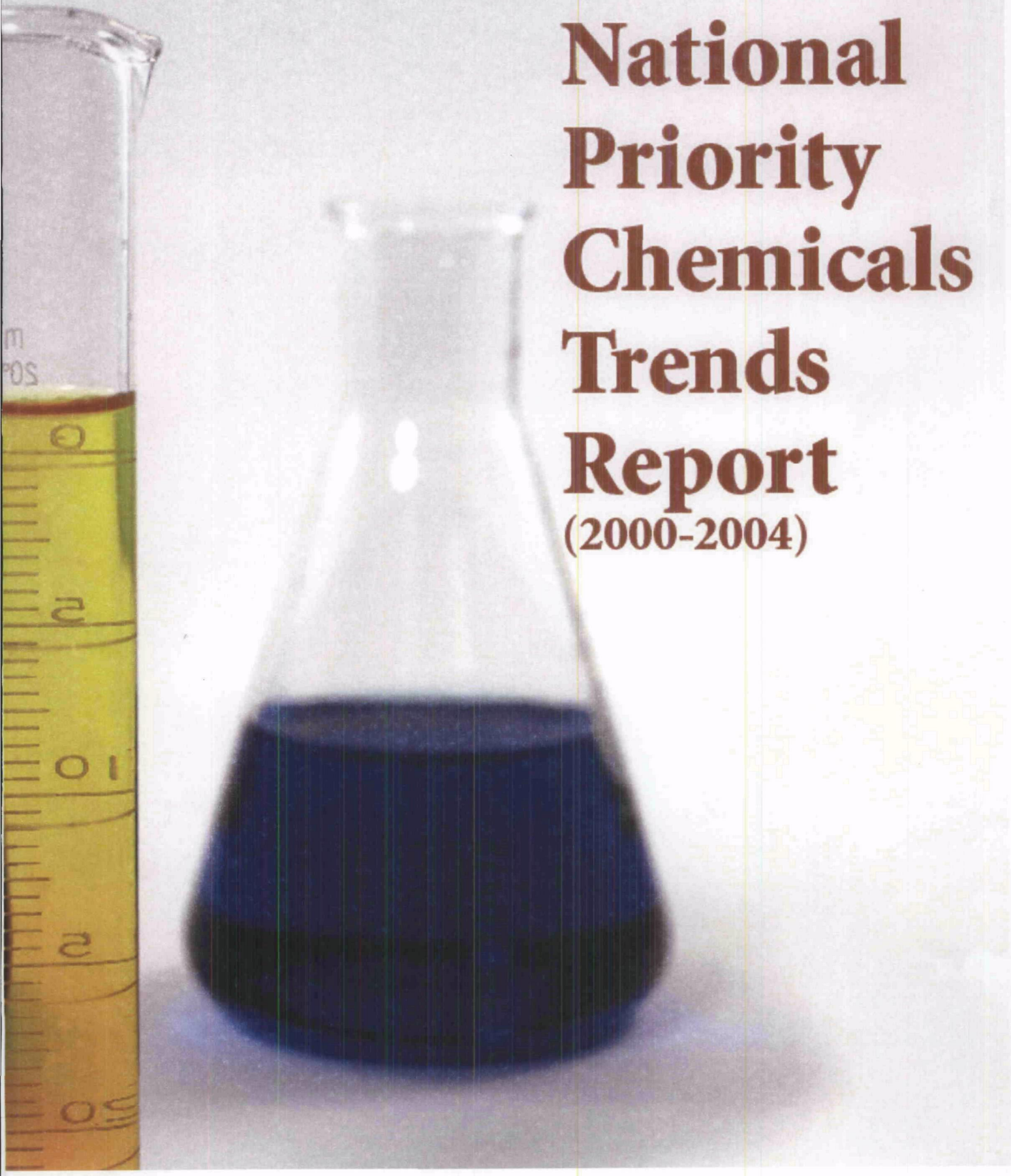
United States Environmental Protection Agency

530R07001

National Priority Chemicals Trends Report

(2000-2004)



Foreword

Why We Publish This Report

The U.S. Environmental Protection Agency's (EPA's) Office of Solid Waste (OSW) annually produces this *National Priority Chemicals Trends Report* to help states and EPA's 10 regional offices identify opportunities for reducing certain chemicals in wastes that we call *Priority Chemicals*, or PCs, as well as to inform the public of these efforts. These 31 chemicals (28 organics and three metals/metal compounds) are persistent in the environment, bioaccumulative in the food chain, and can be hazardous to human health in relatively small quantities. They are frequently released to water, air, and land as industrial wastes, byproducts or impurities. Many are difficult and costly to remove from the environment. In this Report, we analyzed the quantities and management of PCs that industrial and federal government facilities reported to the Toxics Release Inventory (TRI)[1] for reporting years 2000 through 2004. States and EPA regions can use this Report as a tool for identifying opportunities to minimize wastes, pointing the way to potential waste minimization partners.

About This Report

The sections of this Report discuss our strategic goals and PC trends, and present detailed descriptions of each PC. This year, we included a new section that profiles PCs generated within specific industry sectors; specifically, we profile the iron and steel industry. We plan to include additional industry sectors in subsequent editions of this Report. An index and list of exhibits at the end provides useful reference.

At the end of this Report, you will find a Customer Feedback Survey. We would be grateful for your comments so that we can continue to improve the *National Priority Chemicals Trends Report* as a tool for environmental improvement through even greater reductions in PCs.

[1] TRI is a publicly available EPA database that contains information on hazardous chemical releases and other waste management activities reported annually by certain regulated industries and federal facilities. TRI was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990.

Executive Summary
The 2000-2004 National Priority Chemical (PC) Trends at a Glance

Progress toward our GPRA[2] Goal of a 10% - Primary Chemicals reduction by 2008:

- There has been a 2.6% reduction, from 82.5 million to 80.3 million pounds, adjusted in total GPRA PC quantities[3] in wastes, compared to the 2001 baseline.
- Thirteen of 23 GPRA PCs have decreased in quantity since 2001, while the other 10 increased.

Trends for 2000 – 2004 for all reported[3] PCs:

Historical Progress:

- From 2000 to 2004 there was a 15% reduction in quantity-- from 99.4 million to 84.7 million pounds.
- The reduction is notable because the number of reporting facilities increased by 127% in 2001, mostly because TRI lowered reporting thresholds for lead and lead compounds.

TRI Reporting Year	2000	2001	2002	2003	2004
Total quantity of PCs in pounds	99,414,030	82,517,853	78,117,538	77,030,691	84,724,529
Number of TRI facilities reporting PC quantities	2,474	5,614	5,516	5,447	5,444

Analyses of Chemical Quantities:

- The five largest quantity PCs accounted for 86% of total PC quantities in 2004:

2004 Largest Quantity PCs	Lead and Lead Compounds (Lead)	Polycyclic Aromatic Compounds (PACs)	Naphthalene	Hexachloro-1,3-butadiene	Hexachlorobenzene	Total
Pounds	31,967,610	13,809,093	13,081,776	7,874,707	6,485,490	73,218,676
Percentage of total PC Quantity	37.7%	16.3%	15.4%	9.3%	7.7%	86.4%

- 2000-2004 largest changes in quantities:

Largest Increases	**Phenanthrene** (1.3 million pounds)	**1,2,4-trichlorobenzene** (700,000 pounds)	**Hexachlorobenzene** (551,000 pounds)
Largest Decreases	**Lead and Lead Compounds (Lead)** (5.5 million pounds)	**Hexachloro 1,3-butadiene** (3.4 million pounds)	**Polycyclic Aromatic Compounds (PACs)** (2.8 million pounds)

[2] The Government Performance and Results Act of 1993 (GPRA) directs federal departments and agencies to create strategic plans and goals.

[3] Exhibit 1.1 shows the list of 31 PCs; 24, including Polychlorinated biphenyls (PCBs), are reported to TRI. When we formulated our 2008 goal, we were considering an alternative PCB tracking scheme so we did not include PCBs in the goal. We have included all 24 reported PCs in the other analyses in this Report.

2004 PC Management in round numbers (see the full Report for details):

- Disposal: approximately 35 million pounds or 41% of total PC quantity
- Treatment: approximately 35 million pounds or 41% of total PC quantity
- Energy recovery: approximately 15 million pounds or 17% of total PC quantity
- Total PC quantity: approximately 85 million pounds
- Recycling[4]: approximately 734 million pounds - the most since 2000.

2004 PCs in EPA Regions:

- In 2004, facilities in three EPA Regions reported approximately 78% of total PCs:
  - Region 6: 44.9%
  - Region 4: 17.8%
  - Region 5: 14.9%
- Since 2000, PC quantities have decreased in eight of the 10 Regions, by approximately 14.7 million pounds total. Four Regions saw decreases of more than 2 million pounds:
  - Region 6: 5.8 million pounds
  - Region 2: 2.3 million pounds
  - Region 7: 2.2 million pounds
  - Region 10: 2.0 million pounds

2004 PCs in states:

- Facilities in four states accounted for approximately 55% of the PCs:
  - Louisiana: 27.6%
  - Texas: 14.0%
  - Indiana: 7.5%
  - Alabama: 5.7%

2004 PCs in industry sectors:

- Facilities in more than 320 different Standard Industrial Classification (SIC) codes reported PC quantities.
- Facilities in 21 SIC codes accounted for 90% of the total quantity of PCs.
- Facilities in four SIC codes accounted for more than 50% of the total quantity of PCs:
  - SIC 2869 (Industrial organic chemicals not elsewhere classified): 17.7%
  - SIC 3341(Secondary non-ferrous metals): 12.1%
  - SIC 3312 (Blast furnaces and steel mills): 11.7 %
  - SIC 2812 (Alkalies and chlorine): 9.7%

2004 PCs in federal facilities:

- 193 federal facilities reported approximately 3.4 million pounds of PC.
  - Six of these accounted for almost 36% of the total; 53 accounted for 94%.
- Lead and lead compounds comprised almost 95% of the total quantity of PCs.
- Facilities in the Department of Defense and the Department of Energy accounted for approximately 96% of federally reported PCs.

[4] This Report primarily shows only quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these management methods offer the greatest opportunities for waste minimization. Recycled PC wastes are already directed to their best uses, so we did not count them in our management method totals and do not calculate their percentage. We list them to show their relative quantities.

Table of Contents

Section 1 – Overview of the National PC Trends Report (2000-2004) 1-1

INTRODUCTION 1-1
WHAT DOES THIS REPORT COVER AND HOW IS IT ORGANIZED? 1-2
WHAT IS THE SOURCE OF THE DATA USED IN THIS REPORT? 1-3
WHAT MEASUREMENT METHODOLOGY WAS USED FOR THIS REPORT? 1-4
HOW DOES EPA ENSURE THE QUALITY OF THE DATA USED IN THIS REPORT? 1-4
WHAT MIGHT CHANGE IN FUTURE UPDATES OF THIS REPORT 1-5

Section 2 – Progress Made Toward OSW's GPRA Goals for Priority Chemicals 2-1

OSW'S GOALS TO REDUCE PCS IN WASTES 2-1
THE OSW 2008 GPRA GOAL 2-1
THE NEW 2011 GPRA GOAL FOR REDUCING PRIORITY CHEMICALS 2-6
COMMITMENTS AND PROGRESS TO REDUCE PRIORITY CHEMICALS UNDER THE NATIONAL PARTNERSHIP FOR ENVIRONMENTAL PRIORITIES (NPEP) 2-6

Section 3 – Overall Trends Analyses for Priority Chemicals (2000-2004) 3-1

NATIONAL TRENDS FOR PRIORITY CHEMICALS 3-1
REGIONAL TRENDS FOR PRIORITY CHEMICALS 3-15
STATE AND TERRITORY TRENDS FOR THE PRIORITY CHEMICALS 3-21
INDUSTRY SECTOR TRENDS FOR PRIORITY CHEMICALS 3-30

Section 4: Chemical Specific Trends Analyses for Priority Chemicals (2000–2004) 4-1

1,2,4 – TRICHLOROBENZENE (1,2,4–TCB) 4-3
2,4,5 – TRICHLOROPHENOL (2,4,5–TCP) 4-13
ANTHRACENE 4-16
BENZO(G,H,I)PERYLENE (B(g,h,i)P) 4-26
CADMIUM AND CADMIUM COMPOUNDS (CADMIUM) 4-35
DIBENZOFURAN 4-47
DIOXIN AND DIOXIN–LIKE COMPOUNDS (DIOXIN) 4-56
HEPTACHLOR 4-66
HEXACHLORO–1,3–BUTADIENE (HCBD) 4-73
HEXACHLOROBENZENE (HCB) 4-79
HEXACHLOROETHANE (HCE) 4-87
LEAD AND LEAD COMPOUNDS (LEAD) 4-97
LINDANE 4-109
MERCURY AND MERCURY COMPOUNDS (MERCURY) 4-112
METHOXYCHLOR 4-125
NAPHTHALENE 4-129
POLYCYCLIC AROMATIC COMPOUNDS (PACS) 4-139
POLYCHLORINATED BIPHENYLS (PCBS) 4-148
PENDIMETHALIN 4-155
PENTACHLOROBENZENE 4-163
PENTACHLOROPHENOL 4-170
PHENANTHRENE 4-178

QUINTOZENE 4-184
TRIFLURALIN 4-189
1,2,4,5–TETRACHLOROBENZENE 4-194
4–BROMOPHENYL PHENYL ETHER 4-194
ACENAPHTHENE 4-195
ACENAPHTHYLENE 4-195
ENDOSULFAN, BETA–/ENDOSULFAN, ALPHA 4-195
FLUORENE 4-195
PYRENE 4-196

Section 5 – Trends for the Priority Chemicals at Federal Facilities (2000-2004) 5-1

HOW DO FEDERAL FACILITIES' PRIORITY CHEMICALS ADDRESSED IN THIS REPORT RELATE TO THE EXECUTIVE ORDER ON PRIORITY CHEMICALS? 5-1
SUMMARY ANALYSIS– PRIORITY CHEMICALS AT FEDERAL FACILITIES FOR 2004 5-1
GENERATION OF PRIORITY CHEMICALS BY FEDERAL FACILITIES (2000–2004) 5-2
MANAGEMENT OF PRIMARY CHEMICALS BY FEDERAL AGENCIES (2000–2004) 5-14

Section 6 – Trends Analyses for Specific Industry Sectors 6-1

FUTURE SECTOR ANALYSES 6-1
INDUSTRY SECTOR INFORMATION FOR SIC 3312 (BLAST FURNACES AND STEEL MILLS) 6-2
FACILITIES IN SIC 3312 GENERATING PRIORITY CHEMICALS 6-5
MANAGEMENT OF PRIORITY CHEMICALS BY FACILITIES IN SIC 3312 6-9

Trends Report – Appendices

APPENDIX A - LIST OF STATES (INCLUDING TERRITORIES) WITHIN EACH EPA REGION A-1
APPENDIX B - SIC CODES VS. NAICS CODES B-1
APPENDIX C - METHODOLOGY FOR CALCULATING QUANTITIES OF PRIORITY CHEMICALS AND MEASURING TRENDS C-1
APPENDIX D – LIST OF EXHIBITS D-1
APPENDIX E – CUSTOMER SURVEY E-1
APPENDIX F – CONTACT INFORMATION F-1

Section 1
Overview of the National PC Trends Report (2000-2004)

Introduction

In 2002, the Environmental Protection Agency's (EPA) Office of Solid Waste (OSW) implemented the Resource Conservation Challenge (RCC), a program designed to reduce the use of raw materials, reuse materials to make new products or generate energy, and reduce the generation of wastes. The RCC's goals are to reduce what comes into the waste management cycle using pollution prevention, waste minimization, and manufacturing process and/or product design changes, when economically feasible.

OSW has identified 31 chemicals on which to focus its reduction efforts in wastes (Exhibit 1.1). As part of the RCC, OSW launched the National Program for Environmental Priorities (NPEP) program to reduce the presence of these 31 chemicals, referred to as the Priority Chemicals (PCs). The PCs consist of 28 organics and three metals/metal compounds that are frequently found in releases to water, air, and land. These chemicals are persistent in the environment, bioaccumulative in the food chain, and toxic to human health in relatively small quantities. They are present in soil, sediment, ground water, surface water, air, and/or biota, with a number of them serving as the basis for a waste being classified as hazardous. Furthermore, they are currently being generated (intentionally or as a product or product ingredient, a byproduct of production, or an impurity) and continue to be released to the environment potentially exacerbating existing problems and creating new ones. Many of these organic PCs also pose remediation difficulties once they find their way into the environment, resulting in costly cleanup efforts. The three metals/metal compounds were selected because they occur frequently in the Resource Conservation and Recovery Act (RCRA) waste streams and to be consistent with international efforts to which the United States made commitments.

PCs are frequently found in hazardous and non-hazardous wastes; likely opportunities for PC reduction occur in the manufacturing, commercial, and government operations that generate these wastes. EPA encourages all generators to reduce the quantity of waste they generate; however, we believe that reducing these 31 PCs should be the first priority. This reduction preferably should be achieved by reducing the use of these chemicals at the source. When reduction at the source is not possible, environmentally sound recycling practices should be used.

Moreover, the NPEP program is the RCC's most direct tool for "beyond compliance" management of the targeted PCs and forms a significant foundation upon which EPA is building its chemicals reduction and management plan. EPA recruits partners to NPEP who pledge reductions of targeted chemicals through source reduction and/or increased recycling efforts and then sets target deadlines to achieve those reductions. The NPEP program endeavors to encourage government agencies, businesses, and manufacturers to voluntarily enroll in a partnership with EPA to find ways to minimize the use of the PCs through source reduction and recycling.

The purpose of this report is to:

- Evaluate the progress made in achieving EPA's Government Performance and Results Act (GPRA) national goal of a 10 percent reduction of PCs in wastes by 2008, compared to the 2001 quantities (see Section 2).
- Provide information and trends regarding the generation and management of PC quantities (aggregated and non-aggregated) contained in wastes for the nation, EPA regions, states, industry sectors, and federal facilities to assist in identifying potential waste minimization opportunities to reduce these chemicals (see Sections 3, 4, 5, and 6).

EPA uses this Report as a tool to identify opportunities to reduce these PCs in concert with the objectives of the RCC, including assisting EPA in identifying potential partners to voluntarily participate in the NPEP program. The data and trends analyses developed for this Report support this program and helps us better understand trends in the generation and management of the PCs and identify opportunities for eliminating or reducing the PCs.

What Does This Report Cover and How Is It Organized?

Of the 31 chemicals identified by EPA as PCs, 24 chemicals are reported to the Toxics Release Inventory (TRI), as required under the Emergency Planning and Community Right To Know Act (EPCRA § 313). (Exhibit 1.1). The remaining seven PCs are not reported to TRI and therefore we do not have data regarding the generation and management of these chemicals.

In Section 2 of this Report, we evaluate the progress made toward achieving OSW's national GPRA goal of a 10 percent reduction of PCs by 2008, compared to the baseline quantity in 2001. Please note that although polychlorinated biphenyls (PCBs) are on the list of PCs and are reported to TRI, this chemical was not on the list of PCs at the time the 2008 GPRA goal was established. We also present an overview of OSW's NPEP program under which facilities generating PCs voluntarily commit to eliminate or reduce the quantity of PCs used at their facilities.

We also monitor waste generation and management trends for PCs to identify potential opportunities in PC reductions. As such, this Report presents updated analyses of the generation and management of the 24 PCs contained in wastes for the most recent five years of TRI data (2000–2004) in sections 3, 4, and 5.

Section 3 provides an overview of the national, EPA region, state, and industry sector aggregated quantities of the 24 PCs for which data are reported to TRI for the 2000 through 2004 TRI reporting years. We focus on the five most current years of TRI data to facilitate the identification of viable potential opportunities for reducing or eliminating PCs. The data presented in this section were derived using the TRI methodology (see discussion in Section 2 and Appendix C) and focus on trends for the aggregated quantity of PCs.

Section 4 of this Report presents national, EPA region, state, and industry sector (Standard Industrial Classification [SIC] code) trends for each of the 24 PCs reported to TRI. We also provide basic information regarding each PC, including its Chemical Abstracts Service (CAS) number, alternative names, general uses, and potential hazards. Due to the particularly high Agency priority of mercury and mercury compounds, we include an expanded section on this chemical in which we describe the various ongoing projects to reduce and eliminate mercury.

Section 5 of this Report analyzes federal facilities at the national, EPA region, and state levels. We also included categorization by federal agency.

Section 6 is presented for the first time in this Report. In this section, we analyze PC trends within the iron and steel industry. We also include basic information regarding the industry sector, including number and location of facilities and products made. We plan to expand this section to gradually address additional industry sectors in subsequent updates of this Report.

Several appendices also are included:

- Appendix A provides a list of the states within each EPA region.
- Appendix B shows a list of the SIC codes.
- Appendix C presents the methodology developed to identify and calculate PC quantities.
- Appendix D provides an index of exhibits as a reference guide for the reader.

Exhibit 1.1. List of the Priority Chemicals (PCs)

PCs Reported to TRI (Used in Methodology)	
1,2,4 - Trichlorobenzene	Lindane
2,4,5 - Trichlorophenol	Mercury and mercury compounds
Anthracene	Methoxychlor
Benzo(g,h,i)perylene	Naphthalene
Cadmium and cadmium compounds	Pendimethalin
Dibenzofuran	Pentachlorobenzene
Dioxins and dioxin-like compounds	Pentachlorophenol
Heptachlor	Phenanthrene
Hexachloro-1, 3-butadiene	Polychlorinated biphenyls (PCBs)*
Hexachlorobenzene	Polycyclic aromatic compounds (PACs)
Hexachloroethane	Quintozene
Lead and lead compounds	Trifluralin
PCs Not Reported to TRI (Not Used in Methodology)	
1,2,4,5-Tetrachlorobenzene	Endosulfan, alpha, beta-
4-Bromophenyl phenyl ether	Fluorene
Acenaphthene	Pyrene
Acenaphthylene	

For the purposes of developing this list of 31chemicals, endosulfan alpha and endosulfan beta were counted together and heptachlor and heptachlor epoxide were counted together. Also, each of the three metals (lead, cadmium, and mercury) is combined with its associated metal compounds and addressed as a single PC in this Report. For example, lead and lead compounds are addressed as a single PC. Only the weight of the metal portion of metal compounds is reported to TRI.

* Note: Although polychlorinated biphenyls (PCBs) are reported to TRI, they are not one of the PCs tracked for the 2008 GPRA goal that is discussed in Section 2.

What Is the Source of the Data Used in This Report?

For this Report, we use the Toxics Release Inventory (TRI) data as the source of information to analyze and identify trends regarding the extent to which PC quantities have increased or decreased over time, the EPA regions and states where each of these PCs are generated, and the industry sectors that generate/manage these chemicals. The TRI is a publicly available EPA database that contains information on more than 650 chemicals that are being used, manufactured, treated, transported, released into the environment, or recycled. Facilities report this information annually, and EPA reviews and updates the data on an ongoing basis, when necessary to make corrections submitted by facilities.[5]

The TRI covers a wide variety of industry sectors, including those in manufacturing (i.e., SIC codes 20 through 39). These industry sectors also account for more than 90 percent of the hazardous waste generated in the United States.[6,7] Facilities in these manufacturing sectors have been required to report to the TRI since its inception. Beginning with reporting year 1994, federal facilities also have been required to report to the TRI. A further expansion of TRI reporting occurred in 1998 when seven sectors were added: Metal mining (SIC code 10, except 1011, 1081, and 1094), Coal mining (SIC code 12, except 1241), Electrical utilities that combust coal (SIC codes 4911, 4931, and 4939), RCRA Subtitle C Hazardous Waste Treatment and Disposal Facilities (SIC code 4953), Chemical wholesalers (SIC code 5169), Petroleum

[5] Data for each year are published within approximately 18 months following the end of the reporting year. For example, data for reporting year 2004 (deadline for reporting to TRI was July 1, 2005) were published April 12, 2006.

[6] Studies conducted in the early 1990s to determine whether TRI quantities were representative of RCRA waste concluded that the TRI covers a large portion of the hazardous waste generated in the United States. For additional information on these studies and their findings, refer to Bhatnagar, S., and B.C. Murray; *Efforts to Link the Biennial Reporting System (BRS) and the Toxics Release Inventory (TRI)* (prepared for EPA's Office of Solid Waste); 1997.

[7] A study conducted in 1995 found that more than 93 percent of hazardous waste was generated at facilities also covered under the TRI. For additional information on this study, refer to INFORM, Inc.; *Toxics Watch 1995*; 1995.

terminals and bulk stations (SIC code 5171), and Solvent recovery services (SIC code 7389). Facilities in additional industry sectors also report to the TRI even though they are not required to do so. The database developed for use in this Report includes all facilities, regardless of SIC code (except as noted in the methodology [Appendix C] that reported a PC quantity to TRI for reporting years 2000–2004.

What Measurement Methodology Was Used for This Report?

Facilities report information to the TRI on a chemical-specific basis, rather than by hazardous waste stream. Data reported to TRI include quantities of chemicals that are contained in the waste and provide some distinctions between hazardous and non-hazardous industrial waste. The primary focus of OSW is those quantities of PCs that are amenable to waste minimization. As such, this Report is keyed to those quantities of PCs that are managed using onsite/offsite land disposal, treatment, or energy recovery. We developed a measurement methodology[8] (see Appendix C) to extract the applicable data from the TRI database that encompass these PC quantities and exclude quantities reported by facilities within certain industry sectors that present minimal waste minimization opportunity. As such, the data used for this Report are a subset of the overall TRI data.

How Does EPA Ensure the Quality of the Data Used in This Report?

It is important to ensure that the TRI data used in the measurement methodology is accurate. Otherwise, errors in the data could lead to an incorrect interpretation of the trends. Primary responsibility for quality of the TRI data rests with EPA's Office of Environmental Information (OEI). We primarily rely on the OEI data quality checks and the ever-improving TRI-ME reporting software to minimize mistakes in the TRI data used for the PC database. The TRI program takes several steps to ensure the quality of its data, including examining a sample of individual reports for potential errors; however, undetected reporting errors may still occur.

For the subset of TRI data that OSW uses to develop the PCs database, it is sometimes necessary to supplement the OEI data quality checks to ensure that there are no significant discrepancies in the more limited universe of facilities associated with the PCs – discrepancies that might not necessarily have been addressed in the broader OEI data quality checks but that could potentially skew the trends and analyses for the PCs. The purpose of these supplemental data quality checks is to identify those changes in the quantity of a PC reported to TRI over two consecutive reporting years that are of sufficient magnitude to potentially have a significant affect on the trends analysis for that PC. To the extent that time and resources permit, we conduct these data checks to verify the PC quantities reported by a given facility. Reporting errors might not always be very noticeable in aggregated quantities at national, state, or even industry sector-level analyses, but they can have a major effect when looking at trends at the facility level, especially for those chemicals reported by an overall small number of facilities or by a few facilities that account for a large portion of the total quantity of a PC. Once we complete the supplemental data checks and incorporate any changes to the database, we "freeze" it and proceed to develop the tables and queries needed to analyze the PCs trends. Once the database is frozen, we do not further modify it to incorporate any TRI reporting errors subsequently identified. We depend on OEI to include them in the next year's TRI dataset, provided that the reporting facility submits a revised TRI Form R to EPA.

Although we ideally strive to determine the quantities of PCs that are contained in wastes amenable to waste minimization, often an increase or decrease at a facility is not necessarily related to production but rather is influenced by other factors such as process or plant shutdowns, periodic cleanout of tanks, or piping systems that are part of routine maintenance, improved measurement and detection equipment, and compliance with new regulations. We often cannot readily discern that an increase or decrease of PC

[8] Please note that the methodology used in developing this Report might differ from the methodology used by the TRI program to show trends for the EPCRA Section 313 chemicals in the annual TRI Public Data Release.

quantities was associated with such an event and may only learn about it as a result of conducting quality assurance of the data by, for example, contacting the facility to verify a significant change from one year to another.

We provide additional details concerning the steps taken in this process in Appendix C.

Seven of the PCs are not reported to TRI (Exhibit 1.1). and we do not have a readily available means by which to track them. EPA is continuing to work on developing a methodology to extract information about these chemicals, if available, from the RCRA Hazardous Waste Biennial Report (BR) database. Each of these seven PCs is described at the end of Section 4.

What Might Change in Future Updates of This Report

- In this Report, we discuss progress made toward the 2008 GPRA goal, which uses TRI data that lag more than a year and are greatly influenced by market forces. OSW recently established a new goal, referred to as the 2011 GPRA goal. This goal uses current data from facility partners who agree to reduce their PC wastes, so it better reflects our own waste minimization program efforts. In next year's Report, we will begin reporting progress made toward each of these goals.
- OSW will continue to use TRI data to track long-term PC trends and to look for waste minimization opportunities in industry sectors. We plan to include additional industry sector analyses in next year's Report, focusing on those industry sectors that account for at least 80 percent of the total quantity of PCs, based on TRI data. Beginning with the 2006 TRI reporting year, facilities must report a North American Industrial Classification System (NAICS) code rather than the SIC code that has been reported since TRI reporting began in 1987. This transition somewhat complicates trends analyses at the industry sector level; we are looking at options on how best to present these analyses in future Reports.
- We are continuing to develop a methodology to extract Hazardous Waste BR data applicable to PCs in hazardous waste streams. We plan to use these data, in conjunction with the TRI data, to provide a better picture of which specific waste streams offer the most promising waste minimization opportunities.

This Report is an evolving document, and we continue to look for ways to better present the data. For example, we plan to continue incorporating improved graphics to enhance the presentation of data in this Report. We also are considering formatting changes to provide a more reader-friendly document. For example, rather than presenting PC data breakouts by national, EPA region, state, and industry sector levels, we plan to simply address these within a "PC Generation" and a "PC Management" format. We believe this approach will provide a simpler and more condensed discussion of the data. If you have any comments regarding this approach, you may use the Customer Feedback Survey at the end of this Report.

[Page intentionally left blank.]

Section 2
Progress Made Toward OSW's GPRA Goals for Priority Chemicals

OSW's Goals to Reduce PCs in Wastes

The 1993 Government Performance and Results Act (GPRA) requires the Agency to publish a five-year strategic plan with goals, and update them every three years. EPA has recently revised its goal and, in this section, we will explain the previous 2008 goal, which we continue to track, and our new 2011 goal.

In this section, we discuss progress made toward the 2008 GPRA goal, which uses TRI data that lag more than a year and are greatly influenced by market forces. OSW recently established a new goal, referred to as the 2011 GPRA goal. This goal uses current data from facility partners who agree to reduce their PC wastes, so it better reflects our own waste minimization program efforts. In next year's Report we will begin reporting progress made toward each of these goals.

OSW will continue to use TRI data to track long-term PC trends and to look for waste minimization opportunities in industry sectors.

The OSW 2008 GPRA Goal

In 2004, OSW established a goal of a 10 percent reduction of PCs by 2008, using a 2001 baseline. Although this goal has been superseded for strategic planning purposes by our 2011 goal (discussed later in this section), we are continuing to track progress toward its fulfillment as promised in the President's Budget for FY 2004. This section discusses progress since 2001 toward OSW's 2008 GPRA goal. Although 24 of the 31 PCs are reported to TRI, only 23 PCs are tracked for the 2008 GPRA goal. Polychlorinated biphenyls (PCBs) also are reported to TRI, but were being tracked separately at the time the 2008 goal was developed. As such, we do not track PCBs for the 2008 GPRA goal.

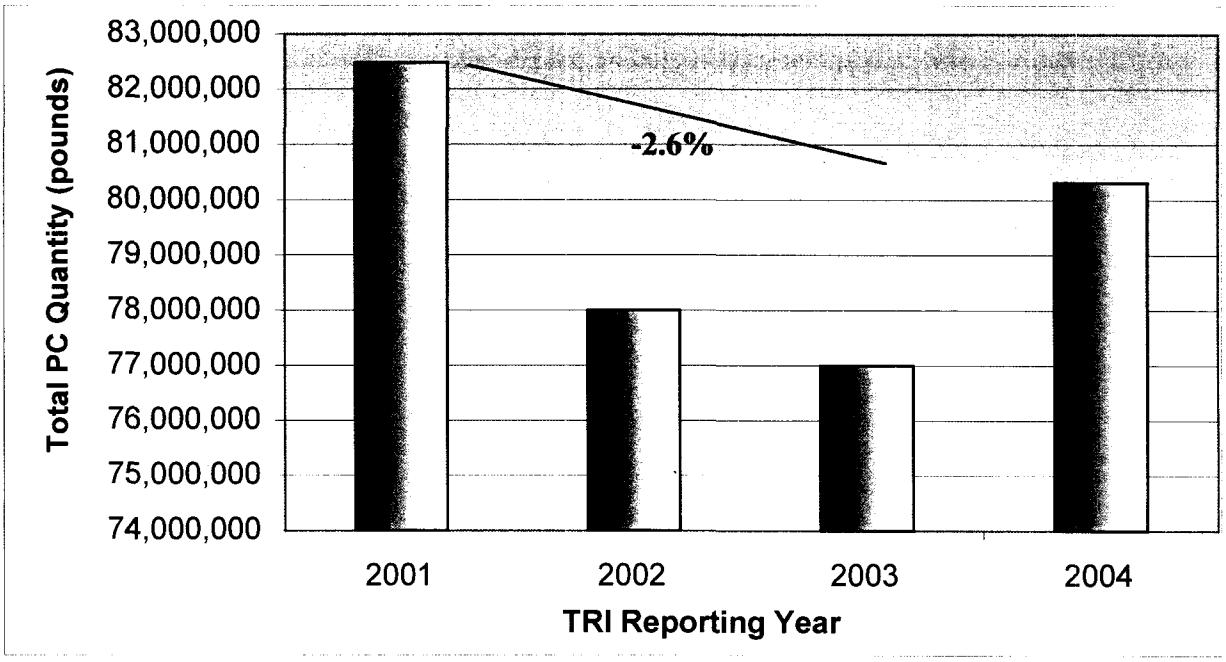
In Exhibit 2.2 we show the aggregated quantity and percentage reduction of the 23 PCs since 2001. As of 2004, there was a 2.6 percent reduction in the total quantity of PCs contained in wastes, compared to the quantities generated in 2001. While OSW's reduction work probably contributed to the decrease, we cannot identify the share of our contributions.

Exhibit 2.1. National Progress toward the 2001–2004 Goal to Reduce Priority Chemicals by 10 Percent

Reporting Year	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
Total PC quantity	82,462,188	78,012,732	76,976,265	81,468,266 *
Percent change from baseline year (2001)	Baseline Year	-5.4%	-6.7%	-2.6%

* To provide consistent and accurate goal progress measurement, we adjusted (decreased) the reported 2004 TRI quantities to reflect the effect of: 1) new equipment installed at a Louisiana facility that substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, and 2) revised quantities for several PCs reported by a Texas facility that resulted in a substantial increase of about 1.2 million pounds.

Exhibit 2.2. National Progress Towards the 2003–2008 Goal to Reduce Priority Chemicals by 10 Percent



Progress by Chemical

Exhibit 2.3 shows the quantity and the percent reduction for each of the 23 PCs for 2001–2004.

Exhibit 2.3. National Quantities of Priority Chemicals, 2001–2004

Chemical Name	Reporting Year				Change in Quantity (2001–2004)	Percent Change (2001-2004)	Percent of Total PC Quantity (2004)
	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)			
Lead and lead compounds	36,139,492	34,098,442	35,069,921	31,967,610	-4,171,882	-11.5%	39.2%
Naphthalene	9,994,513	11,028,479	10,294,471	15,436,139	5,441,626	54.4%	18.9%
Polycyclic aromatic compounds	14,082,123	12,775,052	12,655,240	12,583,053	-1,499,070	-10.6%	15.4%
Hexachloro-1,3-butadiene	6,404,741	5,167,385	5,566,299	6,697,226	292,485	4.6%	8.2%
Hexachlorobenzene	5,765,382	4,208,705	4,270,659	4,514,273	-1,251,109	-21.7%	5.5%
Hexachloroethane	4,145,249	4,056,497	2,694,131	2,576,385	-1,568,864	-37.8%	3.2%
Phenanthrene	236,240	2,309,338	1,817,805	2,376,603	2,140,363	906.0%	2.9%
1,2,4-Trichlorobenzene	2,144,696	1,527,029	1,674,802	1,888,685	-256,011	-11.9%	2.3%
Cadmium and cadmium compounds	932,493	746,474	824,080	885,122	-47,372	-5.1%	1.1%
Pentachlorobenzene	487,719	311,145	484,733	608,691	120,972	24.8%	0.7%
Anthracene	360,837	345,499	419,243	520,669	159,832	44.3%	0.6%
Pendimethalin	200,195	421,827	429,551	475,695	275,500	137.6%	0.6%
Benzo(g,h,i)perylene	990,522	310,885	317,817	374,449	-616,074	-62.2%	0.5%
Quintozene	215,122	205,107	235,816	280,987	65,865	30.6%	0.3%
Pentachlorophenol	54,339	36,856	28,295	117,264	62,925	115.8%	0.1%
Trifluralin	92,863	62,544	57,392	81,668	-11,195	-12.1%	0.1%
Mercury and mercury compounds	127,526	93,888	36,732	51,697	-75,830	-59.5%	0.1%
Dibenzofuran	66,726	288,926	75,605	24,942	-41,784	-62.6%	0.0%
2,4,5-Trichlorophenol	20,657	17,913	22,857	5,083	-15,574	-75.4%	0.0%
Heptachlor	0	14	54	775	775	NA	0.0%
Methoxychlor	1	1	0	766	765	95650.0%	0.0%

Exhibit 2.3. National Quantities of Priority Chemicals, 2001–2004

Chemical Name	Reporting Year				Change in Quantity (2001–2004)	Percent Change (2001-2004)	Percent of Total PC Quantity (2004)
	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)			
Dioxin and dioxin-like compounds	706	543	692	484	-221	-31.4%	0.0%
Lindane	46	183	71	0	-46	-100.0%	0.0%
Total	**82,462,188**	**78,012,732**	**76,976,265**	**81,468,266**	**-993,922**	**-1.2%**	**100.0%**

*To provide consistent and accurate goal progress measurement, we adjusted (decreased) the reported 2004 TRI quantities to reflect the effect of: 1) new equipment installed at a Louisiana facility that substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, and 2) revised quantities for several PCs reported by a Texas facility that resulted in a substantial increase of about 1.2 million pounds.

In 2004, three chemicals accounted for about 74 percent of the total quantity of PCs: lead and lead compounds (39.2%), naphthalene (18.9%), and polycyclic aromatic compounds (15.4%).

Overall, since 2001, the quantities for 13 of the 23 PCs decreased. The PCs with the largest decreases from 2001–2004 are illustrated in Exhibits 2.4 and 2.5. The PCs with the largest increases from 2001–2004 are illustrated in Exhibits 2.6 and 2.7.

Exhibit 2.4. Top 5 Priority Chemicals with the Largest Quantity Decreases, 2001–2004

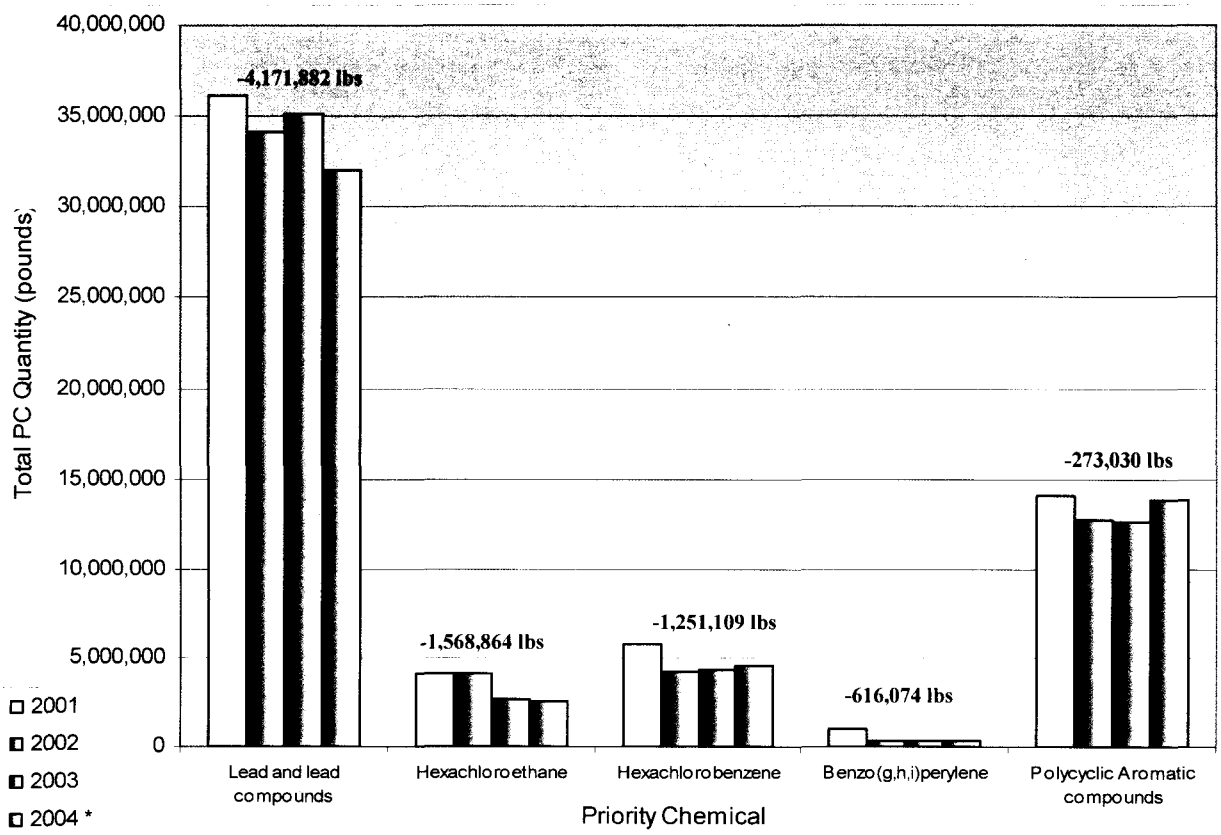


Exhibit 2.5. Top 4 Priority Chemicals with the Largest Percentage Decreases, 2001–2004

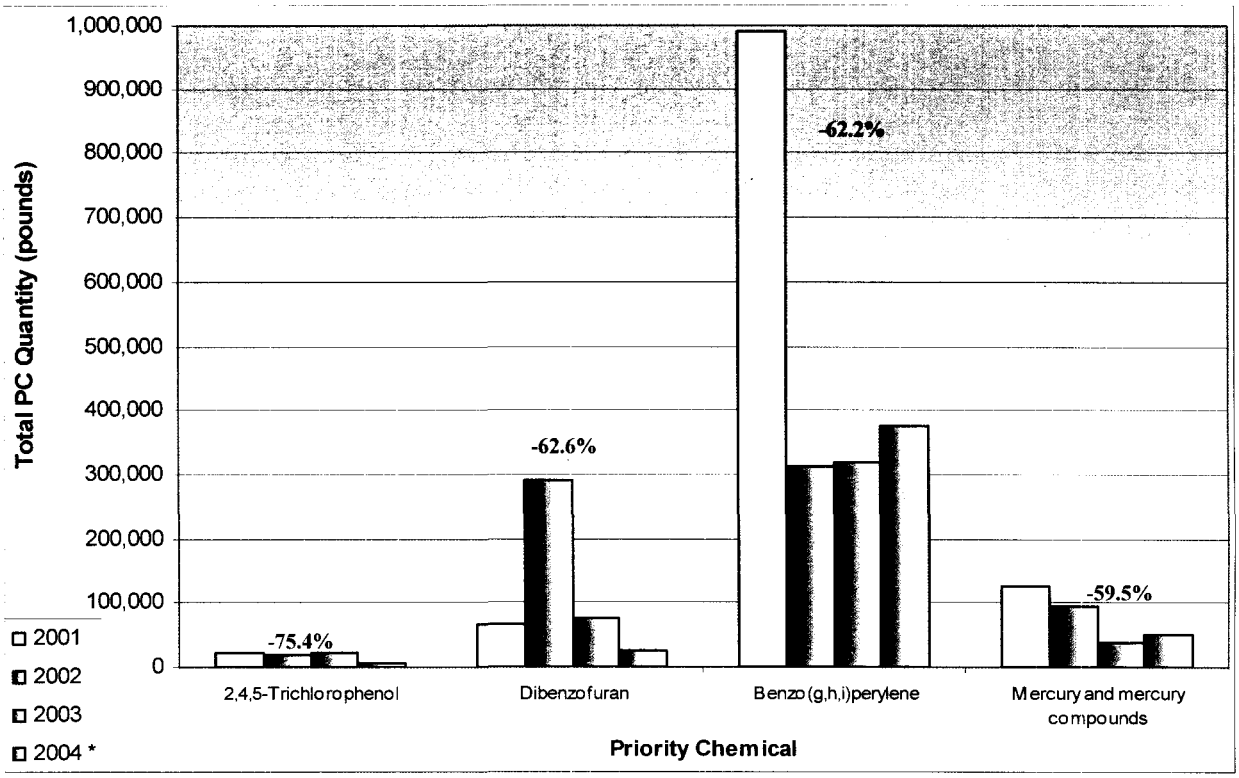


Exhibit 2.6. Top 4 Priority Chemicals with the Largest Quantity Increases, 2001–2004

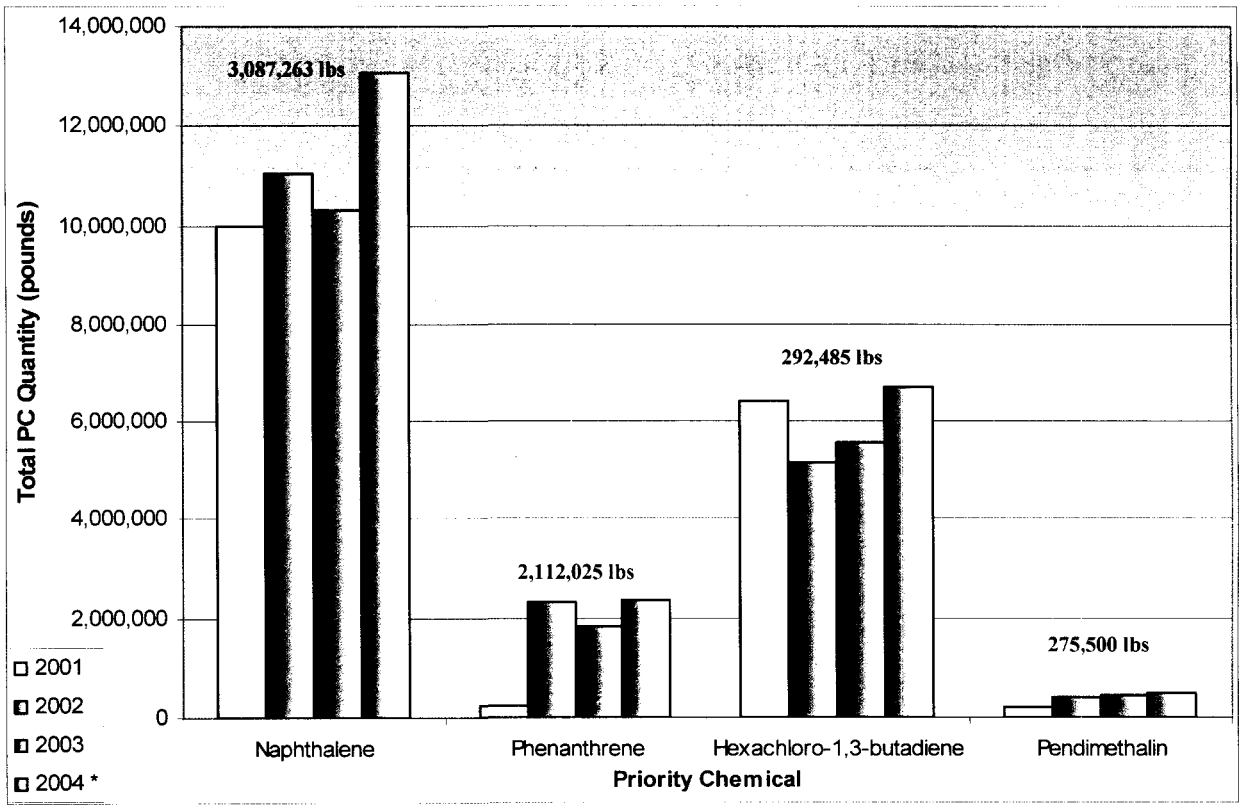
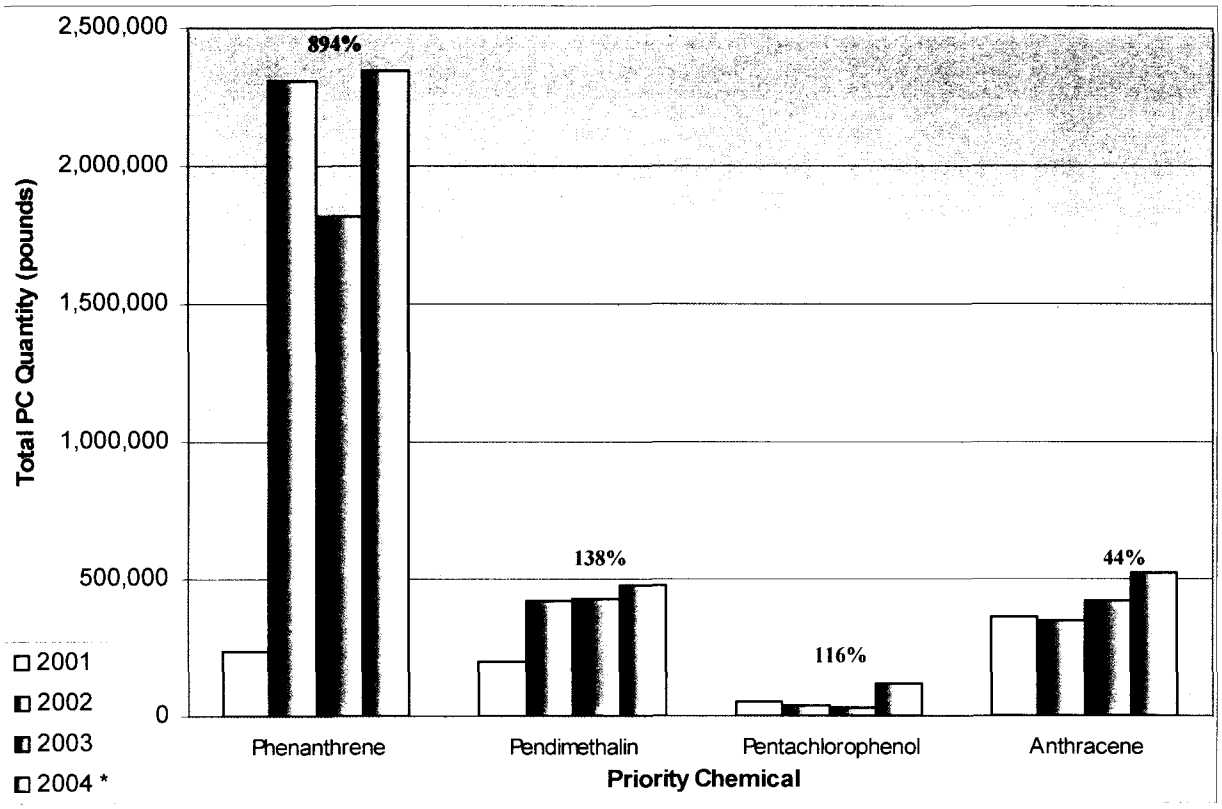


Exhibit 2.7. Top 4 Priority Chemicals with the Largest Percentage Increases, 2001–2004



Progress by Industry Sector

Ten industry sectors, as shown in Exhibit 2.8, accounted for about 75 percent of the total quantity of PCs. From 2001 to 2004, eight of these 10 industry sectors realized significant increases in the quantities of PCs; the largest increases were in four of the industry sectors (Industrial organic chemicals nec, Petroleum refining, Blast furnaces and steel mills, and Cyclic crudes and intermediates) showing increases ranging from 1.3 million to 8.5 million pounds. Conversely, facilities in the Alkalies and chlorine industry sector saw a significant decrease of about 11 million pounds.

Exhibit 2.8. Industry Sectors that Accounted for 75 Percent of the Total Quantity of Priority Chemicals in 2004

Primary SIC	SIC Description	Reporting Year				Percent Change in Quantity (2001–2004)	Percent of Total Quantity (2004)
		2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)		
2869	Industrial organic chemicals, nec	2,161,888	6,768,216	8,425,891	10,635,310	391.9%	13.1%
3341	Secondary nonferrous metals	9,720,459	11,947,394	13,102,215	10,228,347	5.2%	12.6%
3312	Blast furnaces and steel mills	7,941,343	7,190,794	8,220,522	9,912,236	24.8%	12.2%
2812	Alkalies and chlorine	18,975,349	12,511,960	7,456,586	8,226,457	-56.6%	10.1%
2911	Petroleum refining	2,234,759	4,199,145	3,408,834	5,827,455	160.8%	7.2%
2895	Carbon black	3,454,362	3,922,074	4,052,612	4,239,664	22.7%	5.2%
3624	Carbon and graphite products	5,119,620	1,834,267	2,891,018	3,762,327	-26.5%	4.6%
3334	Primary aluminum	2,197,740	1,849,101	2,845,044	2,974,060	35.3%	3.7%
2865	Cyclic crudes and intermediates	1,432,105	3,103,126	1,639,150	2,734,774	91.0%	3.4%
9711	National security	2,248,227	2,605,080	2,787,985	2,561,448	13.9%	3.1%

*To provide consistent and accurate goal progress measurement, we adjusted (decreased) the reported 2004 TRI quantities to reflect the effect of: 1) new equipment installed at a Louisiana facility that substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, and 2) revised quantities for several PCs reported by a Texas facility that resulted in a substantial increase of about 1.2 million pounds.

The New 2011 GPRA Goal for Reducing Priority Chemicals

EPA recently defined a new GPRA goal, referred to as the 2011 GPRA goal, for reducing the PCs. Unlike previous GPRA goals that used TRI data to measure progress toward reducing PCs, the new goal is directly keyed to reductions of PCs achieved by NPEP partners. This goal states that, *by 2011, 4 million pounds of PCs will be eliminated, as measured by NPEP achievements, Supplemental Environmental Projects (SEPs), and other tools used by EPA to achieve PC reductions*, with 2006 as the baseline year. In next year's *Report*, we also will begin reporting progress made toward achieving this new goal. In the future, we expect to work with industrial facilities to reduce the use of PCs in products, as well as in wastes.

Commitments and Progress to Reduce Priority Chemicals under the National Partnership for Environmental Priorities (NPEP)

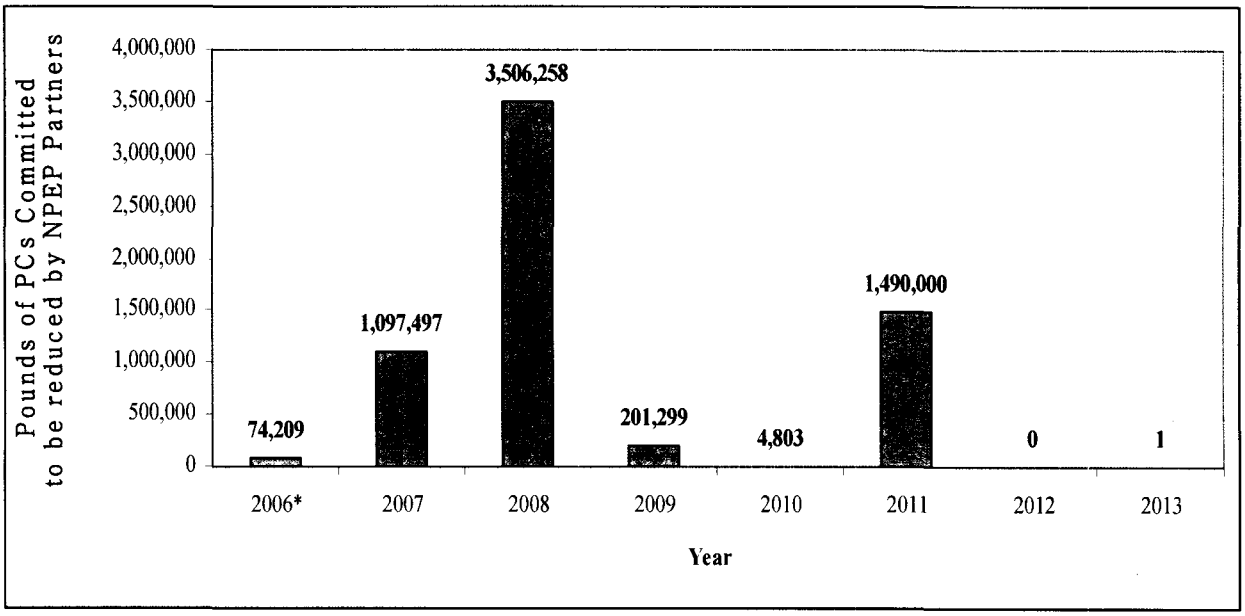
In September 2002, EPA launched the NPEP program as part of its Resource Conservation Challenge (RCC) (See discussion of the RCC in Section 1). As of September 2006, 100 NPEP partner facilities have committed to reduce approximately 8.5 million pounds of 17 PCs by December 2013 (Exhibit 2.9). Exhibit 2.10 shows the trend of commitments to reduce PCs from 2006–2013.

Exhibit 2.9. Priority Chemical Reductions Committed Under NPEP (Fiscal Years 2006–2013)

Chemical Name	FY 2006 (pounds)*	FY 2007 (pounds)	FY 2008 (pounds)	FY 2009 (pounds)	FY 2010 (pounds)	FY 2011 (pounds)	FY 2012 (pounds)	FY 2013 (pounds)	Total NPEP Reduction Commitments (FYs 2006–2013)	Percent of Total NPEP PC Reduction Commitments (FYs 2006–2013)
1,2,4-Trichlorobenzene	5,810	5,520	0	0	0	0	0	0	11,330	0.2%
Acenaphthene	180	0	0	0	0	0	0	0	180	0.0%
Anthracene	144	0	0	0	0	0	0	0	144	0.0%
Benzo(g,h,i)perylene	200	0	0	0	0	0	0	0	200	0.0%
Cadmium and cadmium compounds	0	150	7	200	38	0	0	0	395	0.0%
Dibenzofuran	0	0	87,652	0	0	0	0	0	87,652	1.4%
Dioxin and dioxin-like compounds	249	0	0	0	0	0	0	0	249	0.0%
Lead and lead compounds	64,935	970,976	1,103,885	178,417	95	1,490,000	0	0	3,808,308	59.7%
Mercury and mercury compounds	30	3,901	6,293	0	4,670	0	0	1	14,895	0.2%
Naphthalene	387	110,600	1,558,421	0	0	0	0	0	1,669,408	26.2%
Polycyclic aromatic compounds	0	6,000	745,032	22,682	0	0	0	0	773,714	12.1%
Polychlorinated biphenyls	0	350	3,504	0	0	0	0	0	3,854	0.1%
Pendimethalin	0	0	584	0	0	0	0	0	584	0.0%
Phenanthrene	1,236	0	0	0	0	0	0	0	1,236	0.0%
Pyrene	1,038	0	0	0	0	0	0	0	1,038	0.0%
Trifluralin	0	0	880	0	0	0	0	0	880	0.0%
Total	**74,209**	**1,097,497**	**3,506,258**	**201,299**	**4,803**	**1,490,000**	**0**	**1**	**6,374,067**	**100.0%**

*Note: The first column reflects pounds committed for reduction during FY 2006 but not yet achieved.

Exhibit 2.10. Priority Chemical Quantities Committed for Reduction, FYs 2006–2013



* Quantities are for the federal fiscal year of October 1 through September 30 of the following year. For example, commitments to reduce the PC quantities shown for 2006 were made between October 1, 2005 and September 30, 2006.

Exhibit 2.11 shows the reduction in quantity of each PC that NPEP partners have achieved from 2004 to 2006. Since 2004, NPEP partners have eliminated about 2.1 million pounds of PCs of which lead accounted for 93 percent of the total quantity reduced.

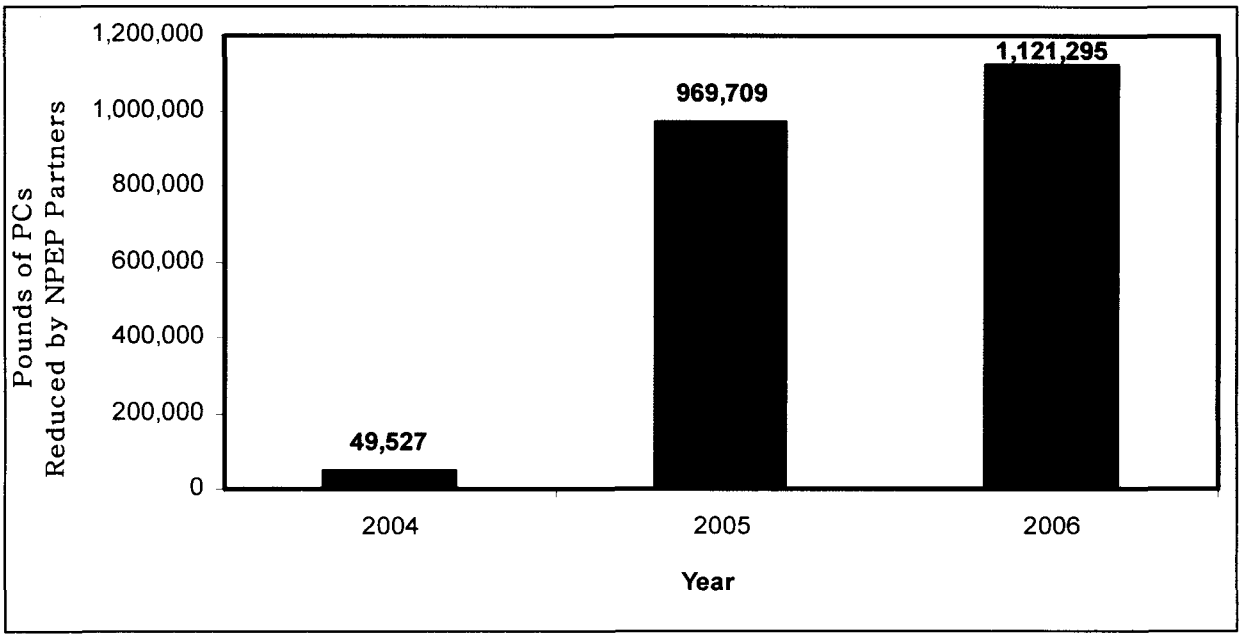
Exhibit 2.11. Priority Chemical Reductions Achieved Under NPEP

Chemical Name	FY 2004 (pounds)	FY 2005 (pounds)	FY 2006 (pounds)	Total NPEP Actual Achievements (FYs 2004–2006) (pounds)	% of Total NPEP PC Quantities Achieved (FYs 2004–2006)
1,2,4-Trichlorobenzene	0	0	0	0	0.0%
Acenaphthene	0	0	0	0	0.0%
Anthracene	0	0	0	0	0.0%
Benzo(g,h,i)perylene	0	0	0	0	0.0%
Cadmium and cadmium compounds	0	0	0	0	0.0%
Dibenzofuran	0	0	0	0	0.0%
Dioxin and dioxin-like compounds	0	0	144	144	0.0%
Lead and lead compounds	49,527	852,267	1,090,098	1,991,892	93.1%
Mercury and mercury compounds	0	4,378	26,718	31,096	1.5%
Naphthalene	0	103,746	0	103,746	4.8%
Polycyclic aromatic compounds	0	9,318	0	9,318	0.4%
Polychlorinated biphenyls	0	0	4,335	4,335	0.2%
Pendimethalin	0	0	0	0	0.0%
Phenanthrene	0	0	0	0	0.0%
Pyrene	0	0	0	0	0.0%
Trifluralin	0	0	0	0	0.0%
Total	**49,527**	**969,709**	**1,121,295**	**2,140,531**	**100.0%**

Note: Quantities are for the federal Fiscal Year (FY) of October 1 through September 30 of the following year. For example, commitments to reduce the PC quantities shown for 2006 were made between October 1, 2005 and September 30, 2006.

Exhibit 2.12 shows the trend of NPEP partner PC reductions achieved from FYs 2004–2006.

Exhibit 2.12. Priority Chemical Quantities Achieved, FYs 2004–2006



[Page intentionally left blank.]

Section 3
Overall Trends Analyses for Priority Chemicals (2000-2004)

Introduction

This section provides an overview of the national, EPA region, state, and industry sector quantities of the 24 aggregated Priority Chemicals (PCs), for which data are reported to the TRI for the 2000-2004 reporting years. We are focusing on the five most current years of TRI data to most easily show variable, potential opportunities for reducing or eliminating PCs. The data presented in this section were derived using the PC Measurement TRI methodology (see Appendix C) and primarily focuses on trends for the aggregated quantity of PCs. We have presented a discussion of the trends for individual PCs in Section 4.

National Trends for Priority Chemicals

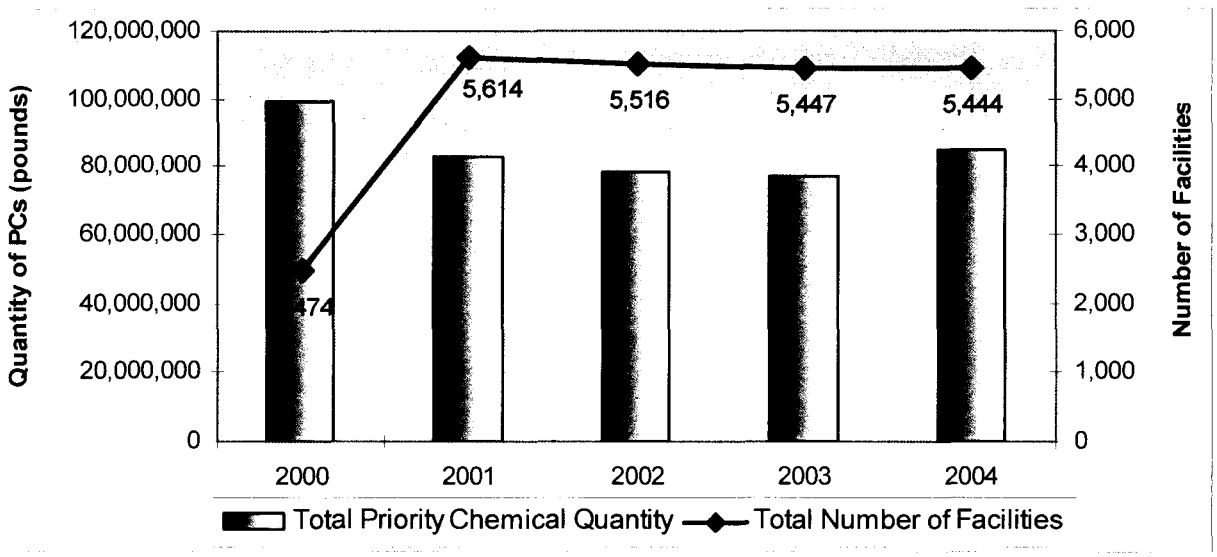
Exhibits 3.1 and 3.2 show the total quantity of PCs from 2000-2004, as well as the number of facilities reporting these chemicals. In 2002, the quantity of PCs actually decreased, despite a 227 percent increase in the number of reporting facilities compared to 2000. Most of the increased number of facilities in 2001 likely are attributed to the lowered TRI reporting threshold for lead and lead compounds. Facilities reporting decreased quantities of numerous PCs (including lead and lead compounds) more than offset the relatively small quantities of lead and lead compounds reported due to the lowered reporting threshold for this PC.

Since 2001, the number of facilities reporting PCs has been relatively consistent. From 2001 to 2003, the total quantity of PCs decreased. However, in 2004 the quantity significantly increased. We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, which may mean that the increase may not be real.

Exhibit 3.1. Total Quantity and Number of Facilities for the Priority Chemicals, 2000–2004

TRI Reporting Year	2000	2001	2002	2003	2004
Total quantity of PCs (pounds)	99,414,030	82,517,853	78,117,538	77,030,691	84,724,529
Number of TRI facilities reporting PC quantity	2,474	5,614	5,516	5,447	5,444

Exhibit 3.2. Total Quantity (pounds) and Number of Facilities Reporting Priority Chemicals, 2000–2004



In 2004, facilities reported approximately 84.7 million pounds of PCs, representing a decrease of almost 15 million pounds, or approximately 15 percent, compared to the total quantity of PCs reported in 2000 (Exhibit 3.3). Three of the PCs (lead and lead compounds (lead), polycyclic aromatic compounds (PACs), and naphthalene) comprised approximately 70 percent of the total national PC quantity. Lead consistently have accounted for the majority of the total national PC quantity, comprising approximately 38 percent of the PCs in 2004. Nearly 14 million pounds of PACs and 13 million pounds of naphthalene accounted for approximately 16 percent and 15 percent, respectively, of the total national quantity of PCs in 2004.

Of the 24 PCs reported to TRI, the quantity of 17 decreased during the period 2000-2004. These included decreases of at least 1 million pounds for six of the PCs: lead, PACs, naphthalene, hexachoro-1,3-butadiene, hexachloroethane, and benzo(g,h,i)perylene. Individual chemicals with relatively large increases in quantity included hexachlorobenzene, phenanthrene, and 1,2,4-trichlorobenzene.

Exhibit 3.3. Total Quantity by Priority Chemical, 2000–2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent Change (2000–2004)	Percent of Total PC Quantity (2004)
Lead and lead compounds	37,428,072	36,139,492	34,098,442	35,069,921	31,967,610	-5,460,462	-14.6%	37.7%
Polycyclic aromatic compounds	16,570,049	14,082,123	12,775,052	12,655,240	13,809,093	-2,760,957	-16.7%	16.3%
Naphthalene	14,425,578	9,994,513	11,028,479	10,294,471	13,081,776	-1,343,802	-9.3%	15.4%
Hexachloro-1,3-butadiene	11,297,081	6,404,741	5,167,385	5,566,299	7,874,707	-3,422,374	-30.3%	9.3%
Hexachlorobenzene	5,934,761	5,765,382	4,208,705	4,270,659	6,485,490	550,729	9.3%	7.7%
Hexachloroethane	5,709,981	4,145,249	4,056,497	2,694,131	3,772,853	-1,937,128	-33.9%	4.5%
Phenanthrene	1,017,538	236,240	2,309,338	1,817,805	2,348,265	1,330,727	130.8%	2.8%
1,2,4-Trichlorobenzene	1,189,077	2,144,696	1,527,029	1,674,802	1,888,685	699,608	58.8%	2.2%
Cadmium and cadmium compounds	1,488,696	932,493	746,474	824,080	885,122	-603,574	-40.5%	1.0%
Pentachlorobenzene	239,852	487,719	311,145	484,733	608,691	368,839	153.8%	0.7%
Anthracene	546,353	360,837	345,499	419,243	520,669	-25,684	-4.7%	0.6%
Pendimethalin	674,131	200,195	421,827	429,551	475,695	-198,436	-29.4%	0.6%
Benzo(g,h,i)perylene	2,104,401	990,522	310,885	317,817	374,449	-1,729,953	-82.2%	0.4%
Quintozene	307,766	215,122	205,107	235,816	280,987	-26,779	-8.7%	0.3%
Pentachlorophenol	69,832	54,339	36,856	28,295	117,264	47,432	67.9%	0.1%
Trifluralin	88,257	92,863	62,544	57,392	81,668	-6,589	-7.5%	0.1%
Polychlorinated biphenyls	109,472	55,665	104,806	54,426	67,758	-41,714	-38.1%	0.1%
Mercury and mercury compounds	87,120	127,526	93,888	36,732	51,697	-35,423	-40.7%	0.1%
Dibenzofuran	92,848	66,726	288,926	75,605	24,942	-67,906	-73.1%	0.0%
2,4,5-Trichlorophenol	32,443	20,657	17,913	22,857	5,083	-27,360	-84.3%	0.0%
Heptachlor	0	0	14	54	775	775	NA	0.0%
Methoxychlor	17	1	1	0	766	749	4353.5%	0.0%
Dioxin and dioxin-like compounds	640	706	543	692	484	-156	-24.3%	0.0%
Lindane	64	46	183	71	0	-64	-100.0%	0.0%
Total	**99,414,030**	**82,517,853**	**78,117,538**	**77,030,691**	**84,724,529**	**-14,689,501**	**-14.8%**	**100.0%**

Exhibit 3.4 shows, for each of the PCs in 2004, the number of facilities that reported the PC within various quantities ranges. For most of the PCs, only a relatively small number of facilities accounted for the majority of the total quantity reported. For example, of the 4,621 facilities that reported a PC quantity of lead and lead compounds in 2004, five facilities accounted for 24 percent of the total quantity, and 53 facilities accounted for approximately 69 percent of the total quantity.

Please note that the total number of facilities shown in this exhibit may differ from the total number of facilities shown in Exhibits 3.1 and 3.2 because numerous facilities reported more than one PC.

Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004

Quantity Reported (2004)	Number of Facilities Reporting This Quantity	Percent of Total Quantity for This PC
1,2,4 - Trichlorobenzene (1,888,685 pounds)		
up to 10 pounds	2	less than 0.1%
Between 11 - 100 pounds	0	0.0%
Between 101 -1,000 pounds	5	0.1%
Between 1,001 - 10,000 pounds	4	0.9%
Between 10,001 - 100,000 pounds	4	13.0%
Between 100,001 - 1 million pounds	1	6.6%
> 1 million pounds	1	79.5%
2,4,5 - Trichlorophenol (5,083 pounds)		
up to 10 pounds	0	0%
between 11 - 100 pounds	0	0%
between 101 -1,000 pounds	0	0%
between 1,001 - 10,000 pounds	1	100.00%
between 10,001 - 100,000 pounds	0	0%
between 100,001 - 1 million pounds	0	0%
> 1 million pounds	0	0%
Anthracene (520,669 pounds)		
up to 10 pounds	5	less than 0.1%
between 11 - 100 pounds	11	0.1%
between 101 -1,000 pounds	14	0.8%
between 1,001 - 10,000 pounds	6	4.6%
between 10,001 - 100,000 pounds	6	38.3%
between 100,001 - 1 million pounds	1	56.2%
> 1 million pounds	0	0.0%
Benzo(g,h,i)perylene (374,449 pounds)		
up to 10 pounds	236	0.1%
between 11 - 100 pounds	80	0.9%
between 101 -1,000 pounds	40	3.3%
between 1,001 - 10,000 pounds	17	14.7%
between 10,001 - 100,000 pounds	6	27.2%
between 100,001 - 1 million pounds	1	53.9%
> 1 million pounds	0	0.0%

Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004

Quantity Reported (2004)	Number of Facilities Reporting This Quantity	Percent of Total Quantity for This PC
Cadmium and Cadmium Compounds (885,122 pounds)		
up to 10 pounds	17	less than 0.1%
between 11 - 100 pounds	1	less than 0.1%
between 101 -1,000 pounds	17	0.7%
between 1,001 - 10,000 pounds	16	8.3%
between 10,001 - 100,000 pounds	10	30.8%
between 100,001 - 1 million pounds	2	60.1%
> 1 million pounds	0	0.0%
Dibenzofuran (24,942 pounds)		
up to 10 pounds	3	0.1%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	4	3.3%
between 1,001 - 10,000 pounds	4	96.7%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Dioxin and Dioxin-Like Compounds (484 pounds)		
up to 10 pounds	369	14.4%
between 11 - 100 pounds	8	59.3%
between 101 -1,000 pounds	1	26.4%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Heptachlor (775 pounds)		
up to 10 pounds	1	1.2%
between 11 - 100 pounds	1	98.8%
between 101 -1,000 pounds	0	0.0%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Hexachloro-1,3-butadiene (7,874,707 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	0	0.0%
between 1,001 - 10,000 pounds	1	less than 0.1%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	1	12.2%
> 1 million pounds	2	87.7%

Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004

Quantity Reported (2004)	Number of Facilities Reporting This Quantity	Percent of Total Quantity for This PC
Hexachlorobenzene (6,485,490 pounds)		
up to 10 pounds	9	less than 0.1%
between 11 - 100 pounds	7	less than 0.1%
between 101 -1,000 pounds	5	less than 0.1%
between 1,001 - 10,000 pounds	6	0.3%
between 10,001 - 100,000 pounds	3	0.9%
between 100,001 - 1 million pounds	4	23.7%
> 1 million pounds	1	75.1%
Hexachloroethane (3,772,853 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	1	less than 0.1%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	3	2.7%
between 100,001 - 1 million pounds	4	17.9%
> 1 million pounds	1	79.4%
Lead and Lead Compounds (31,967,610 pounds)		
up to 10 pounds	1,599	less than 0.1%
between 11 - 100 pounds	1,076	0.1%
between 101 -1,000 pounds	1,096	1.3%
between 1,001 - 10,000 pounds	583	6.1%
between 10,001 - 100,000 pounds	214	23.4%
between 100,001 - 1 million pounds	48	45.3%
> 1 million pounds	5	23.8%
Mercury and Mercury Compounds (51,697 pounds)		
up to 10 pounds	352	1.8%
between 11 - 100 pounds	185	11.4%
between 101 -1,000 pounds	45	24.2%
between 1,001 - 10,000 pounds	10	62.6%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Methoxychlor (766 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	1	100.0%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004

Quantity Reported (2004)	Number of Facilities Reporting This Quantity	Percent of Total Quantity for This PC
Naphthalene (13,081,776 pounds)		
up to 10 pounds	102	less than 0.1%
between 11 - 100 pounds	90	less than 0.1%
between 101 -1,000 pounds	155	0.5%
between 1,001 - 10,000 pounds	156	4.6%
between 10,001 - 100,000 pounds	97	24.0%
between 100,001 - 1 million pounds	37	59.0%
> 1 million pounds	1	12.9%
Pendimethalin (475,695 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	0	0.0%
between 1,001 - 10,000 pounds	2	1.1%
between 10,001 - 100,000 pounds	4	44.2%
between 100,001 - 1 million pounds	1	54.7%
> 1 million pounds	0	0.0%
Pentachlorobenzene (608,691 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	2	less than 0.1%
between 101 -1,000 pounds	2	0.3%
between 1,001 - 10,000 pounds	1	0.4%
between 10,001 - 100,000 pounds	0	0.0%
between 100,001 - 1 million pounds	2	99.3%
> 1 million pounds	0	0.0%
Pentachlorophenol (117,264 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	2	0.1%
between 101 -1,000 pounds	7	3.3%
between 1,001 - 10,000 pounds	4	12.3%
between 10,001 - 100,000 pounds	2	84.4%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Phenanthrene (2,348,265 pounds)		
up to 10 pounds	4	less than 0.1%
between 11 - 100 pounds	10	less than 0.1%
between 101 -1,000 pounds	20	0.4%
between 1,001 - 10,000 pounds	12	2.0%
between 10,001 - 100,000 pounds	4	3.5%
between 100,001 - 1 million pounds	5	94.1%
> 1 million pounds	0	0.0%

Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004

Quantity Reported (2004)	Number of Facilities Reporting This Quantity	Percent of Total Quantity for This PC
Polychlorinated Biphenyls (67,758 pounds)		
up to 10 pounds	5	0.0%
between 11 - 100 pounds	16	1.0%
between 101 -1,000 pounds	9	3.0%
between 1,001 - 10,000 pounds	5	35.1%
between 10,001 - 100,000 pounds	1	60.9%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%
Polycyclic Aromatic Compounds (13,809,093 pounds)		
up to 10 pounds	238	less than 0.1%
between 11 - 100 pounds	162	less than 0.1%
between 101 -1,000 pounds	133	0.3%
between 1,001 - 10,000 pounds	89	2.2%
between 10,001 - 100,000 pounds	43	9.8%
between 100,001 - 1 million pounds	13	32.1%
> 1 million pounds	6	55.7%
Quintozene (280,987pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	0	0.0%
between 101 -1,000 pounds	1	0.2%
between 1,001 - 10,000 pounds	0	0.0%
between 10,001 - 100,000 pounds	1	9.1%
between 100,001 - 1 million pounds	1	90.7%
> 1 million pounds	0	0.0%
Trifluralin (81,668 pounds)		
up to 10 pounds	0	0.0%
between 11 - 100 pounds	2	0.2%
between 101 -1,000 pounds	2	1.0%
between 1,001 - 10,000 pounds	4	23.2%
between 10,001 - 100,000 pounds	1	75.6%
between 100,001 - 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

How Were Priority Chemicals Managed?

As previously discussed in Section 1, the total PC quantity comprises those quantities of the PCs that are managed onsite/offsite via disposal, treatment, and energy recovery. Exhibit 3.5 shows the national trends regarding the methods used to manage the PCs in 2000-2004. Compared to the quantities in 2000, some highlights concerning management of the PCs include:

Disposal

- Total disposal quantities, including offsite disposal, decreased. Onsite disposal of PCs increased and reached a peak in 2002 but has been decreasing since 2002.
- Disposal was used for approximately 41 percent, or approximately 35 million pounds, of PCs in 2004. Offsite disposal accounted for 80 percent of the quantity of PCs that were disposed of.
- Disposal was used for at least 30 percent of the total PC quantity in each of the EPA regions, except in Region 6 where facilities disposed of only approximately 11 percent of their PCs.
- In 5 of the 10 EPA regions, facilities disposed of at least 75 percent of their PC quantities.

Energy Recovery

- Total energy recovery quantities, both onsite and offsite, overall decreased, although in 2004, energy recovery of PCs increased compared to the 2003 quantities. Energy recovery was used for approximately 17 percent, or approximately 14.7 million pounds, of PCs in 2004. Approximately 79 percent of the energy recovery was completed onsite.
- Facilities in Region 1 used energy recovery to manage approximately 65 percent of their total quantity of PCs.

Treatment

- Total treatment quantities, both onsite and offsite, decreased overall, although in 2004, treatment of PCs increased compared to the 2003 quantities.
- Treatment was used for approximately 41 percent, or 35 million pounds, of the PCs in 2004. Onsite treatment accounted for 96 percent of the quantity of PCs that were treated.
- Facilities in Region 6 used treatment to manage approximately 71 percent of their total quantity of PCs. Most of the treatment was completed onsite, primarily using incineration.

Recycling[9]

- Offsite recycling increased while onsite recycling decreased with a total overall recycling decrease. However, in 2004, the recycled quantity increased significantly. Overall, a considerable percentage of PCs has been, and continues to be, recycled. EPA hopes to increase recycling of PCs to the extent feasible rather than disposal, treatment, or energy recovery. Recycling was used to manage approximately 734 million pounds of PCs in 2004. This quantity was approximately 9 times larger than the other methods used to manage PCs.

- Facilities in Regions 2, 5, 7, and 9 had the highest ratios of recycled quantity compared to PC quantity, with double-digit ratios of 10.3, 17.9, 23.7, and 25.1, respectively.

Exhibit 3.5. Trends in Management Methods for Priority Chemicals, 2000–2004

Management Method	TRI Reporting Year				
	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
Onsite Disposal	4,107,776	6,817,384	8,120,889	7,520,143	7,103,679
Offsite Disposal	33,259,228	30,415,692	28,152,180	30,348,476	28,008,361
Total Disposal	**37,367,004**	**37,233,075**	**36,273,069**	**37,868,619**	**35,112,039**
Onsite Energy Recovery	14,279,123	13,985,899	10,503,009	9,707,277	11,497,377
Offsite Energy Recovery	6,185,285	2,469,170	5,118,901	2,246,386	3,154,577
Total Energy Recovery	**20,464,408**	**16,455,069**	**15,621,909**	**11,953,663**	**14,651,954**
Onsite Treatment	35,706,480	26,625,705	24,905,890	26,106,955	33,431,244
Offsite Treatment	5,876,137	2,204,003	1,316,671	1,101,454	1,529,292
Total Treatment	**41,582,618**	**28,829,708**	**26,222,560**	**27,208,409**	**34,960,536**
Onsite Recycling	534,255,626	424,329,200	425,913,221	427,269,403	447,406,179
Offsite Recycling	255,757,727	231,928,174	263,429,843	213,849,103	286,414,280
Total Recycling	**790,013,354**	**656,257,374**	**689,343,064**	**641,118,506**	**733,820,459**

Exhibits 3.6, 3.7, and 3.8 show trends concerning the disposal of PCs from 2000-2004. In 2004, lead and lead compounds comprised nearly 91 percent of the 35 million pounds of PCs that were land disposed (see Exhibit 3.6).

Exhibit 3.6. Disposal of Priority Chemicals, 2000–2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Disposal Quantity Change 2000–2004	Disposal Percent Change 2000–2004	Percent of Total Disposal Quantity (2004)
Lead and lead compounds	31,806,580	33,742,749	34,010,413	35,042,589	31,891,332	84,753	0.3%	90.8%
Polycyclic Aromatic compounds	3,219,247	1,618,516	723,590	939,058	1,152,715	-2,066,532	-64.2%	3.3%
Cadmium and cadmium compounds	1,356,083	919,994	744,924	824,080	885,122	-470,961	-34.7%	2.5%
Naphthalene	619,269	481,138	467,568	545,366	645,508	26,239	4.2%	1.8%
Pendimethalin	24,529	70,570	72,404	139,764	210,222	185,693	757.0%	0.6%

[9] For the purposes of this Report, we primarily focus on the quantities of PCs we believe they offer the greatest opportunities for waste minimization (i.e., those quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery). Recycled quantities already meet the goal of waste minimization and, as such, are not included as part of the PC quantity. Recycled quantities of the PCs are presented for the purpose of providing some perspective regarding how much of the PCs are already recycled compared to the quantities (disposal, treatment, energy recovery) potentially still available for waste minimization.

Exhibit 3.7. Trends in Disposal Quantities of Lead and Lead Compounds, 2000–2004

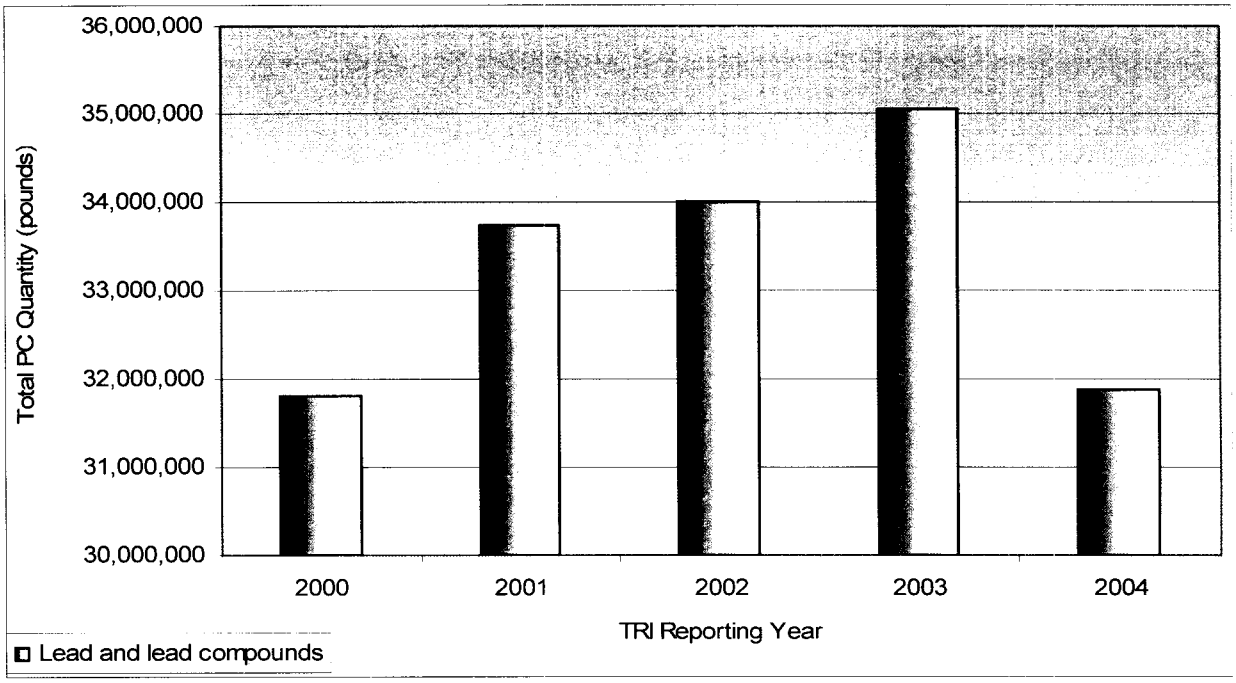
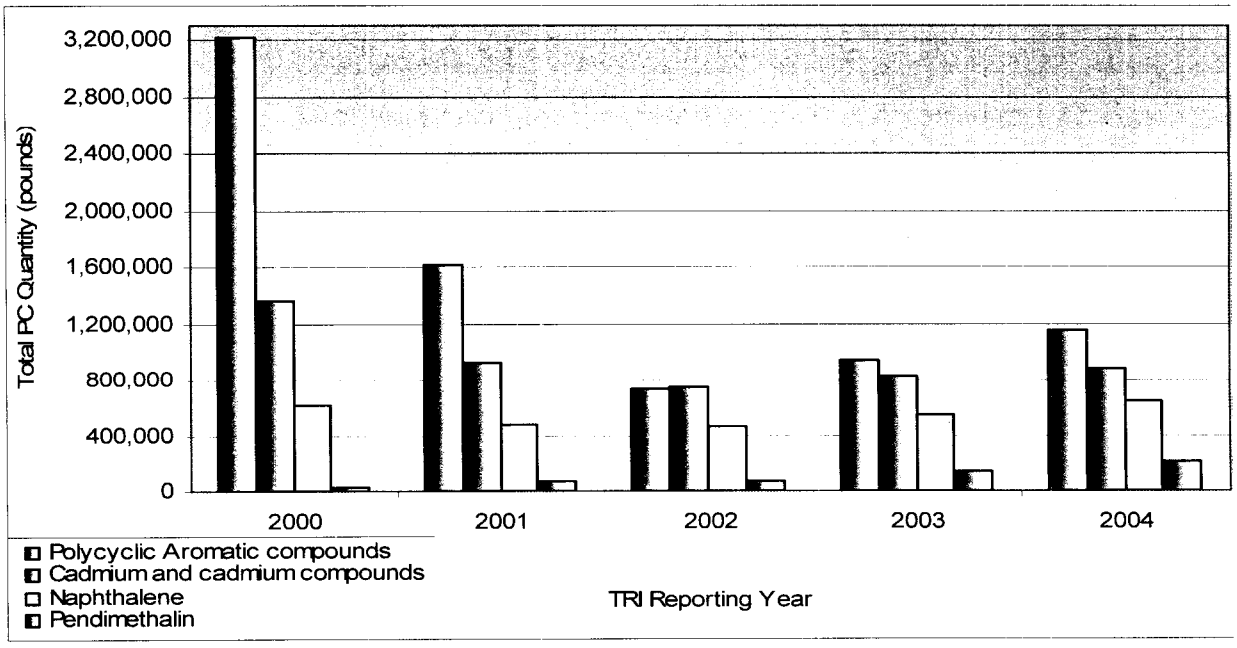


Exhibit 3.8. Trends in Disposal Quantities of PACs, Cadmium and Cadmium Compounds, Naphthalene, and Pendimethalin, 2000–2004



Exhibits 3.9, 3.10, and 3.11 show trends concerning the use of energy recovery for PCs from 2000-2004. The five PCs shown in Exhibit 3.9 accounted for approximately 95 percent of the 14.7 million pounds of PCs sent to energy recovery in 2004.

Exhibit 3.9. Energy Recovery of Priority Chemicals, 2000–2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Energy Recovery Quantity Change 2000–2004	Energy Recovery Percent Change 2000–2004	Percent of Total Energy Recovery Quantity (2004)
Polycyclic aromatic compounds	8,677,000	8,236,116	6,859,497	5,946,455	6,677,304	-1,999,695	-23.0%	45.6%
Naphthalene	4,949,512	5,534,195	5,012,871	4,195,410	5,496,651	547,139	11.1%	37.5%
Phenanthrene	178,622	98,317	2,196,260	749,069	1,226,086	1,047,464	586.4%	8.4%
Hexachlorobenzene	167,073	350,900	201,616	301,990	332,723	165,650	99.1%	2.3%
Benzo(g,h,i)perylene	1,841,028	798,706	210,133	171,364	255,560	-1,585,468	-86.1%	1.7%

Exhibit 3.10. Trends in Energy Recovery Quantities of PACs and Naphthalene, 2000–2004

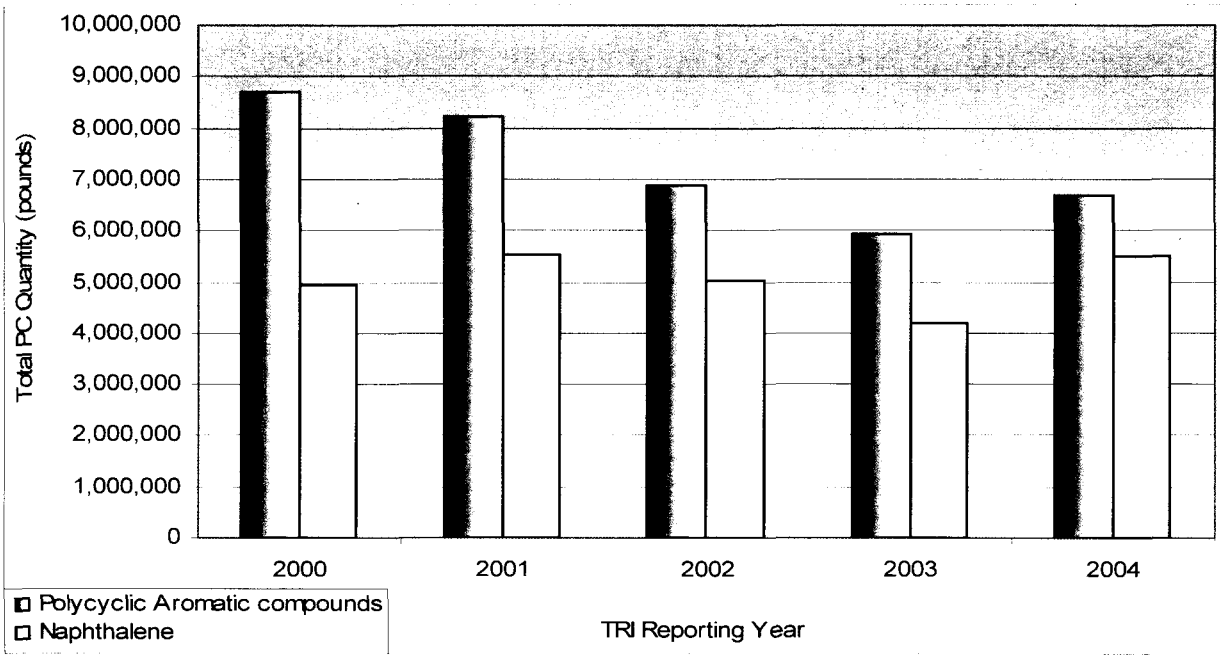
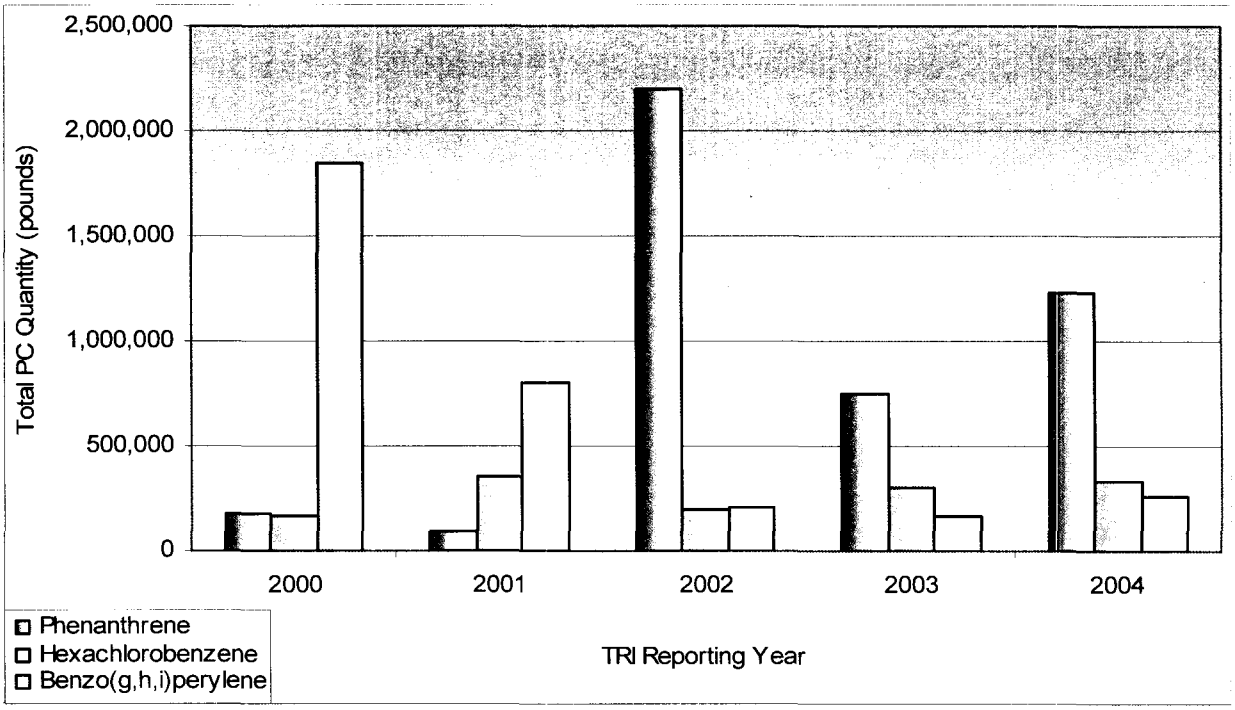


Exhibit 3.11. Trends in Energy Recovery Quantities of Phenanthrene, Hexachlorobenzene, and Benzo(g,h,i)perylene, 2000–2004



Exhibits 3.12, 3.13, and 3.14 show trends concerning the treatment of PCs for 2000-2004. The PCs shown in Exhibit 3.12 accounted for approximately 95 percent of the 35 million pounds of PCs treated in 2004. We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams measurements, which may mean that the increase may not be real.

Exhibit 3.12. Treatment of the Priority Chemicals, 2000–2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Treatment Quantity Change 2000–2004	Treatment Percent Change 2000–2004	Percent of Total Treatment Quantity (2004)
Hexachloro-1,3-butadiene	9,022,857	6,404,178	5,086,762	5,504,668	7,874,619	-1,148,238	-12.7%	22.5%
Naphthalene	8,856,797	3,979,180	5,548,040	5,553,696	6,939,616	-1,917,181	-21.6%	19.8%
Hexachlorobenzene	5,754,663	5,400,490	4,000,842	3,954,274	6,135,821	381,158	6.6%	17.6%
Polycyclic aromatic compounds	4,673,803	4,227,491	5,191,965	5,769,728	5,979,074	1,305,271	27.9%	17.1%
Hexachloroethane	4,462,309	3,689,031	3,849,238	2,553,948	3,626,347	-835,962	-18.7%	10.4%
1,2,4-trichlorobenzene	669,681	1,691,092	1,401,739	1,521,634	1,750,443	1,080,762	161.4%	5.0%
Phenanthrene	818,822	63,250	70,549	995,472	1,035,638	216,817	26.5%	3.0%

Exhibit 3.13. Trends in Treatment Quantities of Hexachloro-1,3-butadiene, Naphthalene, and Hexachlorobenzene, 2000–2004

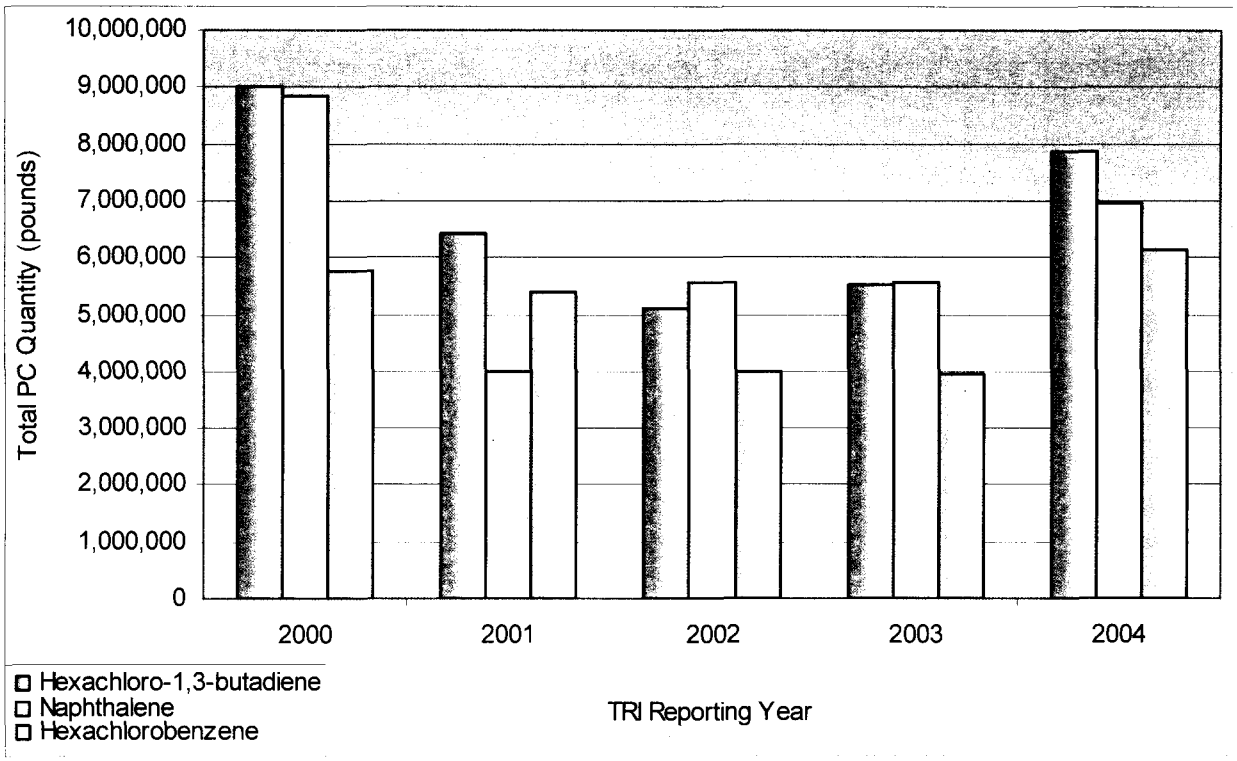
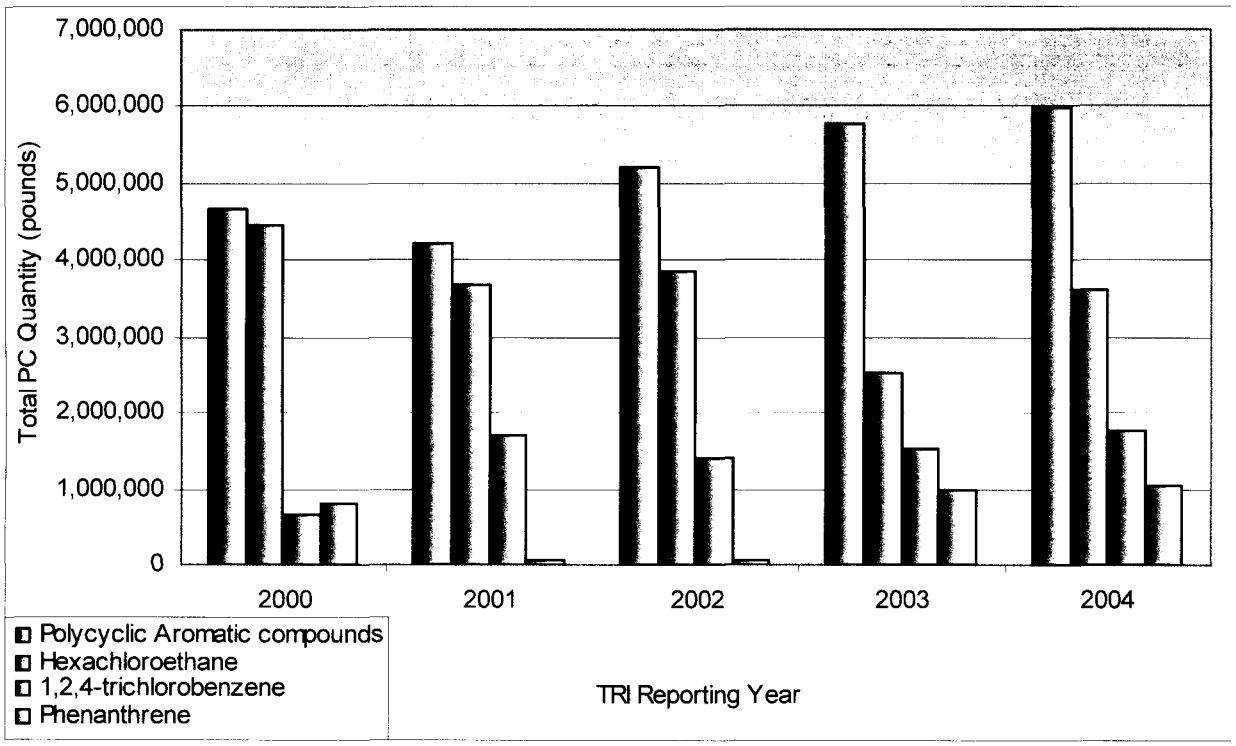


Exhibit 3.14. Trends in Treatment Quantities of PACs, Hexachloroethane, 1,2,4-Tricholorobenzene, and Phenanthrene, 2000–2004



Exhibits 3.15, 3.16, and 3.17 show trends concerning the recycling of PCs for 2000-2004. The PCs shown in Exhibit 3.15 account for more than 99 percent of the 734 million pounds of PCs that were recycled in 2004, with lead and lead compounds comprising approximately 96 percent of the total recycled quantity. Lead and lead compounds have dominated the recycling quantity since 2000 and showed a significant increase in 2004. In 2004, there was also a large increase in the quantity of hexachlorobenzene that was recycled compared to the quantities recycled in 2000 and in 2003.

Exhibit 3.15. Recycling of Priority Chemicals, 2000–2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Recycling Quantity Change 2000–2004	Recycling Percent Change 2000–2004	Percent of Total Recycling Quantity (2004)
Lead and lead compounds	770,164,125	643,916,565	653,983,019	615,627,694	707,210,558	-62,953,567	-8.2%	96.4%
Naphthalene	12,247,468	6,330,744	25,698,374	18,495,108	19,249,442	7,001,974	57.2%	2.6%
Hexachloroethane	1,027,963	850,000	3,530,419	2,336,505	2,279,804	1,251,841	121.8%	0.3%
Polycyclic aromatic compounds	3,014,337	2,750,150	2,431,817	1,711,810	1,362,226	-1,652,111	-54.8%	0.2%
Hexachlorobenzene	17,139	6,310	740,144	399,607	1,004,270	987,131	5759.6%	0.1%

Exhibit 3.16. Trends in Recycling Quantities of Lead and Lead Compounds, 2000–2004

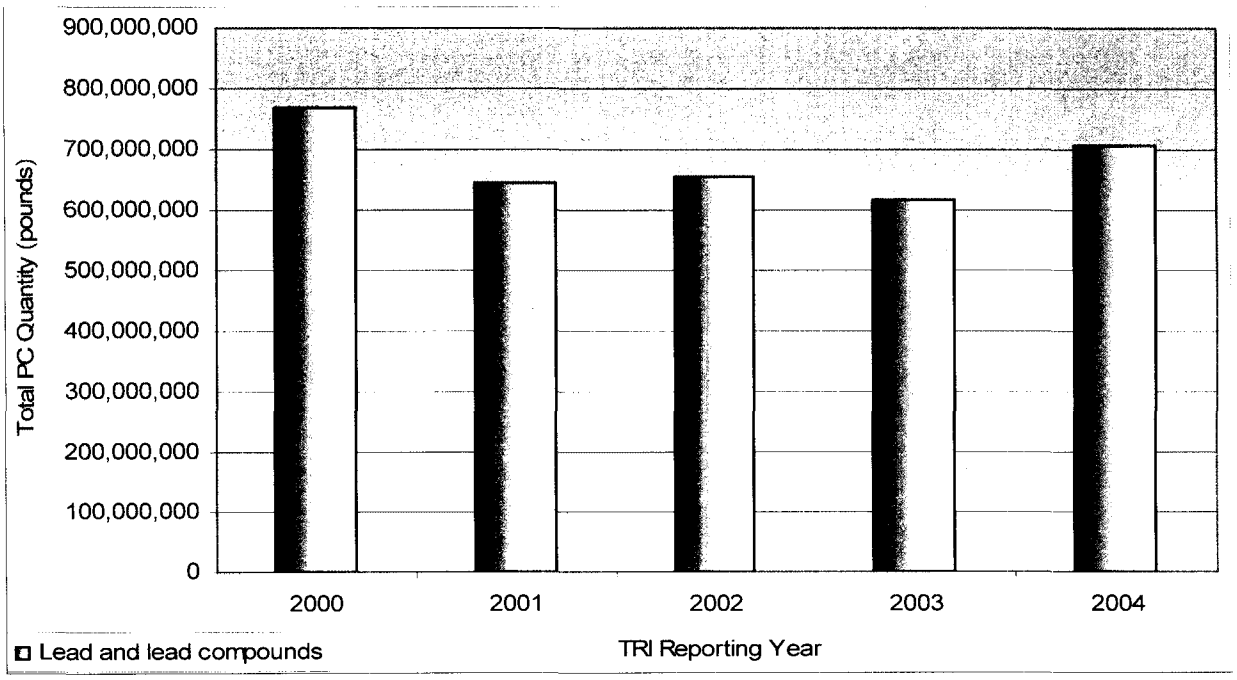
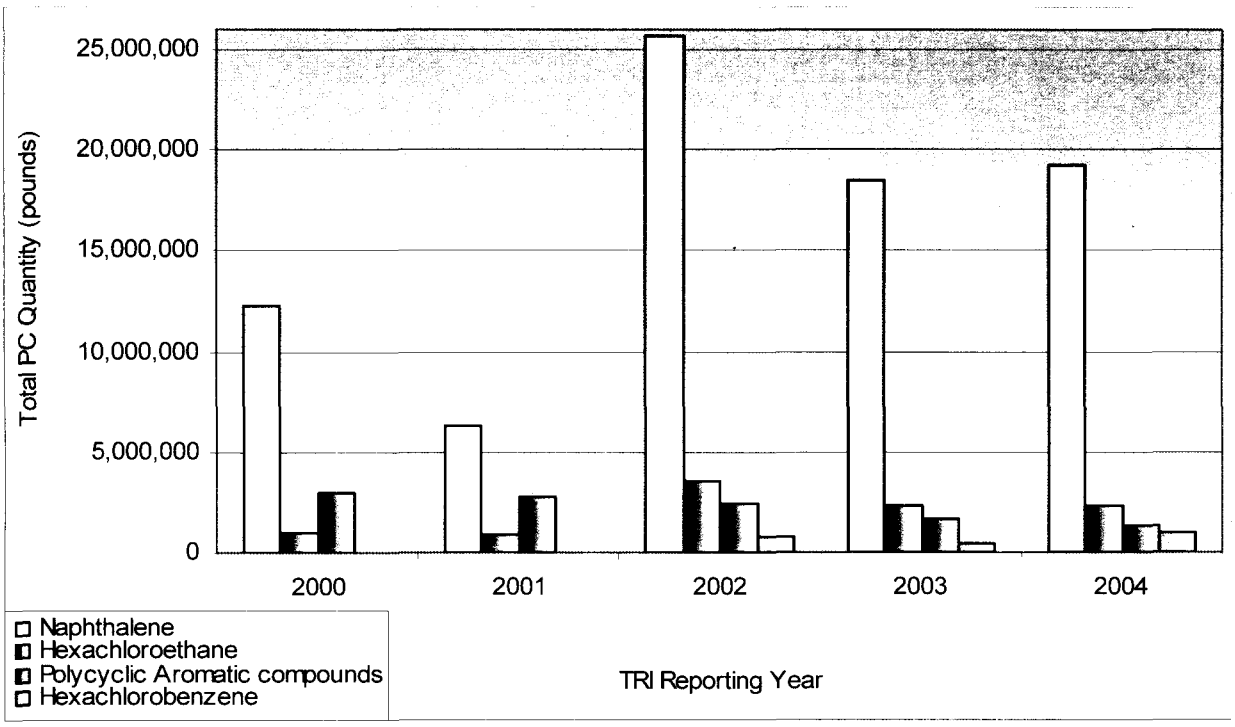


Exhibit 3.17. Trends in Recycling Quantities of Naphthalene, Hexachloroethane, PACs, and Hexachlorobenzene, 2000–2004



Regional Trends for Priority Chemicals

Exhibits 3.18, 3.19, and 3.20 show the PC quantities by EPA region. In 2004, facilities in three regions (Regions 4, 5, and 6) accounted for approximately 78 percent of the total PC quantity. Since 2000, the PC quantity has decreased in eight of the 10 regions, by approximately 14.7 million pounds. In six of the regions, the decrease ranged from approximately 13 percent to 60 percent. The quantity of PCs reported by two facilities in Region 6, in particular, prevented even a more significant decrease in 2004. We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams measurements, which may mean that the increase may not be real.

Exhibit 3.18. Priority Chemical Quantities, by EPA Region, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity in 2004	Percent Change (2000–2004)
1	692,031	1,296,061	992,188	1,015,191	974,060	1.1%	40.8%
2	3,780,115	2,397,353	1,771,400	1,634,991	1,515,379	1.8%	-59.9%
3	6,872,619	8,236,014	4,641,193	5,365,645	5,772,427	6.8%	-16.0%
4	15,720,641	13,317,344	11,246,372	13,755,172	15,083,786	17.8%	-4.1%
5	12,961,758	11,266,248	14,484,354	12,995,416	12,606,550	14.9%	-2.7%
6	43,807,170	32,894,859	32,266,470	29,076,522	38,032,731	44.9%	-13.2%
7	6,866,323	6,139,848	6,806,872	7,863,979	4,685,420	5.5%	-31.8%
8	1,610,232	1,361,753	1,156,742	1,484,643	1,655,855	2.0%	2.8%
9	3,263,947	2,976,036	2,895,183	2,645,921	2,606,581	3.1%	-20.1%
10	3,839,195	2,632,336	1,856,763	1,193,210	1,791,740	2.1%	-53.3%
Total	**99,414,030**	**82,517,853**	**78,117,538**	**77,030,691**	**84,724,529**	**100.0%**	**-14.8%**

Exhibit 3.19. 2004 Priority Chemical Quantity by EPA Region

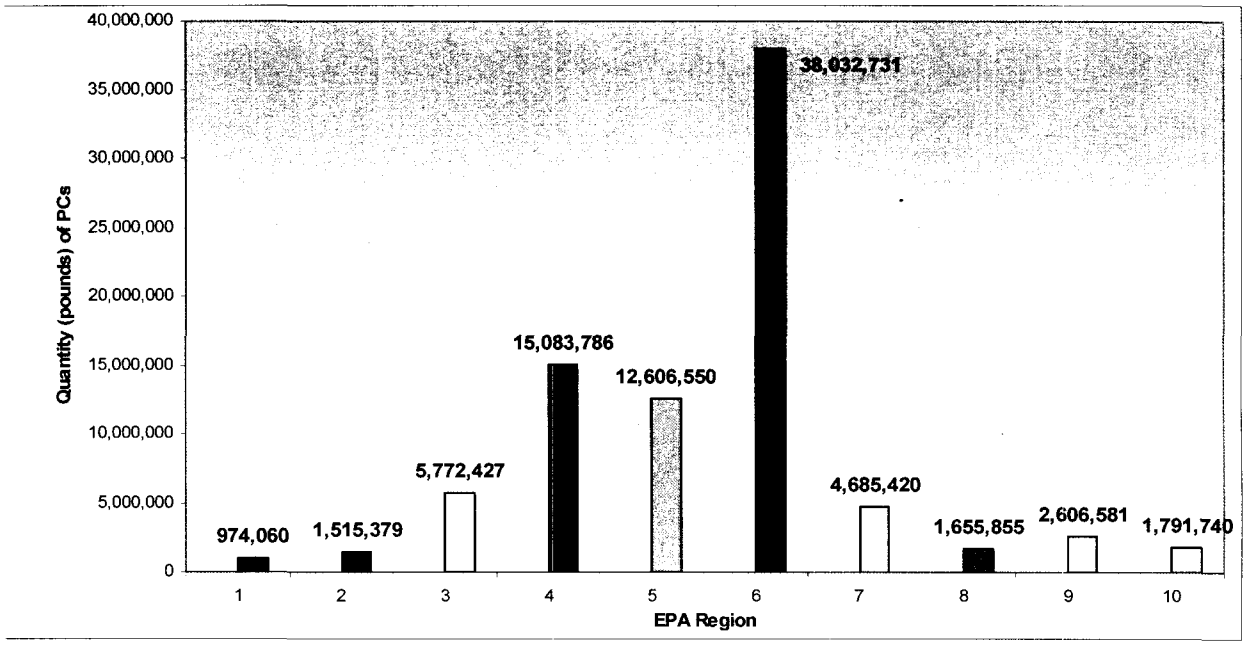
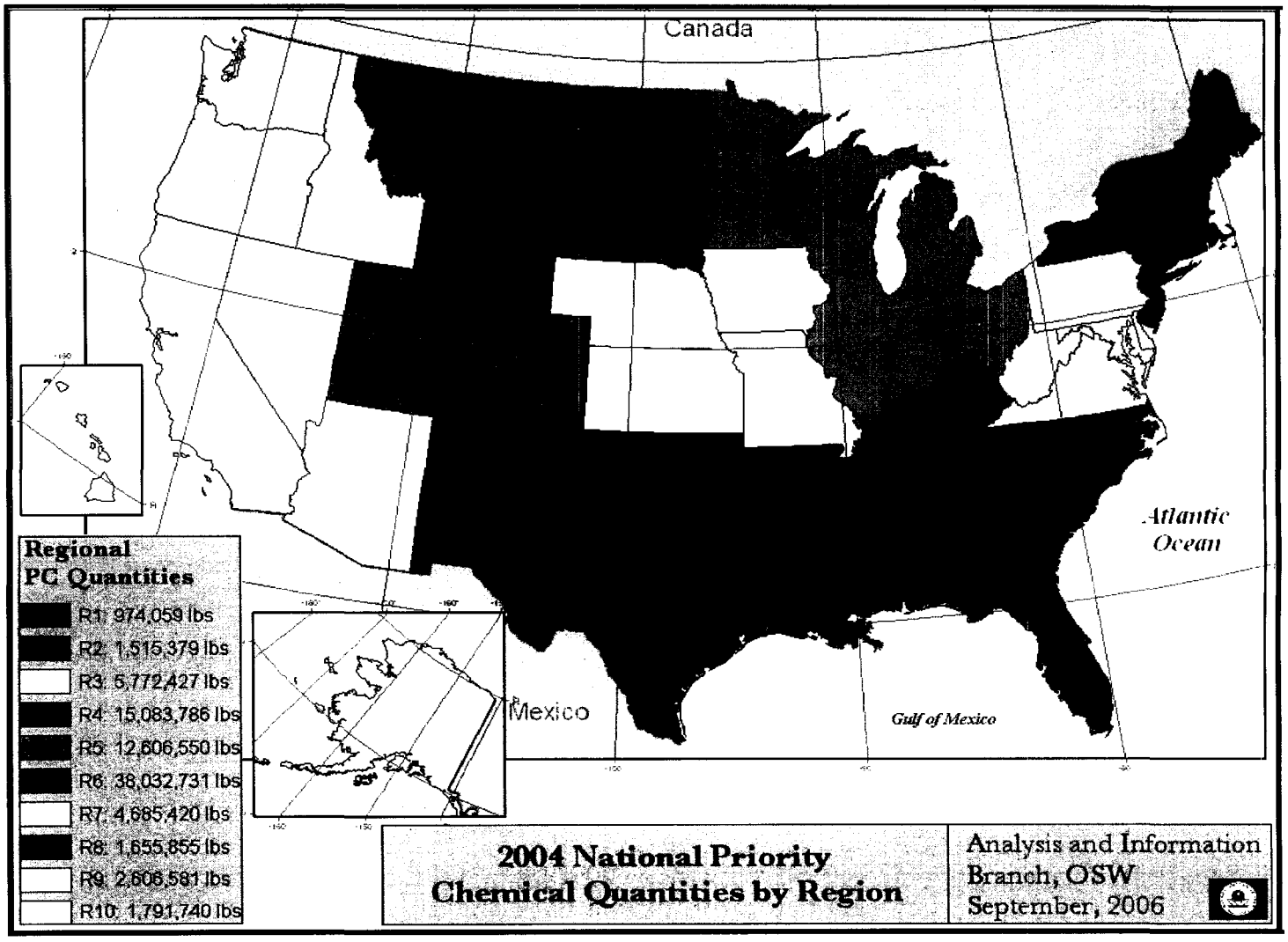


Exhibit 3.20. National Map of 2004 Priority Chemical Quantities, by EPA Region

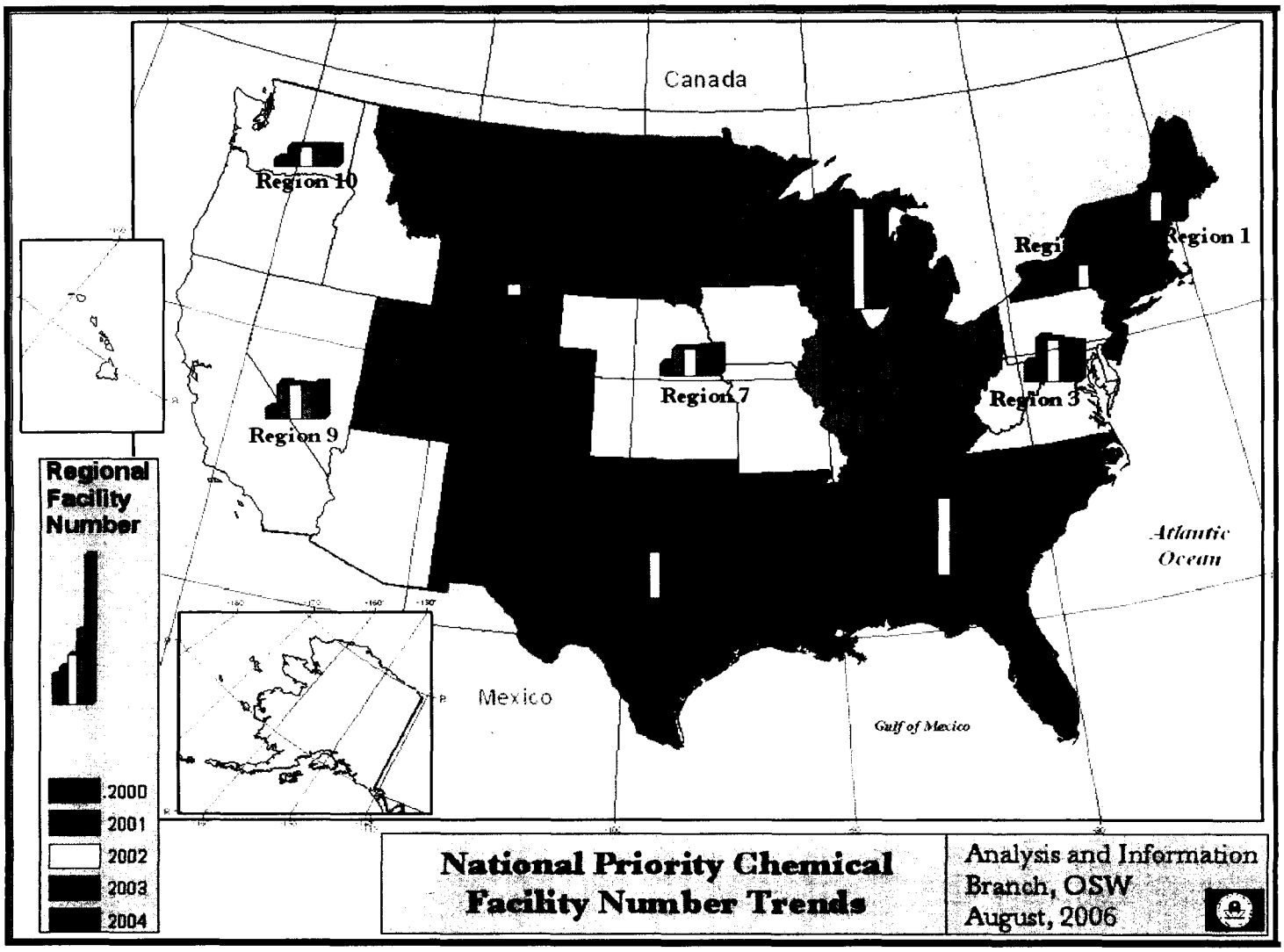


Exhibits 3.21 and 3.22 show the number of facilities that reported the PCs in each region from 2000-2004. Approximately 57 percent of the facilities were located in Regions 4, 5, and 6. The increase in the number of reporting facilities in 2001 is likely due to the lowered TRI reporting threshold for lead and lead compounds. Since 2001 the number of facilities reporting PCs has leveled off in each of the Regions.

Exhibit 3.21. Number of Facilities Reporting Priority Chemicals, by EPA Region, 2000–2004

EPA Region	2000	2001	2002	2003	2004	Percent of Total Number of Facilities in 2004
1	163	400	397	389	381	7.0%
2	175	347	307	298	313	5.7%
3	261	570	539	518	501	9.2%
4	493	1,056	1,056	1,053	1,060	19.5%
5	549	1,468	1,474	1,432	1,399	25.7%
6	377	631	619	631	626	11.5%
7	153	329	326	344	351	6.4%
8	65	133	133	142	140	2.6%
9	145	455	437	414	445	8.2%
10	93	225	228	226	228	4.2%
Total facilities	**2,474**	**5,614**	**5,516**	**5,447**	**5,444**	**100.0%**

Exhibit 3.22. Trends in the Number of Facilities Reporting Priority Chemicals, by EPA Region, 2000–2004



Exhibits 3.23 and 3.24 show the number of facilities and quantities of each PC reported in 2004, by EPA region. Some observations from these exhibits include:

- Approximately 84 percent of the facilities reported lead and lead compounds in 2004.
- Facilities in Regions 4, 5, and 6 accounted for approximately 59 percent of the lead and lead compounds.
- Facilities in Region 4 also reported much of the anthracene, benzo(g,h,i) perylene, naphthalene, phenanthrene, and PACs.
- Facilities in Region 6 reported much of the 1,2,4 trichlorobenzene, cadmium and cadmium compounds, hexachloro-1,3-butadiene, hexachlorobenzene, hexachloroethane, naphthalene, pentachlorobenzene, phenanthrene, and PACs.

Exhibit 3.23. Number of Facilities Reporting a Priority Chemical Quantity in 2004 by Chemical and EPA Region

Chemical Name	Total Number of Facilities	EPA Region									
		1	2	3	4	5	6	7	8	9	10
1,2,4-Trichlorobenzene	17	0	0	0	5	4	5	1	0	1	1
2,4,5-Trichlorophenol	1	0	1	0	0	0	0	0	0	0	0
Anthracene	39	0	0	6	5	11	12		2	1	2
Benzo(g,h,i)perylene	380	36	27	48	84	50	67	18	12	21	17
Cadmium and cadmium compounds	63	1	6	7	14	20	9	2	0	3	1
Dibenzofuran	11	0	0	3	1	7	0	0	0	0	0
Dioxin and dioxin-like compounds	377	15	13	24	118	65	82	8	6	12	34
Heptachlor	2	0	1	0	0	0	1	0	0	0	0
Hexachloro-1,3-butadiene	4	0	0	0	0	0	4	0	0	0	0
Hexachlorobenzene	35	0	4	1	5	2	15	2	2	2	2
Hexachloroethane	9	0	0	0	0	1	6	1	0	0	1
Lead and lead compounds	4,593	323	252	422	899	1,240	470	287	121	390	189
Mercury and mercury compounds	589	31	24	57	119	121	96	52	25	41	23
Methoxychlor	1	0	0	0	0	0	1	0	0	0	0
Naphthalene	638	27	54	59	79	126	144	40	19	54	36
Pendimethalin	7	0	0	0	3	2	0	2	0	0	0
Pentachlorobenzene	7	0	0	0	1	1	5	0	0	0	0
Pentachlorophenol	15	0	0	0	8	0	2	1	0	1	3
Phenanthrene	55	0	0	7	7	12	16	1	6	4	2
Polychlorinated biphenyls	36	1	5	2	5	8	13	1	0	1	0
Polycyclic aromatic compounds	684	63	46	64	161	92	131	30	21	38	38
Quintozene	3	0	0	0	1	0	1	0	0	1	0
Trifluralin	9	0	0	0	1	3	1	4	0	0	0
Total	**7,575**	**497**	**433**	**700**	**1,516**	**1,765**	**1,081**	**450**	**214**	**570**	**349**

Exhibit 3.24. Quantity of Priority Chemicals Reported by Facilities in EPA Regions in 2004

Chemical Name	Total National PC Quantity	EPA Region									
		1	2	3	4	5	6	7	8	9	10
1,2,4-Trichlorobenzene	1,888,685	0	0	0	60,954	60,183	1,637,031	245	0	6,490	123,783
2,4,5-Trichlorophenol	5,083	0	5,083	0	0	0	0	0	0	0	0
Anthracene	520,669	0	0	13,412	389,870	42,040	74,997	0	258	6	87
Benzo(g,h,i)perylene	374,449	3,679	7,059	58,824	218,198	25,093	54,070	998	4,027	817	1,683
Cadmium and cadmium compounds	885,122	3,621	14,421	76,988	113,189	63,426	404,177	37,001	0	26,299	146,000
Dibenzofuran	24,942	0	0	8,217	116	16,610	0	0	0	0	0
Dioxin and dioxin-like compounds	484	0	0	2	109	63	297	8	0	1	3
Heptachlor	775	0	9	0	0	0	766	0	0	0	0
Hexachloro-1,3-butadiene *	7,874,707	0	0	0	0	0	7,874,707	0	0	0	0
Hexachlorobenzene *	6,485,490	0	3,521	140	124,996	14	6,351,393	76	65	5,285	0
Hexachloroethane *	3,772,853	0	0	0	0	11,529	3,742,765	693	0	0	17,867
Lead and lead compounds	31,967,610	281,452	743,143	3,274,457	6,768,339	9,032,565	3,022,428	4,062,679	1,516,155	2,073,876	1,192,517
Mercury and mercury compounds	51,697	532	794	3,484	13,532	9,167	6,682	1,512	588	14,081	1,325
Methoxychlor	766	0	0	0	0	0	766	0	0	0	0
Naphthalene *	13,081,776	66,146	617,285	1,719,079	1,744,989	2,367,760	5,851,732	207,469	22,991	206,754	277,570
Pendimethalin	475,695	0	0	0	187,711	26,549	0	261,435	0	0	0
Pentachlorobenzene	608,691	0	0	0	30	59	608,602	0	0	0	0
Pentachlorophenol	117,264	0	0	0	101,266	0	4,205	9,015	0	607	2,171
Phenanthrene	2,348,265	0	0	45,657	924,232	190,644	1,177,789	1,232	2,439	5,157	1,115
Polychlorinated Biphenyls	67,758	61	155	376	43,327	295	22,962	25	0	558	0
Polycyclic aromatic compounds	13,809,093	618,569	123,909	571,792	4,366,887	757,983	7,186,841	34,488	109,333	11,670	27,620
Quintozene	280,987	0	0	0	25,485	0	523	0	0	254,979	0
Trifluralin	81,668	0	0	0	556	2,569	10,000	68,543	0	0	0

* The total number of facilities in this exhibit is different from the total number of facilities shown in Exhibit 3.21 because numerous facilities reported more than one PC.
* We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, which may mean that the increase may not be real.

Exhibits 3.25 through 3.28 show how PCs were managed by facilities in the EPA regions in 2004.

Exhibit 3.25. Disposal of Priority Chemicals in 2004 by EPA Region

EPA Region	Total PC Quantity (pounds)	Total Disposal (pounds)	Percent of Region's Total PC Quantity	Onsite Disposal (pounds)	Percent of Region's Total PC Quantity	Offsite Disposal (pounds)	Percent of Region's Total PC Quantity
1	974,060	299,797	30.8%	21,217	2.2%	278,581	28.6%
2	1,515,379	783,506	51.7%	228,561	15.1%	554,945	36.6%
3	5,772,427	3,960,972	68.6%	138,504	2.4%	3,822,468	66.2%
4	15,083,786	7,336,776	48.6%	3,663,691	24.3%	3,673,085	24.4%
5	12,606,550	9,623,787	76.3%	386,340	3.1%	9,237,447	73.3%
6	38,032,731	3,984,999	10.5%	1,448,176	3.8%	2,536,824	6.7%
7	4,685,420	4,116,622	87.9%	191,331	4.1%	3,925,291	83.8%
8	1,655,855	1,520,686	91.8%	223,372	13.5%	1,297,313	78.3%
9	2,606,581	2,129,365	81.7%	389,597	14.9%	1,739,768	66.7%
10	1,791,740	1,355,529	75.7%	412,890	23.0%	942,639	52.6%
Total	**84,724,529**	**35,112,039**	**41.4%**	**7,103,679**	**8.4%**	**28,008,361**	**33.1%**

Exhibit 3.26. Energy Recovery of Priority Chemicals in 2004 by EPA Region

EPA Region	Total PC Quantity (pounds)	Total Energy Recovery (pounds)	Percent of Region's Total PC Quantity	Onsite Energy Recovery (pounds)	Percent of Region's Total PC Quantity	Offsite Energy Recovery (pounds)	Percent of Region's Total PC Quantity
1	974,060	631,048	64.8%	624,136	64.1%	6,913	0.7%
2	1,515,379	276,429	18.2%	64,680	4.3%	211,749	14.0%
3	5,772,427	1,039,231	18.0%	902,119	15.6%	137,112	2.4%
4	15,083,786	3,571,869	23.7%	2,631,424	17.4%	940,445	6.2%
5	12,606,550	1,135,990	9.0%	470,119	3.7%	665,870	5.3%
6	38,032,731	7,198,211	18.9%	6,261,519	16.5%	936,692	2.5%
7	4,685,420	78,997	1.7%	60,433	1.3%	18,564	0.4%
8	1,655,855	119,826	7.2%	107,669	6.5%	12,157	0.7%
9	2,606,581	364,973	14.0%	142,519	5.5%	222,454	8.5%
10	1,791,740	235,380	13.1%	232,760	13.0%	2,621	0.1%
Total	**84,724,529**	**14,651,954**	**17.3%**	**11,497,377**	**13.6%**	**3,154,577**	**3.7%**

Exhibit 3.27. Treatment of Priority Chemicals in 2004 by EPA Region

EPA Region	Total PC Quantity (pounds)	Total Treatment (pounds)	Percent of Region's Total PC Quantity	Onsite Treatment* (pounds)	Percent of Region's Total PC Quantity	Offsite Treatment (pounds)	Percent of Region's Total PC Quantity
1	974,060	43,214	4.4%	35,052	3.6%	8,162	0.8%
2	1,515,379	455,443	30.1%	321,049	21.2%	134,395	8.9%
3	5,772,427	772,224	13.4%	686,370	11.9%	85,854	1.5%
4	15,083,786	4,175,141	27.7%	3,889,995	25.8%	285,147	1.9%
5	12,606,550	1,846,773	14.6%	1,737,808	13.8%	108,966	0.9%
6	38,032,731	26,849,522	70.6%	26,132,939	68.7%	716,583	1.9%
7	4,685,420	489,800	10.5%	373,992	8.0%	115,809	2.5%
8	1,655,855	15,344	0.9%	13,317	0.8%	2,028	0.1%
9	2,606,581	112,243	4.3%	54,183	2.1%	58,059	2.2%
10	1,791,740	200,831	11.2%	186,540	10.4%	14,291	0.8%
Total	**84,724,529**	**34,960,536**	**41.3%**	**33,431,244**	**39.5%**	**1,529,292**	**1.8%**

Exhibit 3.28. Recycling of Priority Chemicals in 2004 by EPA Region

EPA Region	Total PC Quantity * (pounds)	Total Recycling (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)	Ratio of Recycling Quantity to the PC Quantity
1	974,060	1,706,418	45,057	1,661,361	1.8
2	1,515,379	27,086,394	4,556,097	22,530,297	17.9
3	5,772,427	35,126,171	22,134,265	12,991,906	6.1
4	15,083,786	139,925,061	47,287,140	92,637,920	9.3
5	12,606,550	316,775,087	254,466,989	62,308,098	25.1
6	38,032,731	62,666,645	37,459,341	25,207,304	1.6
7	4,685,420	111,049,196	62,314,771	48,734,425	23.7
8	1,655,855	5,967,494	109,325	5,858,170	3.6
9	2,606,581	26,740,167	15,919,676	10,820,491	10.3
10	1,791,740	6,777,825	3,113,517	3,664,308	3.8
Total	**84,724,529**	**733,820,459**	**447,406,179**	**286,414,280**	**8.7**

* The term "PC quantity" refers to those quantities of the PCs that were managed using onsite/offsite disposal, treatment, and energy recovery

State and Territory Trends for the Priority Chemicals

Exhibits 3.29 and 3.30 present PC quantities reported by facilities in the states and territories for 2000-2004, shown by decreasing percentage of the total PC quantity in 2004. Facilities in four states accounted for approximately 55 percent of PCs in 2004 – Louisiana (27.6%), Texas (14.0%), Indiana (7.5%), and Alabama (5.7%).

Exhibit 3.29. Priority Chemical Quantity, by State, 2000–2004

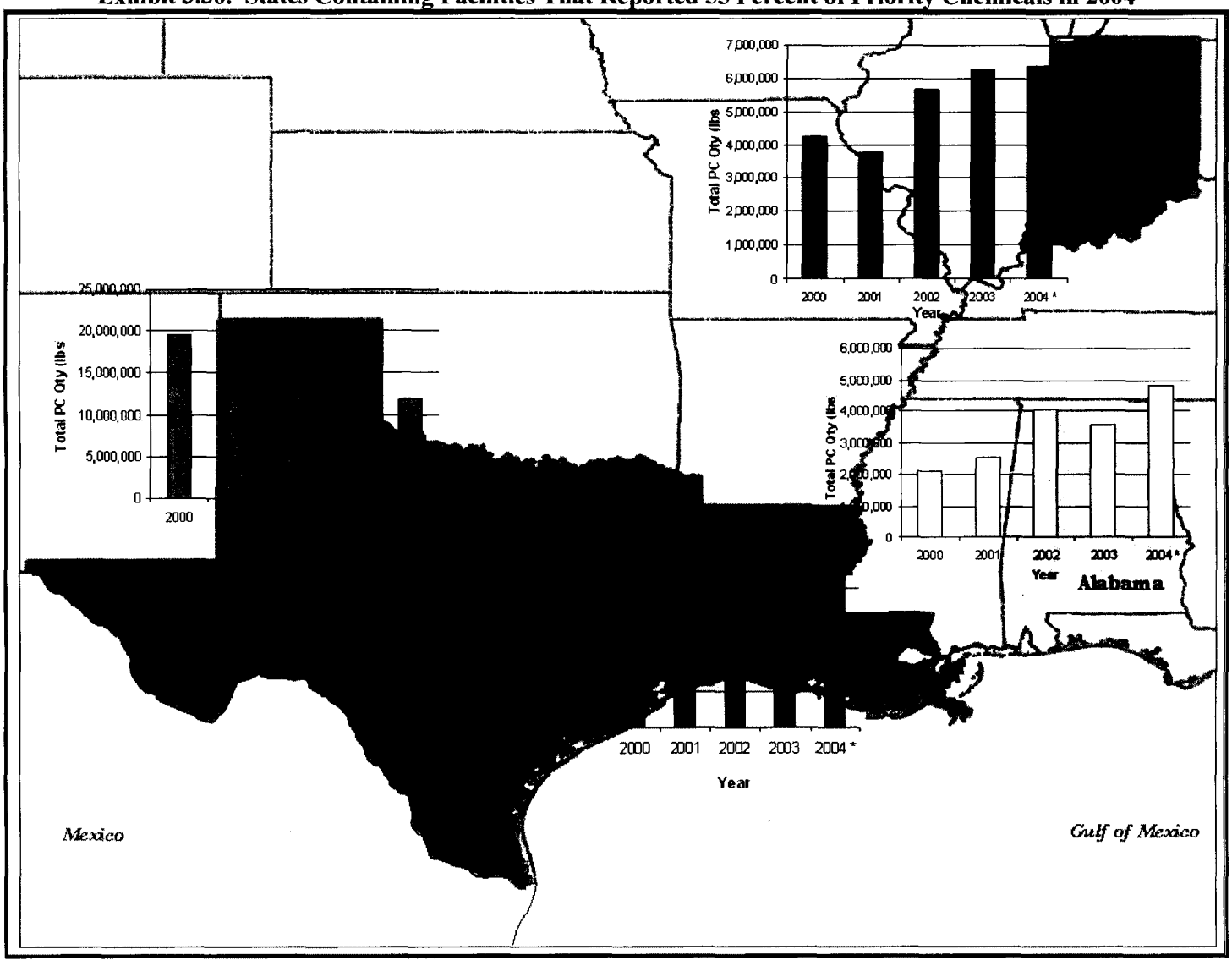
State	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 * (pounds)	Quantity Change (2000-2004)	Percent Change (2000-2004)	Percent of Total Quantity (2004)
LA	20,098,306	15,884,928	13,129,090	16,159,788	23,355,142	3,256,837	16.2%	27.6%
TX	19,612,433	13,688,615	15,519,701	10,394,920	11,865,248	-7,747,185	-39.5%	14.0%
IN	4,237,757	3,775,377	5,655,358	6,247,207	6,372,489	2,134,732	50.4%	7.5%
AL	2,124,105	2,556,724	4,034,629	3,548,430	4,820,405	2,696,300	126.9%	5.7%
PA	5,142,211	4,367,197	2,920,623	3,593,373	3,452,501	-1,689,710	-32.9%	4.1%
KY	1,211,888	1,325,681	1,362,241	3,505,823	3,381,870	2,169,982	179.1%	4.0%
TN	7,554,865	4,805,403	1,435,593	1,908,227	2,643,768	-4,911,097	-65.0%	3.1%
OH	4,788,420	3,793,571	5,322,433	2,887,775	2,570,501	-2,217,919	-46.3%	3.0%
CA	3,230,768	2,725,773	2,517,082	2,237,973	2,279,440	-951,328	-29.4%	2.7%
MO	3,169,384	3,816,041	4,346,745	5,226,054	1,938,928	-1,230,456	-38.8%	2.3%
AR	3,460,012	2,537,291	1,518,807	1,468,070	1,783,801	-1,676,211	-48.4%	2.1%
IL	2,729,009	1,927,432	1,839,611	1,825,651	1,756,677	-972,332	-35.6%	2.1%
NC	757,156	1,151,261	1,184,000	1,390,705	1,481,464	724,308	95.7%	1.7%
WV	693,363	2,157,922	658,960	915,535	1,438,010	744,646	107.4%	1.7%
NE	2,455,729	1,267,149	1,311,585	1,432,225	1,403,197	-1,052,532	-42.9%	1.7%
IA	1,156,742	926,897	1,037,504	1,095,234	1,193,425	36,684	3.2%	1.4%
UT	1,005,959	889,576	929,335	1,183,867	1,093,126	87,167	8.7%	1.3%
SC	1,913,951	1,669,159	1,427,752	1,553,574	1,025,715	-888,236	-46.4%	1.2%
MI	468,967	819,706	696,047	876,275	1,003,728	534,761	114.0%	1.2%
NJ	2,940,163	1,682,384	967,608	919,036	957,360	-1,982,803	-67.4%	1.1%
OK	602,418	704,747	1,939,780	978,642	862,386	259,968	43.2%	1.0%
VA	568,555	952,027	744,965	693,069	722,280	153,725	27.0%	0.9%
ID	525,956	475,348	335,955	265,198	701,123	175,167	33.3%	0.8%
FL	342,908	621,730	598,019	636,520	675,900	332,992	97.1%	0.8%
GA	1,378,091	662,630	858,534	727,835	643,081	-735,010	-53.3%	0.8%
ME	3,339	819,954	612,307	597,810	599,430	596,091	17854.3%	0.7%

Exhibit 3.29. Priority Chemical Quantity, by State, 2000–2004

State	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 * (pounds)	Quantity Change (2000-2004)	Percent Change (2000-2004)	Percent of Total Quantity (2004)
OR	954,754	822,343	648,299	618,917	562,802	-391,952	-41.1%	0.7%
WI	336,180	448,084	481,481	609,676	561,060	224,880	66.9%	0.7%
NY	804,784	656,817	745,391	660,181	535,920	-268,865	-33.4%	0.6%
WA	2,355,991	1,308,562	841,557	285,979	484,958	-1,871,033	-79.4%	0.6%
MS	437,677	524,756	345,603	484,058	411,584	-26,093	-6.0%	0.5%
CO	65,515	98,394	96,726	183,731	391,446	325,930	497.5%	0.5%
MN	401,424	502,078	489,424	548,832	342,095	-59,329	-14.8%	0.4%
NM	34,001	79,277	159,094	75,102	166,154	132,153	388.7%	0.2%
WY	521,394	357,653	110,168	94,361	151,315	-370,078	-71.0%	0.2%
KS	84,467	129,761	111,038	110,467	149,869	65,402	77.4%	0.2%
MD	366,408	747,725	309,218	148,832	143,127	-223,280	-60.9%	0.2%
MA	331,813	229,371	148,235	146,026	129,238	-202,575	-61.1%	0.2%
HI	1,380	122,219	85,254	98,317	128,706	127,325	9224.0%	0.2%
CT	171,897	143,316	88,408	103,208	126,749	-45,148	-26.3%	0.1%
NV	8,140	27,749	229,746	240,556	114,104	105,965	1301.8%	0.1%
NH	97,027	62,003	111,129	127,489	93,334	-3,693	-3.8%	0.1%
AZ	23,229	94,717	63,082	69,055	83,294	60,065	258.6%	0.1%
AK	2,494	26,083	30,953	23,116	42,858	40,364	1618.2%	0.1%
PR	34,706	57,249	57,793	53,048	17,266	-17,440	-50.3%	0.0%
DE	102,082	10,184	6,672	14,546	16,067	-86,015	-84.3%	0.0%
RI	49,578	18,323	15,697	30,351	12,695	-36,883	-74.4%	0.0%
VT	38,377	23,096	16,412	10,306	12,615	-25,762	-67.1%	0.0%
MT	12,447	6,433	9,280	10,934	12,416	-31	-0.2%	0.0%
ND	3,250	5,743	7,323	9,145	5,634	2,384	73.4%	0.0%
VI	461	902	608	2,726	4,833	4,372	948.4%	0.0%
SD	1,667	3,954	3,911	2,605	1,918	251	15.1%	0.0%
GU	296	5,447	16	19	1,036	740	250.4%	0.0%
DC	0	960	756	290	442	442	NA	0.0%
MP	0	2	2	2	1	1	400.0%	0.0%
AS	134	129	0	0	0	-134	-100.0%	0.0%
Total	**99,414,030**	**82,517,853**	**78,117,538**	**77,030,691**	**84,724,529**	**-14,689,501**	**-14.8%**	**100.0%**

* We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, which may mean that the increase may not be real.

Exhibit 3.30. States Containing Facilities That Reported 55 Percent of Priority Chemicals in 2004



Overall, 50 percent of facilities in the states and territories reported a decrease in the total quantity of PCs in 2004, while 50 percent reported an increase in the quantity of PCs, as compared to reported quantities in 2000.

Facilities in the following seven states reported the largest decreases in PC quantities:

- Texas: -7.7 million pounds (-39.5%)
- Tennessee: -4.9 million pounds (-65.0%)
- Ohio: -2.2 million pounds (-46.3%)
- New Jersey: -2 million pounds, (-67.4%)
- Washington: -1.9 million pounds (-79.4%)
- Pennsylvania: -1.7 million pounds (-32.9%)
- Arkansas: -1.7 million pounds (-48.4%)

Facilities in another six states (Georgia, South Carolina, California, Illinois, Nebraska, and Missouri) reported a decrease of 700,000 to 1.2 million pounds.

Facilities in the following four states reported the largest increases in PC quantities:

- Louisiana: +3.3 million pounds (+16.2%)[10]
- Alabama: +2.7 million pounds (+126.9%)
- Kentucky: +2.2 million pounds (+179.1%)
- Indiana: +2.1 million pounds (+50.4%)

Facilities in another four states (Michigan, Maine, North Carolina, and West Virginia) reported an increase of more than 500,000 pounds.

Exhibit 3.31 shows the number of facilities reporting the PCs in each state/territory for 2000-2004. In 2004, more than 25 percent of the facilities were located in Ohio, Texas, California, and Pennsylvania. Approximately 52 percent of the facilities were located in 11 states.

Exhibit 3.31. Number of Facilities Reporting Priority Chemicals, by State/Territory, 2000–2004

State	2000	2001	2002	2003	2004	Percent of Total Number of Facilities (2004)
AK	6	9	10	12	13	0.2%
AL	76	153	158	155	154	2.8%
AR	56	85	86	94	82	1.5%
AS	1	1	0	0	0	0.0%
AZ	10	58	55	66	67	1.2%
CA	122	360	349	316	337	6.2%
CO	18	49	48	52	48	0.9%
CT	48	94	93	86	87	1.6%
DC	0	2	2	2	3	0.1%
DE	12	15	12	13	12	0.2%
FL	48	127	130	132	131	2.4%
GA	64	145	151	136	150	2.8%
GU	2	4	2	2	4	0.1%
HI	2	8	9	9	12	0.2%
IA	43	80	85	94	97	1.8%
ID	13	31	29	28	27	0.5%
IL	103	282	279	280	289	5.3%
IN	92	247	242	230	227	4.2%
KS	29	57	58	60	67	1.2%
KY	59	121	116	120	121	2.2%
LA	76	110	108	109	102	1.9%
MA	49	164	162	170	162	3.0%
MD	18	32	35	31	34	0.6%
ME	18	35	35	34	40	0.7%
MI	71	209	212	199	193	3.5%
MN	35	106	108	101	90	1.7%
MO	60	144	135	139	133	2.4%
MP	1	1	1	1	1	0.0%
MS	46	88	91	87	79	1.5%
MT	8	13	13	12	14	0.3%
NC	65	175	163	167	168	3.1%
ND	3	5	8	7	7	0.1%

[10] In 2004, the quantity significantly increased for three PCs [hexachloro-1,3-butadiene, hexachlorobenzene, and hexachloroethane] reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams measurements, which may mean that the increase may not be real.

Exhibit 3.31. Number of Facilities Reporting Priority Chemicals, by State/Territory, 2000–2004

State	2000	2001	2002	2003	2004	Percent of Total Number of Facilities (2004)
NE	21	48	48	51	54	1.0%
NH	25	52	54	48	49	0.9%
NJ	71	126	115	105	112	2.1%
NM	9	17	20	24	22	0.4%
NV	7	23	21	20	24	0.4%
NY	94	200	174	171	179	3.3%
OH	192	419	421	408	392	7.2%
OK	31	61	64	63	72	1.3%
OR	23	70	76	80	81	1.5%
PA	149	344	328	323	304	5.6%
PR	8	20	17	20	20	0.4%
RI	18	46	41	40	32	0.6%
SC	65	112	115	112	112	2.1%
SD	3	14	13	16	16	0.3%
TN	70	135	132	144	145	2.7%
TX	205	358	341	341	348	6.4%
UT	22	41	42	42	43	0.8%
VA	52	130	121	109	105	1.9%
VI	2	1	1	2	2	0.0%
VT	5	9	12	11	11	0.2%
WA	51	115	113	106	107	2.0%
WI	56	205	212	214	208	3.8%
WV	30	47	41	40	43	0.8%
WY	11	11	9	13	12	0.2%
Total	**2,474**	**5,614**	**5,516**	**5,447**	**5,444**	**100.0%**

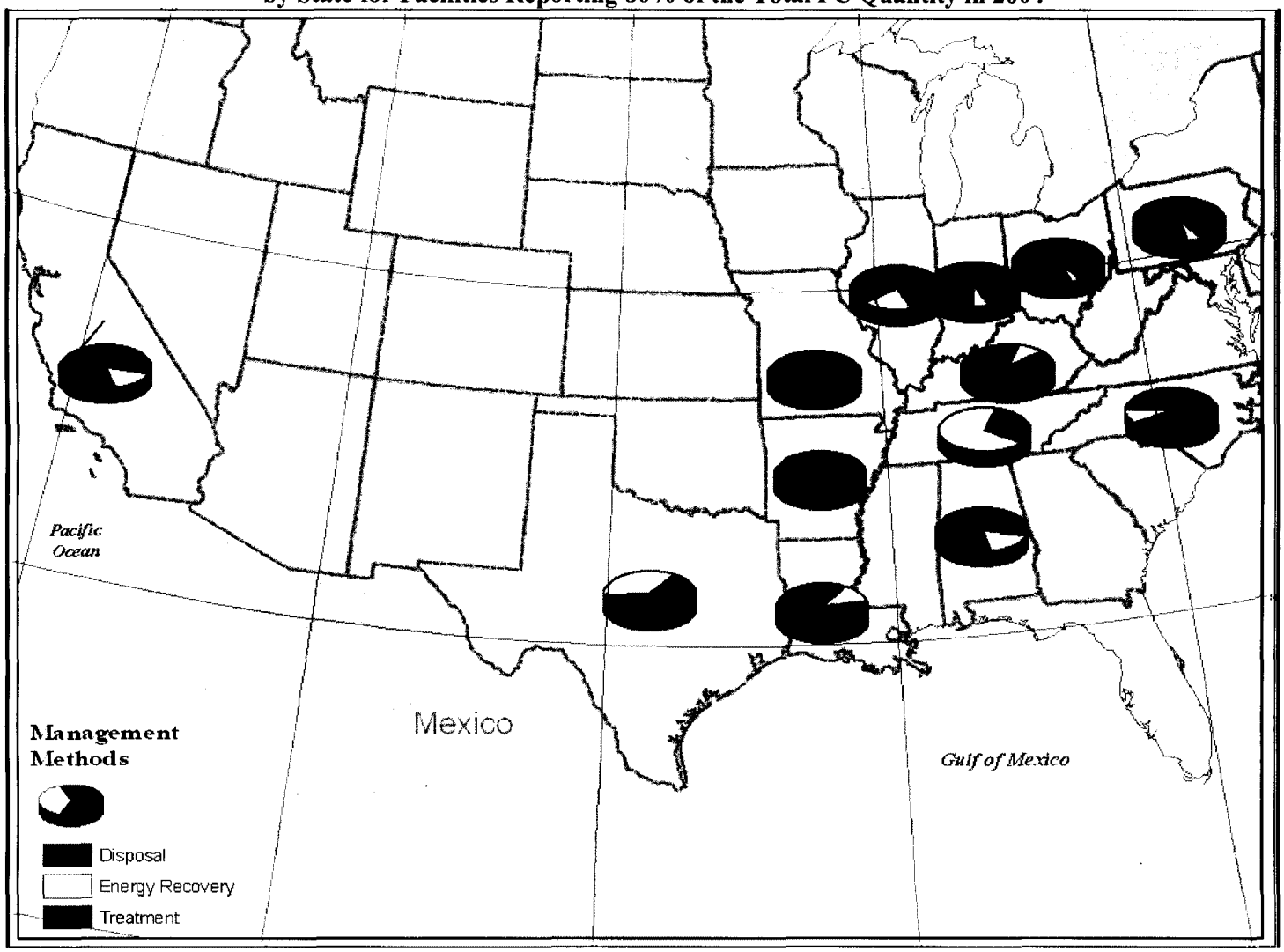
Exhibits 3.32 and 3.33 show how the PCs were managed by facilities in the 13 states in which facilities reported 80 percent of the total PC quantity in 2004. Facilities in eight states used disposal as the primary method to manage PCs. Tennessee facilities reported using energy recovery as its primary management method.

Exhibit 3.32. Management Methods for Priority Chemicals by State with Facilities Reporting 80% of the Total PC Quantity in 2004

State	Total PC Quantity	Percent of Total National PC Quantity	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	*Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
LA	23,355,142	27.6%	316,912	343,464	2,692,402	8,753	19,942,369	51,242	28,447,142	5,985,665
TX	11,865,248	14.0%	822,388	784,560	3,557,014	914,991	5,124,420	661,875	6,883,504	11,488,491
IN	6,372,489	7.5%	128,212	4,666,686	190,881	276,665	1,104,801	5,245	38,304,952	6,313,072
AL	4,820,405	5.7%	2,010,055	1,819,009	30,100	809,000	149,422	2,820	19,562,225	2,080,999
PA	3,452,501	4.1%	7,055	2,747,171	113,130	119,275	409,556	56,314	21,120,688	7,344,519
KY	3,381,870	4.0%	162,792	219,557	316,009	10,580	2,609,377	63,554	5,832,762	4,136,006
TN	2,643,768	3.1%	330,356	138,214	1,966,091	3,430	162,022	43,655	11,020,383	49,325,869
OH	2,570,501	3.0%	81,273	2,019,102	38,477	61,934	346,038	23,677	15,362,084	36,331,831
CA	2,279,440	2.7%	142,160	1,661,861	142,519	222,436	53,472	56,992	15,100,178	10,520,290
MO	1,938,928	2.3%	169,123	1,433,802	43	12,613	301,590	21,756	17,132,052	15,660,613
AR	1,783,801	2.1%	98,219	618,786	12,103	6,642	1,046,047	2,005	1,780,636	5,563,007
IL	1,756,677	2.1%	49,674	996,833	124,031	284,520	223,173	78,446	5,693,962	12,577,520
NC	1,481,464	1.7%	375,301	622,881	24,762	47,611	357,923	52,986	128,830	17,928,186

* We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams measurements, which may mean that the increase may not be real.

Exhibit 3.33. Map of Management Methods for Priority Chemicals by State for Facilities Reporting 80% of the Total PC Quantity in 2004



Exhibits 3.34 through 3.37 show the states with facilities that primarily managed PCs using the indicated management method. Some observations from these exhibits are:

Disposal (See Exhibit 3.34)

- Facilities in 18 states accounted for approximately 80 percent of the total disposal quantity for the PCs in 2004.
- Except for facilities in Louisiana, Texas, and Arkansas, disposal was the primary method used to manage PCs. Most of the disposal was offsite.

Energy Recovery (See Exhibit 3.35)

- Facilities in seven states accounted for approximately 81 percent of the total energy recovery quantity in 2004.
- Energy recovery was used to manage the majority of PCs in three of these states (Maine, Tennessee, and West Virginia). Most of the energy recovery was conducted onsite.

Treatment (See Exhibit 3.36)

- Facilities in seven states accounted for approximately 90 percent of the total PC treatment quantity in 2004.
- Treatment was used to manage the majority of PCs in three of these states (Louisiana, Kentucky, and Arkansas). Approximately 86 percent of the PC quantity in Louisiana was managed using treatment (primarily incineration).

Recycling (See Exhibit 3.37)

- Facilities in these 12 states accounted for approximately 82 percent of the total recycling quantity of PCs in 2004.
- Most of the recycling at facilities in these states was completed onsite.

Exhibit 3.34. Disposal of Priority Chemicals in 2004 by State

State	Total PC Quantity	Percent of Total National PC Quantity	Onsite Disposal	Offsite Disposal	Total Disposal	Percent of Total National PC Disposal Quantity	Percent of State's total PC Quantity
IN	6,372,489	7.5%	128,212	4,666,686	4,794,898	13.7%	75.2%
AL	4,820,405	5.7%	2,010,055	1,819,009	3,829,064	10.9%	79.4%
PA	3,452,501	4.1%	7,055	2,747,171	2,754,225	7.8%	79.8%
OH	2,570,501	3.0%	81,273	2,019,102	2,100,375	6.0%	81.7%
CA	2,279,440	2.7%	142,160	1,661,861	1,804,021	5.1%	79.1%
TX	11,865,248	14.0%	822,388	784,560	1,606,949	4.6%	13.5%
MO	1,938,928	2.3%	169,123	1,433,802	1,602,925	4.6%	82.7%
NE	1,403,197	1.7%	478	1,392,719	1,393,197	4.0%	99.3%
UT	1,093,126	1.3%	91,402	998,747	1,090,149	3.1%	99.7%
IL	1,756,677	2.1%	49,674	996,833	1,046,506	3.0%	59.6%
NC	1,481,464	1.7%	375,301	622,881	998,183	2.8%	67.4%
IA	1,193,425	1.4%	2,984	976,184	979,168	2.8%	82.0%
OK	862,386	1.0%	88,342	746,545	834,888	2.4%	96.8%
MI	1,003,728	1.2%	27,905	800,481	828,386	2.4%	82.5%
AR	1,783,801	2.1%	98,219	618,786	717,004	2.0%	40.2%
ID	701,123	0.8%	245,544	452,096	697,640	2.0%	99.5%
VA	722,280	0.9%	116,979	574,802	691,780	2.0%	95.8%
LA	23,355,142	27.6%	316,912	343,464	660,376	1.9%	2.8%

Exhibit 3.35. Energy Recovery of Priority Chemicals in 2004 by State

State	Total PC Quantity	Percent of Total National PC Quantity	Onsite Energy Recovery	Offsite Energy Recovery	Total Energy Recovery	Percent of Total National PC Energy Recovery Quantity	Percent of State's total PC Quantity
TX	11,865,248	14.0%	3,557,014	914,991	4,472,005	30.5%	37.7%
LA	23,355,142	27.6%	2,692,402	8,753	2,701,155	18.4%	11.6%
TN	2,643,768	3.1%	1,966,091	3,430	1,969,521	13.4%	74.5%
AL	4,820,405	5.7%	30,100	809,000	839,100	5.7%	17.4%
WV	1,438,010	1.7%	765,659	11,817	777,476	5.3%	54.1%
ME	599,430	0.7%	565,473	21	565,494	3.9%	94.3%
IN	6,372,489	7.5%	190,881	276,665	467,546	3.2%	7.3%

Exhibit 3.36. Treatment of Priority Chemicals in 2004 by State

State	Total PC Quantity	Percent of Total National PC Quantity	Onsite Treatment	Offsite Treatment	Total Treatment	Percent of Total National PC Treatment Quantity	Percent of State's total PC Quantity
LA	23,355,142	27.6%	19,942,369	51,242	19,993,611	57.2%	85.6%
TX	11,865,248	14.0%	5,124,420	661,875	5,786,294	16.6%	48.8%
KY	3,381,870	4.0%	2,609,377	63,554	2,672,931	7.6%	79.0%
IN	6,372,489	7.5%	1,104,801	5,245	1,110,045	3.2%	17.4%
AR	1,783,801	2.1%	1,046,047	2,005	1,048,052	3.0%	58.8%
PA	3,452,501	4.1%	409,556	56,314	465,870	1.3%	13.5%
NC	1,481,464	1.7%	357,923	52,986	410,909	1.2%	27.7%

* We believe much of this increase resulted from quantities of several PCs reported by a few large facilities. For example, new equipment installed at a Louisiana facility substantially improved this facility's ability to detect PCs in waste streams compared to previous measurements, which may mean that the increase may not be real.

Exhibit 3.37. Recycling of Priority Chemicals in 2004 by State

State	Total PC Quantity	Percent of Total National PC Quantity	Onsite Recycling	Offsite Recycling	Total Recycling	Percent of Total National PC Recycling Quantity	Percent of Total Recycling Quantity
MN	342,095	0.4%	194,515,439	1,306,104	195,821,543	27%	26.7%
TN	2,643,768	3.1%	11,020,383	49,325,869	60,346,251	8%	8.2%
OH	2,570,501	3.0%	15,362,084	36,331,831	51,693,915	7%	7.0%
KS	149,869	0.2%	31,678,698	19,714,503	51,393,201	7%	7.0%
IN	6,372,489	7.5%	38,304,952	6,313,072	44,618,024	6%	6.1%
LA	23,355,142	27.6%	28,447,142	5,985,665	34,432,807	5%	4.7%
MO	1,938,928	2.3%	17,132,052	15,660,613	32,792,665	4%	4.5%
PA	3,452,501	4.1%	21,120,688	7,344,519	28,465,207	4%	3.9%
IA	1,193,425	1.4%	13,503,973	13,274,952	26,778,925	4%	3.6%
NY	535,920	0.6%	4,489,300	21,235,111	25,724,411	4%	3.5%
CA	2,279,440	2.7%	15,100,178	10,520,290	25,620,468	3%	3.5%
AL	4,820,405	5.7%	19,562,225	2,080,999	21,643,224	3%	2.9%

Industry Sector Trends for Priority Chemicals

In 2004, facilities in more than 320 different Standard Industrial Classification (SIC) codes reported PC quantities. Exhibit 3.38 shows the PC quantities (from 2000-2004) for facilities in those 21 SICs that accounted for 90 percent of the total quantity of PCs in 2004. Facilities in four industry sectors accounted for more than 50 percent of the total quantity of the PCs in 2004: SIC 2869 – Industrial organic chemicals nec (17.7%), SIC 3341 – Secondary non-ferrous metals (12.1%), SIC 3312 – Blast furnaces and steel mills (11.7%), and SIC 2812 – Alkalies and chlorine (9.7%).

Exhibit 3.38. Industry Sector Quantity of Priority Chemicals Reported in 2004 (90% of Total)

Primary SIC	SIC Description	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total PC Quantity (2004)
2869	Industrial organic chemicals, nec	3,476,741	2,181,138	6,801,654	8,454,049	15,030,270	17.7%
3341	Secondary nonferrous metals	10,528,236	9,720,779	11,947,609	13,102,421	10,228,521	12.1%
3312	Blast furnaces and steel mills	9,628,162	7,944,838	7,195,567	8,226,018	9,915,357	11.7%
2812	Alkalies and chlorine	23,439,114	18,990,611	12,525,132	7,464,800	8,237,520	9.7%
2911	Petroleum refining	6,175,503	2,234,759	4,210,763	3,408,834	4,670,794	5.5%
2895	Carbon black	3,749,053	3,454,362	3,922,074	4,052,612	4,239,664	5.0%
3624	Carbon and graphite products	8,300,424	5,119,620	1,834,267	2,891,018	3,762,327	4.4%
3334	Primary aluminum	3,470,643	2,202,940	1,849,101	2,845,044	2,974,060	3.5%
2865	Cyclic crudes and intermediates	1,992,168	1,432,297	3,103,354	1,639,429	2,734,944	3.2%
9711	National security	163,504	2,248,227	2,605,080	2,787,985	2,561,448	3.0%
2819	Industrial inorganic chemicals, nec	5,953,158	2,616,904	1,919,225	2,354,588	2,252,963	2.7%
3479	Metal coating and allied services	1,821,976	1,648,889	2,501,706	2,759,480	2,000,606	2.4%
3321	Gray and ductile iron foundries	1,108,568	2,683,367	2,980,670	2,547,689	1,782,043	2.1%
2879	Pesticides and agricultural chemicals, nec	1,608,790	2,112,222	758,430	929,664	1,474,156	1.7%
3229	Pressed and blown glass, nec	1,730,917	1,545,626	1,299,721	1,171,476	998,709	1.2%
3691	Storage batteries	788,534	291,593	338,078	561,382	850,982	1.0%
2821	Plastics materials and resins	868,378	558,904	743,783	1,385,285	790,481	0.9%
8733	Noncommercial research organizations	153	203,452	153,948	426,656	500,571	0.6%
3315	Steel wire and related products	955,200	796,302	421,572	502,771	496,974	0.6%
2992	Lubricating oils and greases	357,041	341,029	434,100	459,742	461,080	0.5%
2037	Frozen fruits and vegetables	0	377,766	422,549	417,237	413,030	0.5%
	Total	**86,116,263**	**68,705,626**	**67,968,382**	**68,388,180**	**76,376,501**	**90.1%**

Exhibit 3.39 shows the 26 industry sectors that had 50 percent of the facilities that reported a PC quantity in 2004. It also shows the number of facilities that reported PCs for 2000-2004. In 2004, the number of reporting facilities in SIC 5171 increased by approximately 30 percent. We believe this increase in reporting facilities was due to the lowering of the de minimis TRI reporting levels for naphthalene, from 1.0 percent to 0.1 percent, starting with the 2004 reporting year.

Exhibit 3.39. Number of Facilities Reporting Priority Chemicals, by SIC Code, 2000–2004

Primary SIC	SIC Code Description	2000	2001	2002	2003	2004	Percent of Total Number of Facilities (2004)
3471	Plating and polishing	30	261	249	240	245	4.5%
5171	Petroleum bulk stations and terminals	87	163	156	172	224	4.1%
3672	Printed circuit boards	27	247	206	177	189	3.5%
3714	Motor vehicle parts and accessories	54	159	172	162	150	2.8%
3321	Gray and ductile iron foundries	33	141	138	138	138	2.5%
2911	Petroleum refining	128	130	131	130	136	2.5%
9711	National security	13	109	111	132	128	2.4%
3679	Electronic components, nec	25	114	114	123	118	2.2%
2869	Industrial organic chemicals, nec	83	102	102	106	103	1.9%
3479	Metal coating and allied services	69	106	100	101	97	1.8%
3273	Ready-mixed concrete	2	52	64	77	95	1.7%
3312	Blast furnaces and steel mills	79	91	89	92	95	1.7%
3341	Secondary nonferrous metals	56	81	83	90	95	1.7%
2621	Paper mills	78	95	96	86	89	1.6%
2851	Paints and allied products	50	112	112	94	87	1.6%
2819	Industrial inorganic chemicals, nec	49	94	93	89	85	1.6%
2421	Sawmills and planting mills, general	12	77	80	79	77	1.4%
3357	Nonferrous wire drawing and insulating	72	96	83	78	77	1.4%
2631	Paperboard mills	38	86	75	72	74	1.4%
2821	Plastics materials and resins	50	60	59	62	63	1.2%
3087	Custom compound purchased resins	45	70	69	63	62	1.1%
3691	Storage batteries	68	64	59	58	61	1.1%
2491	Wood preserving	57	60	76	64	60	1.1%
2493	Reconstituted wood products	19	58	55	57	60	1.1%
2611	Pulp mills	69	61	66	61	58	1.1%
2952	Asphalt felts and coatings	46	43	48	59	58	1.1%
	Total	**1,339**	**2,732**	**2,686**	**2,662**	**2,724**	**50%**

Exhibit 3.40 shows how the PCs were managed by facilities in the 21 industry sectors in which facilities reported 90 percent of the total PC quantity in 2004. There were no quantities of PCs reported by facilities in SIC 2037 in 2000. However, in 2001, one facility in this industry sector, located in Maine, began reporting quantities of naphthalene and PACs.

Exhibit 3.40. Management Methods for Priority Chemicals, by SIC Code for Facilities Reporting 90% of the Total PC Quantity in 2004

Primary SIC	SIC Code Description	Total PC Quantity (2004)	Percent of Total PC Quantity	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2869	Industrial organic chemicals, nec	15,030,270	17.7%	7,414	87,278	917,634	617,749	12,808,662	591,533	2,054,097	8,811,164
3341	Secondary nonferrous metals	10,228,521	12.1%	2,234,691	7,978,007	15,070	750	3	0	285,530,639	24,707,227
3312	Blast furnaces and steel mills	9,915,357	11.7%	183,356	9,399,124	16,904	0	269,867	46,105	1,342,544	14,225,164
2812	Alkalies and chlorine	8,237,520	9.7%	1,760	4,390	658,584	0	7,560,913	11,873	1,587,820	23,576
2911	Petroleum refining	4,670,794	5.5%	25,385	122,482	111,068	101,845	4,258,727	51,287	7,495,760	113,873
2895	Carbon black	4,239,664	5.0%	482	6,620	3,594,212	0	638,095	256	0	0
3624	Carbon and graphite products	3,762,327	4.4%	14,814	22,758	2,265,239	70	1,458,084	1,362	199,899	9,609
3334	Primary aluminum	2,974,060	3.5%	89,576	50,108	187,075	6,814	2,638,856	1,631	316,561	33,795
2865	Cyclic crudes and intermediates	2,734,944	3.2%	131,899	817,442	164,264	1,171,210	118,830	331,298	1,220,037	252,830
9711	National security	2,561,448	3.0%	2,273,059	118,734	19,371	5,890	135,259	9,134	456,038	559,452
2819	Industrial inorganic chemicals, nec	2,252,963	2.7%	344,904	913,487	986,605	1,649	4,327	1,991	410,484	374,089
3479	Metal coating and allied services	2,000,606	2.4%	5	66,405	536,167	100,749	1,286,251	11,029	3,614	339,986
3321	Gray and ductile iron foundries	1,782,043	2.1%	401,551	1,374,568	0	0	5,923	1	99,844	353,690
2879	Pesticides and agricultural chemicals, nec	1,474,156	1.7%	2,406	14,076	765,647	214,292	288,834	188,901	325,633	107
3229	Pressed and blown glass, nec	998,709	1.2%	2	998,708	0	0	0	0	19,718,130	276,199
3691	Storage batteries	850,982	1.0%	180,434	670,548	0	0	0	0	85,701,981	181,378,416
2821	Plastics materials and resins	790,481	0.9%	2,554	15,941	128,991	379,940	234,979	28,077	1,168,137	59,392
8733	Noncommercial research organizations	500,571	0.6%	35,778	464,704	0	89	0	0	0	39,010
3315	Steel wire and related products	496,974	0.6%	19	496,955	0	0	1	0	1,000	1,795,060
2992	Lubricating oils and greases	461,080	0.5%	3	31,439	0	1,003	428,635		13,060	6
2037	Frozen fruits and vegetables	413,030	0.5%	0	0	412,144	0	886	0	0	0

Exhibits 3.41 through 3.44 show how PCs were managed by facilities in the 21 industry sectors in which facilities reported 90 percent of the total PC quantity in 2004. Some observations from these exhibits are:

Disposal (see Exhibit 3.41)

- Facilities in these 21 industry sectors accounted for 90 percent of the total quantity of PCs disposed of, as well as 50 percent of the total national PC quantity in 2004. Facilities in two of the industry sectors: SIC 3341 – Secondary nonferrous metals and SIC 3312 – Blast furnaces and steel mills, accounted for approximately 56 percent of the total quantity of PCs disposed of.
- For many of these industry sectors, disposal was the only or the primary method used to manage PCs in 2004.
- Facilities in these industry sectors used offsite disposal for approximately 80 percent of the PCs disposed of.

Energy Recovery (see Exhibit 3.42)

- Facilities in these 11 industry sectors accounted for approximately 90 percent of the total quantity of PCs sent to energy recovery, as well as approximately 49 percent of the total national PC quantity in 2004.
- Facilities in two of the industry sectors: SIC 2895 – Carbon black and SIC 3624 – Carbon and graphite products, accounted for approximately 45 percent of the total quantity of PCs sent to energy recovery.
- For approximately one-half of these industry sectors, energy recovery was the primary method used to manage their PCs in 2004.
- Facilities in these industry sectors used onsite energy recovery for approximately 79 percent of the PCs sent to energy recovery.

Treatment (see Exhibit 3.43)

- Facilities in these seven industry sectors accounted for 90 percent of the total quantity of PCs treated, as well as 50 percent of the total national PC quantity in 2004. Facilities in three of the industry sectors, SIC 2869 – Industrial organic chemicals, SIC 2812 – Alkalies and chlorine, and SIC 2911 – Petroleum refining, accounted for approximately 72 percent of the total quantity of PCs treated.
- For many of these industry sectors, treatment was the primary method used to manage PCs in 2004.
- Facilities in these industry sectors used onsite treatment for approximately 98 percent of the PCs treated.

Recycling (see Exhibit 3.44)

- Facilities in these six industry sectors accounted for approximately 91 percent of the total recycling quantity of PCs in 2004. Two of the industry sectors: SIC 3341 – Secondary nonferrous metals and SIC 3691 – Storage batteries, accounted for approximately 79 percent of the total quantity of recycled PCs.
- Approximately 63 percent of the recycling at facilities in these industry sectors was done onsite.

Exhibit 3.41. Disposal of Priority Chemicals in 2004 by SIC Code

Primary SIC	SIC Code Description	Total PC Quantity (2004)	Percent of Total National PC Quantity	Onsite Disposal	Offsite Disposal	Total Disposal	Percent of Total National PC Disposal Quantity	Percent of SIC Total PC Quantity
3341	Secondary nonferrous metals	10,228,521	12.1%	2,234,691	7,978,007	10,212,698	29.1%	99.8%
3312	Blast furnaces and steel mills	9,915,357	11.7%	183,356	9,399,124	9,582,481	27.3%	96.6%
9711	National security	2,561,448	3.0%	2,273,059	118,734	2,391,793	6.8%	93.4%
3321	Gray and ductile iron foundries	1,782,043	2.1%	401,551	1,374,568	1,776,119	5.1%	99.7%
2819	Industrial inorganic chemicals, nec	2,252,963	2.7%	344,904	913,487	1,258,391	3.6%	55.9%
3229	Pressed and blown glass, nec	998,709	1.2%	2	998,708	998,709	2.8%	100.0%
2865	Cyclic crudes and intermediates	2,734,944	3.2%	131,899	817,442	949,341	2.7%	34.7%
3691	Storage batteries	850,982	1.0%	180,434	670,548	850,982	2.4%	100.0%
8733	Noncommercial research organizations	500,571	0.6%	35,778	464,704	500,482	1.4%	100.0%
3315	Steel wire and related products	496,974	0.6%	19	496,955	496,973	1.4%	100.0%
3011	Tires and inner tubes	374,187	0.4%	406	368,549	368,955	1.1%	98.6%
3357	Nonferrous wire drawing and insulating	410,822	0.5%	47,894	316,355	364,249	1.0%	88.7%
3679	Electronic components, nec	358,587	0.4%	215	350,220	350,436	1.0%	97.7%
2621	Paper mills	309,811	0.4%	89,552	99,541	189,093	0.5%	61.0%
3471	Plating and polishing	185,475	0.2%	0	185,104	185,104	0.5%	99.8%
3482	Small arms ammunition	184,976	0.2%	1,899	183,077	184,976	0.5%	100.0%
3325	Steel foundries, nec	169,983	0.2%	5,947	163,786	169,733	0.5%	99.9%
2611	Pulp mills	189,496	0.2%	104,797	58,180	162,978	0.5%	86.0%
2061	Raw cane sugar	158,889	0.2%	158,889	0	158,889	0.5%	100.0%
2874	Phosphatic fertilizers	151,088	0.2%	151,086	2	151,088	0.4%	100.0%
2911	Petroleum refining	4,670,794	5.5%	25,385	122,482	147,867	0.4%	3.2%
3334	Primary aluminum	2,974,060	3.5%	89,576	50,108	139,684	0.4%	4.7%

Exhibit 3.42. Energy Recovery of Priority Chemicals in 2004 by SIC Code

Primary SIC	SIC Code Description	Total PC Quantity (2004)	Percent of Total National PC Quantity	Onsite Energy Recovery	Offsite Energy Recovery	Total Energy Recovery	Percent of Total National PC Energy Recovery Quantity	Percent of SIC Total PC Quantity
2895	Carbon black	4,239,664	5.0%	3,594,212	0	3,594,212	24.5%	84.8%
3624	Carbon and graphite products	3,762,327	4.4%	2,265,239	70	2,265,309	15.5%	60.2%
2869	Industrial organic chemicals, nec	15,030,270	17.7%	917,634	617,749	1,535,383	10.5%	10.2%
2865	Cyclic crudes and intermediates	2,734,944	3.2%	164,264	1,171,210	1,335,474	9.1%	48.8%
2819	Industrial inorganic chemicals, nec	2,252,963	2.7%	986,605	1,649	988,254	6.7%	43.9%
2879	Pesticides and agricultural chemicals, nec	1,474,156	1.7%	765,647	214,292	979,939	6.7%	66.5%
2812	Alkalies and chlorine	8,237,520	9.7%	658,584	0	658,584	4.5%	8.0%
3479	Metal coating and allied services	2,000,606	2.4%	536,167	100,749	636,916	4.3%	31.8%
2821	Plastics materials and resins	790,481	0.9%	128,991	379,940	508,930	3.5%	64.4%
2037	Frozen fruits and vegetables	413,030	0.5%	412,144	0	412,144	2.8%	99.8%
4925	Gas production and/or distribution	347,857	0.4%	0	259,653	259,653	1.8%	74.6%

Exhibit 3.43. Treatment of Priority Chemicals in 2004 by SIC Code

Primary SIC	SIC Code Description	Total PC Quantity (2004)	Percent of Total National PC Quantity	Onsite Treatment	Offsite Treatment	Total Treatment	Percent of Total National PC Treatment Quantity	Percent of SIC Total PC Quantity
2869	Industrial organic chemicals, nec	15,030,270	17.7%	12,808,662	591,533	13,400,195	38.3%	89.2%
2812	Alkalies and chlorine	8,237,520	9.7%	7,560,913	11,873	7,572,787	21.7%	91.9%
2911	Petroleum refining	4,670,794	5.5%	4,258,727	51,287	4,310,015	12.3%	92.3%
3334	Primary aluminum	2,974,060	3.5%	2,638,856	1,631	2,640,487	7.6%	88.8%
3624	Carbon and graphite products	3,762,327	4.4%	1,458,084	1,362	1,459,446	4.2%	38.8%
3479	Metal coating and allied services	2,000,606	2.4%	1,286,251	11,029	1,297,280	3.7%	64.8%
2895	Carbon black	4,239,664	5.0%	638,095	256	638,350	1.8%	15.1%

Exhibit 3.44. Recycling of the Priority Chemicals 2004 by SIC Code

Primary SIC	SIC Code Description	Total PC Quantity (2004)	Percent of Total National PC Quantity	Onsite Recycling	Offsite Recycling	Total Recycling	Percent of Total Recycling Quantity
3341	Secondary nonferrous metals	10,228,521	12.1%	285,530,639	24,707,227	310,237,867	42.3%
3691	Storage batteries	850,982	1.0%	85,701,981	181,378,416	267,080,397	36.4%
3714	Motor vehicle parts and accessories	97,491	0.1%	1,305,955	26,724,615	28,030,570	3.8%
3357	Nonferrous wire drawing and insulating	410,822	0.5%	24,629,361	890,204	25,519,565	3.5%
3229	Pressed and blown glass, nec	998,709	1.2%	19,718,130	276,199	19,994,329	2.7%
3312	Blast furnaces and steel mills	9,915,357	11.7%	1,342,544	14,225,164	15,567,708	2.1%

[Page intentionally left blank.]

Section 4
Chemical Specific Trends Analyses for Priority Chemicals (2000–2004)

Introduction

This section presents national, EPA region, state, and industry sector trends for each of the 24 Priority Chemicals (PCs) reported to the Toxic Release Inventory (TRI). We also provide basic information regarding the PC, including its Chemical Abstracts Service (CAS) number, alternative names, general uses, and potential hazards. Of the 31 PCs, seven are not reported to TRI and therefore we do not have data regarding the generation and management of these chemicals. However, we present a description of each of these PCs at the end of this section.

Priority Chemicals (PCs) Reported to TRI	
1,2,4 - Trichlorobenzene	Lindane
2,4,5 - Trichlorophenol	Mercury and mercury compounds
Anthracene	Methoxychlor
Benzo(g,h,i)perylene	Naphthalene
Cadmium and cadmium compounds	Pendimethalin
Dibenzofuran	Pentachlorobenzene
Dioxins and Dioxin-like compounds	Pentachlorophenol
Heptachlor	Phenanthrene
Hexachloro-1, 3-butadiene	Polychlorinated biphenyls (PCBs)
Hexachlorobenzene	Polycyclic aromatic compounds (PACs)
Hexachloroethane	Quintozene
Lead and lead compounds	Trifluralin
Priority Chemicals (PCs) Not Reported to TRI	
1,2,4,5-Tetrachlorobenzene	Endosulfan, alpha, beta
4-Bromophenyl phenyl ether	Fluorene
Acenaphthene	Pyrene
Acenaphthylene	

Due to the particularly high Agency priority of mercury and mercury compounds, we include an expanded section on this chemical in which we describe the various ongoing projects to reduce or eliminate mercury.

For the purposes of this Report, we derived the quantities for each of the PCs by applying a methodology (see Appendix C) to extract certain data elements from the overall TRI data. The methodology focuses on extracting data for the 24 PCs reported by facilities that we believe offer the most viable potential opportunities for reducing or eliminating PCs. For example, we filter out certain SIC codes and facilities and only focus on quantities of PCs reported by the facility that generates the PCs and manages them using onsite/offsite disposal, treatment, or energy recovery. Recycled quantities already meet the goal of waste minimization and, as such, are not included as part of the PC quantity. Recycled quantities of PCs are presented for the purpose of providing some perspective regarding the quantity of PCs already recycled compared to the quantities (disposal, treatment, and energy recovery) potentially still available for waste minimization.

Also, air emissions and surface water discharges are not included. As such, please note that the quantities of numerous of PCs, derived using this methodology, may appear different from the quantities observed in the raw TRI data because the quantity for a given PC is a subset of the overall TRI data for that PC.

Priority Chemicals Reportable to TRI

For each of the 24 PCs (in alphabetical order) that are reported to TRI, we present national, regional, state, and industrial generation trends.

1,2,4 – Trichlorobenzene (1,2,4–TCB)

Chemical Information:

CAS Number – 120–82–1

Alternate Names – 1,2,4–trichlorobenzol

General Uses – This chemical is used as an intermediate or building block to make herbicides. It is also used as a solvent and dielectric fluid, degreaser, and lubricant.

Potential Hazards – This chemical is toxic; inhalation, ingestion, or skin contact can cause severe injury or death. It is also combustible.

Summary Analysis:

- NATIONAL – In 2004, 17 facilities reported approximately 1.9 million pounds of 1,2,4 – TCB. Approximately 93 percent of this quantity was incinerated. Since 2000, treatment (incineration) has been this chemical's primary management method.
- REGIONAL – Five of the 17 facilities that reported this chemical in 2004 were located in Region 6. Region 6 facilities reported approximately 87 percent of the total quantity reported in 2004.
- STATE – Facilities in 13 states reported this PC in 2004; including facilities in five states that accounted for 99 percent of the total quantity in 2004.
- FACILITIES – One Louisiana facility reported approximately 80 percent of the total national quantity, and it also accounted for most of the increase of approximately 200,000 pounds in 2004.
- MANAGEMENT – Treatment (incineration) has been the primary method used to manage 1,2,4–TCB, including approximately 93 percent of 1,2,4–TCB in 2004. Recycling of 1,2,4–TCB has significantly decreased since 2000, from 1.2 million pounds to approximately 38,000 pounds.
- INDUSTRY SECTORS – In 2004, facilities in 10 SICs reported this chemical, including one facility (SIC 2812–Alkalies and chlorine) reporting nearly 80 percent of the total quantity. SIC 2812 facilities also reported the largest quantities of 1,2,4–TCB from 2001–2004.

National Trends:

In 2004, 17 facilities reported approximately 1.9 million pounds of 1,2,4–TCB. Although the number of reporting facilities has remained relatively constant from 2000–2004, significant increases and decreases in the quantity of 1,2,4–TCB occurred in this timeframe. In 2001, the quantity increased by approximately 80 percent, but then decreased by approximately 30 percent in 2002 and again increased, by an average 11 percent, in both 2003 and 2004. Since 2000, treatment (incineration) has been the primary method used to manage 1,2,4–TCB, including approximately 93 percent of 1,2,4–TCB in 2004 (Exhibit 4.1).

Exhibit 4.1. National Management Methods for 1,2,4 – Trichlorobenzene, 2000–2004

Management Method for 1,2,4–TCB Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Total Quantity of This PC (2004)
Number of Facilities	19	18	17	18	17	-10.5%	-
Disposal Quantity (pounds)	6,602	5,299	7,216	17,138	6,573	-0.4%	0.3%
Energy Recovery Quantity (pounds)	512,794	448,305	118,074	136,029	131,669	-74.3%	7.0%
Total Treatment Quantity (pounds)	669,681	1,691,092	1,401,739	1,521,634	1,750,443	161.4%	92.7%
Total PC Quantity Pounds)	1,189,077	2,144,696	1,527,029	1,674,802	1,888,685	58.8%	-
Total Recycled (pounds)*	1,219,197	78,099	46,190	40,478	38,311	-96.9%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.2 shows the number of facilities that reported 1,2,4–TCB in 2004 within a range of reported quantities. For example, one facility reported approximately 80 percent of the total national quantity of 1,2,4–TCB in 2004. This same facility also accounted for most of the increase of approximately 200,000 pounds in 2004; this increase is believed to have resulted from a combination of an increase in facility production and quantity of wastes (containing 1,2,4 –TCB) incinerated from offsite sources. At another facility, a smaller but still significant portion of the overall increase of this PC in 2004 was due to an increase in the burning of 1,2,4–TCB as a surrogate in incinerator trial burns.

Exhibit 4.2. Distribution of Quantities by Facilities Reporting 1,2,4–Trichlorobenzene, 2004

1,2,4–TCB (1,888,685 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity for This PC in 2004
up to 10 pounds	2	less than 0.1%
11 – 100 pounds	0	0.0%
101 – 1,000 pounds	5	0.1%
1,001 – 10,000 pounds	4	0.9%
10,001 – 100,000 pounds	4	13.0%
100,001 – 1 million pounds	1	6.6%
> 1 million pounds	1	79.5%

EPA Regional Trends:

Exhibits 4.3 and 4.4 show the pounds of 1,2,4–TCB facilities reported for each EPA region in 2000–2004. Facilities in Region 6 consistently reported most of the 1,2,4–TCB, including approximately 87 percent of the total quantity reported in 2004. Five of the 17 facilities that reported 1,2,4–TCB in 2004, including the facility that accounted for approximately 80 percent of the total national quantity of this PC, were located in Region 6.

Exhibit 4.3. Quantity of 1,2,4–Trichlorobenzene Reported, by EPA Regions, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of This PC (2004)
1	0	0	0	0	0	0.0%
2	0	0	0	122	0	0.0%
3	128,562	255,300	3,532	3,776	0	0.0%
4	87,447	59,361	169,125	63,783	60,954	3.2%
5	92,133	100,000	117,731	110,185	60,183	3.2%
6	848,986	1,723,888	1,025,770	1,334,425	1,637,031	86.7%
7	0	0	0	0	245	0.0%
8	0	0	0	0	0	0.0%
9	31,949	6,147	98,044	116,960	6,490	0.3%
10	0	0	112,827	45,552	123,783	6.6%
Total	**1,189,077**	**2,144,696**	**1,527,029**	**1,674,802**	**1,888,685**	**100%**

Exhibit 4.4. Distribution of Facilities Reporting 1,2,4–Trichlorobenzene in 2004 and the Quantities of 1,2,4–Trichlorobenzene Reported in 2004, by EPA Region

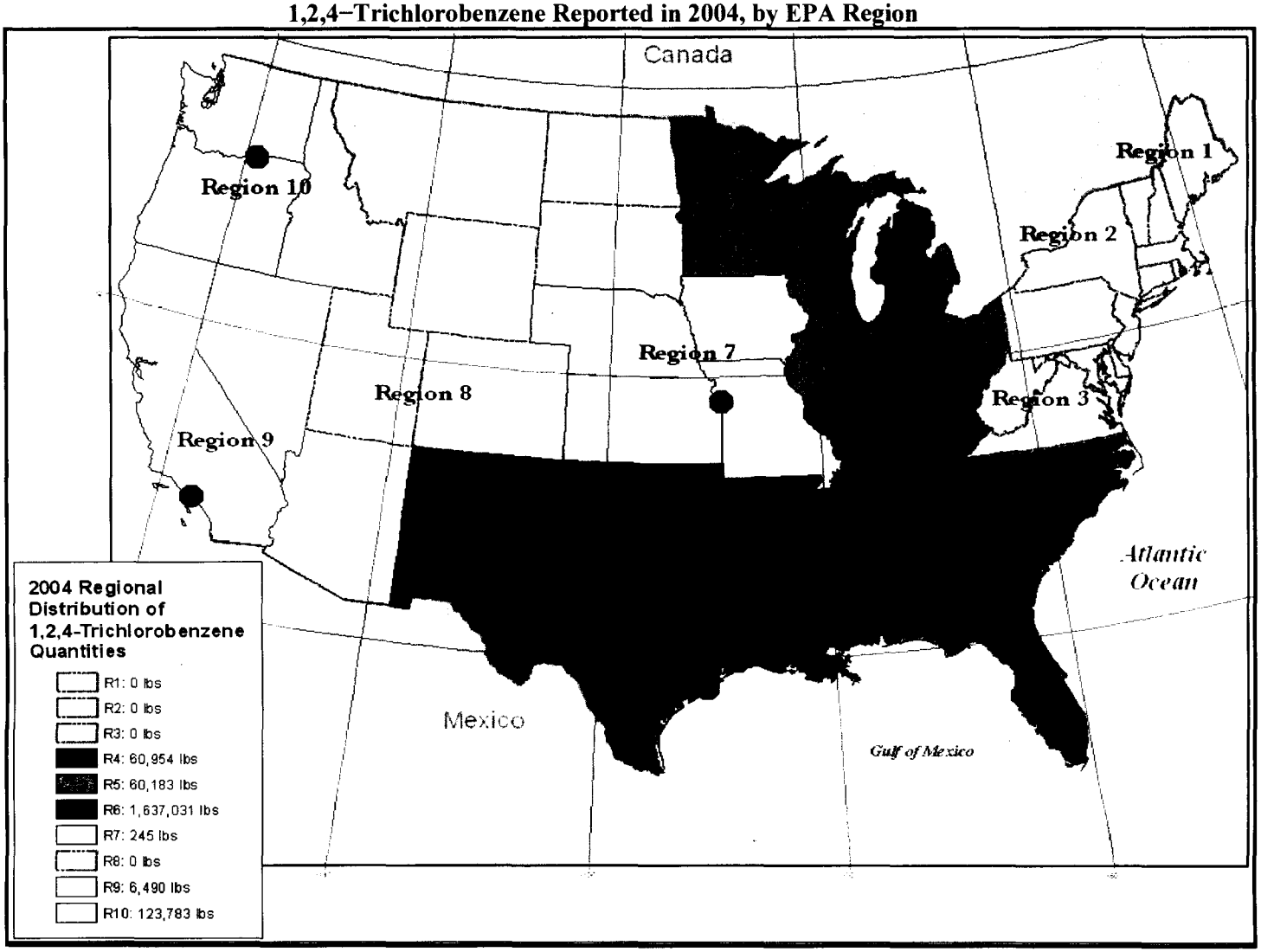


Exhibit 4.5 shows how facilities managed 1,2,4–TCB in 2004, by EPA Region. Most of this PC was treated, primarily by incineration. One facility in Region 4 accounted for 87 percent of the total recycled quantity.

Exhibit 4.5. Regional Management Methods for 1,2,4–Trichlorobenzene, 2004

EPA Region	Quantity of 1,2,4–TCB	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	60,954	3.2%	0	3,200	1,803	163	288	55,500	33,230	0
5	60,183	3.2%	0	5	0	0	0	60,178	0	0
6	1,637,031	86.7%	2,400	968	129,637	66	1,502,953	1,007	0	0
7	245	0.0%	0	0	0	0	242	3	4	0
9	6,490	0.3%	0	0	0	0	6,490	0	0	5,077
10	123,783	6.6%	0	0	0	0	122,434	1,349	0	0
Total	**1,888,685**	**100.0%**	**2,400**	**4,173**	**131,440**	**229**	**1,632,407**	**118,036**	**33,234**	**5,077**

State Trends:

Exhibit 4.6 shows the quantity of 1,2,4–TCB reported by facilities in 21 states, between 2000 and 2004; facilities in only 13 states reported this PC in 2004. Facilities in six of these states accounted for 99 percent of the total quantity of 1,2,4–TCB in 2004. Exhibits 4.7, 4.8, and 4.9 show trends for the quantity of 1,2,4–TCB reported by facilities in each of these states.

One facility in Louisiana reported approximately 80 percent of the total quantity. This same facility has accounted for the majority of the total national quantity of 1,2,4–TCB reported since 2001. The nearly 250,000 pound increase reported in 2004 by this facility likely resulted from a combination of an increase in facility production and quantity of wastes (containing 1,2,4–TCB) incinerated from offsite sources.

Other highlights concerning trends for the reported quantity of 1,2,4–TCB in states include:

- In Oregon, a federal facility accounted for the total quantity of 1,2,4–TCB reported since 2002. This facility burned 1,2,4–TCB as a surrogate in trial burns to ensure its incinerators were properly operating.
- In Texas, the quantity of 1,2,4–TCB facilities reported decreased by approximately 400,000 pounds since 2000, but then increased significantly in 2004. Much of this increase was likely due to offsite wastes incinerated in one facility's industrial furnace.
- In California and Illinois, significant decreases occurred. The facility that reported most of the 1,2,4–TCB in California in both 2002 and 2003 did not report a quantity in 2004. The Illinois facility that has accounted for the total quantity of this PC in Illinois since 2000 was shut down in July 2004.

Exhibit 4.6. State Quantity Trends for 1,2,4–Trichlorobenzene, Based on Largest 2004 Quantity, 2000–2004

State	Quantity (pounds) of 1,2,4–TCB						Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004	Change in Quantity (2000–2004)		
LA	354,900	1,501,961	994,066	1,300,394	1,546,407	1,191,507	335.73%	81.9%
OR	0	0	112,827	45,552	123,783	123,783	NA	6.6%
TX	492,072	221,394	31,704	34,031	90,624	−401,448	−81.58%	4.8%
KY	43,380	37,746	8,494	62,989	60,139	16,759	38.63%	3.2%
IL	92,133	100,000	114,554	98,139	54,881	−37,252	−40.43%	2.9%
CA	31,949	6,147	98,044	116,960	6,490	−25,459	−79.69%	0.3%
OH	0	0	3,177	12,046	4,905	4,905	NA	0.3%
MI	0	0	0	0	394	394	NA	0.0%
AL	5	5	160,005	6	365	360	7200.00%	0.0%
SC	499	1,705	626	583	287	−212	−42.48%	0.0%
KS	0	0	0	0	245	245	NA	0.0%
FL	0	0	0	205	163	163	NA	0.0%
IN	0	0	0	0	3	3	NA	0.0%
WV	6,026	231,708	0	3,776	0	−6,026	−100.00%	0.0%
NJ	0	0	0	122	0	0	NA	0.0%
PA	1	1	3,532	0	0	−1	−100.00%	0.0%
VA	33,358	23,591	0	0	0	−33,358	−100.00%	0.0%
NC	21,858	19,905	0	0	0	−21,858	−100.00%	0.0%
OK	2,014	533	0	0	0	−2,014	−100.00%	0.0%
DE	89,177	0	0	0	0	−89,177	−100.00%	0.0%
TN	21,705	0	0	0	0	−21,705	−100.00%	0.0%
Totals	**1,189,077**	**2,144,696**	**1,527,029**	**1,674,802**	**1,888,685**	**699,608**	**58.84%**	**100.0%**

Exhibit 4.7. Louisiana and Texas Trends for 1,2,4–Trichlorobenzene, 2000–2004

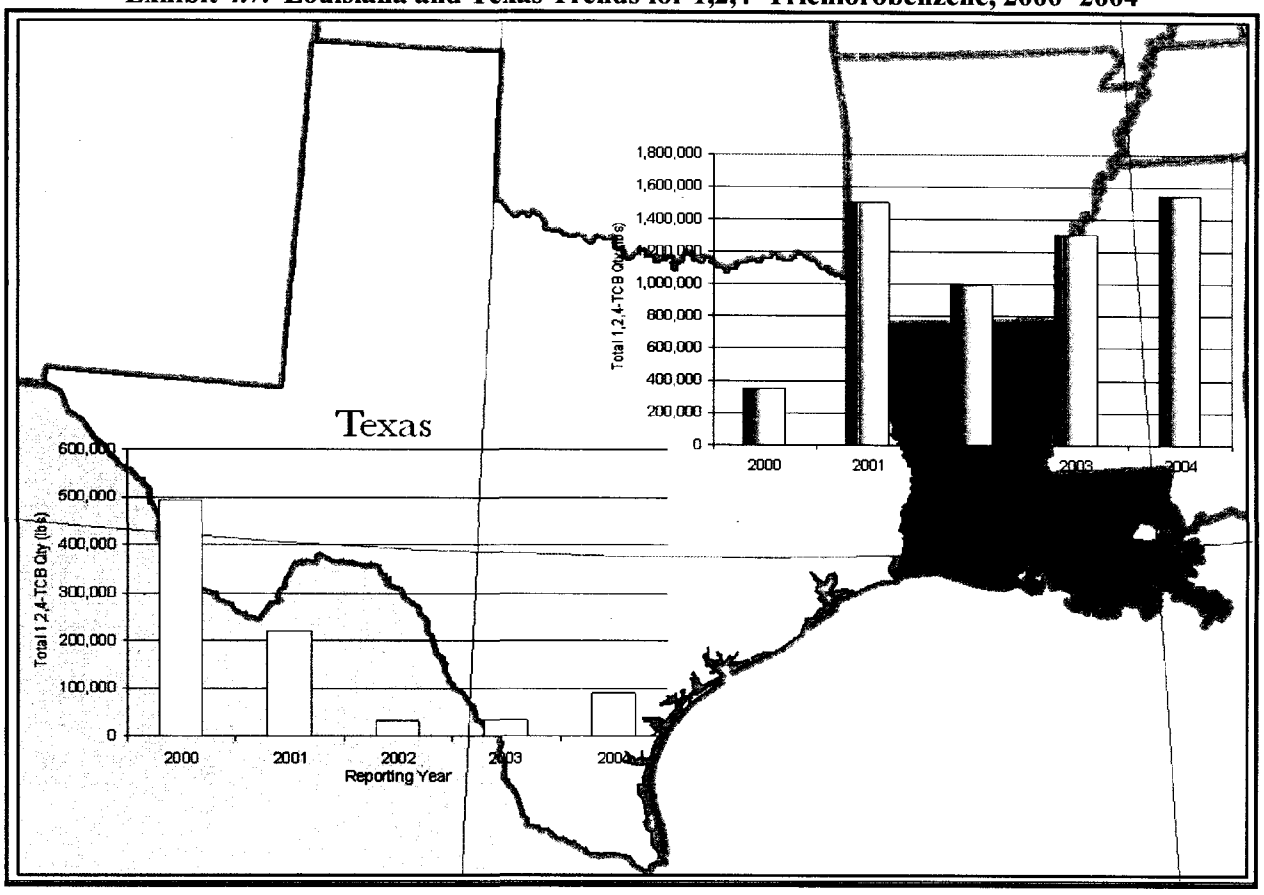


Exhibit 4.8. Oregon and California Trends for 1,2,4 – Trichlorobenzene, 2000–2004

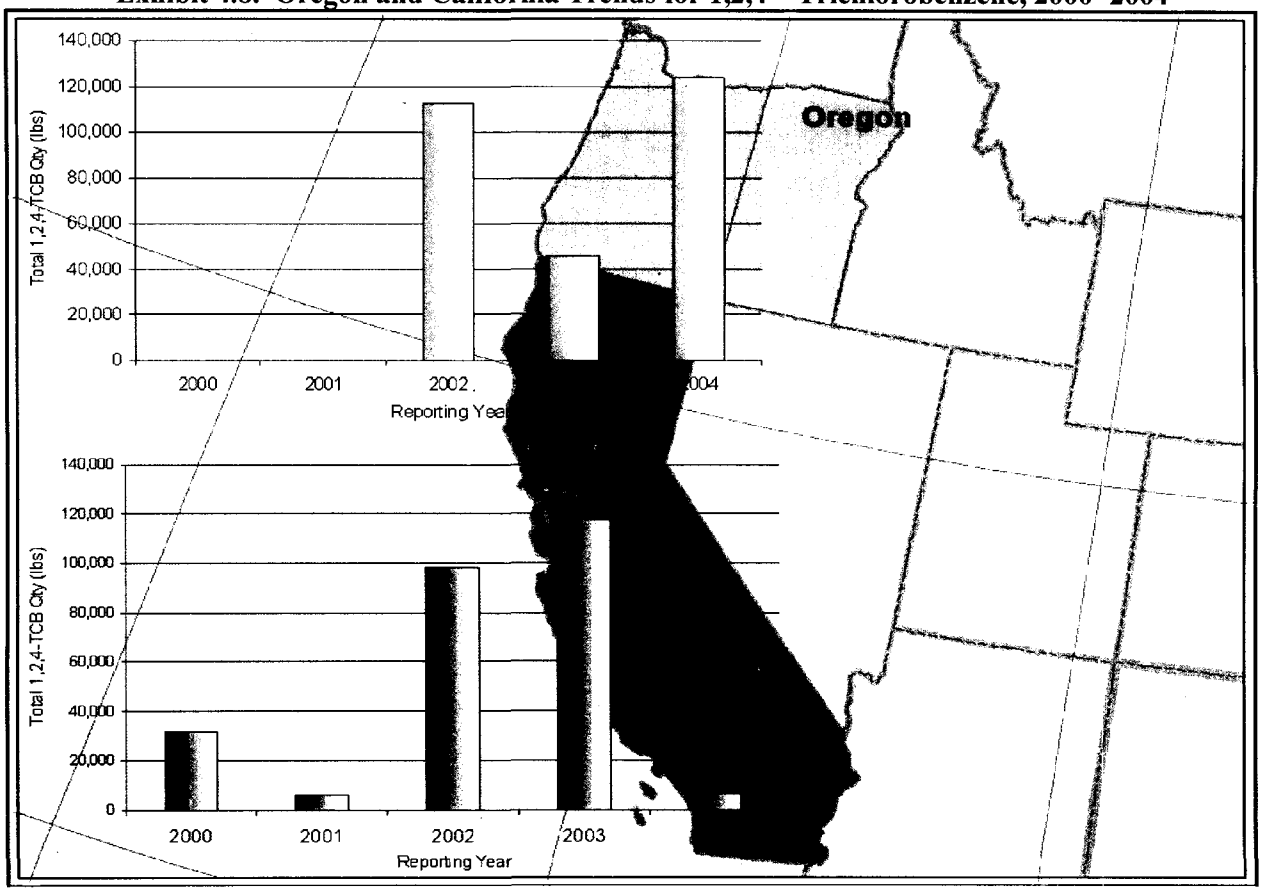
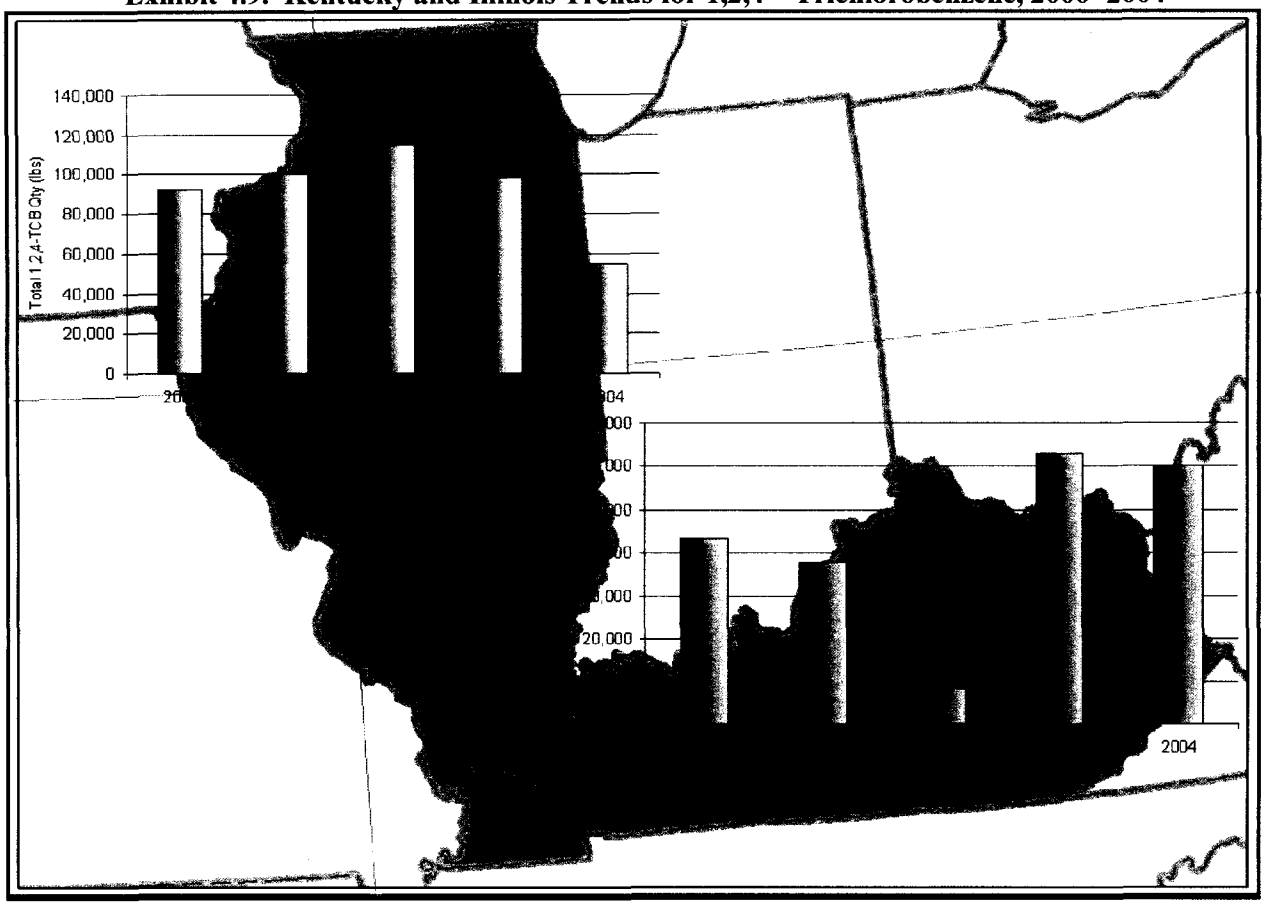


Exhibit 4.9. Kentucky and Illinois Trends for 1,2,4 – Trichlorobenzene, 2000–2004

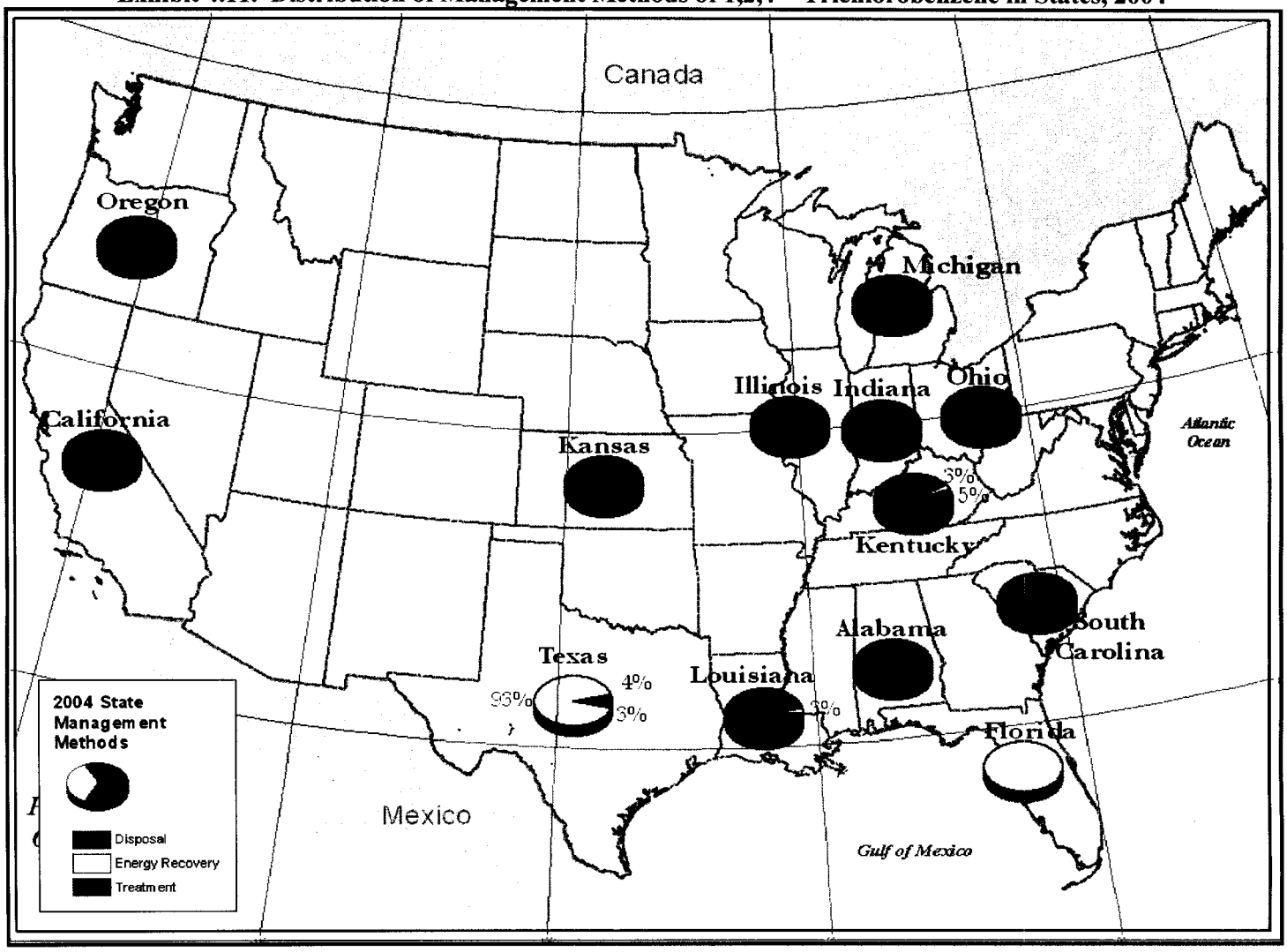


Exhibits 4.10 and 4.11 show how facilities managed 1,2,4–TCB in 2004, by state. Treatment, primarily using onsite incineration, was the primary management method. Facilities also used energy recovery. Overall, only a relatively small quantity of 1,2,4–TCB in 2004 was recycled in 2004. A facility in Alabama accounted for most of the recycling of this PC.

Exhibit 4.10. State Management Methods for 1,2,4–Trichlorobenzene, Based on Largest State Quantity, 2004

State	Quantity	Percent of Total Quantity (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
LA	1,546,407	81.9%	0	18	45,491	66	1,499,825	1,007	0	0
OR	123,783	6.6%	0	0	0	0	122,434	1,349	0	0
TX	90,624	4.8%	2,400	950	84,146	0	3,128	0	0	0
KY	60,139	3.2%	0	3,200	1,803	0	1	55,135	8	0
IL	54,881	2.9%	0	0	0	0	0	54,881	0	0
CA	6,490	0.3%	0	0	0	0	6,490	0	0	5,077
OH	4,905	0.3%	0	5	0	0	0	4,900	0	0
MI	394	0.0%	0	0	0	0	0	394	0	0
AL	365	0.0%	0	0	0	0	0	365	33,222	0
SC	287	0.0%	0	0	0	0	287	0	0	0
KS	245	0.0%	0	0	0	0	242	3	4	0
FL	163	0.0%	0	0	0	163	0	0	0	0
IN	3	0.0%	0	0	0	0	0	3	0	0
Totals	**1,888,685**	**100.0%**	**2,400**	**4,173**	**131,440**	**229**	**1,632,407**	**118,036**	**33,234**	**5,077**

Exhibit 4.11. Distribution of Management Methods of 1,2,4 – Trichlorobenzene in States, 2004



Industry Sector (SIC) Trends:

Exhibit 4.12 shows the quantity of 1,2,4–TCB for each industry sector in which facilities reported this PC in 2000–2004. In 2004, of the 10 industry sectors for which 17 facilities reported 1,2,4–TCB, one facility (SIC 2812–Alkalies and chlorine) reported nearly 80 percent of the total quantity of this PC. SIC 2812 facilities also reported the largest quantities of 1,2,4–TCB from 2001 to 2004.

Exhibit 4.12. Industry Sectors Quantities of 1,2,4–Trichlorobenzene, 2000–2004

Primary SIC	SIC Description	Facilities in This SIC Code (2004)	Quantity (pounds) of 1,2,4–TCB					Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
			2000	2001	2002	2003	2004		
2812	Alkalies and chlorine	1	360,926	1,733,669	993,819	1,304,170	1,500,850	1,139,924	79.5%
2819	Industrial inorganic chemicals, nec	2	426,566	152,930	26,404	28,631	129,703	−296,863	6.9%
9711	National security	1	0	0	112,827	45,552	123,783	123,783	6.6%
2865	Cyclic crudes and intermediates	3	224,410	137,730	123,848	162,751	119,924	−104,486	6.3%
3679	Electronic components, nec	1	31,336	5,089	10,527	12,230	6,490	−24,846	0.3%
2879	Pesticides and agricultural chemicals, nec	2	2,950	3,100	5,300	5,400	3,744	794	0.2%
2869	Industrial organic chemicals, nec	3	21,990	21	272	13	3,494	−18,496	0.2%
2843	Surface active agents	1	499	1,705	626	583	287	−212	0.0%
5171	Petroleum bulk stations and terminals	2	0	0	0	0	248	248	0.0%
3731	Ship building and repairing	1	0	0	0	205	163	163	0.0%
2231	Broadwoven fabric mills, wool	0	33,358	23,591	0	0	0	−33,358	0.0%
2261	Finishing plants, cotton	0	21,858	19,905	0	0	0	−21,858	0.0%
2493	Reconstituted wood products	0	62,556	61,564	0	0	0	−62,556	0.0%
2851	Paints and allied products	0	1	1	3,532	0	0	−1	0.0%
2899	Chemical preparations, nec	0	613	1,058	2,831	1,951	0	−613	0.0%
2911	Petroleum refining	0	2,014	4,333	0	0	0	−2,014	0.0%
3479	Metal coating and allied services	0	0	0	84,686	102,779	0	0	0.0%
3711	Motor vehicles and car bodies	0	0	0	2,357	9,855	0	0	0.0%
3795	Tanks and tank components	0	0	0	160,000	0	0	0	0.0%
5169	Chemicals and allied products, nec	0	0	0	0	683	0	0	0.0%
	Total	**17**	**1,189,077**	**2,144,696**	**1,527,029**	**1,674,802**	**1,888,685**	**699,608**	**100%**

Exhibit 4.13 shows how facilities managed 1,2,4−TCB in the 10 industry sectors for which they reported this PC in 2004. Approximately 86 percent of the 1,2,4−TCB was treated, primarily using onsite incineration. One facility (SIC 2812−Alkalies and chlorine) accounted for most of this treatment quantity. Two facilities (SIC 2819−Industrial inorganic chemicals, nec) primarily used onsite energy recovery for their 1,2,4−TCB. One facility (SIC 2869−Industial organic chemicals, nec) reported most of the recycling of this PC in 2004.

Exhibit 4.13. Management Methods for 1,2,4−Trichlorobenzene in Industry Sectors, 2004

Primary SIC	SIC Description	Quantity of 1,2,4−TCB (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2812	Alkalies and chlorine	1,500,850	79.5%	0	18	0	0	1,499,825	1,007	0	0
2819	Industrial inorganic chemicals, nec	129,703	6.9%	0	0	129,637	66	0	0	0	0
9711	National security	123,783	6.6%	0	0	0	0	122,434	1,349	0	0
2865	Cyclic crudes and intermediates	119,924	6.3%	0	3,205	1,803	0	0	114,916	0	0
3679	Electronic components, nec	6,490	0.3%	0	0	0	0	6,490	0	0	5,077
2879	Pesticides and agricultural chemicals, nec	3,744	0.2%	2,400	950	0	0	0	394	0	0
2869	Industrial organic chemicals, nec	3,494	0.2%	0	0	0	0	3,129	365	33,230	0
2843	Surface active agents	287	0.0%	0	0	0	0	287	0	0	0
5171	Petroleum bulk stations and terminals	248	0.0%	0	0	0	0	242	6	4	0
3731	Ship building and repairing	163	0.0%	0	0	0	163	0	0	0	0
	Totals	**1,888,685**	**100.0%**	**2,400**	**4,173**	**131,440**	**229**	**1,632,407**	**118,036**	**33,234**	**5,077**

2,4,5 – Trichlorophenol (2,4,5–TCP)

Chemical Information:

CAS Number – 95–95–4

Alternate Names – Collunosol, Dowicide 2

General Uses – This chemical is used as a fungicide to destroy or prevent fungi from growing. It is also used as a herbicide and to make other pesticides.

Potential Hazards – If skin comes into contact with this chemical, it may burn. It can also irritate eyes, nose, pharynx, and lungs.

Summary Analysis:

- NATIONAL – In 2004, the quantity of 2,4,5–TCP decreased by 80 percent, compared to the 2003 quantity.
- MANAGEMENT – This decrease reflects a smaller volume of wastewater (containing 2,4,5–TCP) received from offsite sources for treatment.
- FACILITY – From 2000 to 2004, only one facility (SIC 2869–Industrial organic chemicals, nec), located in New Jersey, reported a PC quantity of 2,4,5–TCP. Almost all the 2,4,5–TCP was treated onsite by this facility.

National Trends:

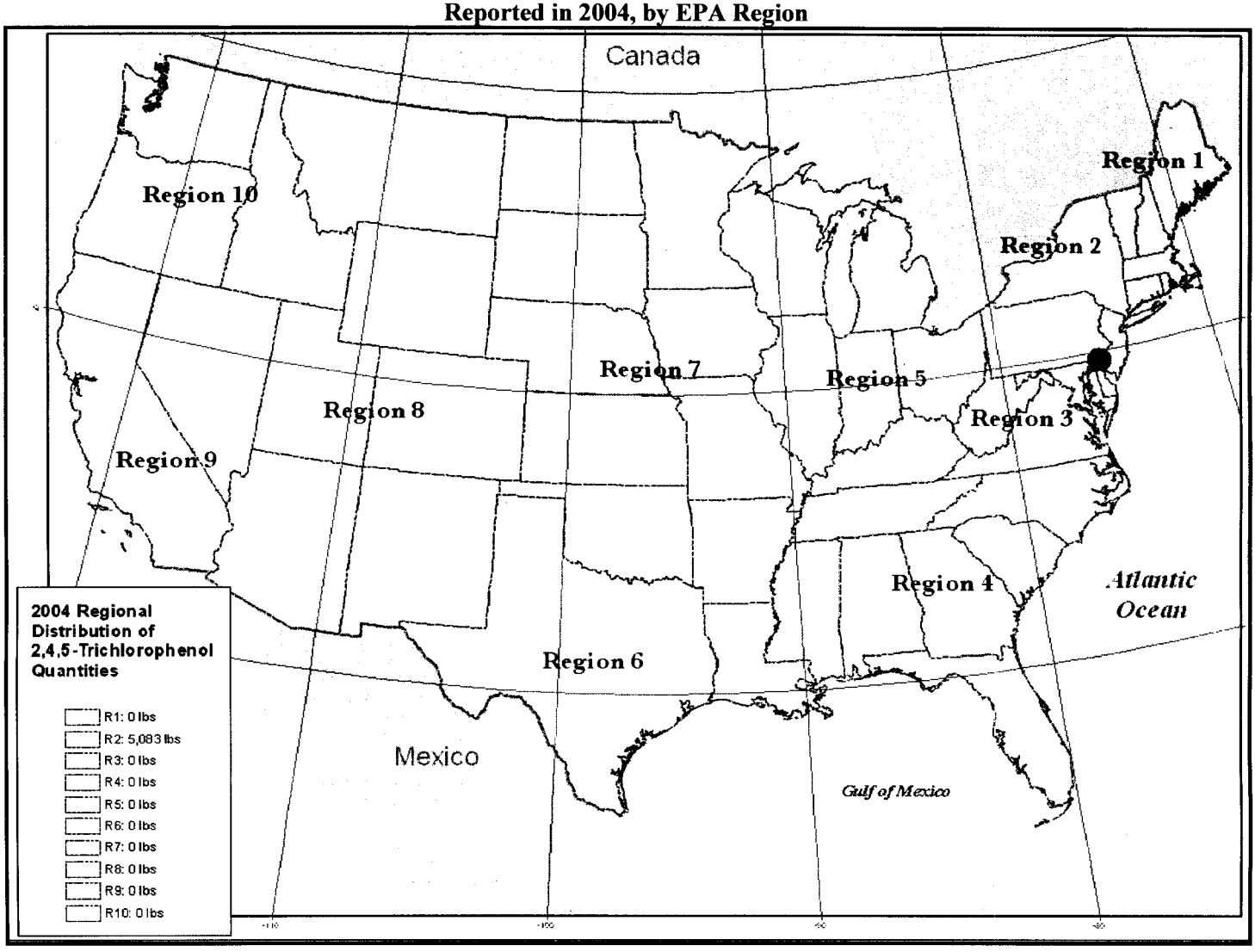
From 2000 to 2004, only one facility reported a PC quantity of 2,4,5–TCP (Exhibit 4.14). In 2004, the quantity decreased by 80 percent, compared to the 2003 quantity; this decrease reflects a smaller volume of wastewater (containing 2,4,5–TCP) received from offsite sources for treatment by this facility.

Exhibit 4.14. National Management Methods for 2,4,5–Trichlorophenol, 2000–2004

Management Method for 2.4.5–TCP and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Total Quantity of This PC (2004)
Number of Facilities	1	1	1	1	1	0.0%	-
Disposal Quantity (lbs.)	0	82	52	13	6	NA	0.1%
Energy Recovery Quantity (lbs.)	0	0	0	0	0	NA	0.0%
Total Treatment Quantity (lbs.)	32,443	20,575	17,861	22,844	5,077	-84.4%	99.9%
Total PC Quantity (lbs.)	32,443	20,657	17,913	22,857	5,083	-84.3%	100%
Total Recycled (lbs.)*	0	0	0	0	0	NA	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.15. The 2004 Facility Reporting 2,4,5−Trichlorophenol and the Quantities of 2,4,5−Trichlorophenol Reported in 2004, by EPA Region



Virtually all the 2,4,5−TCP was treated onsite by this facility (Exhibit 4.16).

Exhibit 4.16. Management of 2,4,5 – Trichlorophenol, 2004

Total Quantity of 2,4,5−TCP (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
		Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
5,083	100.0%	6	0	0	0	5,050	27	0	0

EPA Regional Trends:

Only one facility, located in EPA Region 2, reported a PC quantity of 2,4,5−TCP for 2000−2004 (Exhibit 4.17).

Exhibit 4.17. Quantity of 2,4,5−Trichlorophenol Reported by EPA Region, 2000−2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
2	32,443	20,657	17,913	22,857	5,083

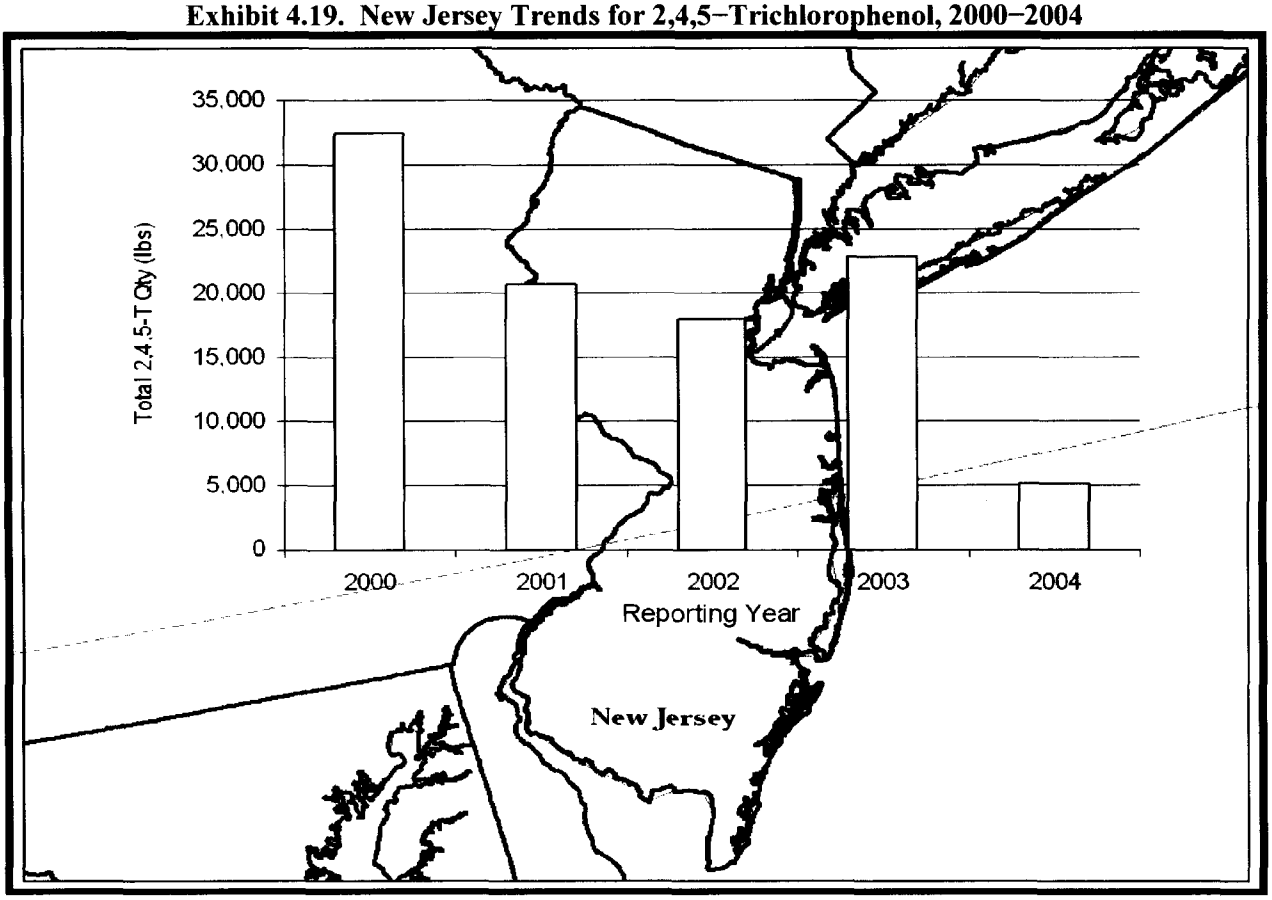
State Trends:

Exhibits 4.18 and 4.19 show the trend for the quantity of 2,4,5–TCP reported by the one facility, located in New Jersey, that reported this chemical between 2000 and 2004.

Exhibit 4.18. State–Level Information for 2,4,5–Trichlorophenol, 2000–2004

State	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
NJ	32,443	20,657	17,913	22,857	5,083	-27,360	-84.3%	100.00%

Exhibit 4.19. New Jersey Trends for 2,4,5–Trichlorophenol, 2000–2004



Industry Sector (SIC) Trends:

Between 2000 and 2004, only one facility (SIC 2869–Industrial organic chemicals, nec) reported 2,4,5–TCP (Exhibit 4.20). This facility treated wastewaters containing 2,4,5–TCP from offsite sources.

Exhibit 4.20. Industry Sector –Level Information for 2,4,5–Trichlorophenol, 2000–2004

Primary SIC	SIC Description	Number of Facilities for This SIC Code	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2869	Industrial organic chemicals, nec	1	32,443	20,657	17,913	22,857	5,083	-27,360	-84.3%	100.00%

Anthracene

Chemical Information:

CAS Number – 120–12–7

Alternate Names – paraNaphthalene, anthracin, anthraxcene

General Uses – This chemical is used to make dyes, plastics, and pesticides. It has been used to make smoke screens and scintillation counter crystals.

Potential Hazards – This chemical can cause irritation of the eyes and respiratory tract. It can also irritate the gastrointestinal tract if swallowed. It is combustible.

Summary Analysis:

- NATIONAL – In 2004, approximately 521,000 pounds of anthracene were reported. The quantity of anthracene decreased by approximately 200,000 pounds from 2000 to 2002, but increased in both 2003 and in 2004. Most of the increased quantity in 2004 was due to the wastes resulting from clean–up and cleanout of tanks at two facilities – one facility in Alabama that is being shutdown and from the cleaning of tanks and process equipment for a portion of a facility in Texas that is being shutdown.
- REGIONAL – In 2004, approximately 89 percent of the anthracene was reported by facilities in Regions 4 and 6, including 75 percent in Region 4.
- STATES – Although facilities in 19 states reported a PC quantity of anthracene in 2004, facilities in only three of these states (Kentucky, Alabama, and Texas) accounted for approximately 89 percent of the total PC quantity of anthracene.
- MANAGEMENT – Of the approximately 521,000 pounds of anthracene reported in 2004, 63 percent was treated, 25 percent was sent to energy recovery, and 13 percent was land disposed. Also, approximately 180,000 pounds of anthracene were recycled in 2004.
- FACILITIES – Of the 39 facilities that reported anthracene in 2004, one facility accounted for approximately 56 percent of the total quantity of this chemical. Seven of the 37 facilities accounted for approximately 95 percent of the total PC quantity of anthracene in 2004.
- INDUSTRY SECTORS – Facilities in five of the 10 industry sectors that reported anthracene in 2004 accounted for nearly all of the total quantity. Facilities in SIC 3334 (Primary aluminum) reported the highest quantity and accounted for approximately 56 percent of the total quantity of anthracene in 2004.

National Trends:

Exhibit 4.21 presents the total PC quantity (pounds) of anthracene for 2000–2004, showing the disposal, treatment, energy recovery, and recycling quantities. In 2004, approximately 521,000 pounds of anthracene were reported. The quantity of anthracene decreased by approximately 200,000 pounds from 2000 to 2002, but then increased in both 2003 and in 2004. Much of the increased quantity in 2003 can be attributed to a couple of facilities that had not previously reported anthracene. The increased quantity of anthracene reported in 2004 was primarily attributed to wastes generated from the clean–up and cleanout of tanks at a facility that is undergoing shutdown operations; complete shutdown is expected in 2008.

In 2004, 63 percent of the anthracene was treated, 25 percent was sent to energy recovery, and 13 percent was land disposed. From 2000 to 2002, energy recovery had been the primary method used to manage anthracene; in 2003, treatment became the predominant management method.

In 2004, approximately 180,000 pounds of anthracene were recycled. Over the five–year period of 2000–2004, recycling of anthracene reached a low point in 2003, but then increased by 33 percent in 2004.

Exhibit 4.21. National Management Methods for Anthracene

Management Method for Anthracene and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	33	35	35	39	39	18.2%	-
Disposal Quantity (lbs.)	50,659	57,334	26,515	82,670	65,396	29.1%	12.6%
Energy Recovery Quantity (lbs.)	283,546	187,995	262,816	24,489	128,302	-54.8%	24.6%
Treatment Quantity (lbs.)	212,149	115,507	56,168	312,084	326,971	54.1%	62.8%
Priority Chemical Quantity (lbs.)	546,353	360,837	345,499	419,243	520,669	-4.7%	100%
Recycling Quantity (lbs.)*	227,555	378,568	377,582	134,490	178,851	-21.4%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.22. Distribution of Facilities Reporting Anthracene in 2004 and the Quantities of Anthracene Reported in 2004, by EPA Region

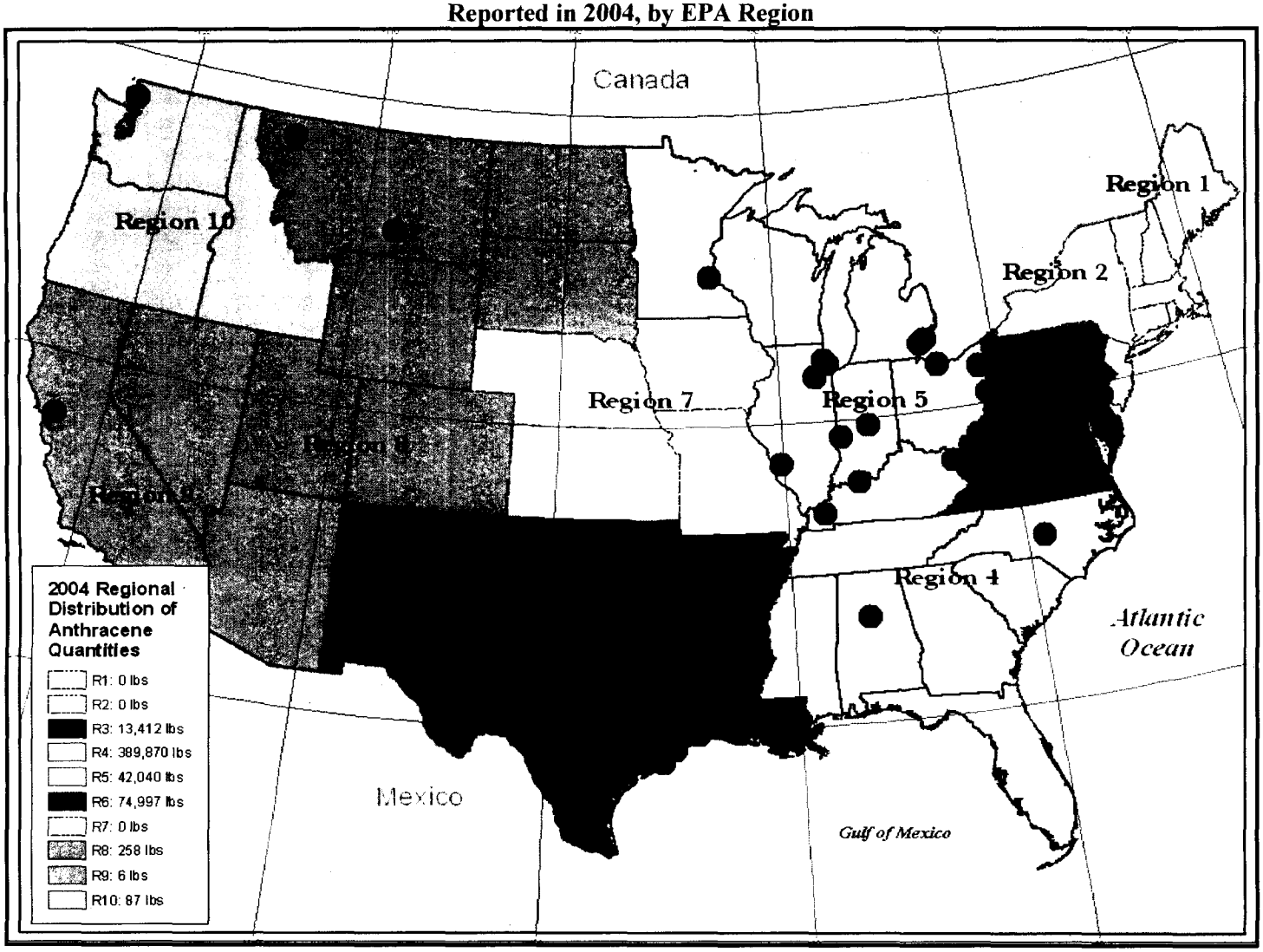


Exhibit 4.23 shows the number of facilities that reported anthracene within various quantity ranges. Of the 39 facilities that reported anthracene in 2004, one facility accounted for approximately 56 percent of the total quantity of this chemical. Seven of the 37 facilities accounted for approximately 95 percent of the total PC quantity of anthracene in 2004.

Exhibit 4.23. Distribution of Quantities by Facilities Reporting Anthracene, 2004

Anthracene (520,669 pounds)		
Quantity Reported	**Number of Facilities Reporting This Quantity (2004)**	**Percent of Total Quantity of This PC (2004)**
Up to 10 pounds	5	less than 0.1%
11 – 100 pounds	7	0.1%
101 – 1,000 pounds	14	0.8%
1,001 – 10,000 pounds	6	4.6%
10,001 – 100,000 pounds	6	38.3%
100,001 – 1 million pounds	1	56.2%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibit 4.24 shows the pounds of anthracene facilities reported for each EPA region from 2000 to 2004. In 2004, approximately 89 percent of the anthracene was reported by facilities in Regions 4 and 6, including 75 percent in Region 4. Facilities in Region 4 reported significant increases in both 2003 and in 2004. In Region 6, the quantity of anthracene more than doubled in 2004 from the previous year. Previous to 2004, facilities in Region 6 had shown a trend of steadily decreasing quantities of anthracene. The increase in 2004 was offset by another almost 50 percent decrease by facilities in Region 5 – for the second year in a row.

Exhibit 4.24. Quantity of Anthracene Reported by EPA Region, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of the Total Quantity of This PC (2004)
3	35,239	7,353	6,686	18,345	13,412	−61.9%	2.6%
4	4,229	2,869	4,090	276,556	389,870	9119.0%	74.9%
5	128,098	61,061	179,894	91,821	42,040	−67.2%	8.1%
6	378,757	289,097	154,488	31,882	74,997	−80.2%	14.4%
8	30	363	250	536	258	758.3%	0.0%
9	0	0	6	5	6	NA	0.0%
10	0	94	85	98	87	NA	0.0%
Total	**546,353**	**360,837**	**345,499**	**419,243**	**520,669**	**−4.7%**	**100.0%**

Exhibit 4.25 shows how facilities managed anthracene within each EPA region in 2004. Most of the PC quantity of anthracene was treated onsite, particularly by facilities in Region 4. However, facilities in Region 4 also used energy recovery to manage a significant quantity of anthracene. Offsite disposal was the primary means of managing anthracene in Regions 3 and 5. Facilities in Regions 4 and 5 reported most of the recycled anthracene in 2004.

Exhibit 4.25. Regional Management Methods for Anthracene, 2004

EPA Region	Quantity of Anthracene (2004)	Percent of Total Quantity of Anthracene (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
3	13,412	2.6%	0	10,078	0	48	1,111	2,175	246	9,700
4	389,870	74.9%	10	23,829	0	74,250	291,761	20	70,000	70,000
5	42,040	8.1%	0	27,509	0	10,070	3,781	680	24,308	0
6	74,997	14.4%	57	3,654	40,630	3,300	3,016	24,340	0	4,513
8	258	0.0%	258	0	0	0	0	0	84	0
9	6	0.0%	0	2	0	0	0	4	0	0
10	87	0.0%	0	0	4	0	75	8	0	0
Total	**520,669**	**100.0%**	**325**	**65,072**	**40,634**	**87,668**	**299,744**	**27,227**	**94,638**	**84,213**

State Trends:

Exhibit 4.26 shows the quantity of anthracene in the 21 states where facilities reported this chemical between 2000 and 2004. Although facilities in 19 states reported a PC quantity of anthracene in 2004, facilities in only three of these states (Kentucky, Alabama, and Texas) accounted for approximately 89 percent of the total PC quantity of anthracene.

Some additional highlights are:

- Although Texas facilities reported an increased quantity in 2004, there was an 81 percent reduction since 2000. Compared to 2003 quantities, the quantity of anthracene increased in each of these three states in 2004. Approximately 19,000 pounds of anthracene was due to wastes generated from the cleaning of tanks and process equipment for a portion of a facility in Texas that is being shutdown.
- An additional 90,000 pounds – most of the increase reported in 2004 – was due to the wastes resulting from clean–up and cleanout of tanks at a facility in Alabama that is being shutdown.
- Facilities in a number of states, including Michigan and Illinois, reported significant decreases, compared to quantities reported in 2003. The shutdown of a facility in Michigan and the switch by a facility in Illinois to a different wash–oil stream that did not contain anthracene were the primary reasons for the decrease in 2004.

Exhibit 4.26. State Quantity Trends for Anthracene, Based on Largest 2004 Quantity, 2000–2004

State	Total Quantity (pounds) of Anthracene					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
KY	1,004	962	1,878	270,887	293,787	292,783	29161.7%	56.4%
AL	3,201	1,827	2,176	5,551	96,000	92,799	2899.1%	18.4%
TX	373,863	275,398	144,427	26,466	71,061	−302,802	−81.0%	13.6%
MI	0	0	888	57,719	23,466	23,466	NA	4.5%
IL	14,963	2,560	9,372	33,573	17,770	2,807	18.8%	3.4%
WV	33,527	6,029	4,300	10,190	8,297	−25,230	−75.3%	1.6%
PA	1,712	1,319	2,380	7,652	4,746	3,034	177.2%	0.9%
LA	4,818	13,638	9,959	5,281	3,740	−1,078	−22.4%	0.7%
OH	112,814	58,486	169,615	381	632	−112,182	−99.4%	0.1%
MT	0	250	250	535	258	258	NA	0.0%
VA	0	0	3	274	239	239	NA	0.0%
AR	76	61	102	135	196	120	157.9%	0.0%
IN	68	12	18	143	150	82	120.6%	0.0%
MD	0	0	0	203	120	120	NA	0.0%
WA	0	94	85	98	87	87	NA	0.0%
NC	24	80	36	118	83	59	244.6%	0.0%
MN	253	3	1	5	22	−231	−91.3%	0.0%
DE	0	5	3	26	10	10	NA	0.0%
CA	0	0	6	5	6	6	NA	0.0%
ND	0	2	0	1	0	0	NA	0.0%
UT	30	111	0	0	0	−30	−100.0%	0.0%
Total	**546,353**	**360,837**	**345,499**	**419,243**	**520,669**	**−25,684**	**−4.7%**	**100.0%**

Exhibits 4.27, 4.28, and 4.29 illustrate the trends in quantities of anthracene in the five states where facilities reported 96 percent of total quantity from 2000 to 2004.

Exhibit 4.27. Trends in Anthracene Quantities Reported in Michigan, Illinois, and Kentucky, 2000–2004

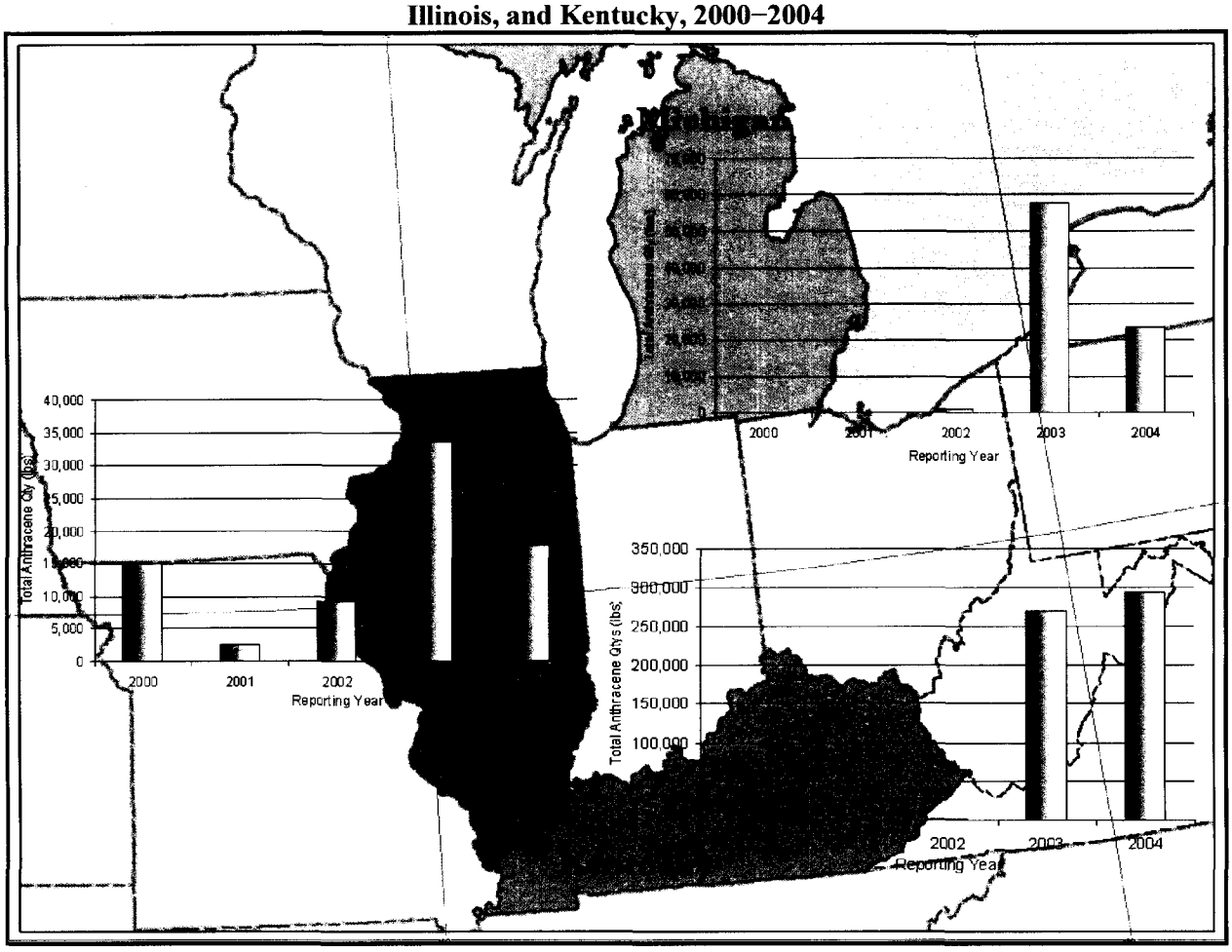


Exhibit 4.28. Trends in Anthracene Quantities Reported in Alabama, 2000–2004

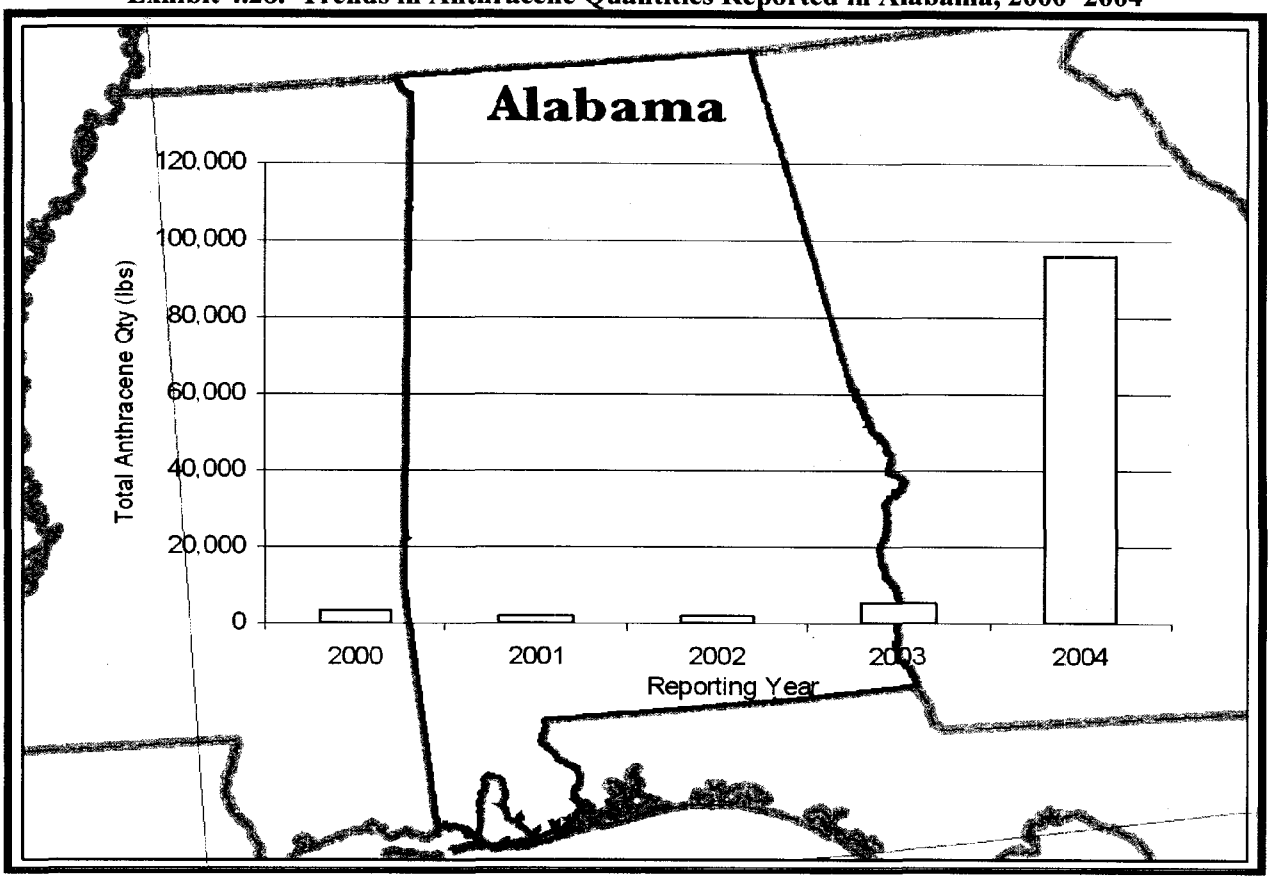


Exhibit 4.29. Trends in Anthracene Quantities Reported in Texas, 2000–2004

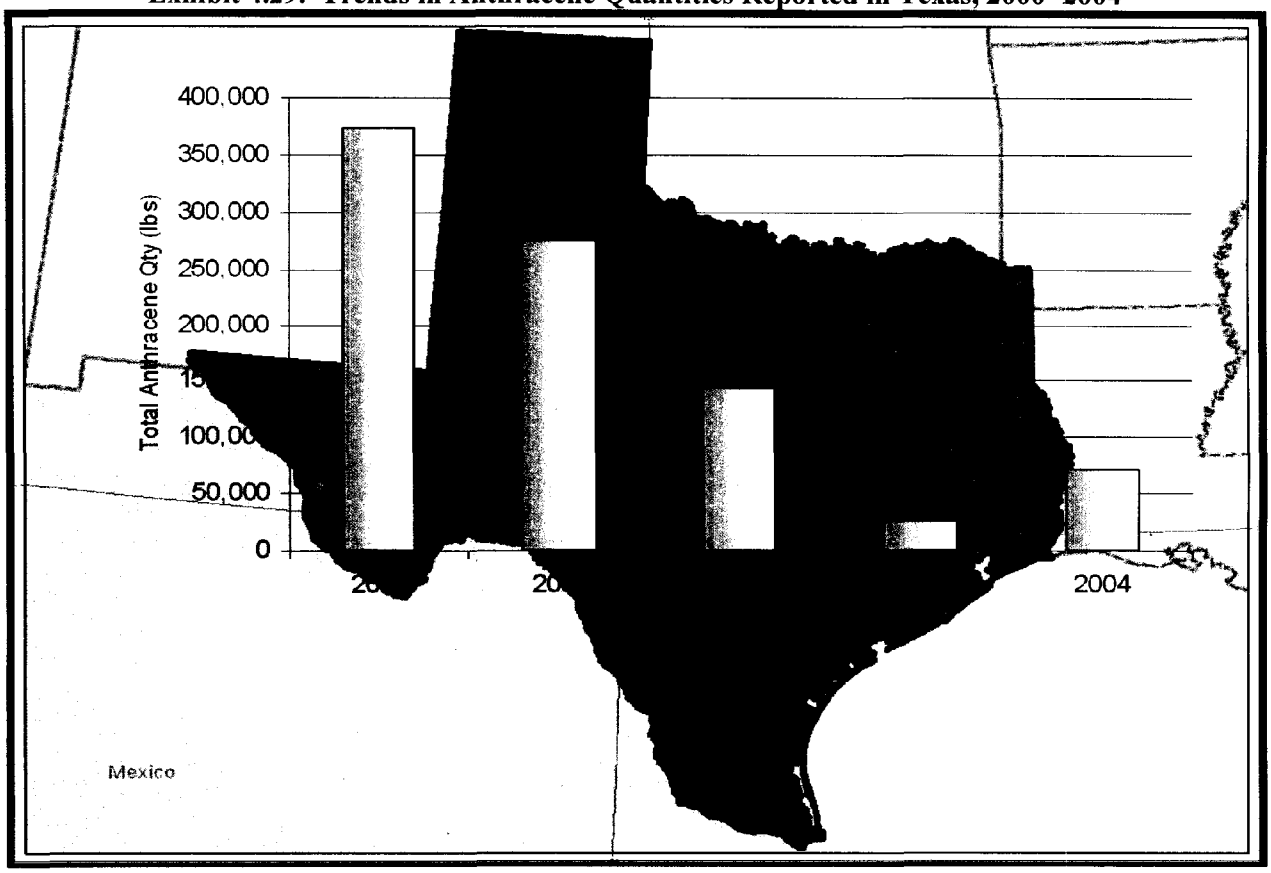
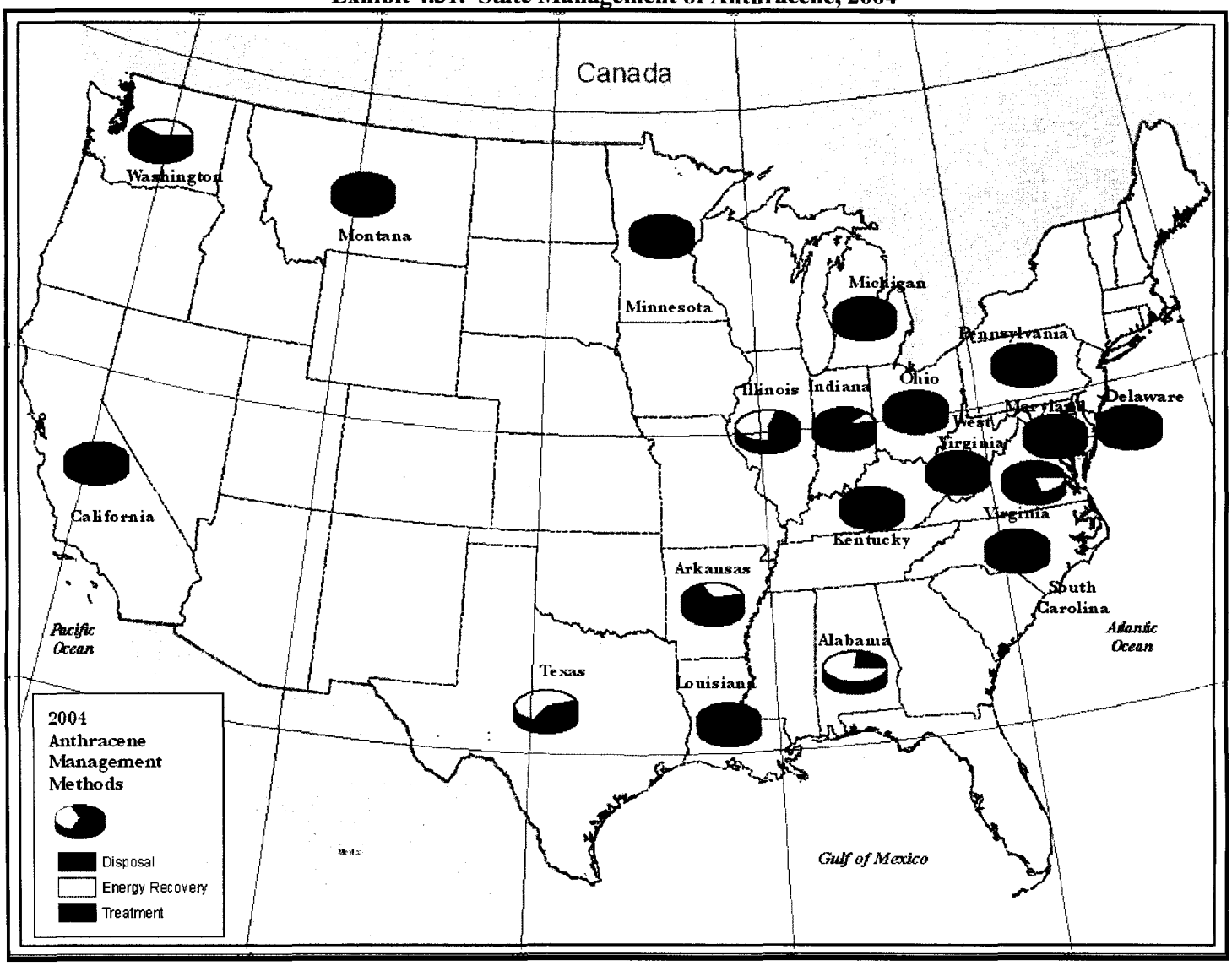


Exhibit 4.30 shows how anthracene was managed by facilities in the five states that accounted for approximately 96 percent of the total quantity of this PC in 2004. Most of the anthracene was treated, primarily onsite, especially by facilities in Kentucky. Energy recovery was the primary method used by facilities in Alabama and Texas. Michigan facilities sent their anthracene to land disposal. Recycling of notable quantities occurred in Kentucky and Alabama.

Exhibit 4.30. Management Methods for Anthracene, Facilities in States With 96 Percent of Total Quantity, 2004

State	Total Quantity of Anthracene (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
KY	293,787	10	1,746	0	250	291,761	20	70,000	0
AL	96,000	0	22,000	0	74,000	0	0	0	70,000
TX	71,061	57	2,926	40,630	3,240	90	24,118	0	4,513
MI	23,466	0	23,466	0	0	0	0	0	0
IL	17,770	0	3,390	0	10,056	3,777	547	2,400	0

Exhibit 4.31. State Management of Anthracene, 2004



Industry Sector (SIC) Trends:

Exhibit 4.32 shows the pounds of anthracene reported by facilities in 14 industry sectors (SIC codes) from 2000 to 2004. Facilities in five of the 10 industry sectors that reported anthracene in 2004 accounted for nearly all of the total quantity. Facilities in SIC 3334 (Primary aluminum) reported the highest quantities, accounting for approximately 56 percent of the total PC quantity of anthracene reported in 2004. One facility in this sector, located in Kentucky, began reporting anthracene in 2003 and accounted for approximately 99 percent of the quantity for SIC 3334.

Facilities in SICs 2865 (Cyclic crudes and intermediates) and 2869 (Industrial organic chemicals, nec) reported large increases in 2004. One facility, in each of these two industry sectors, accounted for most of the increased quantity in 2004. In both cases, the increased quantity of anthracene resulted from shutdown activities – wastes resulting from the cleanout of tanks and other process equipment.

The large decrease reported by the facility in SIC 2821 (Plastic materials and resins) resulted from a switchover to a different wash–oil stream in 2004 that did not contain anthracene.

Exhibit 4.32. Industry Sectors Reporting Anthracene, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Anthracene (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000– 2004)	Percent of Total Quantity of This PC (2004)
3334	Primary aluminum	2	0	250	250	269,580	292,696	292,696	56.2%
2865	Cyclic crudes and intermediates	6	165,658	69,965	186,745	83,230	144,893	−20,765	27.8%
2869	Industrial organic chemicals, nec	8	203,848	96,761	79,703	32,096	73,299	−130,549	14.1%
3312	Blast furnaces and steel mills	3	339	117	354	7,866	5,128	4,789	1.0%
2911	Petroleum refining	12	2,067	5,619	6,659	2,037	3,405	1,338	0.7%
3272	Concrete products, nec	3	0	0	1,638	1,469	632	632	0.1%
2851	Paints and allied products	1	0	0	0	168	250	250	0.0%
4925	Gas production and/or distribution	1	5	5	1	136	136	131	0.0%
2821	Plastics materials and resins	1	0	0	0	22,536	134	134	0.0%
2491	Wood preserving	2	80	87	53	125	97	17	0.0%
2812	Alkalies and chlorine	0	93,600	168,814	0	0	0	−93,600	0.0%
2819	Industrial inorganic chemicals, nec	0	80,504	18,968	70,096	0	0	−80,504	0.0%
2822	Synthetic rubber	0	2	1	0	0	0	−2	0.0%
2952	Asphalt felts and coatings	0	250	250	0	0	0	−250	0.0%

Exhibit 4.33 shows how anthracene was managed by facilities in the five industry sectors that accounted for over 99 percent of the total quantity of this PC in 2004. Most of the anthracene was treated, primarily onsite, particularly by facilities in SIC 3334 (Primary aluminum). Facilities in the SIC 2865 (Cyclic crudes and intermediates) industry sector primarily sent the anthracene to offsite energy recovery and offsite disposal. Facilities in SIC 2865 (Cyclic crudes and intermediates) and SIC 2869 (Industrial organic chemicals, nec) accounted for most of the recycling of anthracene in 2004.

Exhibit 4.33. Management Methods for Anthracene in Industry Sectors With 99 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity of Anthracene (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
3334	Primary aluminum	292,696	56.2%	229	1,746	0	0	290,721	0	84	0
2865	Cyclic crudes and intermediates	144,893	27.8%	0	55,291	0	83,922	4,882	798	2,400	70,000
2869	Industrial organic chemicals, nec	73,299	14.1%	50	2,333	40,630	3,240	3,275	23,771	70,000	4,513
3312	Blast furnaces and steel mills	5,128	1.0%	0	3,323	0	0	1	1,804	170	9,700
2911	Petroleum refining	3,405	0.7%	46	1,532	4	358	864	601	426	0

Benzo(g,h,i)perylene (B(g,h,i)P)

Chemical Information:

CAS Number – 191–24–2

Alternate Names – 1,12–benzoperylene

General Uses – B(g,h,i)P is a polycyclic aromatic hydrocarbon (PAH) that occurs naturally in crude oils. It has no known commercial use or production. Emissions typically result from petroleum refining, coal tar distillation, and the incomplete combustion of organic matter.

Potential Hazards – Although some PAHs have caused tumors in laboratory animals, B(g,h,i)P has not been shown to be a cancer concern. This chemical was added to the TRI based on its ecotoxicity.

Summary Analysis:

- NATIONAL – Between 2000 and 2002, the quantity of B(g,h,i)P decreased by approximately 1.7 million pounds – an 85 percent decrease. However, the quantity has been steadily increasing since 2002; in 2004 approximately 374,000 pounds were reported.
- REGIONAL – In 2004, approximately 88 percent of B(g,h,i)P was reported by facilities in Regions 3, 4, and 6.
- STATES – Facilities in 46 states reported a quantity of B(g,h,i)P in 2004; 12 of these states reported approximately 95 percent of the total quantity. Tennessee facilities, with approximately 54 percent of the total quantity of B(g,h,i)P, reported a decrease of 89 percent since 2000.
- FACILITIES – Of the 380 facilities that reported B(g,h,i)P in 2004, one facility accounted for 54 percent of the total quantity of this chemical.
- INDUSTRY SECTOR – Facilities in seven industry sectors reported approximately 95 percent of the B(g,h,i)P in 2004. Facilities in SIC 3624 (Carbon and graphite products) reported the highest quantities, accounting for approximately 58 percent of the total quantity, mostly sent to onsite energy recovery. Most of this industry sector's quantity of B(g,h,i)P was reported by one facility, located in Tennessee.
- MANAGEMENT – Energy recovery has been the primary method used for managing B(g,h,i)P, accounting for 68 percent of the total quantity in 2004.

National Trends:

Exhibit 4.34 shows the number of facilities that reported B(g,h,i)P in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. B(g,h,i)P was only reported to TRI beginning in 2000. Between 2000 and 2002, the quantity of B(g,h,i)P decreased by approximately 1.8 million pounds – an 85 percent decrease. However, the quantity has been steadily increasing since 2002; in 2004 approximately 374,000 pounds were reported. Energy recovery has been the primary management method used for B(g,h,i)P, accounting for 68 percent of the total quantity in 2004. Although recycling of B(g,h,i)P decreased significantly in 2003, recycling increased by approximately 35 percent in 2004.

Exhibit 4.34. National Management Methods for Benzo(g,h,i)perylene, 2000–2004

Management Methods for B(g,h,i)P and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	326	356	337	377	380	16.6%	-
Disposal Quantity (lbs.)	121,575	85,381	42,901	72,742	77,565	-36.2%	20.7%
Energy Recovery Quantity (lbs.)	1,841,028	798,706	210,133	171,364	255,560	-86.1%	68.2%
Treatment Quantity (lbs.) [11]	141,799	106,435	57,851	73,711	41,324	-70.9%	11.0%
Priority Chemical Quantity (lbs.)	2,104,401	990,522	310,885	317,817	374,449	-82.2%	100%
Recycling Quantity (lbs.)*	85,078	173,211	133,561	61,464	82,647	-2.9%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.35 shows the number of facilities that reported B(g,h,i)P within various quantity ranges. Of the 380 facilities that reported B(g,h,i)P in 2004, one facility accounted for 54 percent of the total quantity of this chemical. Seven of the facilities accounted for 81 percent of the total PC quantity of B(g,h,i)P in 2004.

Exhibit 4.35. Distribution of Quantities by Facilities Reporting Benzo(g,h,i)perylene, 2004

B(g,h,i)P (374,449 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
Up to 10 pounds	236	0.1%
11 – 100 pounds	80	0.9%
101 – 1,000 pounds	40	3.3%
1,001 – 10,000 pounds	17	14.7%
10,001 – 100,000 pounds	6	27.2%
100,001 – 1 million pounds	1	53.9%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.36 and 4.37 show the pounds of B(g,h,i)P facilities reported for each EPA region for 2000–2004. In 2004, approximately 88 percent of the B(g,h,i)P was reported by facilities in Regions 3, 4, and 6. Since 2000, the total quantity of B(g,h,i)P decreased by approximately 1.7 million pounds; 95 percent (1.6 million pounds) of this considerable decrease was reported by facilities in Region 4 – despite a 34 percent increase in 2004. Most of this increased quantity in Region 4 is attributed to an increase in the use of coal tar pitch (containing B(g,h,i)P) at a facility in Tennessee. In terms of quantity, facilities in Region 10 reported the second largest decrease, approximately 78,000 pounds, compared to quantities reported in 2000.

[11] Some facilities may have mistakenly reported on their TRI Form R the threshold quantity of B(g,h,i)P, contained in fuel oil, as a quantity released or as a quantity treated onsite. As such, over–reporting of quantities released to the environment or treated, for these chemicals, may mean that the PC quantity is likewise over–stated. It is important to note that TRI chemicals in fuels that are destroyed during the combustion process are not considered treated. TRI chemicals are only considered treated if they are part of a waste stream and are then managed as a waste. EPA has notified reporters of these potential problems. As facilities submit corrected TRI Form Rs to correct any such over–reporting of this chemical, the PC quantities may decrease in subsequent updates of this Report.

Exhibit 4.36. Quantity of Benzo(g,h,i)perylene Reported by EPA Region, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	1,391	3,259	3,365	3,721	3,679	164.4%	1.0%
2	16,637	8,756	8,406	8,288	7,059	−57.6%	1.9%
3	54,521	46,336	22,704	56,117	58,824	7.9%	15.7%
4	1,866,110	812,551	73,984	162,868	218,198	−88.3%	58.3%
5	32,058	38,015	45,000	25,447	25,093	−21.7%	6.7%
6	47,466	58,143	111,258	53,431	54,070	13.9%	14.4%
7	1,565	1,570	1,241	1,196	998	−36.2%	0.3%
8	4,641	4,560	41,405	5,091	4,027	−13.2%	1.1%
9	103	83	214	254	817	696.2%	0.2%
10	79,911	17,251	3,307	1,404	1,683	−97.9%	0.4%
Total	**2,104,401**	**990,522**	**310,885**	**317,817**	**374,449**	**−82.2%**	**100.0%**

Exhibit 4.37. Distribution of Facilities Reporting Benzo(g,h,i)perylene in 2004 and the Quantities of Benzo(g,h,i)perylene Reported in 2004, by EPA Region

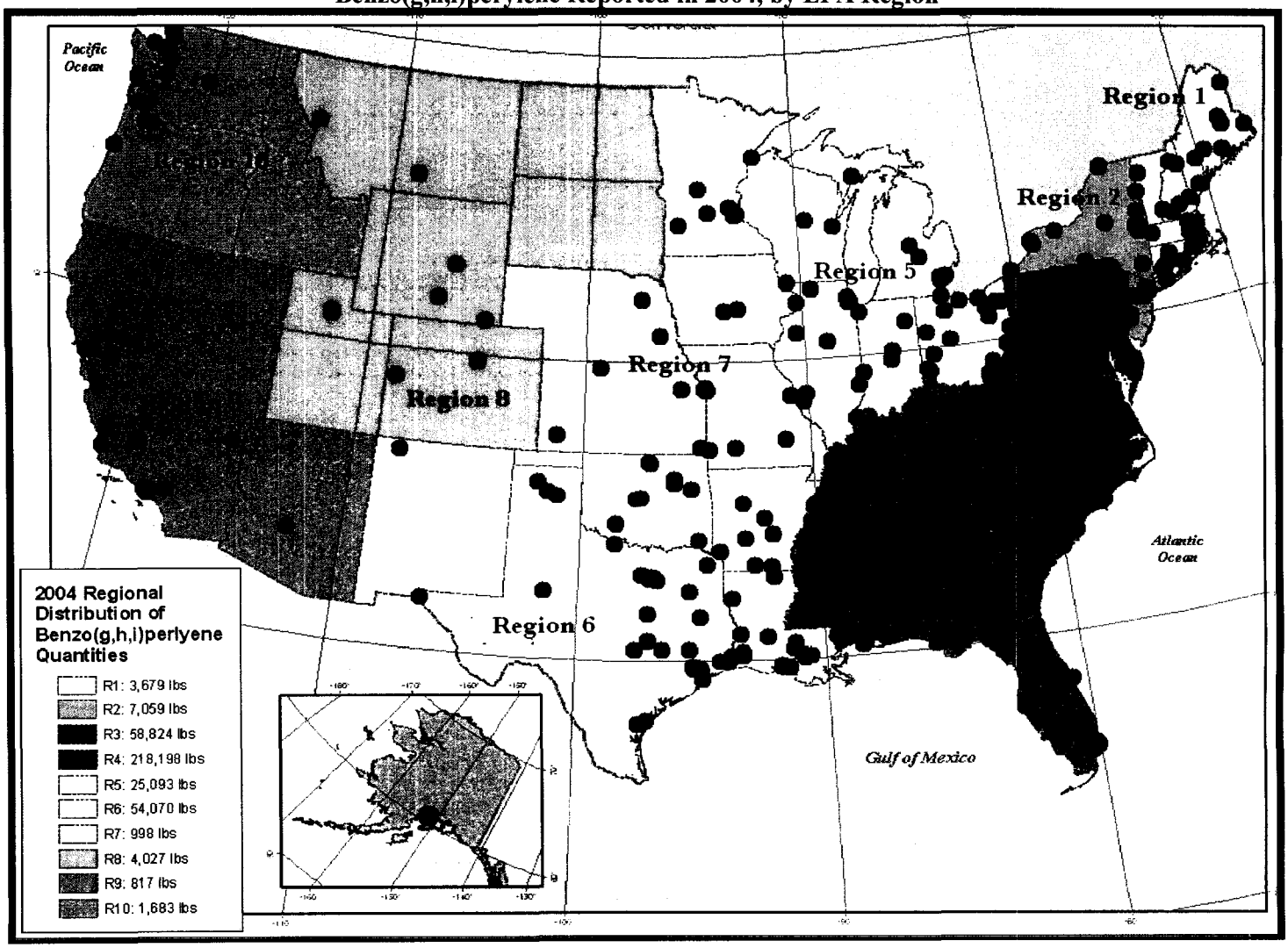


Exhibit 4.38 shows how B(g,h,i)P was managed by facilities within each EPA region in 2004. Approximately 67 percent of the PC quantity of B(g,h,i)P was managed using onsite energy recovery; facilities in Regions 4, 6, and 8 primarily used this method. Facilities in Regions 2 and 5 primarily used treatment, while facilities in Regions 3, 7, 9, and 10 sent most of their B(g,h,i)P quantities to land disposal. In 2004, facilities in Regions 3, 6, and 10 accounted for approximately 81 percent of the recycling of B(g,h,i)P.

Exhibit 4.38. Management Methods for Benzo(g,h,i)perylene, by EPA Region, 2004

EPA Region	Total Quantity of B(g,h,i)P (2004)	Percent of Total Quantity of B(g,h,i)P (2004)	Disposal		Energy Recovery		Treatment		Recycling	
			Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
1	3,679	1.0%	160	81	1,841	0	1,597	0	0	2
2	7,059	1.9%	70	829	40	1	5,972	148	370	8
3	58,824	15.7%	0	54,272	1	39	4,291	220	7,668	7,928
4	218,198	58.3%	2,261	2,092	205,242	1,263	7,016	324	534	3,580
5	25,093	6.7%	206	8,825	185	3,183	12,580	115	10,772	27
6	54,070	14.4%	151	5,765	38,684	900	8,138	432	11,608	14,280
7	998	0.3%	197	423	0	52	281	46	20	7
8	4,027	1.1%	0	30	3,926	39	2	29	3	0
9	817	0.2%	13	558	54	109	0	84	0	260
10	1,683	0.4%	29	1,605	1	0	47	2	25,580	2

State Trends:

Facilities in 46 states reported a quantity of B(g,h,i)P in 2004. Facilities in 12 of these states reported approximately 95 percent of the total national quantity (Exhibit 4.39).

Other trend highlights are:

- Tennessee facilities, with approximately 54 percent of the total quantity of B(g,h,i)P, had a decrease of 89 percent since 2000, although the quantity of B(g,h,i)P increased from the 2003 quantity reported by facilities in Tennessee; the quantity of B(g,h,i)P also increased in facilities in West Virginia. Increased production at one facility in both Tennessee and West Virginia accounted for most of the increase.
- In Pennsylvania, the 2003 quantity of B(g,h,i)P more than tripled, but then was reduced by half in 2004. This increase and decrease was primarily due to quantities from the cleaning of tanks and off–spec product reported by one facility in 2003.
- Michigan facilities reported only a very small quantity of B(g,h,i)P for 2000–2002, but reported a dramatic increase of almost 10,000 pounds in 2003 and then a subsequent 30 percent decrease in 2004. These quantities resulted from the processing of residuals and tank cleanouts at a facility that is being shutdown.

Exhibit 4.39. State Quantity Trends for Benzo(g,h,i)perylene, Based on Largest 2004 Quantity, 2000–2004

State	Total Quantity (pounds) of B(g,h,i)P					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
TN	1,855,845	801,205	66,123	152,338	203,097	−1,652,748	−89.1%	54.2%
WV	42,586	38,266	15,285	14,691	36,968	−5,618	−13.2%	9.9%
LA	21,479	28,668	29,795	24,958	28,733	7,254	33.8%	7.7%
TX	23,444	24,847	24,820	23,732	24,771	1,328	5.7%	6.6%
PA	8,543	5,973	4,843	38,502	19,033	10,489	122.8%	5.1%
OH	26,536	35,729	38,231	12,036	12,902	−13,634	−51.4%	3.4%
MI	3	4	4	9,921	6,963	6,960	239998.3%	1.9%
NY	16,274	8,356	8,023	7,825	6,840	−9,434	−58.0%	1.8%
SC	3,653	4,484	3,934	2,914	5,084	1,431	39.2%	1.4%
IL	5,039	1,486	6,300	2,936	4,729	−310	−6.1%	1.3%
WY	4,603	4,537	41,254	4,988	3,937	−666	−14.5%	1.1%
FL	268	1,147	457	4,033	3,820	3,552	1322.9%	1.0%

Exhibits 4.40 and 4.41 show the trends for the quantity of B(g,h,i)P for the top five states in which facilities reported this PC in 2004.

Exhibit 4.40. Texas, Louisiana, and Tennessee Trends for Benzo(g,h,i)perylene, 2000–2004

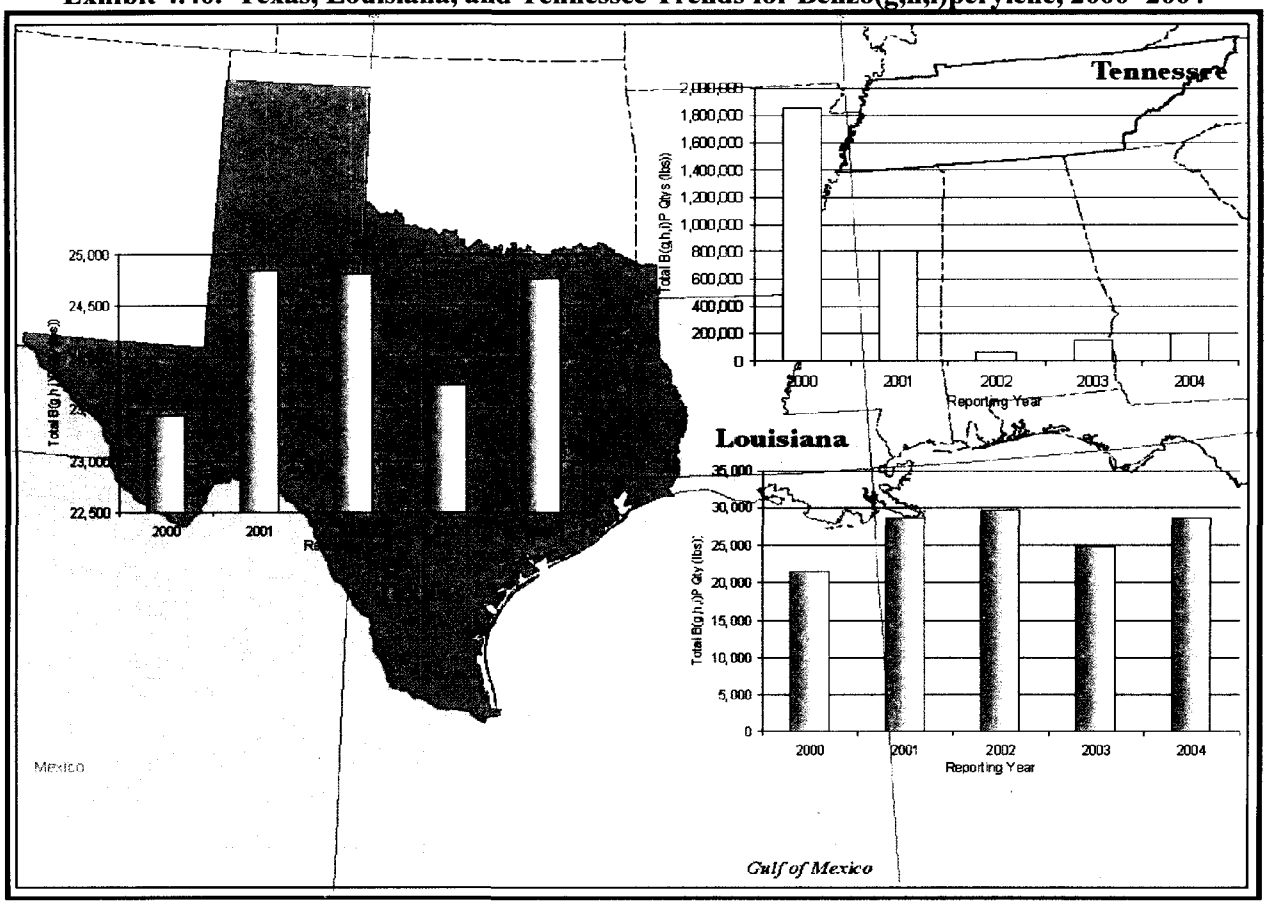
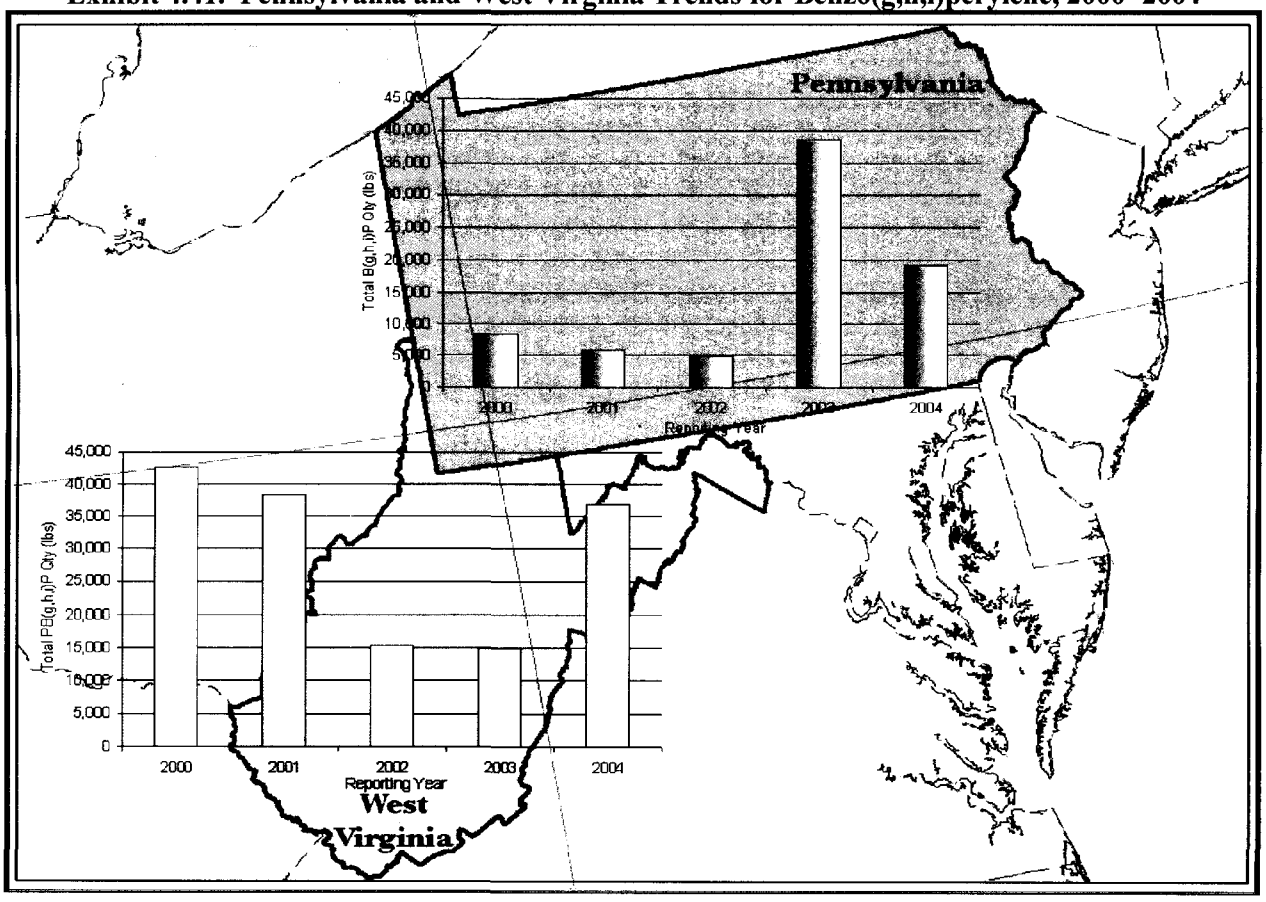


Exhibit 4.41. Pennsylvania and West Virginia Trends for Benzo(g,h,i)perylene, 2000–2004

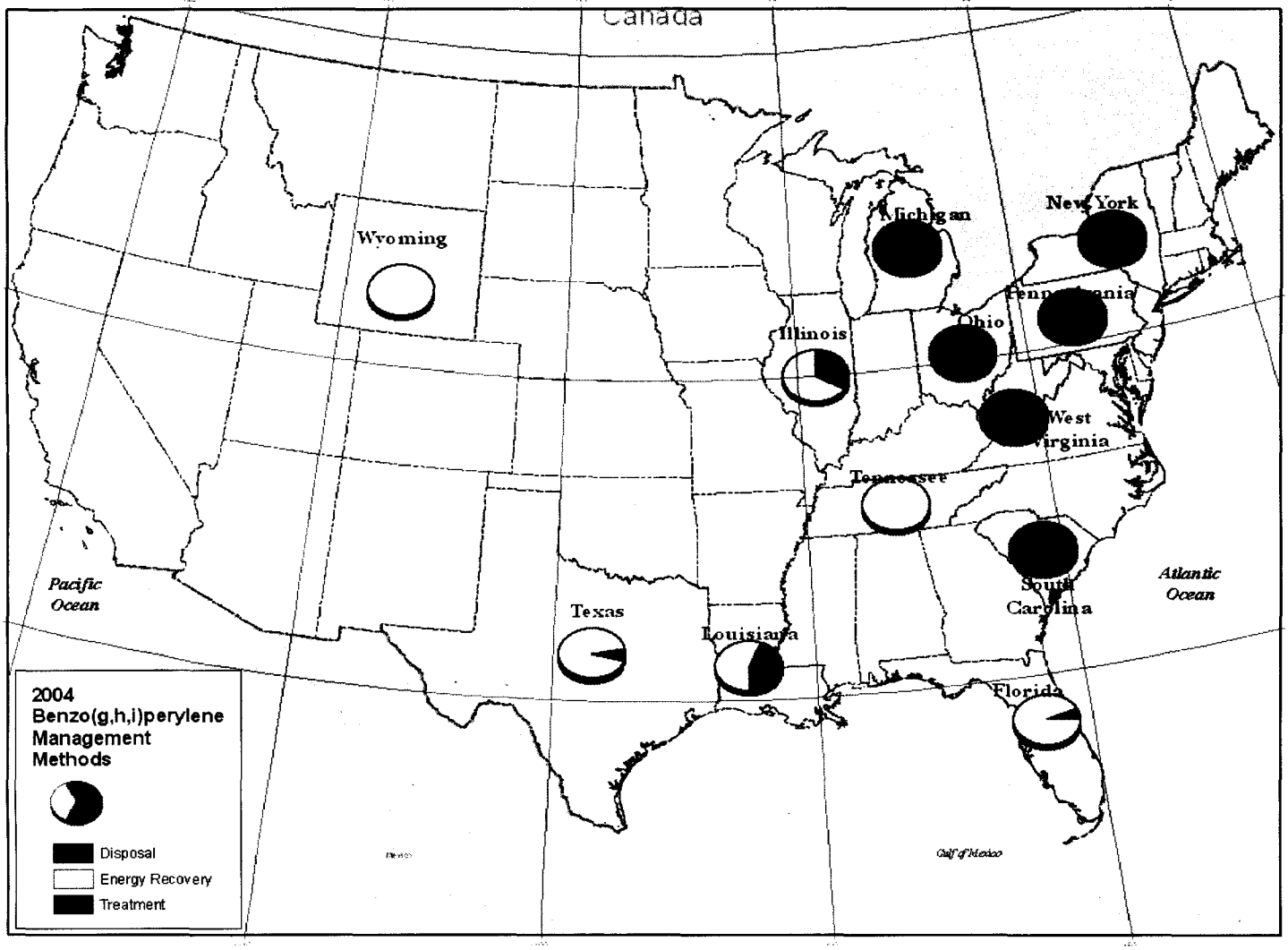


Exhibits 4.42 and 4.43 show how B(g,h,i)P was managed by facilities in the 12 states that accounted for 95 percent of the total B(g,h,i)P quantity in 2004. Energy recovery was the primary method for managing B(g,h,i)P in six of these 12 states. Most of the B(g,h,i)P was managed using onsite energy recovery, with one facility in Tennessee reporting approximately 81 percent of the total onsite energy recovery quantity. Offsite disposal was used primarily by facilities in West Virginia, Pennsylvania, and Michigan. In Ohio, New York, and South Carolina facilities, the B(g,h,i)P was mostly treated onsite. Approximately 94 percent of the recycling of B(g,h,i)P was reported by facilities in Pennsylvania, Louisiana, and Texas.

Exhibit 4.42. State Management Methods for Benzo(g,h,i)perylene With Facilities Reporting 95 Percent of Total Quantity, 2004

State	Total Quantity of B(g,h,i)P (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
TN	203,097	1,759	24	200,585	72	635	21	231	14
WV	36,968	0	36,316	1	12	429	210	0	0
LA	28,733	65	5,236	16,190	0	7,239	3	0	14,238
TX	24,771	11	471	22,494	781	652	363	11,598	16
PA	19,033	0	17,877	0	7	1,142	6	7,268	7,707
OH	12,902	0	747	6	5	12,135	9	9	14
MI	6,963	5	6,957	0	1	0	0	0	0
NY	6,840	1	744	40	0	5,909	146	370	4
SC	5,084	11	8	0	108	4,859	98	45	2
IL	4,729	200	1,000	0	3,176	350	3	2,124	11
WY	3,937	0	11	3,926	0	0	0	0	0
FL	3,820	151	75	3,591	3	0	0	0	14

Exhibit 4.43. State Distribution of Management Methods of Benzo(g,h,i)perylene, 2004



Industry Sector (SIC) Trends:

Exhibit 4.44 shows the quantity of B(g,h,i)P for the seven industry sectors (SIC codes) where facilities reported approximately 95 percent of this chemical in 2004. Facilities in SIC 3624 (Carbon and graphite products) reported the highest quantities, accounting for approximately 58 percent of the total quantity of B(g,h,i)P reported in 2004. Most of this industry sector's quantity of B(g,h,i)P was reported by one facility, located in Tennessee. This facility has decreased their quantity of B(g,h,i)P by 46 percent since 2000, but reported an increase of approximately 67,000 pounds (+50 percent) in 2004. This increase was attributed to an increase in the use of coal tar pitch for producing carbon electrodes.

The increased quantity reported by facilities in SIC 2865 (Cyclic crudes and intermediates) was primarily due to an increase in production at a facility in West Virginia. For facilities in SIC 3312 (Blast furnaces and steel mills), the 2003 quantity of B(g,h,i)P increased dramatically in 2003, but then decreased by almost 50 percent in 2004. This increased quantity was due to the changing of SIC codes by a facility in Pennsylvania – from SIC 2865 to SIC 3312 in 2003.

Production wastes, as well as wastes generated from the cleaning of tanks and from off–spec product at this same facility accounted for most of the increased quantity for SIC 3312 facilities in 2003. This facility's change of SIC codes also is reflected in the decreased quantity for SIC 2865 facilities in 2003.

Exhibit 4.44. Industry Sectors Reporting Benzo(g,h,i)perylene, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported B(g,h,i)P (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3624	Carbon and graphite products	10	1,881,345	824,537	77,738	165,116	217,954	−1,663,391	58.2%
2865	Cyclic crudes and intermediates	4	51,129	50,888	47,031	25,785	48,413	−2,717	12.9%
2895	Carbon black	18	40,665	37,294	42,333	43,745	45,697	5,032	12.2%
3312	Blast furnaces and steel mills	4	506	444	118	33,711	17,229	16,723	4.6%
3334	Primary aluminum	11	100,484	28,139	17,745	12,900	15,016	−85,468	4.0%
2911	Petroleum refining	50	11,152	14,012	101,897	12,900	7,631	−3,521	2.0%
2824	Organic fibers, noncellulosic	5	232	1,542	1,696	5,575	5,668	5,436	1.5%

Exhibit 4.45 shows how facilities managed B(g,h,i)P in the seven industry sectors that accounted for approximately 95 percent of the total quantity of this PC in 2004. Most of the B(g,h,i)P was sent to onsite energy recovery, especially within SIC 3624 (Carbon and graphite products) and SIC 2895 (Carbon black). Offsite disposal was primarily used for the B(g,h,i)P in SIC 3312 (Blast furnaces and steel mills) and SIC 2865 (Cyclic crudes and intermediates). Facilities in SIC 3334 (Primary aluminum) primarily used onsite treatment. Facilities in SICs 3334 (Primary aluminum) and 3312 (Blast furnaces and steel mills) reported approximately 88 percent of the recycling of B(g,h,i)P in 2004.

Exhibit 4.45. Management Methods for Benzo(g,h,i)perylene in Industry Sectors With 95 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity of B(g,h,i)P (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
3624	Carbon and graphite products	217,954	58.2%	1,759	1,463	200,586	5	14,102	39	592	0
2865	Cyclic crudes and intermediates	48,413	12.9%	0	45,189	0	2,743	270	211	366	3,525
2895	Carbon black	45,697	12.2%	59	99	38,691	0	6,825	23	0	0
3312	Blast furnaces and steel mills	17,229	4.6%	0	17,227	0	0	0	2	6,676	7,700
3334	Primary aluminum	15,016	4.0%	0	2,359	0	0	12,473	184	37,278	0
2911	Petroleum refining	7,631	2.0%	125	478	3,981	1,438	1,209	400	2,639	9
2824	Organic fibers, noncellulosic	5,668	1.5%	0	0	3,591	0	2,077	0	0	0

Cadmium and Cadmium Compounds (Cadmium)

Chemical Information:

CAS Number – 7440–43–9

General Uses – Cadmium, used in this country, is obtained as a by–product from melting zinc, lead, or copper ores. The cadmium by–product is used in metal plating and to make pigments, batteries and plastics.

Potential Hazards – Cadmium and its salts are highly toxic. Breathing high levels of cadmium severely damages the lungs and can cause death.

Summary Analysis:

- NATIONAL – In 2004, 63 facilities reported approximately 885,000 pounds of cadmium. From 2000 to 2002, the quantity of cadmium decreased by approximately 50 percent. but has increased each year since 2002.
- REGIONAL – In 2004, facilities in three regions (Regions 4, 6, and 10) reported approximately 75 percent of cadmium; Region 6 facilities accounted for approximately 46 percent of the total quantity.
- STATES – Facilities in 34 states reported cadmium quantities for 2000–2004; in 2004, facilities in 26 states reported this PC. Facilities in nine of the states reported 90 percent of the total quantity in 2004. A facility located in Oklahoma (SIC 3341) accounted for virtually 100 percent of the total state quantity and approximately 44 percent of the total national quantity of cadmium in 2004. The cadmium from this facility was derived from electric arc furnace dust during the recovery process to extract zinc and lead from these dusts.
- MANAGEMENT – In 2004, the entire PC quantity of cadmium was land disposed, primarily using offsite disposal (79%). Also, approximately 634,000 pounds of cadmium were recycled.
- FACILITIES – Two facilities accounted for approximately 60 percent of the total quantity of this chemical. Twelve facilities accounted for 90 percent of the total quantity.
- INDUSTRY SECTORS – Facilities in 42 industry sectors reported cadmium in one or more years from 2000 to 2004; facilities in 25 of these industry sectors reported this PC in 2004. Facilities in eight industry sectors accounted for 95 percent of this chemical in 2004. Facilities in SIC 3341 (Secondary nonferrous metals) reported the highest quantities, accounting for approximately 49 percent of the total quantity of cadmium reported in 2004. Approximately 91 percent of this quantity was reported by one facility, located in Oklahoma.

National Trends:

Exhibit 4.46 shows the number of facilities that reported cadmium in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. The number of facilities that reported cadmium since 2001 has been relatively constant; 63 facilities reported this PC in 2004. From 2000 to 2002, the quantity of cadmium decreased by approximately 50 percent but has increased each year since 2002. Even so, the 885,000 pounds of cadmium reported in 2004 represents a decrease of approximately 41 percent, compared to the quantity reported in 2000. A large percentage of the cadmium was sent to land disposal, with approximately 634,000 pounds of this PC being recycled in 2004.

Exhibit 4.46. National Management Methods for Cadmium and Cadmium Compounds, 2000–2004

Management Methods for Cadmium and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	80	69	71	69	63	−21.3%	-
Disposal Quantity (pounds)	1,356,083	919,994	744,924	824,080	885,122	−34.7%	100.0%
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	0.0%
Treatment Quantity (pounds)	132,613	12,499	1,550	0	0	−100.0%	0.0%
Priority Chemical Quantity (pounds)	1,488,696	932,493	746,474	824,080	885,122	−40.5%	100%
Recycling Quantity (pounds)*	748,270	469,405	417,697	702,728	634,308	−15.2%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented for the purpose of providing some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.47 shows the number of facilities that reported cadmium, within ranges of quantities. Of the 63 facilities that reported cadmium in 2004, two facilities accounted for approximately 60 percent of the total quantity of this chemical. Twelve of the 63 facilities accounted for 90 percent of the total quantity.

Exhibit 4.47. Distribution of Quantities by Facilities Reporting Cadmium and Cadmium Compounds in 2004

Cadmium (885,122 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	17	less than 0.1%
11 – 100 pounds	1	less than 0.1%
101 – 1,000 pounds	17	0.7%
1,001 – 10,000 pounds	16	8.3%
10,001 – 100,000 pounds	10	30.8%
100,001 – 1 million pounds	2	60.1%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.48 and 4.49 show the quantity of cadmium that facilities reported for each EPA region in 2000 to 2004. In 2004, facilities in three Regions (Regions 4, 6, and 10) reported approximately 75 percent of the cadmium; Region 6 facilities accounted for approximately 46 percent of the total quantity. Some observations include:

Increases:

- The quantity reported by facilities in Region 6 has steadily increased each year since 2001.
- Facilities in Regions 2, 7, 9, and 10 reported large increases in 2004, compared to quantities reported in 2003.

Decreases:

- Facilities in Regions 1 and 3 reported steadily decreasing quantities since 2000.
- Region 4 facilities reported a large decrease in 2004, compared to the 2003 quantity.
- No facilities in Region 8 reported cadmium since 2001.
- Despite a significant increase in 2004, facilities in Region 10 reported a decrease of approximately 314,000 pounds compared to the quantity reported in 2000.

Exhibit 4.48. Quantity of Cadmium and Cadmium Compounds Reported, by EPA Region, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	50,835	32,866	5,972	4,271	3,621	−92.9%	0.4%
2	26,073	34,434	28,462	8,466	14,421	−44.7%	1.6%
3	157,948	103,399	65,584	79,796	76,988	−51.3%	8.7%
4	169,707	113,933	102,782	173,752	113,189	−33.3%	12.8%
5	209,382	61,863	36,153	48,468	63,426	−69.7%	7.2%
6	366,447	267,921	285,057	389,929	404,177	10.3%	45.7%
7	43,620	17,905	17,851	11,024	37,001	−15.2%	4.2%
8	695	251	0	0	0	−100.0%	0.0%
9	4,029	3,799	7,211	1,818	26,299	552.7%	3.0%
10	459,960	296,122	197,402	106,556	146,000	−68.3%	16.5%
Total	**1,488,696**	**932,493**	**746,474**	**824,080**	**885,122**	**−40.5%**	**100.0%**

Exhibit 4.49. Distribution of Facilities Reporting Cadmium and Cadmium Compounds in 2004 and the Quantities of Cadmium and Cadmium Compounds Reported in 2004, by EPA Region

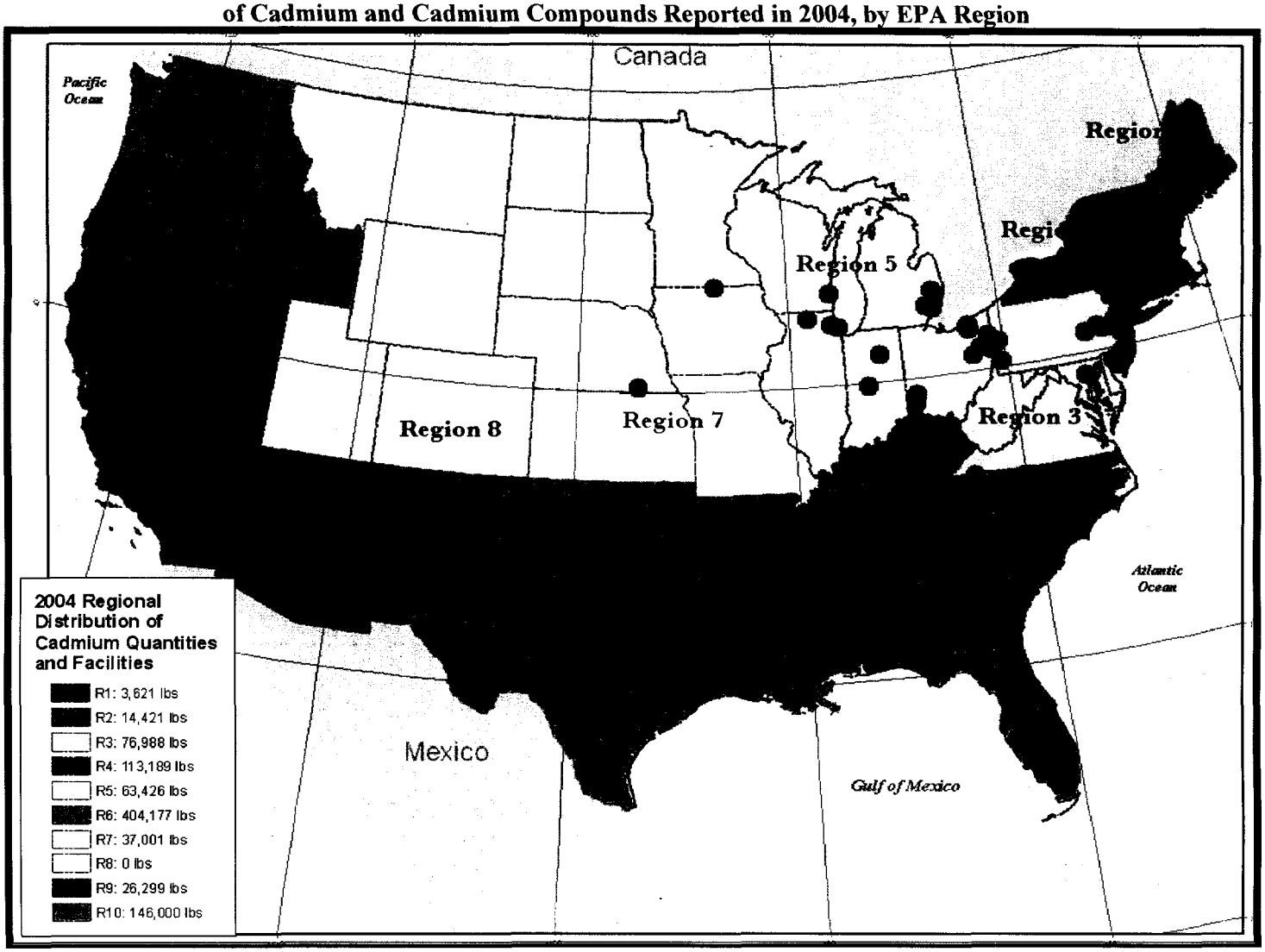


Exhibit 4.50 shows how cadmium was managed by facilities within each EPA region in 2004. A large percentage of the PC quantity of cadmium was land disposed, primarily using offsite disposal (79%). Approximately 634,000 pounds of cadmium were recycled; facilities in each EPA region reported recycling, except in Region 10. Facilities in Regions 3 and 4 reported 73 percent of the total recycled quantity.

Exhibit 4.50. Regional Management Methods for Cadmium and Cadmium Compounds, 2004

EPA Region	Quantity of Cadmium (2004)	Percent of Total Quantity of Cadmium (2004)	Disposal		Energy Recovery		Treatment		Recycling	
			Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
1	3,621	0.4%	0	3,621	0	0	0	0	5,350	180
2	14,421	1.6%	0	14,421	0	0	0	0	6,315	14,878
3	76,988	8.7%	6	76,982	0	0	0	0	15,249	237,060
4	113,189	12.8%	40,519	72,670	0	0	0	0	21,892	188,861
5	63,426	7.2%	0	63,426	0	0	0	0	672	7,947
6	404,177	45.7%	29	404,148	0	0	0	0	20,000	73,557
7	37,001	4.2%	0	37,001	0	0	0	0	0	29,284
9	26,299	3.0%	0	26,299	0	0	0	0	320	12,743
10	146,000	16.5%	146,000	0	0	0	0	0	0	0
Total	**885,122**	**100.0%**	**186,554**	**698,568**	**0**	**0**	**0**	**0**	**69,798**	**564,510**

State Trends:

Facilities in 34 states reported a quantity of cadmium for 2000–2004; in 2004, facilities in 26 states reported this PC. Facilities in nine of the states reported 90 percent of the total quantity in 2004. Oklahoma facilities reported 44 percent of the total quantity; one facility in Oklahoma accounted for virtually the entire quantity of cadmium reported in this state (Exhibit 4.51). Some other observations include:

Increases:

- The quantity reported by a facility in Oklahoma has steadily increased each year since 2001. This facility accounted for virtually 100 percent of the total state quantity and approximately 44 percent of the total national quantity of cadmium in 2004. The cadmium from this facility was derived from electric arc furnace dust during the recovery process to extract zinc and lead from these dusts.
- Compared to quantities reported in 2000, there were significant increases reported by facilities in several states, including Maryland, Arizona, North Carolina, and Indiana.
- Compared to quantities reported in 2003, there were significant increases reported by facilities in Idaho, Nebraska, Ohio, Arizona, and North Carolina.

Decreases:

- Facilities in Michigan, Virginia, and Connecticut reported steadily decreasing quantities since 2000.
- Facilities that had reported cadmium in one or more years during 2000–2003 did not report any in 2004.
- Compared to quantities reported in 2000, there were significant decreases reported by facilities in several states, including Idaho, Pennsylvania, Illinois, Virginia, and Connecticut.
- Compared to quantities reported in 2003, there were significant decreases reported by facilities in several states, including Florida and South Carolina.

Exhibit 4.51. State Quantity Trends for Cadmium and Cadmium Compounds, Based on Largest 2004 Quantity, 2000–2004

State	Quantity (pounds) of Cadmium						Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004	Change in Quantity (2000–2004)		
OK	298,496	227,190	268,060	372,766	386,537	88,041	29.5%	43.7%
ID	459,895	296,122	197,402	106,556	146,000	−313,895	−68.3%	16.5%
MD	29	42,923	41,171	67,064	69,307	69,278	238890.0%	7.8%
AL	79,728	73,543	78,137	77,169	60,223	−19,505	−24.5%	6.8%
NB	43,606	17,905	17,851	11,024	37,000	−6,606	−15.1%	4.2%
OH	52,715	36,711	16,567	10,082	34,581	−18,134	−34.4%	3.9%
AZ	0	0	0	1,491	25,854	25,854	NA	2.9%
NC	1,756	760	1,220	756	18,773	17,017	969.1%	2.1%
IN	3,051	14,444	9,428	22,825	18,602	15,551	509.7%	2.1%
FL	59,490	17,510	4,440	52,810	15,500	−43,990	−73.9%	1.8%
TN	11,127	11,910	12,159	13,562	14,267	3,140	28.2%	1.6%
TX	10,929	11,660	6,807	11,453	11,080	151	1.4%	1.3%
NJ	14,026	8,645	13,751	8,371	9,031	−4,995	−35.6%	1.0%
WI	8,449	6,998	7,648	7,698	8,347	−102	−1.2%	0.9%
PA	117,820	46,921	18,289	6,940	7,374	−110,446	−93.7%	0.8%
NY	12,047	25,789	14,711	95	5,390	−6,657	−55.3%	0.6%

Exhibit 4.51. State Quantity Trends for Cadmium and Cadmium Compounds, Based on Largest 2004 Quantity, 2000–2004

State	Quantity (pounds) of Cadmium						Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004	Change in Quantity (2000–2004)		
AR	57,022	29,062	10,189	4,542	5,206	−51,816	−90.9%	0.6%
SC	15,728	7,752	4,201	28,301	4,166	−11,562	−73.5%	0.5%
MA	8,908	1	5,612	1	3,621	−5,287	−59.3%	0.4%
IL	136,627	1,281	2,423	7,785	1,879	−134,748	−98.6%	0.2%
LA	0	9	1	1,168	1,354	1,354	NA	0.2%
CA	4,029	3,799	7,211	327	445	−3,584	−89.0%	0.1%
WV	0	0	0	138	307	307	NA	0.0%
GA	754	754	255	252	261	−493	−65.4%	0.0%
MI	8,535	2,429	86	78	17	−8,518	−99.8%	0.0%
IA	14	0	0	0	1	−13	−92.9%	0.0%
VA	40,099	13,555	6,124	5,654	0	−40,099	−100.0%	0.0%
RI	54	0	0	4,211	0	−54	−100.0%	0.0%
MS	474	1,054	820	903	0	−474	−100.0%	0.0%
CT	41,873	32,865	360	59	0	−41,873	−100.0%	0.0%
KY	650	650	1,550	0	0	−650	−100.0%	0.0%
CO	695	251	0	0	0	−695	−100.0%	0.0%
WA	65	0	0	0	0	−65	−100.0%	0.0%
MN	5	0	0	0	0	−5	−100.0%	0.0%
Total	**1,488,696**	**932,493**	**746,474**	**824,080**	**885,122**	**−603,574**	**−40.5%**	**100%**

Exhibits 4.52 through 4.54 show the trends for the quantities of cadmium in the top five states where facilities reported this PC in 2004.

Exhibit 4.52. Oklahoma and Nebraska Trends for Cadmium and Cadmium Compounds, 2000–2004

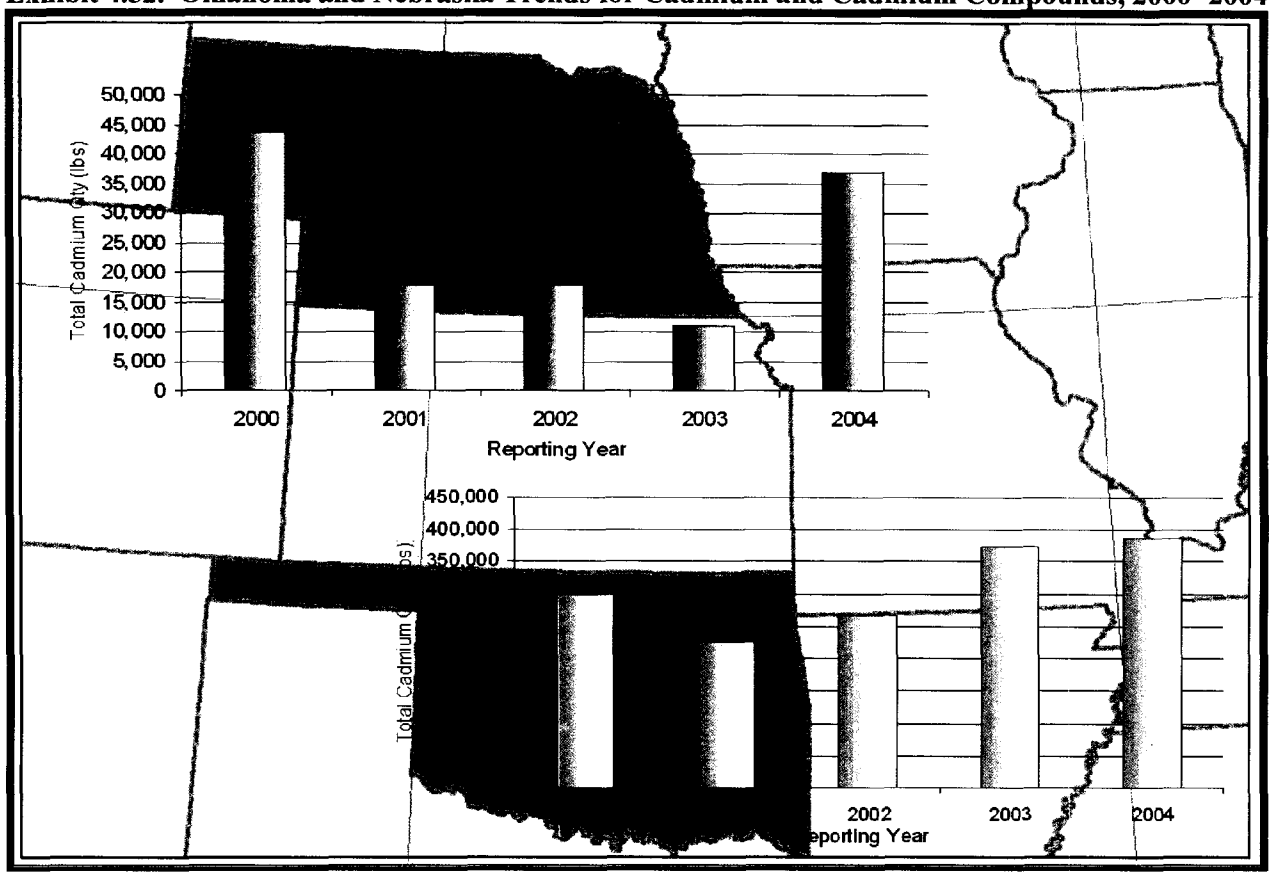


Exhibit 4.53. Idaho Trends for Cadmium and Cadmium Compounds, 2000–2004

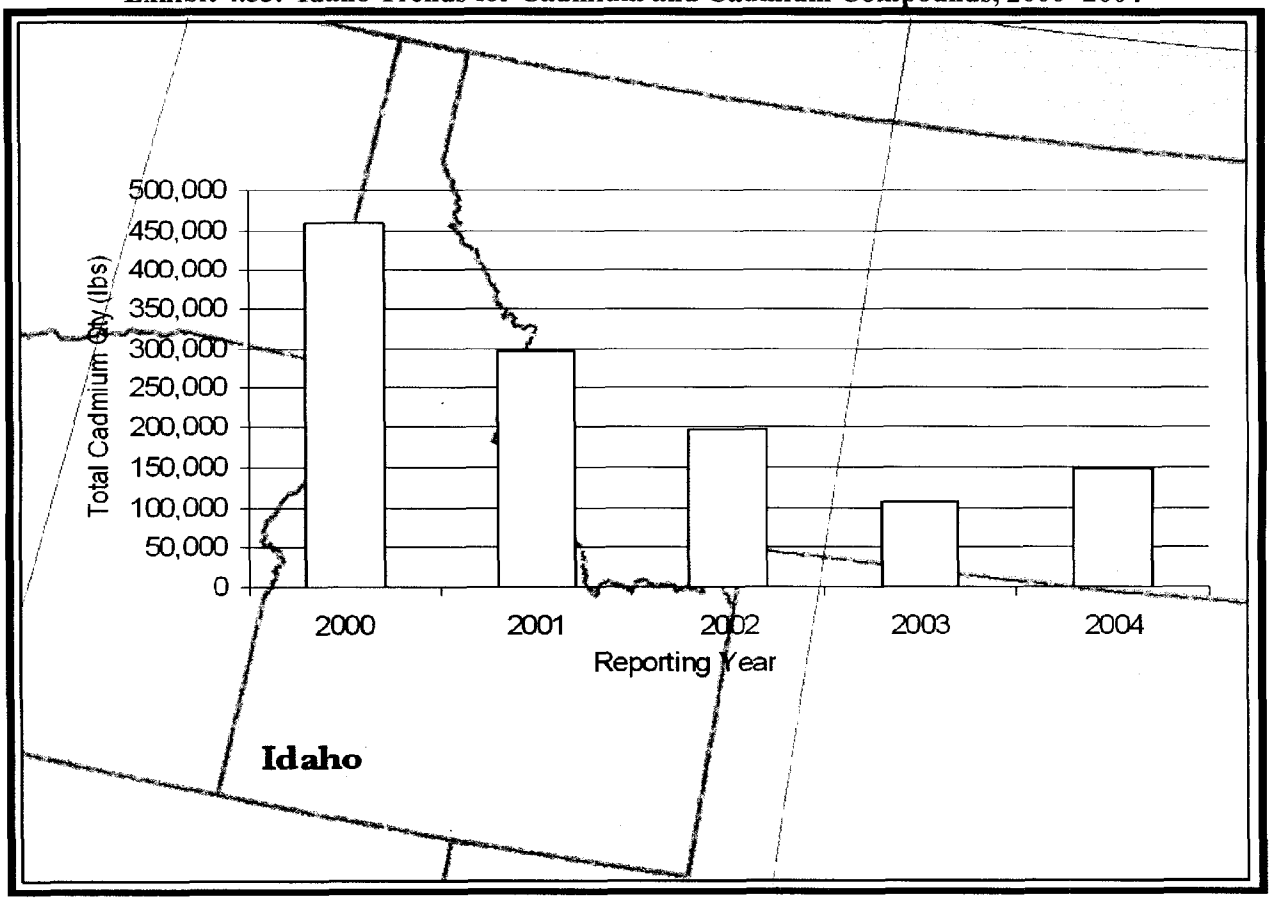
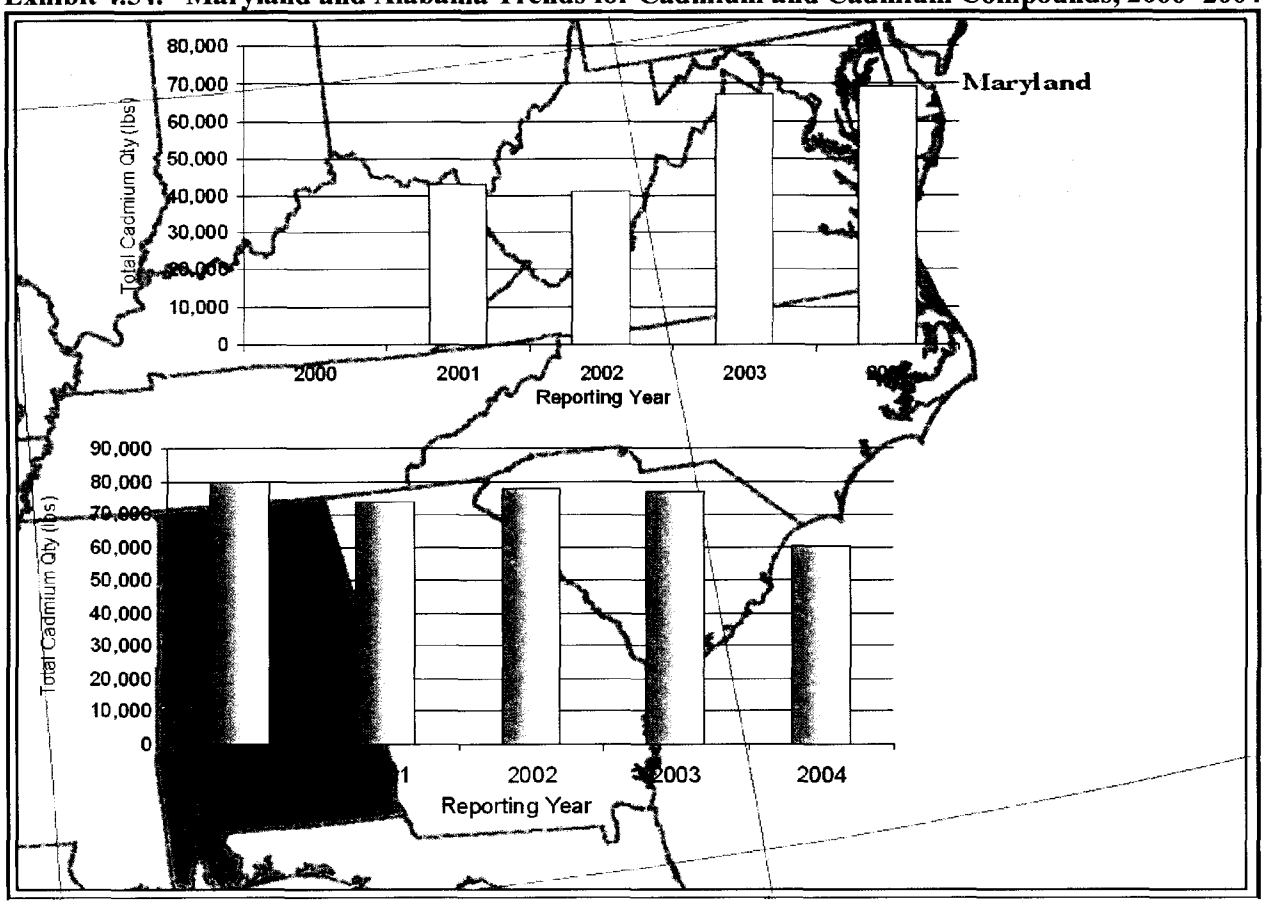


Exhibit 4.54. Maryland and Alabama Trends for Cadmium and Cadmium Compounds, 2000–2004

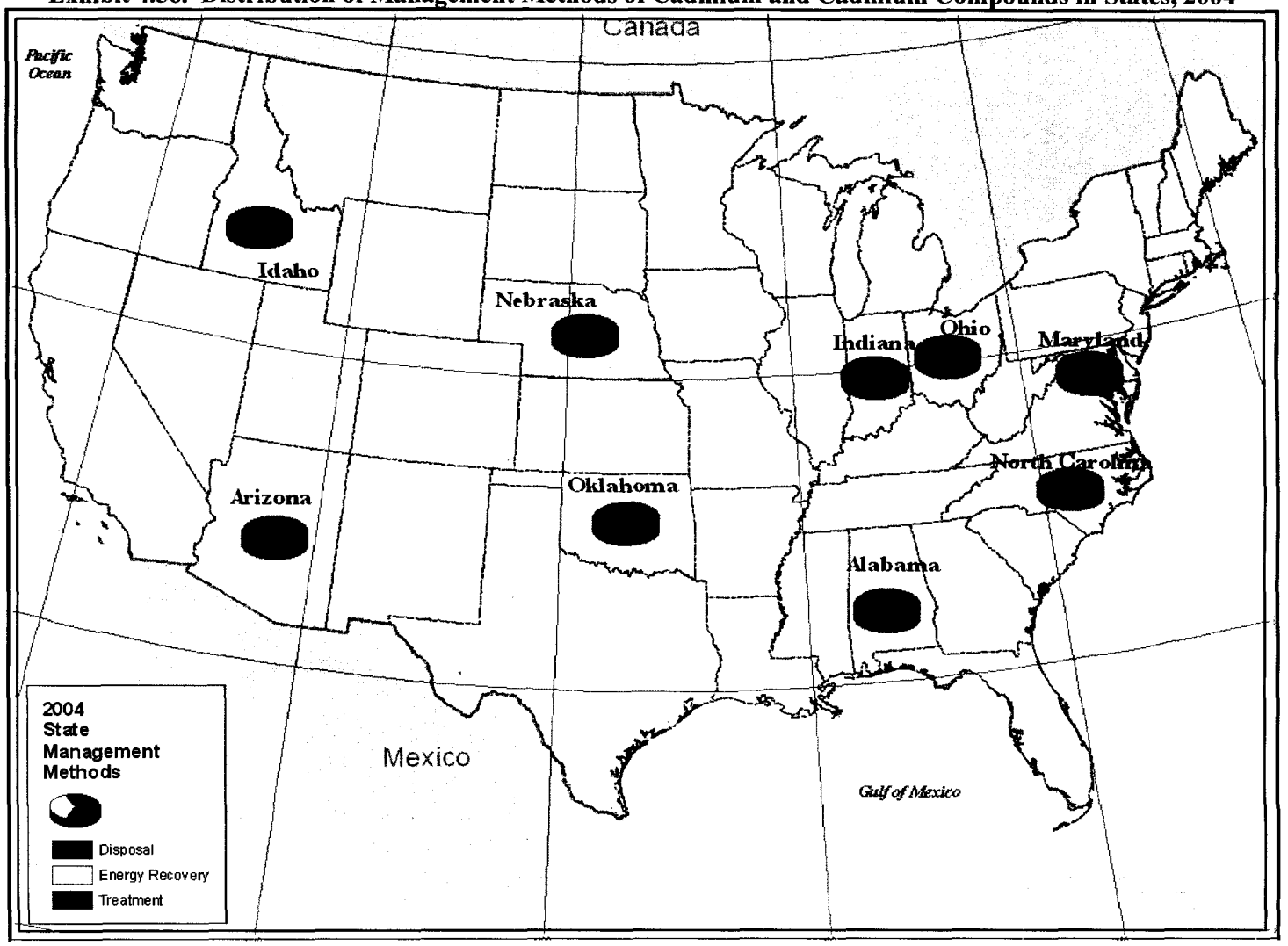


Exhibits 4.55 and 4.56 show how cadmium was managed by facilities in the nine states that accounted for 90 percent of the total quantity of this PC in 2004. A large percentage of the cadmium from facilities in these states was land disposed, mostly offsite. A facility in Idaho land disposed all its cadmium onsite. Approximately 72,000 pounds of cadmium were recycled in 2004. Most of the recycling was completed offsite. A facility in Oklahoma accounted for approximately 53 percent of the total quantity of cadmium recycled in 2004. The cadmium from this facility was derived from electric arc furnace dust during the recovery process to extract zinc and lead from these dusts. Overall, additional recycling of cadmium was hindered by such factors as the high cost of recovering low concentrations of this metal and its current relatively low market value.

Exhibit 4.55. Management Methods for Cadmium and Cadmium Compounds, Facilities in States With 90 Percent of Total Quantity, 2004

State	Quantity of Cadmium (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
OK	386,537	28	386,509	0	0	0	0	0	38,354
ID	146,000	146,000	0	0	0	0	0	0	0
MD	69,307	0	69,307	0	0	0	0	0	0
AL	60,223	26,610	33,613	0	0	0	0	0	3,407
NE	37,000	0	37,000	0	0	0	0	0	0
OH	34,581	0	34,581	0	0	0	0	672	7,713
AZ	25,854	0	25,854	0	0	0	0	0	12,668
NC	18,773	0	18,773	0	0	0	0	0	9,032
IN	18,602	0	18,602	0	0	0	0	0	202

Exhibit 4.56. Distribution of Management Methods of Cadmium and Cadmium Compounds in States, 2004



Industry Sector (SIC) Trends:

Facilities in 42 industry sectors reported cadmium in one or more years from 2000 to 2004; facilities in 25 of these industry sectors reported this PC in 2004. Exhibit 4.57 shows the quantities of cadmium reported by facilities in the eight industry sectors that accounted for 95 percent of this chemical in 2004. The quantity decreased in five of the eight industry sectors, compared to the quantities reported in 2000. Facilities in SIC 3341 (Secondary nonferrous metals) reported the highest quantities, accounting for approximately 49 percent of the total quantity of cadmium reported in 2004. Approximately 91 percent of this quantity was reported by one facility, located in Oklahoma. The process of recovering zinc and lead from electric arc furnace dusts at this facility generates wastes containing cadmium. Facilities in the SIC 2819 (Industrial inorganic chemicals, nec) industry sector reported approximately 21 percent of the total quantity of cadmium in 2004. For this industry sector, one facility located in Idaho reported approximately 80 percent of the total quantity of cadmium. The cadmium quantity reported by this facility is derived from phosphate ores used to produce pure phosphorous. The quantity reported is primarily a function of how much phosphorous is produced and the concentration of cadmium in the phosphate ores. Although facilities in this sector reported a decrease of approximately 42 percent compared to the quantity reported in 2000, the quantity increased by 87 percent in 2004, compared to 2003.

Exhibit 4.57. Industry Sectors Reporting Cadmium and Cadmium Compounds, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Cadmium (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3341	Secondary nonferrous metals	8	354,899	253,170	306,580	433,033	429,559	74,660	48.5%
2819	Industrial inorganic chemicals, nec	3	504,425	314,677	199,423	98,067	183,020	-321,405	20.7%
2816	Inorganic pigments	3	2,891	47,677	32,072	69,032	71,520	68,629	8.1%
3691	Storage batteries	6	66,026	21,805	5,822	58,349	47,882	-18,144	5.4%
3312	Blast furnaces and steel mills	7	93,398	62,922	38,355	58,469	31,212	-62,186	3.5%
2824	Organic fibers, noncellulosic	1	47,730	44,770	40,725	35,026	29,769	-17,961	3.4%
3357	Nonferrous wire drawing and insulating	3	39,472	18,044	7,851	14,701	22,702	-16,770	2.6%
2899	Chemical preparations, nec	1	2,912	7,278	15,143	0	21,253	18,341	2.4%

Exhibit 4.58 shows how facilities managed cadmium in the eight industry sectors that accounted for 95 percent of the total quantity of this PC in 2004. A large percentage of the cadmium was sent for offsite land disposal. In 2004, facilities in these eight industry sectors reported recycling of approximately 584,000 pounds of cadmium, mostly offsite. Facilities in two of the sectors (SIC 2819–Industrial inorganic chemicals, nec and SIC 2899–Chemical preparations, nec) did not report any recycling of this PC.

Exhibit 4.58. Management Methods for Cadmium and Cadmium Compounds in Industry Sectors With 95 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity of Cadmium (2004)	Percent of Total Quantity (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
3341	Secondary nonferrous metals	429,559	48.5%	26,638	402,921	0	0	0	0	0	223,306
2819	Industrial inorganic chemicals, nec	183,020	20.7%	146,000	37,020	0	0	0	0	0	0
2816	Inorganic pigments	71,520	8.1%	0	71,520	0	0	0	0	9,000	50,000
3691	Storage batteries	47,882	5.4%	250	47,632	0	0	0	0	41,892	165,398
3312	Blast furnaces and steel mills	31,212	3.5%	13,659	17,553	0	0	0	0	672	72,083
2824	Organic fibers, noncellulosic	29,769	3.4%	0	29,769	0	0	0	0	0	3,064
3357	Nonferrous wire drawing and insulating	22,702	2.6%	0	22,702	0	0	0	0	6,249	12,432
2899	Chemical preparations, nec	21,253	2.4%	0	21,253	0	0	0	0	0	0

Dibenzofuran

Chemical Information:

CAS Number – 132–64–9

Alternate Names – diphenylene oxide

General Uses – This chemical is used as an insecticide and to make other chemicals. It is made from coal tar and has been found in coke dust, grate ash, fly ash, and flame soot.

Potential Hazards – This chemical can cause skin, eye, nose, and throat irritation.

Summary Analysis:

- NATIONAL – Compared to the quantity of dibenzofuran reported in 2000, there was a 73 percent decrease in 2004.
- REGIONAL – In 2004, facilities in Regions 3 and 5 reported most of the dibenzofuran.
- STATES – Facilities in four states (Michigan, Illinois, West Virginia, Pennsylvania) reported approximately 98 percent of the total quantity of dibenzofuran.
- MANAGEMENT – In 2004, approximately 55 percent of the dibenzofuran was land disposed. Approximately 25 percent of the dibenzofuran was sent to offsite energy recovery – all from one facility, located in Illinois. Approximately 19 percent was treated.
- FACILITIES – Eleven facilities reported approximately 25,000 pounds of dibenzofuran in 2004. Of these, four facilities accounted for approximately 97 percent of the total quantity of this chemical.
- INDUSTRY SECTORS – Eleven facilities in six industry sectors reported dibenzofuran in 2004; 87 percent of the total quantity was reported by three facilities in SIC 2865 (Cyclic crudes and intermediates).

National Trends:

Exhibit 4.59 shows the number of facilities that reported dibenzofuran in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. The number of facilities that reported dibenzofuran since 2000 has been relatively constant with 11 to 12 facilities reporting each year. Compared to the quantity of dibenzofuran reported in 2000, there was a 73 percent decrease in 2004. Furthermore, since 2002, there have been significant decreases of approximately 70 percent in 2003 and again in 2004. The decreased quantities in 2003 and 2004 were mostly attributed to the shutdown of facilities in Michigan and Ohio, beginning in May 2003.

Since 2000, there have been significant yearly changes regarding the usage of management methods for dibenzofuran. Use of disposal, energy recovery, and treatment methods have varied considerably with no obvious trend. In 2004, approximately 55 percent of the dibenzofuran was land disposed. Recycling of dibenzofuran reached a peak in 2002 when 271,000 pounds were recycled; in 2004, approximately 11,000 pounds of dibenzofuran were recycled.

Exhibit 4.59. National Management Methods for Dibenzofuran, 2000–2004

Management Methods for Dibenzofuran and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	12	11	11	12	11	−8.3%	-
Disposal Quantity (pounds)	11,200	39,885	17,464	66,104	13,827	23.5%	55.4%
Energy Recovery Quantity (pounds)	23,873	22,580	266,235	1,340	6,277	−73.7%	25.2%
Treatment Quantity (pounds)	57,775	4,261	5,228	8,161	4,839	−91.6%	19.4%
Priority Chemical Quantity (pounds)	92,848	66,726	288,926	75,605	24,942	−73.1%	100%
Recycling Quantity (pounds)*	81,648	26,841	271,463	9,501	11,116	−86.4%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.60 shows the number of facilities that reported dibenzofuran within various quantity ranges. Of the 11 facilities that reported dibenzofuran in 2004, four facilities accounted for approximately 97 percent of the total quantity of this chemical.

Exhibit 4.60. Distribution of Quantities by Facilities Reporting Dibenzofuran, 2004

Dibenzofuran (24,942 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
Up to 10 pounds	3	0.1%
11 – 100 pounds	0	0.0%
101 – 1,000 pounds	4	3.3%
1,001 – 10,000 pounds	4	96.7%
10,001 – 100,000 pounds	0	0.0%
100,001 – 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.61 and 4.62 show the quantity of dibenzofuran in the four EPA regions where facilities reported this chemical between 2000 and 2004. In 2004, facilities in only 3 regions reported dibenzofuran; nearly all of the quantity was reported by facilities in Regions 3 and 5. Since 2000, facilities in Region 5 have reported most of the dibenzofuran. However, the Region 5 quantities decreased dramatically in both 2003 and 2004. These decreased quantities are attributed to the shutdown of facilities in Michigan and Ohio, beginning in May 2003. The decommissioning of a facility, located in Ohio, is believed to be the reason for the significant increase of dibenzofuran in 2002. Decommissioning activities such as the cleaning of tanks and process equipment and cleanups, generated additional quantities of wastes containing dibenzofuran. Compared to quantities reported in 2003, facilities in both Regions 3 and 4 also reported significant decreases.

Exhibit 4.61. Quantity of Dibenzofuran, by EPA Region, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3	3,226	3,600	5,570	15,011	8,217	154.7%	32.9%
4	2,978	377	69	1,889	116	−96.1%	0.5%
5	85,167	62,749	283,287	58,705	16,610	−80.5%	66.6%
10	1,477	0	0	0	0	−100.0%	0.0%
Total	**92,848**	**66,726**	**288,926**	**75,605**	**24,942**	**−73.1%**	**100.0%**

Exhibit 4.62. Distribution of Facilities Reporting Dibenzofuran in 2004 and the Quantities of Dibenzofuran Reported in 2004 by Region

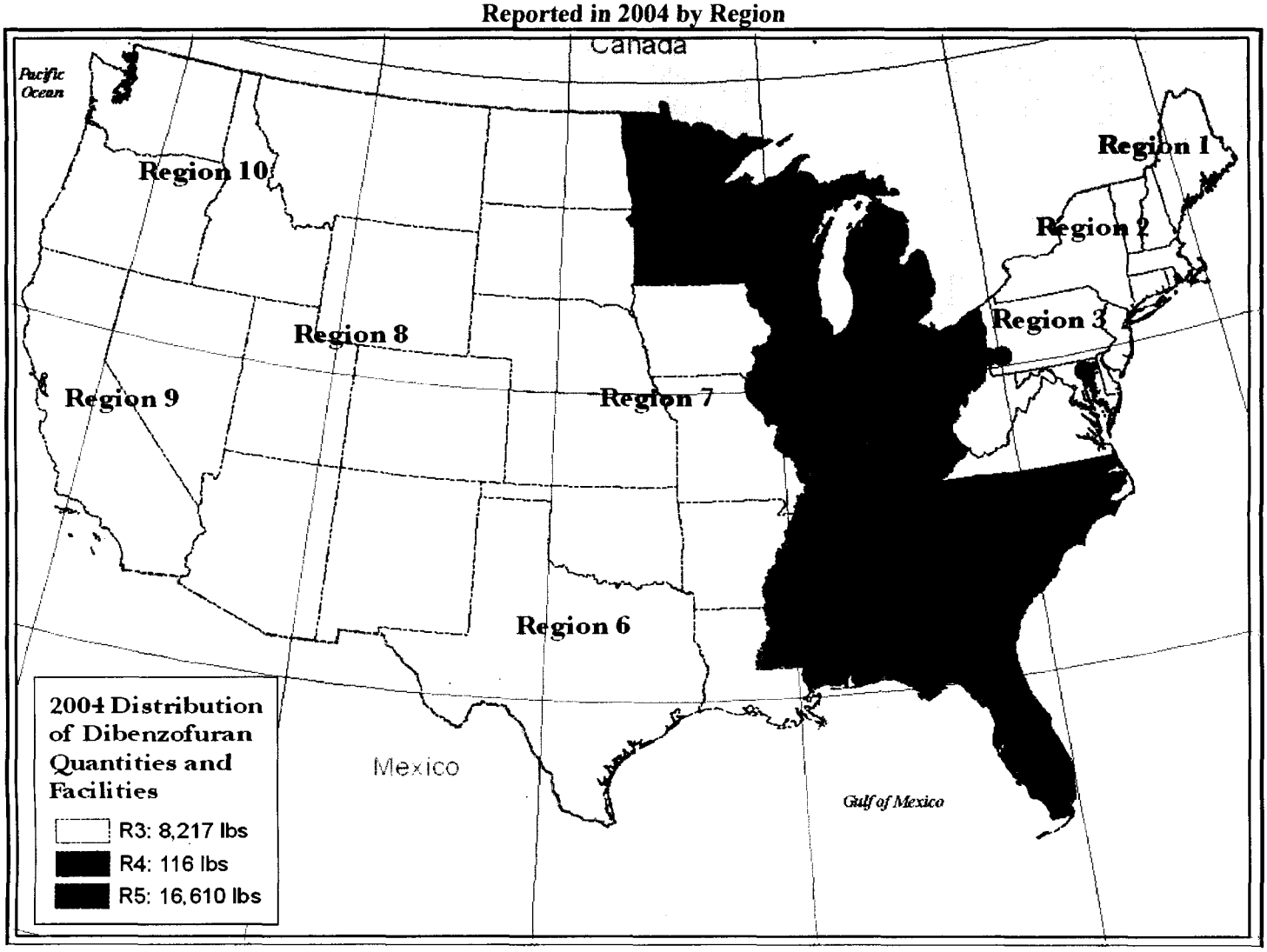


Exhibit 4.63 shows how dibenzofuran was managed by facilities within each of the three EPA regions where facilities reported this chemical in 2004. Overall, approximately 55 percent of the dibenzofuran was land disposed offsite. Region 5 facilities reported most of the dibenzofuran sent to offsite land disposal; a facility in Michigan, undergoing shutdown operations, accounted for approximately 8,100 pounds or 82 percent of the total quantity sent to land disposal by facilities in Region 5. Approximately 25 percent of the dibenzofuran was sent to offsite energy recovery – all from one facility, located in Illinois. Of the 30,000 pounds of dibenzofuran recycled by these facilities in 2004, a facility in Region 5 accounted for 99 percent of the total recycled quantity.

Exhibit 4.63. Regional Management Methods for Dibenzofuran, 2004

EPA Region	Quantity of Dibenzofuran (2004)	Percent of Dibenzofuran (2004)	Disposal		Energy Recovery		Treatment		Recycling	
			Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
3	8,217	27.4%	0	3,809	0	0	2,055	2,353	250	0
4	116	0.4%	0	116	0	0	0	0	0	0
5	16,610	55.5%	0	9,902	0	6,277	177	254	29,566	0

State Trends:

Although facilities in nine states reported dibenzofuran in 2004, facilities in four of these states accounted for approximately 98 percent of the total quantity of dibenzofuran. Exhibit 4.64 shows the quantity of dibenzofuran that was reported by facilities in 11 states for 2000–2004. Highlights concerning trends for the reported quantities of dibenzofuran in states include:

- One facility, in Michigan, which only began reporting dibenzofuran in 2003, accounted for almost 68 percent of the total quantity of this chemical in 2003 and 33 percent of the total quantity in 2004. This facility is being shutdown.
- Facilities in Ohio have significantly reduced dibenzofuran since 2000. The decommissioning of a facility, located in Ohio, is believed to be the reason for the significant increase in 2002 and subsequent decrease of dibenzofuran thereafter. Initial decommissioning activities, such as the cleaning of tanks and process equipment and cleanups, generated additional quantities of wastes containing dibenzofuran.
- One facility in West Virginia had more than 350 percent increase in 2003, compared to 2002, and then a 52 percent decrease in 2004. These year–to–year changes were attributed to shifts in production rates.

Exhibit 4.64. State Quantity Trends for Dibenzofuran, Based on Largest States 2004 Quantity, 2000–2004

State	Total Quantity (pounds) of Dibenzofuran					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
MI	0	0	1,248	52,202	8,115	8,115	NA	32.5%
IL	9,967	392	6,429	6,113	8,000	−1,967	−19.7%	32.1%
WV	1,300	2,000	3,400	12,022	5,819	4,519	347.6%	23.3%
PA	1,926	1,600	2,170	2,706	2,395	469	24.4%	9.6%
IN	52	1,251	28	260	261	209	401.9%	1.0%
OH	75,148	61,106	275,582	128	229	−74,919	−99.7%	0.9%
NC	33	111	50	165	116	83	250.0%	0.5%
MN	0	0	0	2	5	5	NA	0.0%
MD	0	0	0	283	3	3	NA	0.0%
AL	2,945	266	19	1,724	0	−2,945	−100.0%	0.0%
WA	1,477	0	0	0	0	−1,477	−100.0%	0.0%
Total	**92,848**	**66,726**	**288,926**	**75,605**	**24,942**	**−67,906**	**−73.1%**	**100.0%**

Exhibits 4.65 and 4.66 show the trends for the quantities of dibenzofuran in the top five states where facilities reported this PC in 2004.

Exhibit 4.65. Michigan, Illinois, and Indiana Trends for Dibenzofuran, 2000–2004

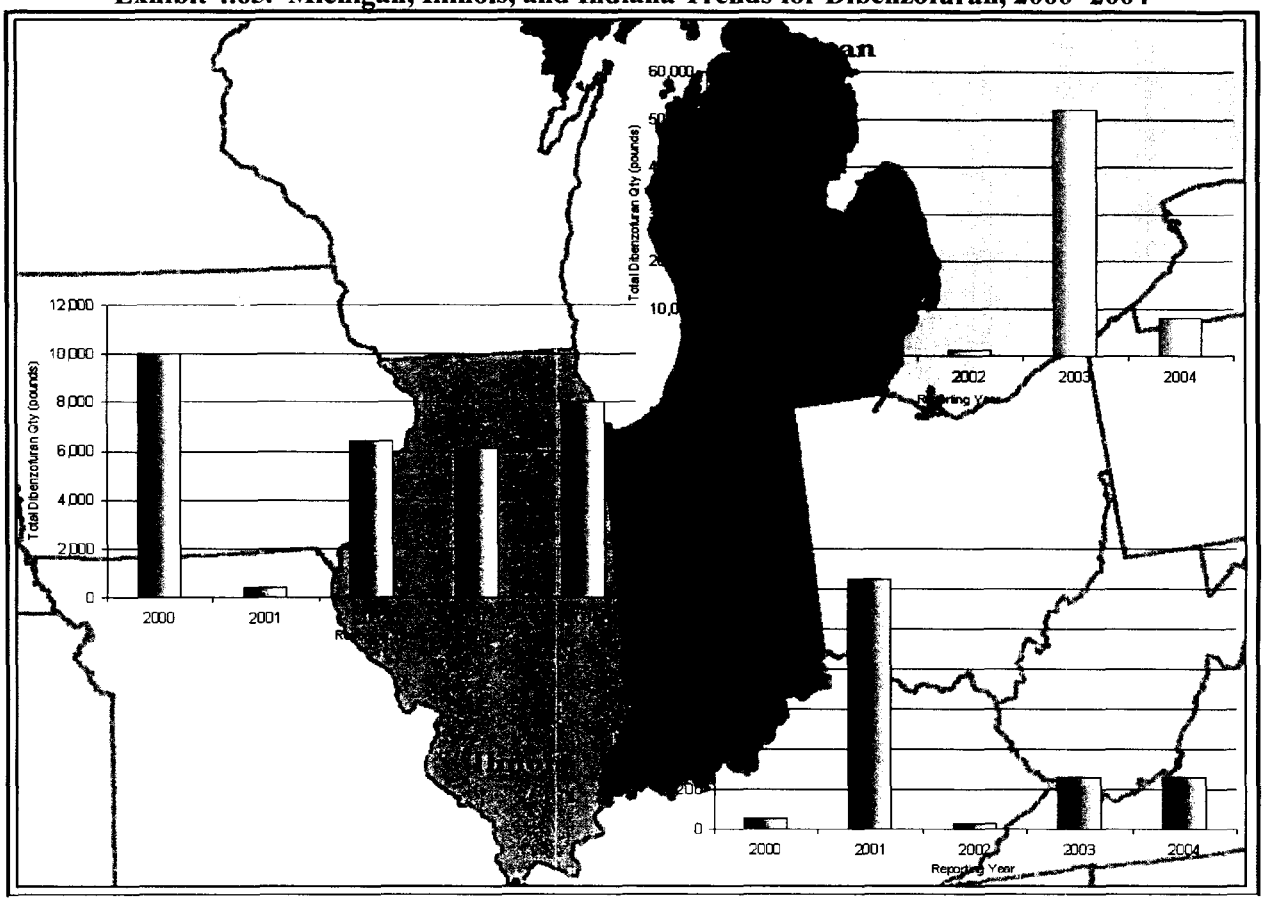
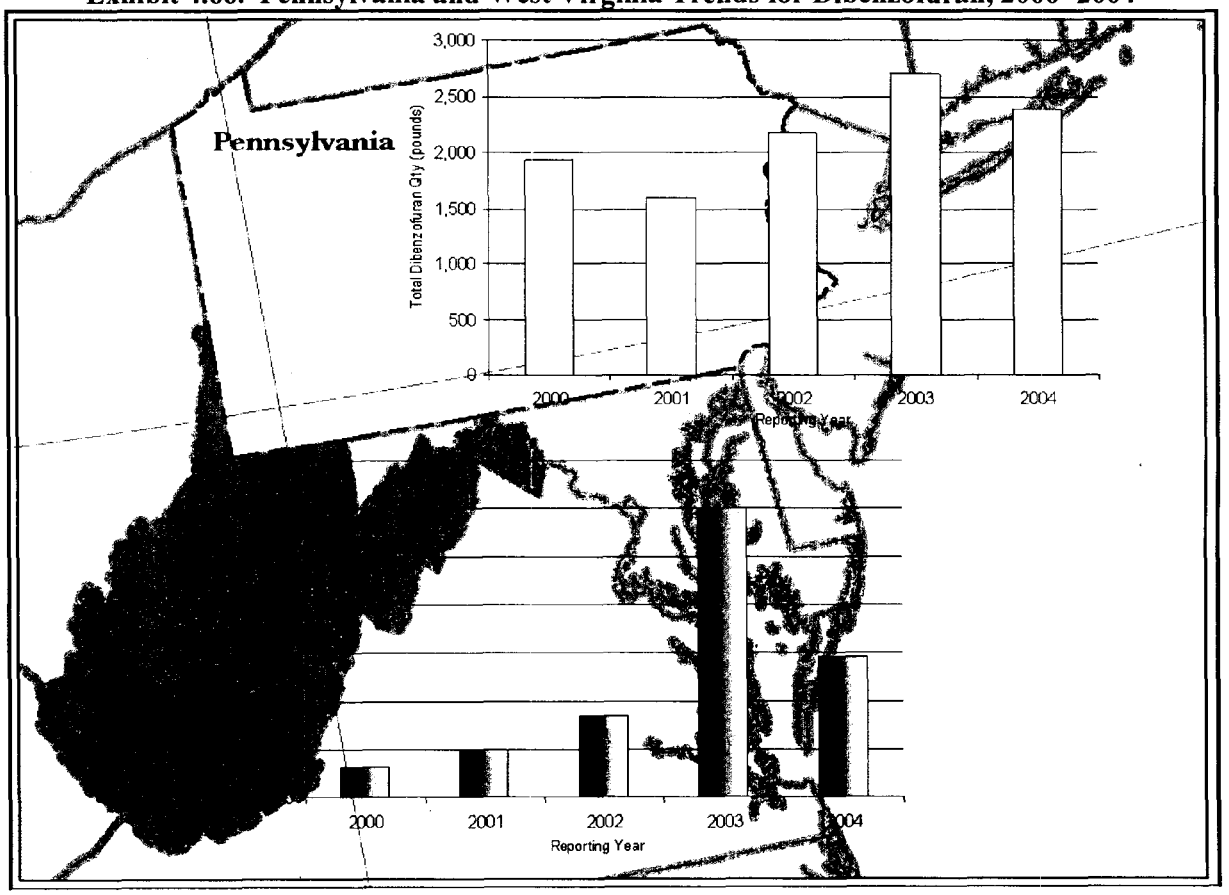


Exhibit 4.66. Pennsylvania and West Virginia Trends for Dibenzofuran, 2000–2004

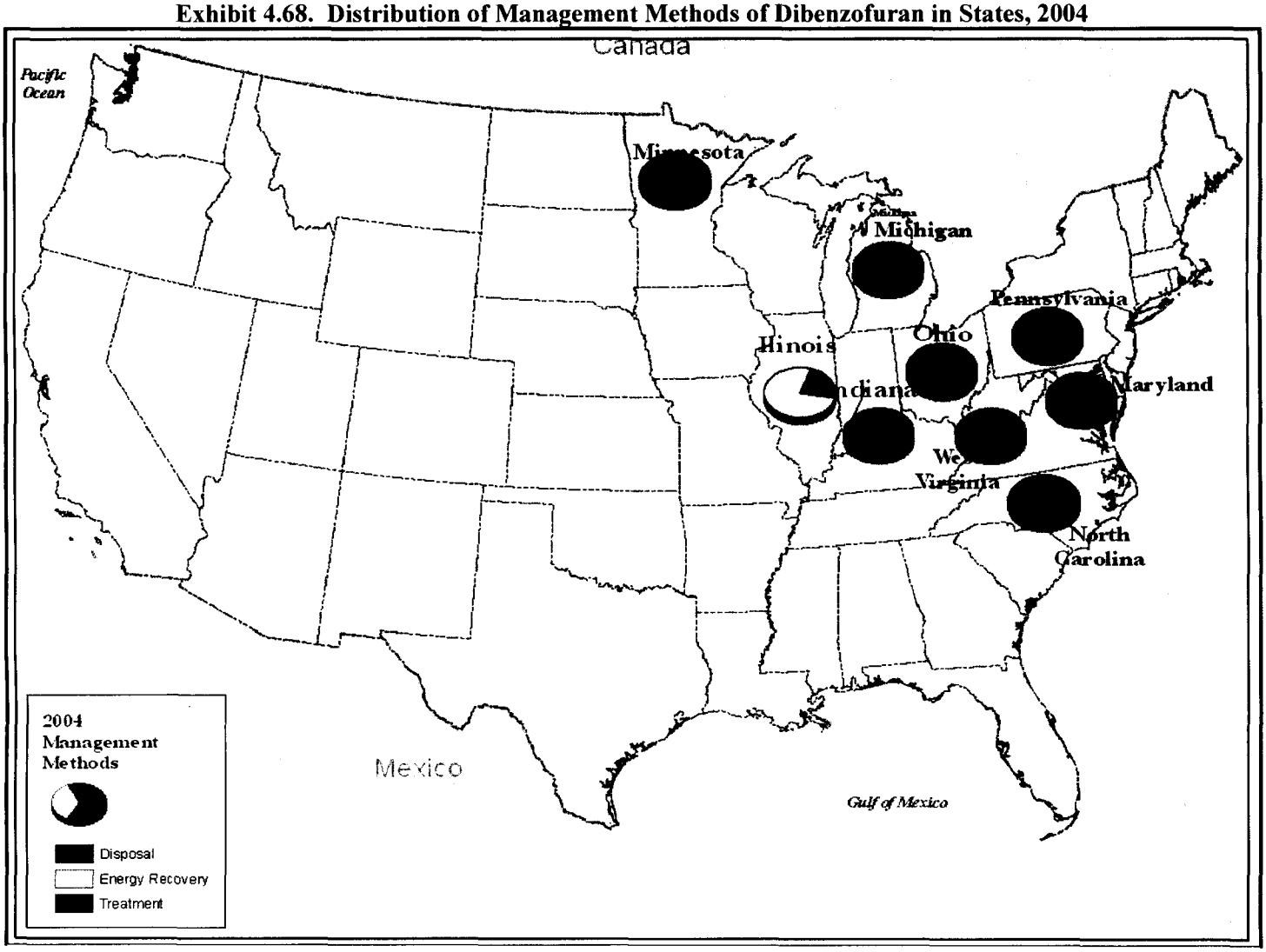


Exhibits 4.67 and 4.68 show how dibenzofuran was managed by facilities in the four states that accounted for 98 percent of the total quantity of this PC in 2004. Most of the dibenzofuran reported by facilities in Michigan, Illinois, and West Virginia was sent to offsite land disposal. A facility in Illinois reported all of the offsite energy recovery. Two facilities, one each in Pennsylvania and West Virginia, reported most of the treatment quantities. Relatively little recycling of dibenzofuran occurred in 2004.

Exhibit 4.67. Management Methods for Dibenzofuran, Facilities in States With 98 Percent of Total Quantity, 2004

State	Total Quantity of Dibenzofuran (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
MI	8,115	0	8,115	0	0	0	0	0	0
IL	8,000	0	1,554	0	6,277	170	0	148	0
WV	5,819	0	3,569	0	0	2,000	250	130	0
PA	2,395	0	240	0	0	55	2,100	120	0

Exhibit 4.68. Distribution of Management Methods of Dibenzofuran in States, 2004



Industry Sector (SIC) Trends:

Exhibit 4.69 shows the dibenzofuran quantity for the eight industry sectors reported by facilities in 2000–2004. Eleven facilities in six industry sectors reported dibenzofuran in 2004; 87 percent of the total quantity was reported by three facilities in SIC 2865 (Cyclic crudes and intermediates). Compared to the quantities reported in 2000, facilities in this industry sector reported a decrease of approximately 69,000 pounds of dibenzofuran in 2004. In 2002, there was a dramatic increase in the quantity of dibenzofuran. This increase was attributed to the decommissioning of an SIC 2865 facility, located in Ohio, at which initial decommissioning activities such as the cleaning of tanks and process equipment and cleanups, generating additional quantities of wastes containing dibenzofuran. Although there was an increase in the quantity of dibenzofuran reported by facilities in SIC 3312 (Blast furnaces and steel mills) beginning in 2003, this increase was due to the quantity reported by a facility that had reported as a SIC 2865 facility previous to 2003.

Exhibit 4.70 shows how facilities managed dibenzofuran in the two industry sectors that accounted for 98 percent of the total quantity of this PC in 2004. Most of the dibenzofuran was land disposed, primarily offsite, particularly within SIC 2865 (Cyclic crudes and intermediates). The majority of the dibenzofuran reported by facilities in SIC 3312 (Blast furnaces and steel mills) was sent to offsite treatment. Very little recycling of dibenzofuran was reported by facilities in these two industry sectors in 2004. However, one facility in SIC 4925 (Gas production and/or distribution), in addition to treating a relatively small quantity of dibenzofuran, recycled approximately 29,000 pounds of this chemical in 2004.

Exhibit 4.69. Industry Sectors Containing Dibenzofuran, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Dibenzofuran (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2865	Cyclic crudes and intermediates	3	90,878	65,082	286,288	70,243	21,715	−69,163	87.1%
3312*	Blast furnaces and steel mills	2	158	32	212	2,834	2,624	2,466	10.5%
4925	Gas production and/or distribution	1	6	1,245	14	260	261	255	1.0%
3272	Concrete products, nec	3	0	0	2,348	2,101	222	222	0.9%
2491	Wood preserving	1	79	117	64	165	116	37	0.5%
2911	Petroleum refining	1	0	0	0	2	5	5	0.0%
2952	Asphalt felts and coatings	0	250	250	0	0	0	−250	0.0%
3334	Primary aluminum	0	1,477	0	0	0	0	−1,477	0.0%

* Note: Most of the quantity shown for SIC 3312 in 2003 and 2004 was reported by a facility that, prior to 2003, had used SIC 2865 as its primary SIC code.

Exhibit 4.70. Management Methods for Dibenzofuran in Industry Sectors With 98 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity of Dibenzofuran (2004)	Percent of Total Quantity (2004)	Disposal		Energy Recovery		Treatment		Recycling	
				Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
2865	Cyclic crudes and intermediates	21,715	87.1%	0	13,019	0	6,277	2,170	250	278	0
3312	Blast furnaces and steel mills	2,624	10.5%	0	469	0	0	55	2,100	120	0

Dioxin and Dioxin–Like Compounds (Dioxin)

Chemical Information:

Dioxin refers to a group of chemical compounds that share similar chemical and biological properties. Several hundred of these compounds exist and are members of two closely related families: chlorinated dibenzo–*p*–dioxins (CDDs) and chlorinated dibenzofurans (CDFs).

General Uses – CDDs and CDFs are not commercially produced except in small quantities for chemical analyses and toxicological research. CDDs and CDFs are formed as unwanted byproducts when chlorinated materials are involved in combustion or other high–temperature processes, such as waste incineration, energy generation, metallurgical processes, chemical manufacturing and other industrial processes. Energy generation sources of CDD/CDF releases include the combustion of coal, oil, and wood. Other high–temperature sources include Portland cement production, pulp mills using the kraft process, asphalt mixing plants, catalyst regeneration at petroleum refineries, and carbon reactivation furnaces. Metallurgical processes that may release CDD/CDFs include ferrous sources such as iron ore sintering, coke production, and the production of steel in electric arc furnaces from scrap feed. Secondary aluminum, copper, and lead smelters can also be sources of CDD/CDFs. CDDs and CDFs can also be formed as unintended byproducts of manufacturing processes. For example, they are generated in pulp and paper mills during chlorine bleaching.

Potential Hazards – Dioxins can cause a number of health effects. The most well known member of the dioxins/furans family is 2,3,7,8 TCDD which is a known human carcinogen (National Toxicology Program). Also, high doses of dioxin can cause a skin disease called chloracne.

Introduction:

Dioxins are of particular concern to EPA because they are:

- Persistent: they break down very slowly and remain in the environment for many years after release,
- Bioaccumulative: they are retained in fatty tissues and biomagnify within the food web (i.e., they increase in concentration as they progress up the food chain) and serve as a source of exposure to sensitive organisms; and
- Toxic: they cause a variety of long–term adverse health effects, including chloracne, immunotoxicity, developmental and reproductive effects, and cancer.

Dioxins are generally produced and released by industrial processes in relatively small amounts compared with amounts of other TRI–listed chemicals produced and released. Because of this, and the fact that certain dioxins are toxic at very low levels of exposure, a much lower TRI reporting threshold was established for dioxins (0.1 gram per year). As such, facilities report dioxins to TRI in grams. For the purposes of this section, we present our trends analyses using grams, rounded to the nearest whole gram. Please note that most of the dioxin quantities in the database are expressed in terms of very small quantities – even up to seven decimal places. In rounding the quantities to the nearest whole gram, certain quantities will appear to be zero. We made this conversion to facilitate our trends analyses. In no way should this conversion be interpreted as minimizing the importance of smaller quantities of dioxin – which are of considerable concern.

Elsewhere in this document, where analyses of trends for aggregated quantities of PCs are presented, we converted the quantities (grams) of dioxin to pounds (using 454.5 grams/pound) and rounded these quantities to the nearest whole pound. We made this conversion to provide uniformity and consistency in the quantities used

to perform analyses of trends at the more aggregated levels. Again, in no way should this conversion and rounding be interpreted as minimizing the potential health affects associated with smaller quantities of dioxin.

Summary Analysis:

- NATIONAL – In 2004, approximately 220,000 grams of dioxins were reported by 378 facilities. This was a 24 percent decrease compared to the quantity reported in 2000 and a 30 percent decrease from the quantity reported in 2003.
- REGIONAL – In 2004, facilities in Regions 4, 5, and 6 reported 97 percent of the dioxins; Region 6 facilities alone reported approximately 61 percent of the total quantity.
- STATES – In 2004, 93 percent of the dioxins were reported by facilities in five states (Louisiana, Texas, Mississippi, Michigan, and South Carolina); facilities in Louisiana reported approximately 41 percent of the total quantity.
- FACILITIES – Of the 378 facilities that reported dioxins in 2004, seven facilities accounted for 89 percent of the total quantity of this chemical; 18 facilities accounted for 96 percent.
- MANAGEMENT – From 2000 to 2004, dioxins were managed primarily by treatment. In 2004, treatment was used to manage 77 percent of the dioxin quantity, followed by disposal (17 percent) and energy recovery (6 percent).
- INDUSTRY SECTOR – Facilities in 39 industry sectors reported dioxins in 2004. However, facilities in only three of the industry sectors (SIC–2869–Industrial organic chemicals, SIC 2491–Wood preserving, and SIC 2812–Alkalies and chlorine) reported approximately 94 percent of the total quantity of dioxins in 2004. Facilities in SIC 2869 (Industrial organic chemicals, nec) reported approximately 55 percent of the total quantity; this was a significant increase from the quantities reported in 2000, as well as in 2003.

National Trends:

Exhibit 4.71 shows the number of facilities that reported dioxins in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. The number of facilities that reported dioxins since 2000 has been relatively constant, with an average of 372 facilities reporting each year. In 2004, approximately 220,000 grams of dioxins were reported. Compared to the quantity of dioxins reported in 2000, there was a 24 percent decrease in 2004. Compared to 2003, the quantity decreased by 30 percent from the quantity reported in 2003.

In 2003, the quantity of dioxins increased significantly, by approximately 27 percent, compared to the previous year. Much of this increase was due to the 138,000 grams of dioxins (contained in used telephone poles /wood wastes) reported by a wood preserving facility in Louisiana. This facility had reported much smaller quantities in previous years (2000–2002). as well as in 2004.
From 2000 to 2004, dioxins were managed primarily by treatment. In 2004, treatment was used to manage 77 percent of the dioxin quantity, followed by disposal (17 percent) and energy recovery (6 percent). Although EPA does not consider recycling to be a valid management method for dioxins, a very small amount of dioxin was reported as recycled.

Exhibit 4.71. National Management Methods for Dioxin and Dioxin-Like Compounds, 2000–2004

Management Methods for Dioxins and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	379	367	362	374	378	−0.3%	-
Disposal Quantity (grams)	21,189	32,655	26,223	192,604	36,396	71.8%	16.6%
Energy Recovery Quantity (grams)	2,014	2,348	2,010	1,129	14,092	599.6%	6.4%
Treatment Quantity (grams)	267,023	285,000	217,857	119,936	169,175	−36.6%	77.0%
Priority Chemical Quantity (grams)	290,226	320,003	246,091	313,669	219,662	−24.3%	100%
Recycling Quantity (grams)*	4,469	1,433	1,429	30	29	−99.4%	-

*Note: EPA does not consider recycling to be a valid management method for dioxins; however, a very small amount of dioxin was reported to be recycled. Throughout this section, the recycled quantity is presented simply for consistency and completeness.

Exhibit 4.72 shows the number of facilities that reported dioxins within various quantity ranges. Of the 378 facilities that reported dioxins in 2004, seven facilities accounted for 89 percent of the total quantity of this chemical; 18 facilities accounted for 96 percent. Although the overwhelming majority of facilities reported relatively small quantities of dioxins, it is important to remember that even very small quantities of this chemical are of concern as evidenced by the TRI reporting threshold of 0.1 grams.

Exhibit 4.72. Size Distribution of Facilities that Reported Quantities for Dioxin and Dioxin-Like Compounds, 2004

Dioxins (219,662 grams)		
Quantity (grams) Reported*	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 0.1 gram	143	less than 0.1%
0.2 – 1.0 gram	88	less than 0.1%
1.1 – 10.0 grams	56	0.1%
10.1 – 100 grams	50	0.9%
100.1 – 1,000 grams	23	2.6%
1,000.1 – 10,000 grams	11	16.8%
10,000.1 – 100,000 grams	7	79.6%

* rounded to 1 decimal place

EPA Regional Trends:

Exhibits 4.73 and 4.74 show the quantity (grams) of dioxins reported by facilities within each EPA region between 2000 and 2004. In 2004, facilities in Regions 4, 5, and 6 reported 97 percent of the dioxins; Region 6 facilities alone reported approximately 61 percent of the total quantity. Facilities in Region 6 have consistently reported the largest quantity of dioxins since 2000. Compared to quantities of dioxin reported in 2000:

- Quantities in 2004 decreased in eight of the 10 EPA regions. In terms of quantities, facilities in Regions 2, 5, and 6 reported the largest decreases. In terms of percent decrease, facilities in Regions 1,2, 9 and 10 reported at least a 50 percent decrease in 2004.
- Facilities in Regions 4 and 7 reported increased quantities of dioxins in 2004, compared to the quantities reported in 2000; large increases, compared to 2003 quantities, also were reported by facilities in these two regions.

Compared to quantities of dioxin reported in 2003:

- Facilities in Region 6 reported approximately 49 percent less quantity in 2004. A wood preserving facility in Louisiana accounted for most of this decrease.
- Facilities in Region 3 reported approximately 86 percent less quantity in 2004. Most of this decrease occurred at a facility in West Virginia. This facility attributed the decrease to the implementation of Maximum Achievable Control Technology (MACT) standards for its incinerator.
- Significant increases were reported by facilities in Regions 4 and 7. Most of the increase in Region 4 was due to how a wood preserving facility in Mississippi estimated the concentration of dioxins in its wastes. Most of the increase in Region 7 was reported by a wood preserving facility in Missouri; in 2004, this facility cleaned out sludge from a process wastewater treatment tank, resulting in approximately a five–fold increase in the reported quantity of dioxin.

Exhibit 4.73. Regional Quantities (grams) of Dioxin and Dioxin-Like Compounds, 2000–2004

EPA Region	2000 (grams)	2001 (grams)	2002 (grams)	2003 (grams)	2004 (grams)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	34	14	17	7	17	−50.6%	0.0%
2	12,788	1,272	110	107	124	−99.0%	0.1%
3	1,188	239	213	4,891	697	−41.4%	0.3%
4	16,940	14,416	14,197	12,810	49,457	191.9%	22.5%
5	51,969	65,473	19,112	29,786	28,770	−44.6%	13.1%
6	200,648	215,223	181,169	262,811	134,779	−32.8%	61.4%
7	329	400	798	1,106	3,741	1038.1%	1.7%
8	91	20,079	28,427	131	47	−48.0%	0.0%
9	1,745	503	627	581	445	−74.5%	0.2%
10	4,495	2,383	1,422	1,440	1,585	−64.7%	0.7%
Total	**290,226**	**320,003**	**246,091**	**313,669**	**219,662**	**−24.3%**	**100.0%**

Exhibit 4.74. Distribution of Facilities Reporting Dioxin and Dioxin-Like Compounds in 2004 and the Quantities of Dioxin and Dioxin-Like Compounds Reported in 2004 by Region

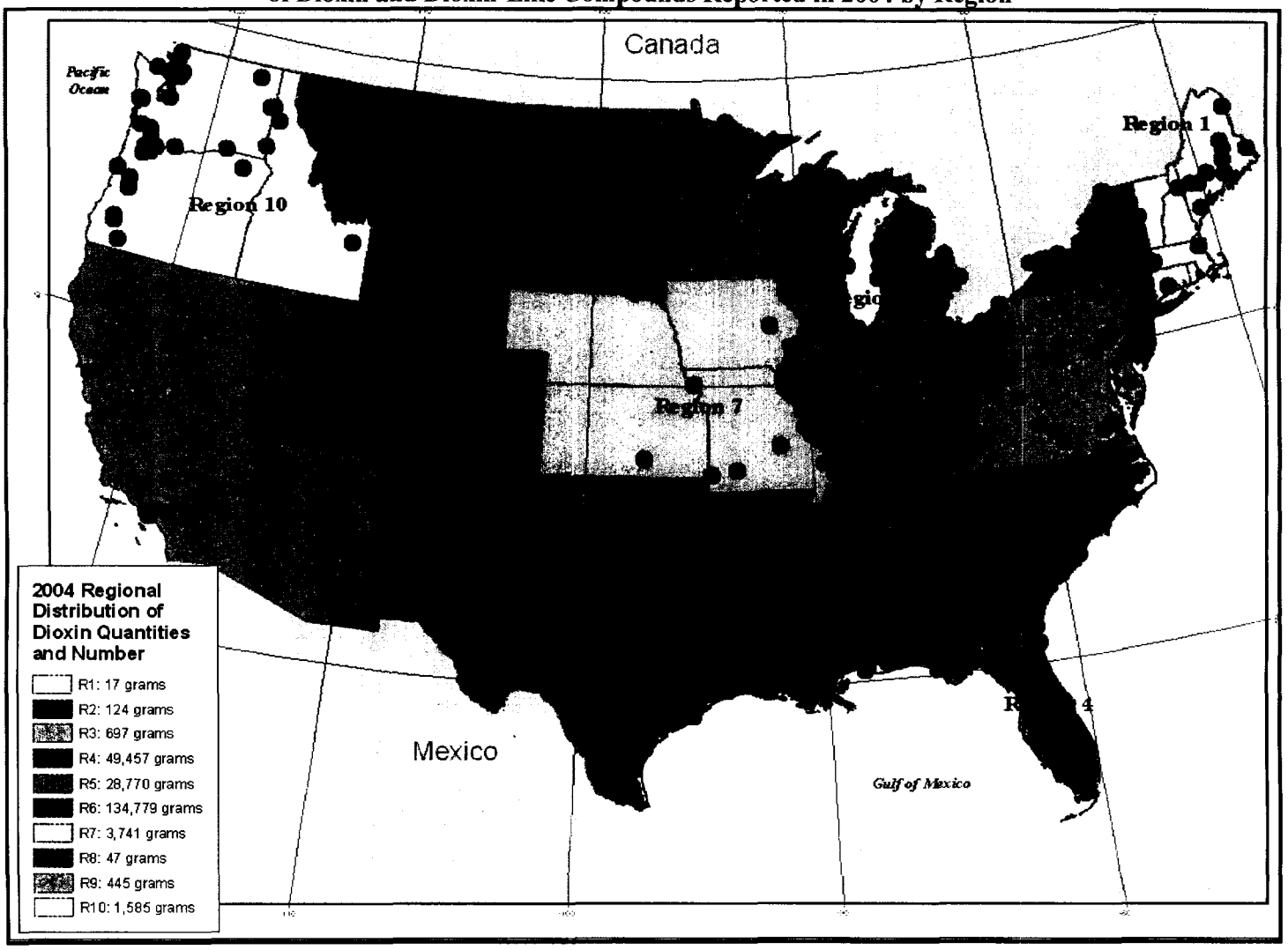


Exhibit 4.75 shows how dioxins were managed by facilities within each EPA region in 2004. Facilities in seven EPA regions used treatment as the primary method for managing their dioxins. Facilities in Region 5 used treatment and disposal for approximately equal portions of the dioxin quantity. Most of the dioxin reported by facilities in Region 7 was sent to offsite energy recovery. All of the dioxins reported by Region 8 facilities were sent to offsite disposal.

Exhibit 4.75. Management Methods for Dioxin and Dioxin-Like Compounds, by EPA Region, 2004

EPA Region	Quantity (grams) of Dioxins (2004)	Percent of Dioxins (2004)	Disposal (grams)		Energy Recovery (grams)		Treatment (grams)		Recycling (grams)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	17	0.0%	1	2	0	0	13	0	0	1
2	124	0.1%	0	34	0	1	71	18	0	2
3	697	0.3%	5	251	7	0	429	5	0	0
4	49,457	22.5%	299	2,651	0	11,010	2,602	32,895	18	0
5	28,770	13.1%	13,602	677	0	13	14,252	226	0	0
6	134,779	61.4%	6,023	11,868	0	0	101,074	15,815	0	0
7	3,741	1.7%	444	168	0	3,057	0	72	0	0
8	47	0.0%	0	47	0	0	0	0	0	0
9	445	0.2%	0	126	0	1	45	272	0	0
10	1,585	0.7%	8	190	3	0	414	970	0	7

State Trends:

Although facilities in 42 states reported dioxins in 2004, Exhibits 4.76 through 4.79 only show the quantities for 2000–2004 for the five states in which facilities reported approximately 93 percent of the dioxins in 2004. Some highlights are:

- Facilities in Louisiana reported approximately 41 percent of the total quantity of dioxins in 2004. This quantity is an increase of approximately 68 percent compared to the quantity for 2000, but is a 55 percent decrease from the quantity reported in 2003.
- Facilities in Texas reported 20 percent of the total dioxins quantity; since 2001 the quantity has steadily decreased each year.
- In 2004, facilities in Mississippi reported a large increase in dioxins, compared to quantities reported each year since 2000. Most of this increase was due to how a wood preserving facility in Mississippi estimated the concentration of dioxins in its wastes.
- Similarly, most of the increase reported by South Carolina facilities in 2004 was due to increased production and use of a different technique by a wood preserving facility for estimating the quantity of dioxins in wastes.

Exhibit 4.76. State–Level Information for Dioxin and Dioxin-Like Compounds, 2000–2004

State	Total Quantity (grams) of Dioxins					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
LA	53,573	58,352	59,556	200,406	89,823	36,250	67.7%	40.9%
TX	146,774	156,401	119,716	61,035	43,689	-103,084	-70.2%	19.9%
MS	748	2,010	4,719	2,770	28,221	27,473	3672.9%	12.8%
MI	48,814	61,741	16,149	27,387	26,627	-22,188	-45.5%	12.1%
SC	1,042	5,670	2,464	2,775	15,041	13,998	1343.0%	6.8%

Exhibit 4.77. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in Texas, Louisiana, and Mississippi, 2000–2004

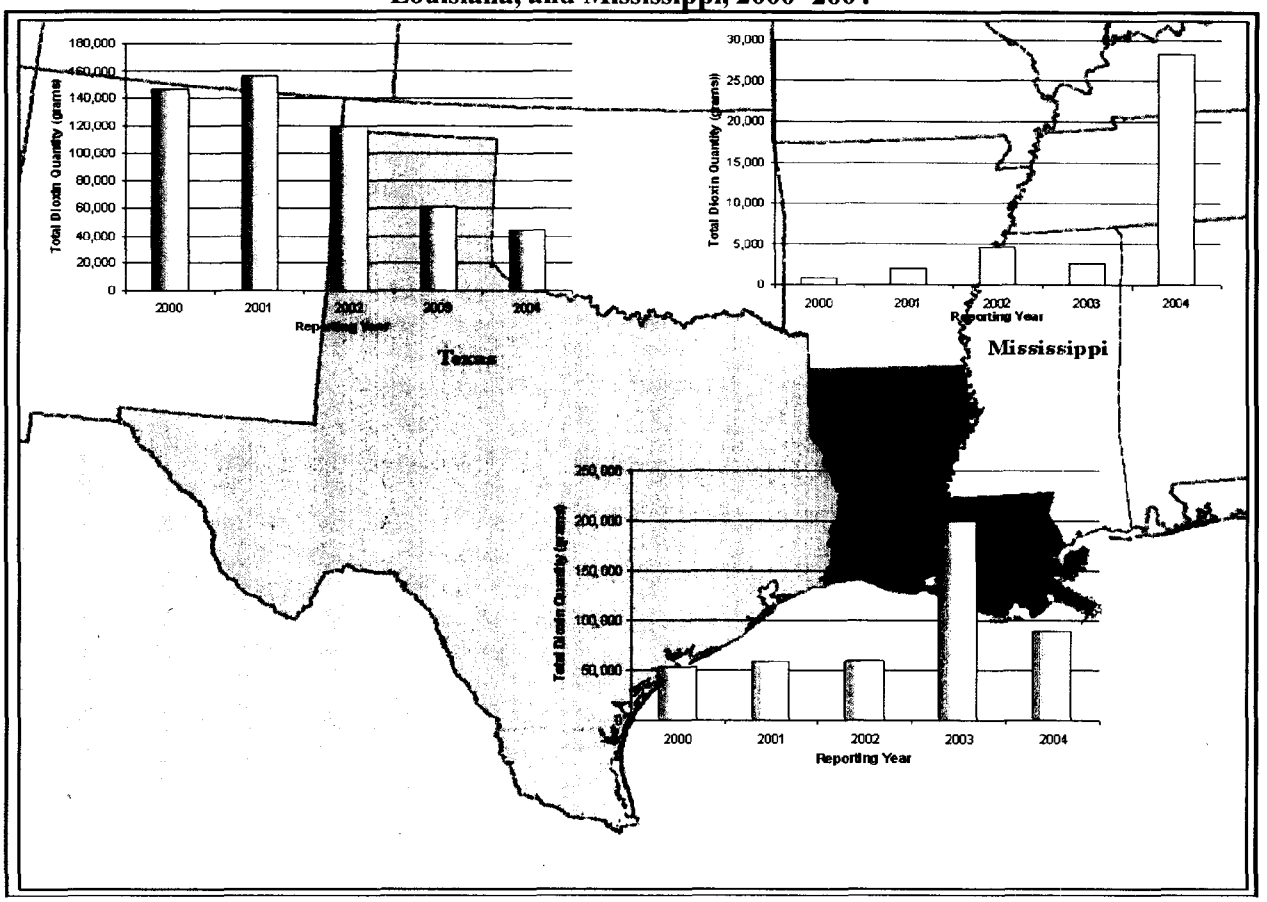


Exhibit 4.78. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in Michigan, 2000–2004

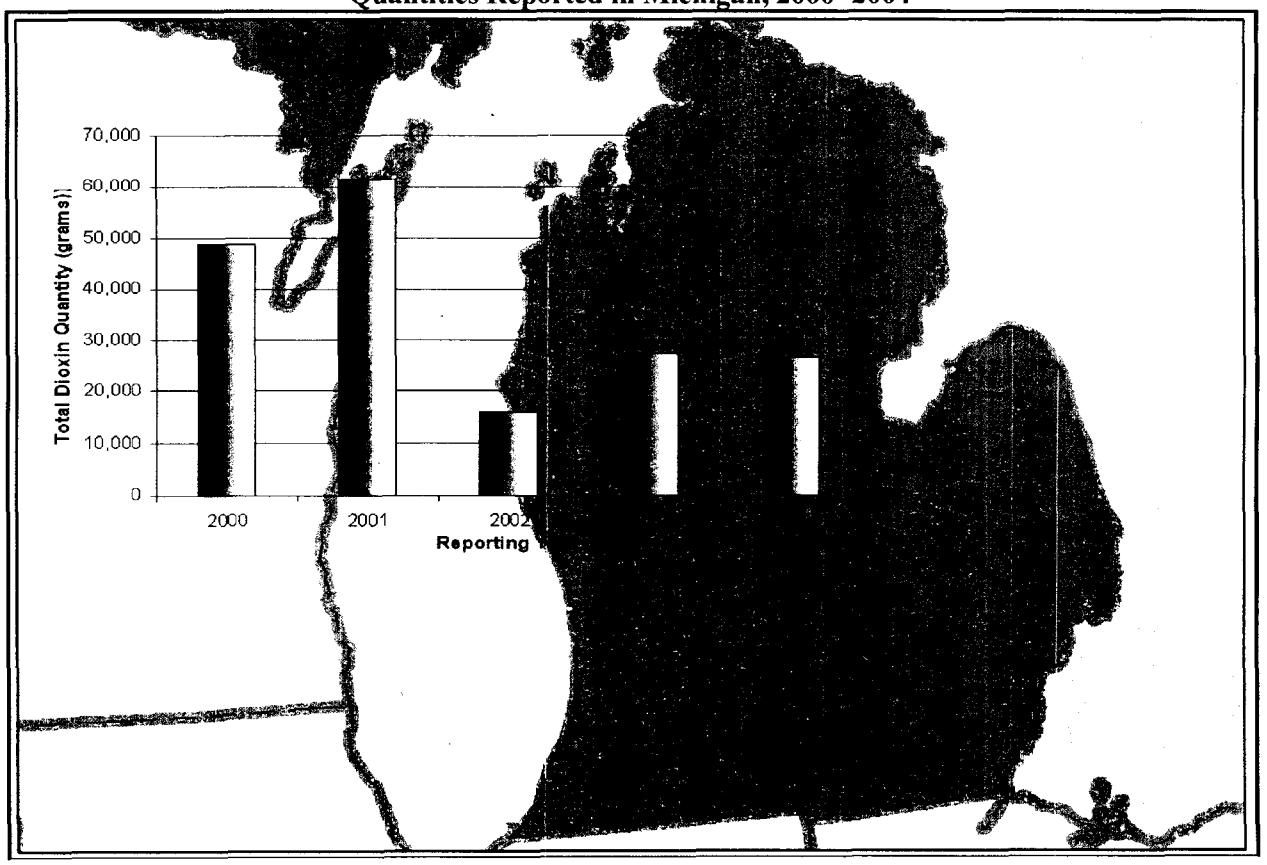
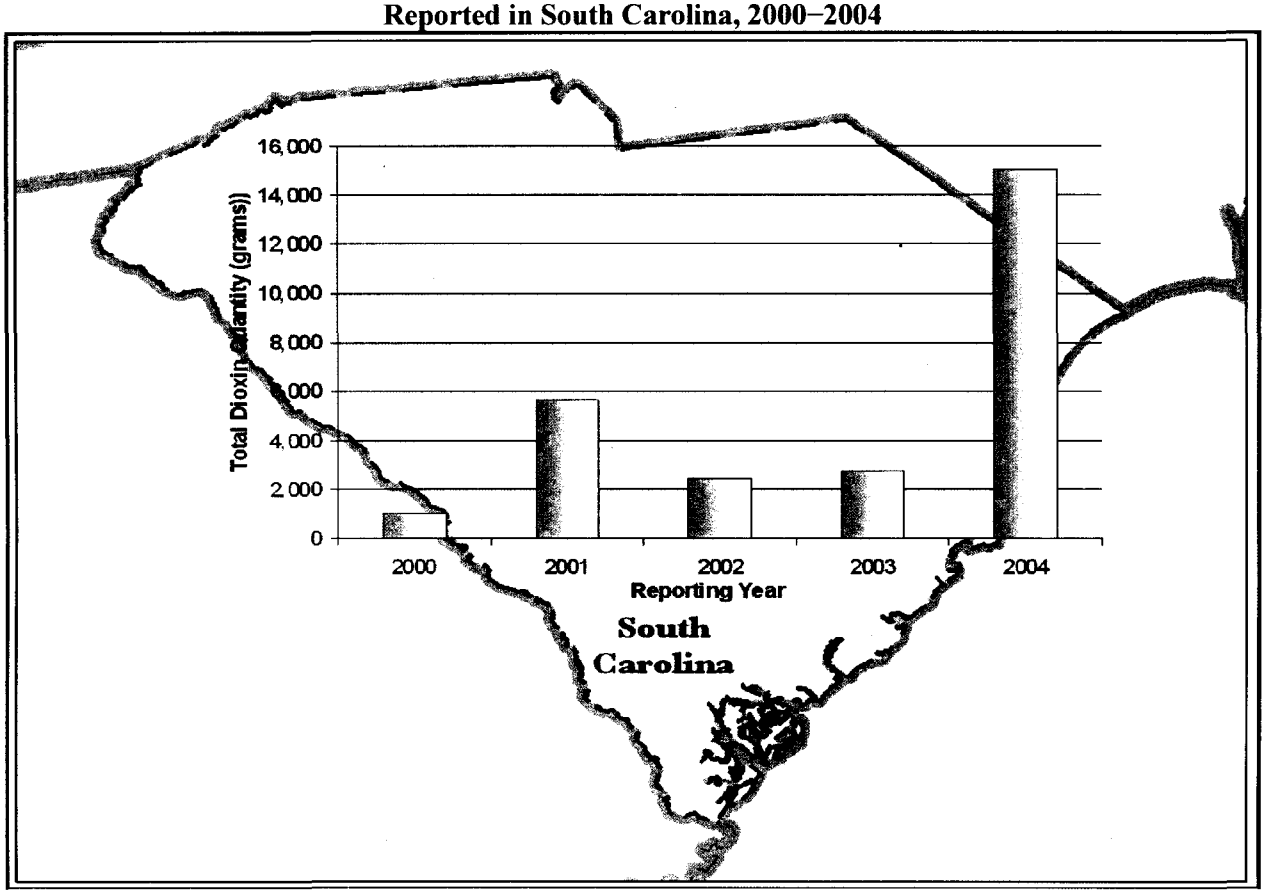


Exhibit 4.79. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in South Carolina, 2000–2004

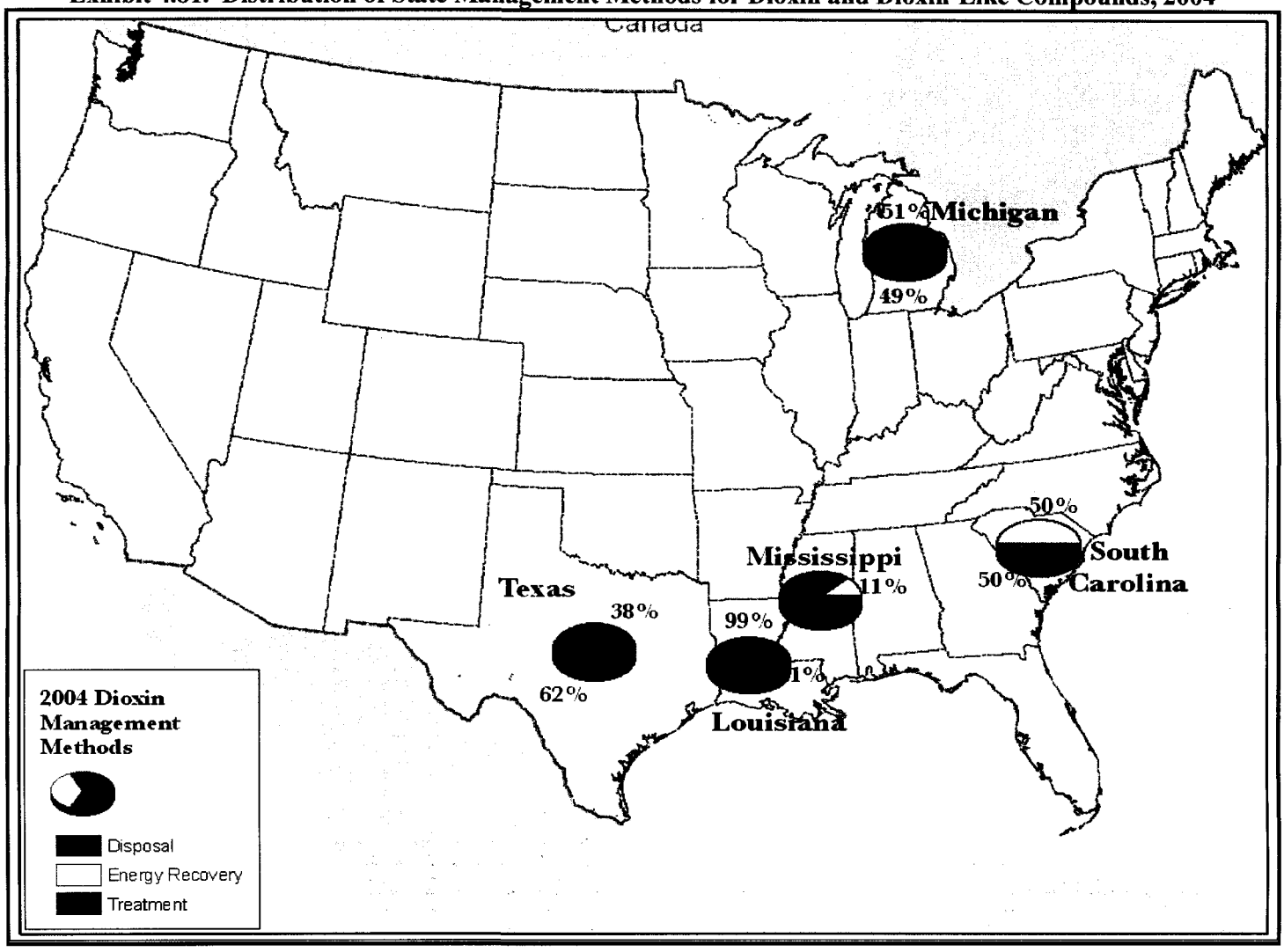


Exhibits 4.80 and 4.81 show how dioxins were managed by facilities in the five states where facilities reported approximately 93 percent of the total quantity of dioxins in 2004. These facilities treated most of the dioxins quantity. However, a significant portion of the dioxins in Texas and Michigan was sent to disposal. Facilities in South Carolina used energy recovery for approximately 50 percent of their dioxins.

Exhibit 4.80. State Management Methods for Dioxin and Dioxin-Like Compounds (Facilities Reporting 93 Percent of Total Quantity) Based on Total 2004 Quantity

State	Total Quantity (grams) of Dioxin (2004)	Onsite Disposal (grams)	Offsite Disposal (grams)	Onsite Energy Recovery (grams)	Offsite Energy Recovery (grams)	Onsite Treatment (grams)	Offsite Treatment (grams)	Onsite Recycling (grams)	Offsite Recycling (grams)
LA	89,823	43	896	0	0	84,168	4,717	0	0
TX	43,689	5,965	10,563	0	0	16,906	10,256	0	0
MI	28,221	4	5	0	3,211	13	24,987	0	0
MI	26,627	13,421	170	0	0	13,036	0	0	0
SC	15,041	11	0	0	7,524	36	7,470	0	0

Exhibit 4.81. Distribution of State Management Methods for Dioxin and Dioxin-Like Compounds, 2004



Industry Sector (SIC) Trends:

Facilities in 39 industry sectors reported dioxins in 2004. Exhibit 4.82 shows the quantity of dioxins for the three industry sectors where facilities reported approximately 94 percent of the total quantity of dioxins in 2004. Facilities in SIC 2869 (Industrial organic chemicals, nec) reported approximately 55 percent of the total quantity of dioxins in 2004. For this industry sector, the quantity reported in 2004 was a significant increase from the quantities reported in 2000, as well as in 2003.

Facilities in SIC 2491 (Wood preserving) reported a large increase compared to the quantity reported in 2000, but had approximately a 66 percent decrease compared to the 2003 quantity. The large increase reported in 2003 and subsequent large decrease in 2004 was due to the quantity of dioxins reported by a wood preserving facility, in Louisiana. Facilities in SIC 2812 (Alkalies and chlorine) reported a decrease of approximately 77 percent compared to the quantity reported in 2000. In 2004, the quantity of dioxins reported by SIC 2812 facilities increased by approximately 73 percent compared to 2003.

Exhibit 4.82. Industry Sectors Containing Dioxin and Dioxin-Like Compounds, 2000–2004

Primary SIC	SIC Description	Number of Facilities in This Industry Sector That Reported Dioxins (2004)	2000 (grams)	2001 (grams)	2002 (grams)	2003 (grams)	2004 (grams)	Change in Quantity (2000– 2004)	Percent of Total Quantity of This PC (2004)
2869	Industrial organic chemicals, nec	18	37,971	94,745	83,475	95,647	120,049	82,077	54.7%
2491	Wood preserving	22	12,969	15,005	13,467	148,282	50,249	37,280	22.9%
2812	Alkalies and chlorine	13	151,865	159,301	16,519	20,540	35,550	−116,315	16.2%

Exhibit 4.83 shows how dioxins were managed by facilities in the three industry sectors that accounted for approximately 94 percent of the total quantity of dioxins in 2004. Treatment was the primary means of managing dioxins by facilities in all three of these industry sectors; approximately 79 percent of the dioxins were treated by these facilities in 2004. In 2004, facilities in both SIC 2869 and SIC 2812 land disposed approximately 17 percent of their dioxin quantities. Only facilities in SIC 2491 reported managing their dioxins using energy recovery.

Exhibit 4.83. Management Methods for Dioxin and Dioxin-Like Compounds in Industry Sectors with 94 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity (grams) of Dioxins (2004)	Percent of Total Quantity (2004)	Disposal (grams)		Energy Recovery (grams)		Treatment (grams)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment
2869	Industrial organic chemicals, nec	120,049	54.7%	13,454	8,233	0	0	87,006	11,356
2491	Wood preserving	50,249	22.9%	0	863	0	14,075	138	35,173
2812	Alkalies and chlorine	35,550	16.2%	6,405	144	0	0	25,539	3,462

Heptachlor

Chemical Information:

Heptachlor is an organochlorine insecticide produced by the chlorination of chlordane. It is a white powder that smells like mothballs. Heptachlor was first registered in the United States in 1952 for use as a general insecticide on a wide range of agricultural crops. Heptachlor was also used for home and garden insect control, for termite control, and as a seed treatment. In 1974, EPA issued a Notice of Intent to Cancel all registered uses of heptachlor except those for subterranean termite control and dipping of non–food plants. In March 1978, most other uses of heptachlor were canceled.

CAS Number – 76–44–8

Alternate Names –1,4,5,6,7,8–Heptachloro–3a, 4,7,7a–tetrahydro–4,7–ethanoindene, Heptachlorane

General Use – Heptachlor is now severely restricted and is presently only used in the United States to control fire ants in buried, pad–mounted electric power transformers and in underground cable television and telephone cable boxes.

Potential Hazards – Heptachlor is highly toxic and may be fatal if inhaled, swallowed, or absorbed through the skin.

Summary Analysis:

- NATIONAL: Heptachlor was not reported in 2000 or 2001. In 2002 through 2004, only relatively small quantities were reported.
- STATE/FACILITY: For 2002–2003, only one facility, located in New Jersey, reported relatively small quantities of heptachlor. In 2004, this facility and another facility located in Texas reported heptachlor. The quantities of heptachlor reported by both these facilities were initially generated offsite and brought onsite for treatment.
- MANAGEMENT: Approximately 99 percent of the heptachlor was treated (incinerated) onsite by the Texas facility; the New Jersey facility disposed of most of its heptachlor and also treated a small quantity in its onsite wastewater treatment plant.
- RECYCLING: No recycling of heptachlor was reported.

National Trends:

Exhibit 4.84 shows the number of facilities that reported heptachlor in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2002 through 2004, only relatively small quantities were reported by up to two facilities. Since 2002, most of the heptachlor was treated, using incineration.

Exhibit 4.84. National Management Methods for Heptachlor

Management Methods for Heptachlor and Number of Facilities	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change (2002–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	0	0	1	1	2	100.0%	-
Disposal Quantity (pounds)	0	0	2	8	7	300.0%	0.9%
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	0.0%
Treatment Quantity (pounds)	0	0	12	46	768	6143.9%	99.1%
Priority Chemical Quantity (pounds)	0	0	14	54	775	5397.9%	-
Recycling Quantity (pounds)*	0	0	0	0	0	NA	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented for the purpose of providing some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

EPA Regional Trends:

Exhibits 4.85 and 4.86 show the quantity of heptachlor in the two EPA regions where facilities reported this PC in 2002–2004. Heptachlor was not reported in 2000 or 2001. Heptachlor was reported by one facility in Region 2 in 2002–2004 and by one facility in Region 6 in 2004.

Exhibit 4.85. Regional Quantity of Heptachlor, 2002–2004

EPA Region	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2002–2004)	Percent of Total Quantity of Heptachlor (2004)
2	14	54	9	−34.8%	1.2%
6	0	0	766	NA	98.8%
Total	**14**	**54**	**775**	**5397.9%**	**100.0%**

Exhibit 4.86. 2004 Distribution of Facilities Reporting Heptachlor and the Quantities of Heptachlor Reported, by EPA Region

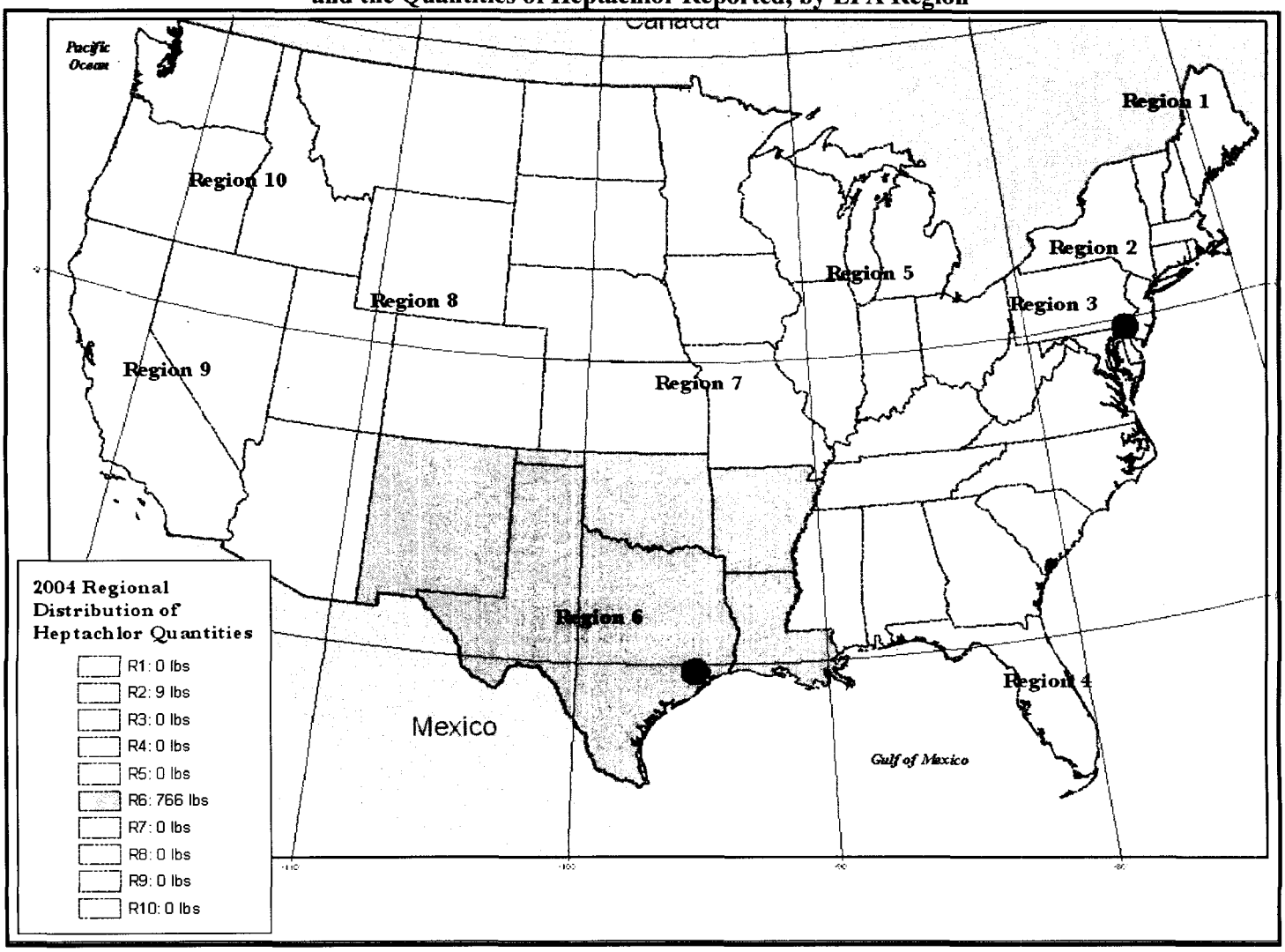


Exhibit 4.87 shows how heptachlor was managed by the two facilities (one facility in each of the regions) that reported this chemical in 2004. Approximately 99 percent of the heptachlor was treated (incinerated) onsite by the Region 6 facility; the Region 2 facility disposed most of their heptachlor and also treated a small quantity in its onsite wastewater treatment plant. No recycling of heptachlor was reported.

Exhibit 4.87. Regional Management Methods for Heptachlor, 2004

EPA Region	Quantity of Heptachlor (2004)	Percent of Heptachlor (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2	9	1.2%	7	0	0	0	2	0	0	0
6	766	98.8%	0	0	0	0	766	0	0	0

State Trends:

No facilities reported heptachlor in 2000 or 2001. Since 2002, relatively small quantities of heptachlor were reported by only two facilities: one facility in New Jersey and one facility in Texas (Exhibit 4.88). Only the New Jersey facility reported heptachlor in 2002 and 2003.

Exhibit 4.88. State Quantity Trends for Heptachlor, Based on 2004 Quantities, 2000–2004

State	Quantity of Heptachlor			Change in Quantity (2002–2004)	Percent Change in Quantity (2002–2004)	Percent of Total Quantity of This PC (2004)
	2002 (pounds)	2003 (pounds)	2004 (pounds)			
TX	0	0	766	766	NA	98.8%
NJ	14	54	9	−5	−34.8%	1.2%
Total	**14**	**54**	**775**	**761**	**5397.9%**	**100.0%**

Exhibits 4.89 and 4.90 show the trends for the quantities of heptachlor reported by facilities in these two states in 2004.

Exhibit 4.89. Trends in Heptachlor Quantities Reported in Texas, 2002–2004

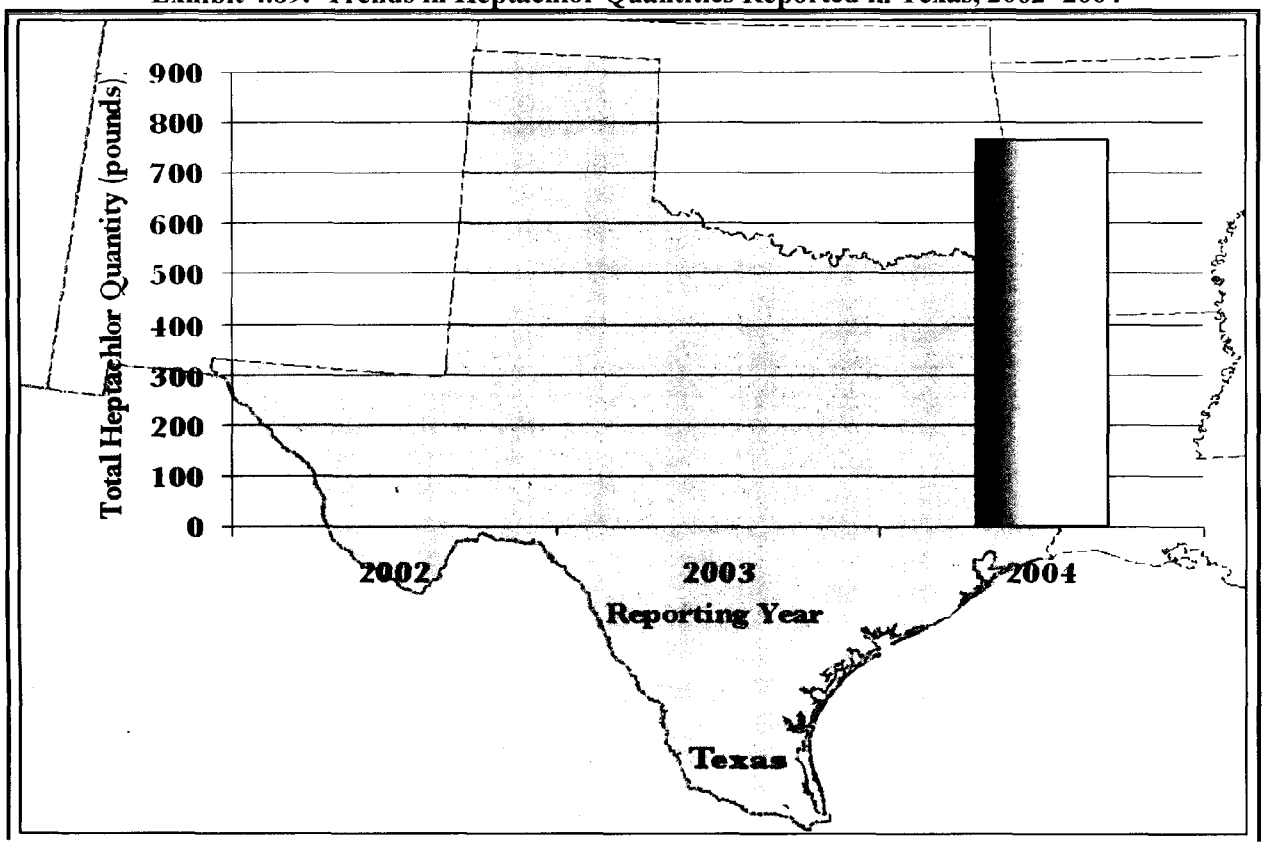
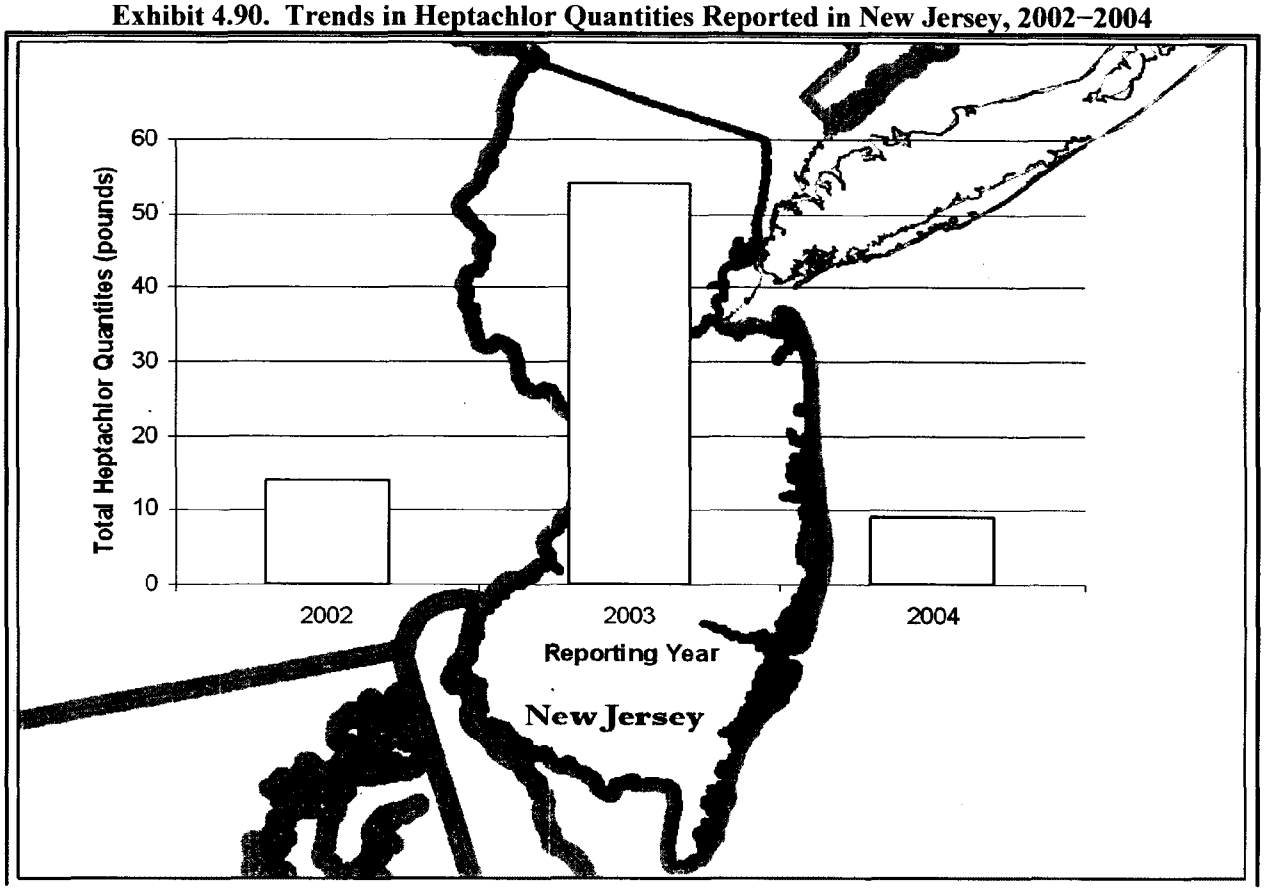


Exhibit 4.90. Trends in Heptachlor Quantities Reported in New Jersey, 2002–2004

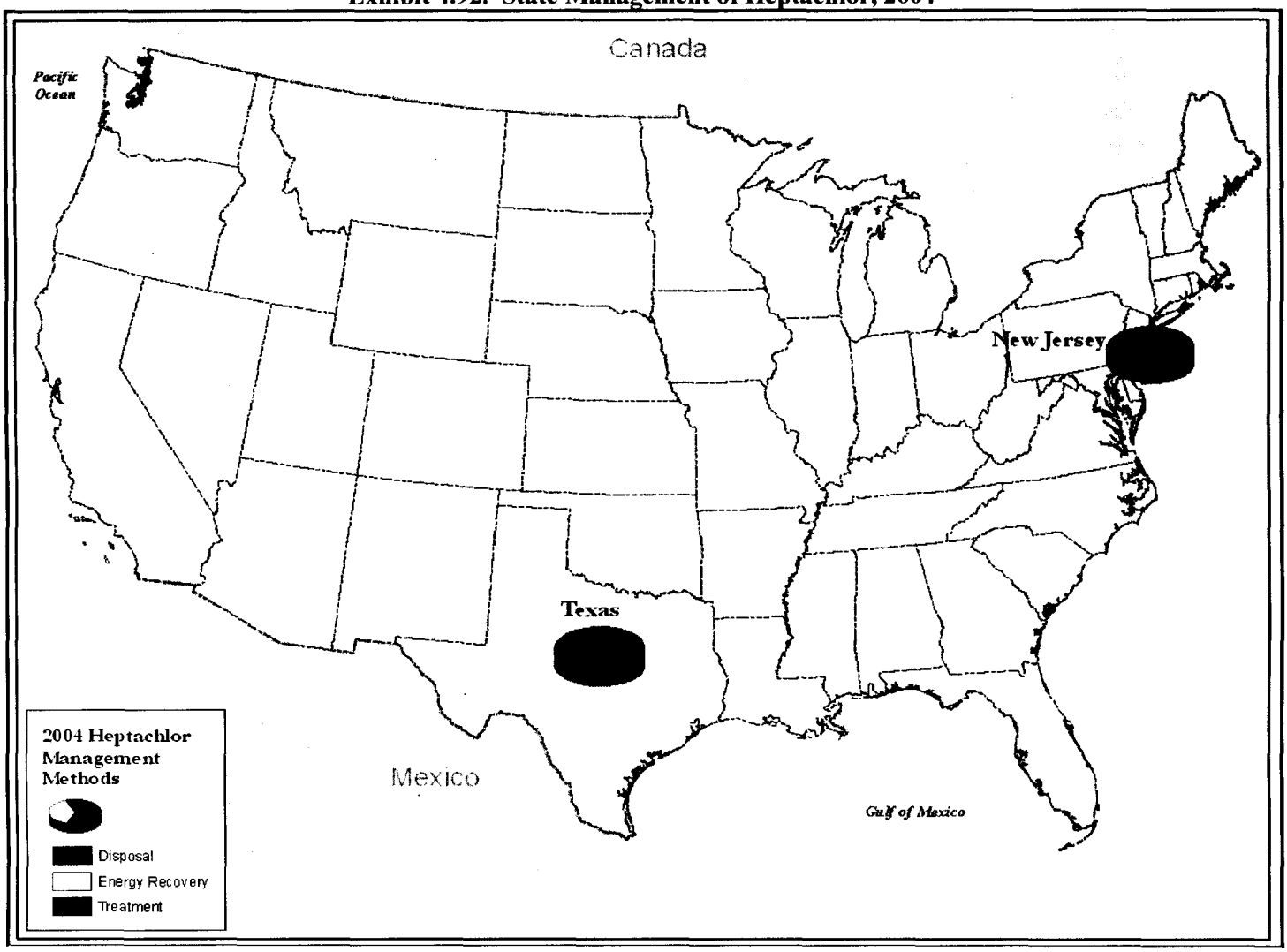


Exhibits 4.91 and 4.92 show how heptachlor was managed at the two facilities (one facility in each state) in 2004. Approximately 99 percent of the heptachlor was treated onsite. The New Jersey facility treated a portion of the heptachlor in its wastewater treatment plant; the Texas facility incinerated all of its heptachlor. Much of the heptachlor reported by the New Jersey facility was sent to offsite disposal. No recycling of heptachlor was reported in 2004.

Exhibit 4.91. State Management Methods for Heptachlor, 2004

State	Total Quantity of Heptachlor (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
NJ	9	7	0	0	0	2	0	0	0
TX	766	0	0	0	0	766	0	0	0

Exhibit 4.92. State Management of Heptachlor, 2004



Industry Sector (SIC) Trends:

Exhibit 4.93 shows the quantity of heptachlor reported by two facilities in 2002–2004. No facilities reported heptachlor in 2000 or 2001. One facility in SIC 2869 (Industrial organic chemicals, nec) reported relatively small quantities of heptachlor in each year since 2002. The quantity of heptachlor reported by this facility was based on an estimate of the concentration of this chemical in wastewaters generated from offsite sources. In contracts with individual offsite sources to treat wastewaters, the facility defined the maximum allowable concentration of heptachlor in the wastewater. This facility reported a different primary SIC code in 2004, using SIC 2865 (Cyclic crudes and intermediates). In 2004, a facility in SIC 2819 (Industrial inorganic chemicals) reported approximately 99 percent of the total quantity of heptachlor. The quantity of heptachlor reported by this facility was also initially generated offsite and brought onsite for incineration in the reporting facility's commercial industrial furnace. Heptachlor was not previously treated or reported by this facility prior to 2004; the 2004 quantity may have been a one time occurrence.

Exhibit 4.93. Industry Sectors Containing Heptachlor, 2002–2004

Primary SIC	SIC Description	Number of Facilities That Reported Heptachlor (2004)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2002–2004)	Percent of Total Quantity of This PC (2004)
2819	Industrial inorganic chemicals, nec	1	0	0	766	NA	98.8%
2865	Cyclic crudes and intermediates	1	0	0	9	NA	1.2%
2869	Industrial organic chemicals, nec	0	14	54	0	−100.0%	0.0%

Note: The facility that reported SIC code 2869 as its primary SIC code in 2002–2003, reported SIC 2865 as its primary SIC code in 2004.

Exhibit 4.94 shows how heptachlor was managed at the two facilities that reported this chemical in 2004. Approximately 99 percent of the heptachlor was treated onsite. The SIC 2819 facility incinerated all of its heptachlor. The SIC 2865 facility treated a portion of the heptachlor in its onsite wastewater treatment plant but sent most of its heptachlor to offsite land disposal. These facilities did not report any recycling of heptachlor in 2004.

Exhibit 4.94. Management Methods for Heptachlor in Industry Sector, 2004

Primary SIC	SIC Description	Total Quantity of Heptachlor (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2819	Industrial inorganic chemicals, nec	766	98.8%	0	0	0	0	766	0	0	0
2865	Cyclic crudes and intermediates	9	1.2%	7	0	0	0	2	0	0	0

Note: The facility that reported SIC code 2865 as its primary SIC code in 2004, reported SIC 2869 as its primary SIC code in 2002–2003.

Hexachloro–1,3–butadiene (HCBD)

Chemical Information:

CAS Number – 87–68–3

Alternate Names – HCBD, 1,3–hexachlorobutadiene, perchlorobutadiene

General Uses – This chemical is used to make rubber, as a solvent, to make lubricants, in gyroscopes, as a heat transfer liquid, and as a hydraulic liquid.

Potential Hazards – This chemical is highly toxic; it can be fatal if inhaled, swallowed, or absorbed through the skin.

Summary Analysis:

- NATIONAL: In 2004, approximately 7.9 million pounds of HCBD were reported; this quantity was approximately 30 percent less than the quantity reported in 2000.
- REGIONS/STATES: HCBD was only reported by facilities in EPA Region 6 in 2004, in the states of Louisiana and Texas.
- FACILITIES: Five facilities reported HCBD in 2000–2003; only four facilities reported this chemical in 2004.
- MANAGEMENT: Nearly 100 percent of HCBD was treated (using incineration) in 2004.
- INDUSTRY SECTOR: In 2004, two facilities in SIC 2812 (Alkalies and chlorine) accounted for almost 63 percent of the total quantity of HCBD; one facility in SIC 2869 (Industrial organic chemicals, nec) accounted for approximately 37 percent of the total quantity.

National Trends:

Exhibit 4.95 shows the number of facilities that reported HCBD in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. Five facilities reported HCBD in 2000–2003; only four facilities reported this chemical in 2004. In 2004, approximately 7.9 million pounds of HCBD were reported; this quantity was approximately 30 percent less than the quantity reported in 2000. For 2000–2002, the quantity of HCBD steadily decreased but then began increasing in 2003.

In 2004, there was an increase of approximately 2.3 million pounds (+41 percent), compared to the quantity reported in 2003. All four facilities that reported HCBD in 2004 showed an increase. Several facilities noted that its increase resulted from increased production. Another facility, located in Louisiana, attributed its increase to improved flow measurement equipment.

Except in 2000, when energy recovery was used to manage almost 2.3 million pounds of HCBD, treatment has been the primary management method; nearly 100 percent of HCBD was treated (using incineration) in 2004. Since 2000, between 220,000 and 340,000 pounds of HCBD were recycled each year.

Exhibit 4.95. National Management Methods for Hexachloro–1,3–butadiene, 2000–2004

Management Methods for HCBD and Number of Facilities	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change (2000–2004)	Management Method–Percent of Quantity of This PC (2004)
Number of Facilities	5	5	5	5	4	-20.0%	-
Disposal Quantity (pounds)	10	563	53	12	88	782.6%	0.0%
Energy Recovery Quantity (pounds)	2,274,214	0	80,570	61,619	0	-100.0%	0.0%
Treatment Quantity (pounds)	9,022,857	6,404,178	5,086,762	5,504,668	7,874,619	-12.7%	100.0%
Priority Chemical Quantity (pounds)	11,297,857	6,404,741	5,167,385	5,566,299	7,874,707	-30.3%	100.0%
Recycling Quantity (pounds)*	250,000	220,000	340,010	300,000	305,279	22.1%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.96 shows the number of facilities that reported HCBD within various quantity ranges. Of the four facilities that reported HCBD in 2004, three facilities accounted for nearly the entire quantity of this chemical.

Exhibit 4.96. Distribution of Quantities by Facilities Reporting Hexachloro–1,3–butadiene, 2004

HCBD (7,874,707 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
Up to 10 pounds	0	0.0%
11 – 100 pounds	0	0.0%
101 – 1,000 pounds	0	0.0%
1,001 – 10,000 pounds	1	less than 0.1%
10,001 – 100,000 pounds	0	0.0%
100,001 – 1 million pounds	3	99.9%
> 1 million pounds	0	0.0%

EPA Regional Trends:

HCBD was only reported by facilities in EPA Region 6 in 2004 (Exhibits 4.97 and 4.98). In 2004, the quantity was approximately 30 percent less than the quantity reported in 2000; for 2000–2002, the quantity of HCBD steadily decreased but then began increasing in 2003.

Exhibit 4.97. Regional Quantities of Hexachloro–1,3–butadiene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
6	11,297,081	6,404,741	5,167,385	5,566,299	7,874,707	–30.3%	100.0%

Exhibit 4.98. Distribution of Facilities Reporting Hexachloro–1,3–butadiene and Hexachloro–1,3–butadiene in 2004 in EPA Region 6

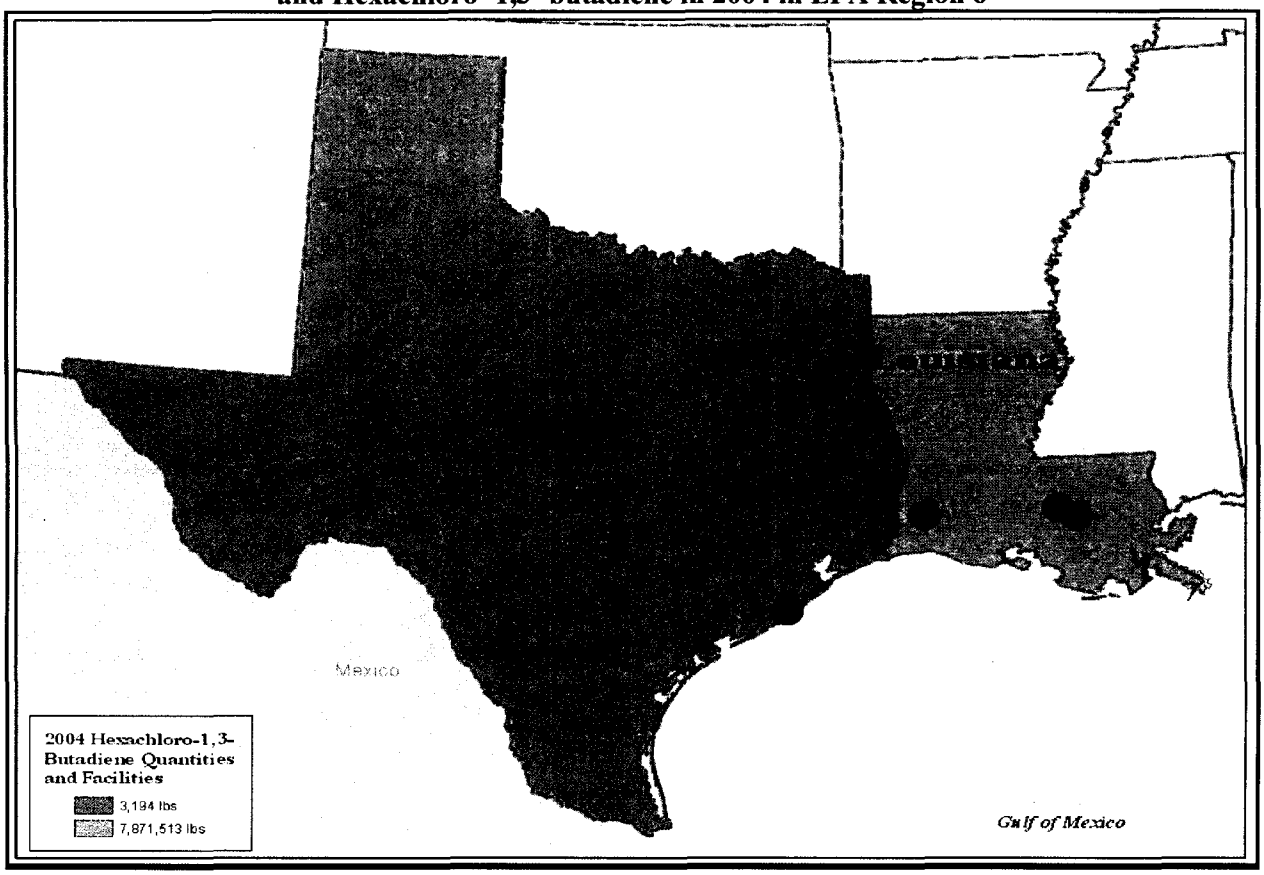


Exhibit 4.99 shows how HCBD was managed by facilities in Region 6, the only region with facilities that reported this chemical in 2004. In 2004, nearly the entire quantity of HCBD was treated (using incineration), mostly onsite. Only a small quantity was land disposed. One facility reported approximately 98 percent of the recycled quantity of HCBD in 2004.

Exhibit 4.99. Management Methods for Hexachloro–1,3–butadiene, by EPA Region, 2004

EPA Region	Quantity (pounds) of HCBD (2004)	Percent of HCBD (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
6	7,874,707	100.0%	1	87	0	0	7,864,902	9,717	305,279	0

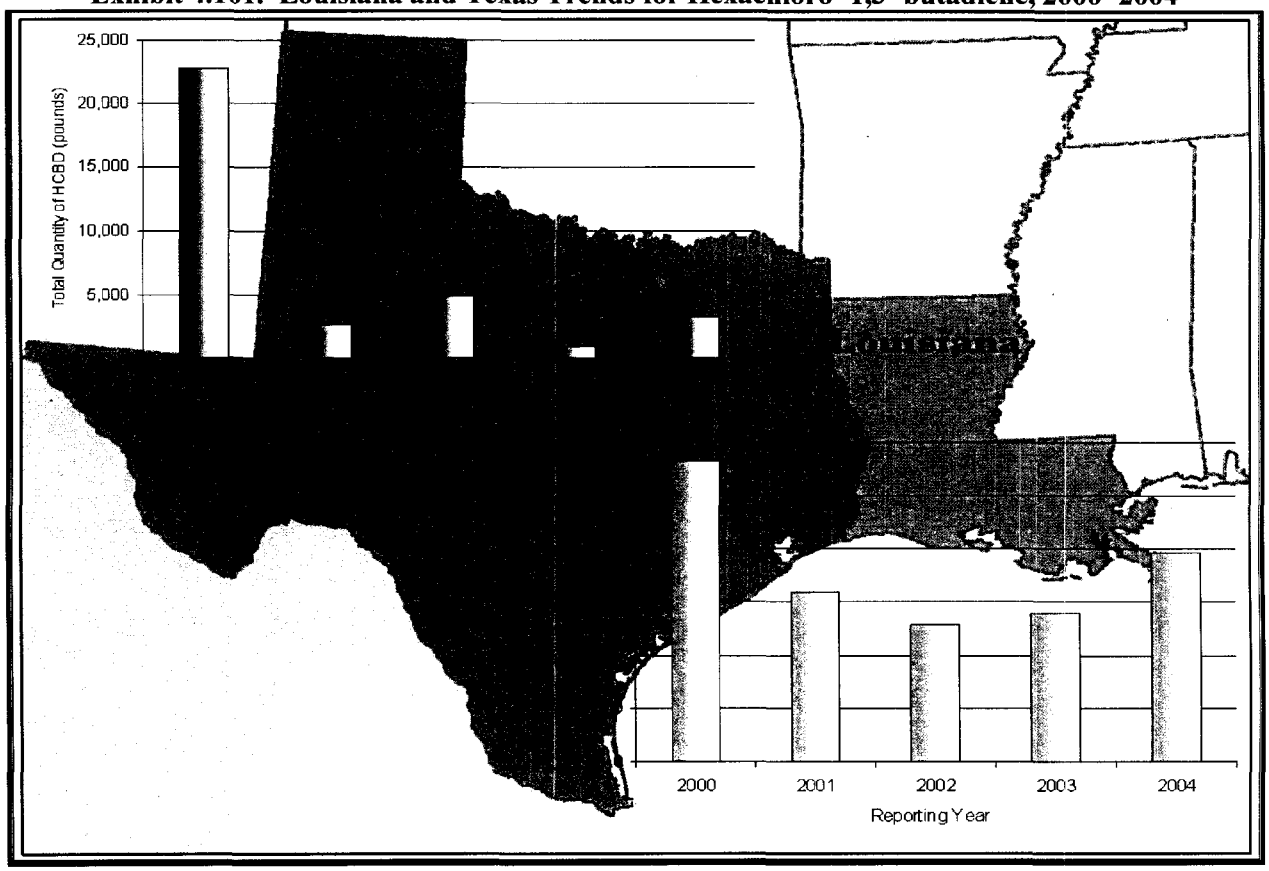
State Trends:

In 2000–2004, facilities in only two states reported a quantity of HCBD (Exhibits 4.100 and 4.101). Facilities in Louisiana accounted for almost 100 percent of the total quantity in 2004, including an increase of approximately 2.3 million pounds, compared to 2003. A facility in Texas reported approximately 23,000 pounds of HCBD in 2000 and has reported significantly less quantities since 2001.

Exhibit 4.100. State Quantity Trends for Hexachloro–1,3–butadiene, Based on Total 2004 Quantity, 2000–2004

State	Total Quantity (pounds) of HCBD					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
LA	11,274,320	6,402,097	5,162,499	5,565,351	7,871,513	−3,402,807	−30.2%	100.0%
TX	22,761	2,644	4,886	948	3,194	−19,567	−86.0%	0.0%

Exhibit 4.101. Louisiana and Texas Trends for Hexachloro–1,3–butadiene, 2000–2004

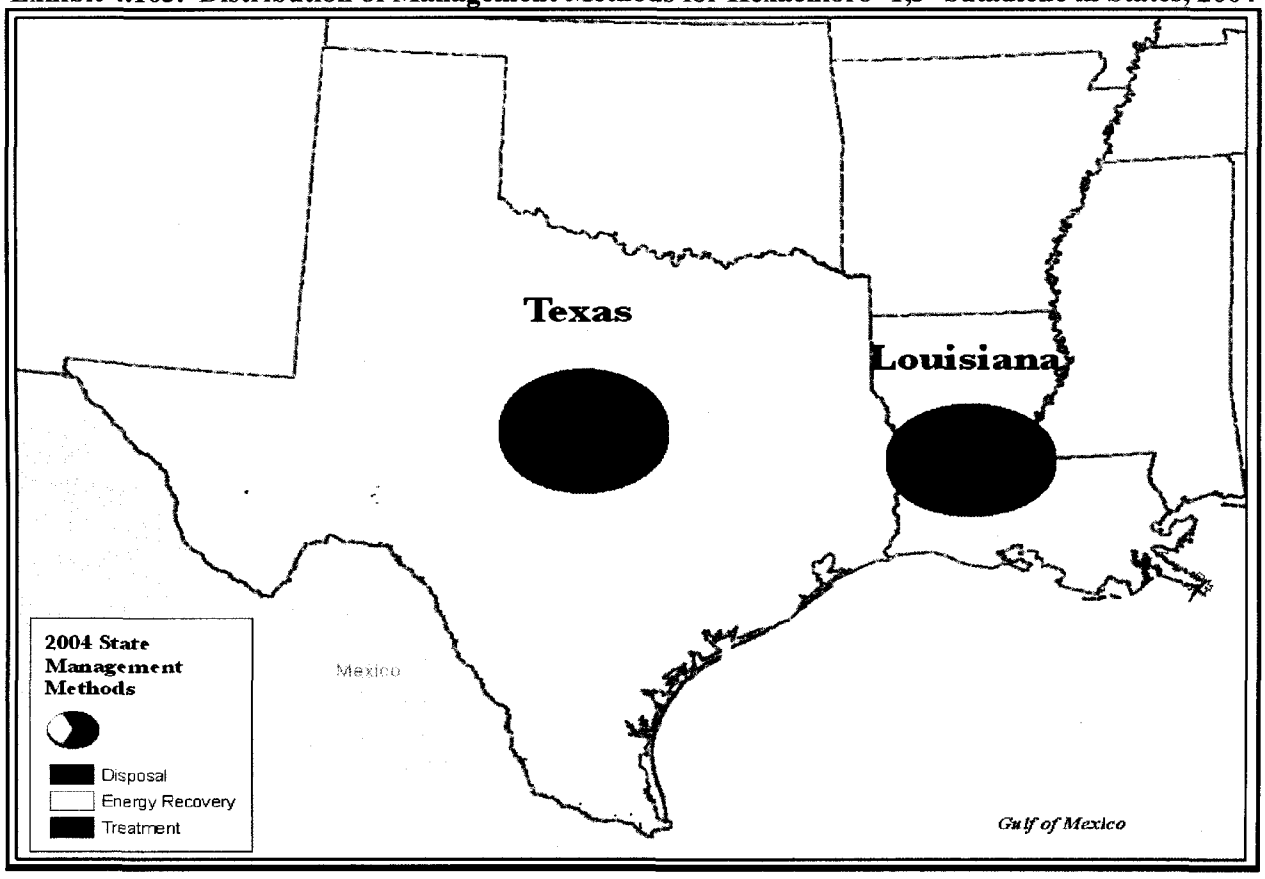


Exhibits 4.102 and 4.103 show how HCBD was managed by facilities in the two states that accounted for 100 percent of the total quantity of this PC in 2003. Approximately 99 percent of the HCBD reported by facilities in Louisiana and Texas was treated onsite. A relatively small quantity was land disposed. A Louisiana facility reported most of the quantity of HCBD recycled in 2004.

Exhibit 4.102. State Management Methods for Hexachloro–1,3–butadiene, Based on Total 2004 Quantity 2004

State	Total Quantity (pounds) of HCBD (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
LA	7,871,513	1	87	0	0	7,864,051	7,374	300,000	0
TX	3,194	0	0	0	0	851	2,343	5,279	0

Exhibit 4.103. Distribution of Management Methods for Hexachloro–1,3–butadiene in States, 2004



Industry Sector (SIC) Trends:

Exhibit 4.104 shows the quantity of HCBD for the four industry sectors in which facilities reported this chemical from 2000–2004. Four facilities in three industry sectors reported HCBD in 2004. Two facilities in SIC 2812 (Alkalies and chlorine) accounted for almost 63 percent of the total quantity of HCBD in 2004. From 2000 to 2003, one of these facilities had reduced its HCBD by approximately 4.5 million pounds. In 2004, however, the quantity doubled from the previous year; the facility attributes this increase to changes in feedstock composition and groundwater remediation.

One facility in SIC 2869 (Industrial organic chemicals, nec) accounted for approximately 37 percent of the HCBD in 2004. From 2000 to 2001, this facility also had reported SIC 2812 as its primary SIC code. Since 2000, this facility reduced its HCBD by almost 3 million pounds; however, in 2004, the facility reported an increase of approximately 1.3 million pounds. This increase was attributed to increased production and improved flow measurement equipment which resulted in the facility using larger volume flow streams in calculating quantities of this PC.

Exhibit 4.104. Industry Sectors Containing Hexachloro–1,3–butadiene, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported HCBD (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2812	Alkalies and chlorine	2	11,273,492	6,338,085	3,515,453	3,925,135	4,962,443	−6,311,049	63.0%
2869*	Industrial organic chemicals, nec	1	0	0	1,571,362	1,578,608	2,909,070	2,909,070	36.9%
2821	Plastics materials and resins	1	0	0	0	948	3,194	3,194	0.0%
2819	Industrial inorganic chemicals, nec	0	23,589	66,656	80,570	61,608	0	−23,589	0.0%

* Note: This facility had reported SIC 2812 as its primary SIC code for 2000–2001.

Exhibit 4.105 shows how HCBD was managed by the four facilities in the three industry sectors that accounted for 100 percent of the total quantity of this chemical in 2004. Almost 100 percent of the HCBD for these facilities was treated onsite, using incineration. One facility in SIC 2812 reported approximately 98 percent of the total quantity recycled in 2004.

Exhibit 4.105. Management Methods for Hexachloro–1,3–butadiene in Industry Sectors, 2004

Primary SIC	SIC Description	Total Quantity (pounds) of HCBD (2004)	Percent of Total Quantity (2004)	Disposal		Energy Recovery		Treatment		Recycling	
				Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
2812	Alkalies and chlorine	4,962,443	63.0%	1	87	0	0	4,954,981	7,374	300,000	0
2869	Industrial organic chemicals, nec	2,909,070	36.9%	0	0	0	0	2,909,070	0	0	0
2821	Plastics materials and resins	3,194	0.0%	0	0	0	0	851	2,343	5,279	0

Hexachlorobenzene (HCB)

Chemical Information:

HCB is a white crystalline solid created by the chlorination of benzene. A number of manufacturing processes for chlorinated organic compounds generate HCB as a byproduct or impurity. During the manufacture of chlorinated organic chemicals, HCB can be formed by thermal chlorination, oxychlorination, and pyrolysis when carbon and chlorine react at high temperatures. HCB is usually found in the still bottoms generated during product purification or distillation and in air emissions from distillation columns. HCB may also be found as an impurity in commercial chlorinated solvent products.

CAS Number – 118–74–1

Alternate Names – pentachlorophenyl chloride, perchlorobenzene

General Uses – HCB is also a potential byproduct formed during the production of metallic magnesium when it is produced via electrolysis with carbon electrodes. The degassing of molten aluminum with hexachloroethylene at aluminum foundries and secondary aluminum smelting plants also produces HCB. Gaseous emissions from hexachloroethylene–based aluminum degassing contain high yields of complex organochlorine compounds, including HCB. HCB was once used as an agricultural fungicide, but health concerns about its toxicity led to the cancellation of the registrations of all pesticides that contained HCB as an active ingredient. Its primary use was to treat wheat seeds, onions, and sorghum. As late as 1985 it was used to prevent wheat smut. Although no longer used as an active ingredient in pesticides, HCB is a byproduct impurity contained in a number of pesticides. However, using and intentionally making HCB is no longer allowed in the United States.

Potential Hazards – HCB is an irritant of the skin, eyes, mucous membranes, and upper respiratory tract. It emits toxic fumes of chlorides, carbon monoxide, and carbon dioxide when heated to decomposition. HCB is potentially toxic to the liver and a probable human carcinogen (EPA Integrated Risk Information System –IRIS).

Summary Analysis:

- NATIONAL: In 2004, 35 facilities reported approximately 6.5 million pounds of HCB. In 2004, the quantity of HCB increased by 2.2 million pounds (+52 %). Most of this increase was reported by one facility, located in Louisiana.
- REGIONS/STATES: Since 2000, facilities in Region 6 have reported most of the HCB, including approximately 98 percent of the total quantity in 2004; facilities in three states (Louisiana, Texas, and Tennessee) accounted for more than 99 percent of the total quantity.
- FACILITIES: Of the 35 facilities that reported HCB in 2004, five facilities reported 99 percent of the total quantity of this chemical. One facility reported 75 percent of the total quantity.
- MANAGEMENT: Since 2000, treatment (using incineration) has been the primary management method and was used to manage approximately 95 percent of the total quantity of HCB in 2004.
- INDUSTRY SECTOR: Facilities in SIC 2869 (Industrial organic chemicals, nec) reported approximately 88 percent of the total quantity of HCB in 2004.

National Trends:

Exhibit 4.106 shows the number of facilities that reported HCB from 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. In 2004, approximately 6.5 million pounds of HCB were reported by 35 facilities. Compared to the quantity reported in 2000, there was approximately a 9 percent increase in 2004. The quantity of HCB had been reduced to approximately 4.2 million pounds in 2002–2003, but increased by 2.2 million pounds (+52 percent) in 2004. Most of this increase was reported by one facility, located in Louisiana, which attributed its increased quantity to improved flow measurement equipment.

Since 2000, treatment (using incineration) has been the primary management method and was used to manage approximately 95 percent of the total quantity of HCB in 2004. Recycling of HCB has increased significantly compared to the quantity recycled in 2000; approximately 1 million pounds of HCB were recycled in 2004.

Exhibit 4.106. National Management Methods for Hexachlorobenzene, 2000–2004

Management Methods for HCB and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC in 2004
Number of Facilities	43	40	36	36	35	–18.6%	-
Disposal Quantity (pounds)	13,025	13,992	6,247	14,395	16,946	30.1%	0.3%
Energy Recovery Quantity (pounds)	167,073	350,900	201,616	301,990	332,723	99.1%	5.1%
Treatment Quantity (pounds)	5,754,663	5,400,490	4,000,842	3,954,274	6,135,821	6.6%	94.6%
Priority Chemical Quantity (pounds)	5,934,761	5,765,382	4,208,705	4,270,659	6,485,490	9.3%	-
Recycling Quantity (pounds)*	17,139	6,310	740,144	399,607	1,004,270	5759.6%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.107 shows the number of facilities that reported HCB within various quantity ranges. Of the 35 facilities that reported HCB in 2004, five facilities reported 99 percent of the total quantity of this chemical. One facility reported 75 percent of the total quantity.

Exhibit 4.107. Distribution of Quantities by Facilities Reporting Hexachlorobenzene, 2004

HCB (6,485,490 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	9	less than 0.1%
11 – 100 pounds	7	less than 0.1%
101 – 1,000 pounds	5	less than 0.1%
1,001 – 10,000 pounds	6	0.3%
10,001 – 100,000 pounds	3	0.9%
100,001 – 1 million pounds	4	23.7%
> 1 million pounds	1	75.1%

EPA Regional Trends:

Exhibits 4.108 and 4.109 show the quantity of HCB, by EPA region, where facilities reported this PC in 2000–2004. Since 2000, facilities in Region 6 have reported most of the HCB, including approximately 98 percent of the total quantity in 2004. In 2004, Region 6 facilities reported an increase of approximately 2.1 million pounds; most of this increase was reported by one facility, located in Louisiana, which attributed the increased quantity to improved flow measurement equipment. A facility in Tennessee also reported a large increase in 2004 that accounted for most of the increase in Region 4.

Exhibit 4.108. Regional Quantity of Hexachlorobenzene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	6	0	0	0	0	−100.0%	0.0%
2	3,233	2,966	3,146	3,492	3,521	8.9%	0.1%
3	0	19	0	83	140	NA	0.0%
4	120,556	5,981	1,926	11,642	124,996	3.7%	1.9%
5	54	35	49	53	14	−73.6%	0.0%
6	5,752,002	5,751,120	4,198,112	4,250,889	6,351,393	10.4%	97.9%
7	31	78	53	29	76	146.5%	0.0%
8	213	623	360	46	65	−69.5%	0.0%
9	58,665	4,560	5,059	4,424	5,285	−91.0%	0.1%
10	0	0	0	0	0	−45.0%	0.0%
Total	**5,934,761**	**5,765,382**	**4,208,705**	**4,270,659**	**6,485,490**	**9.3%**	**100.0%**

Exhibit 4.109. Distribution of Facilities Reporting Hexachlorobenzene in 2004 and the Quantities of Hexachlorobenzene Reported in 2004, by EPA Region

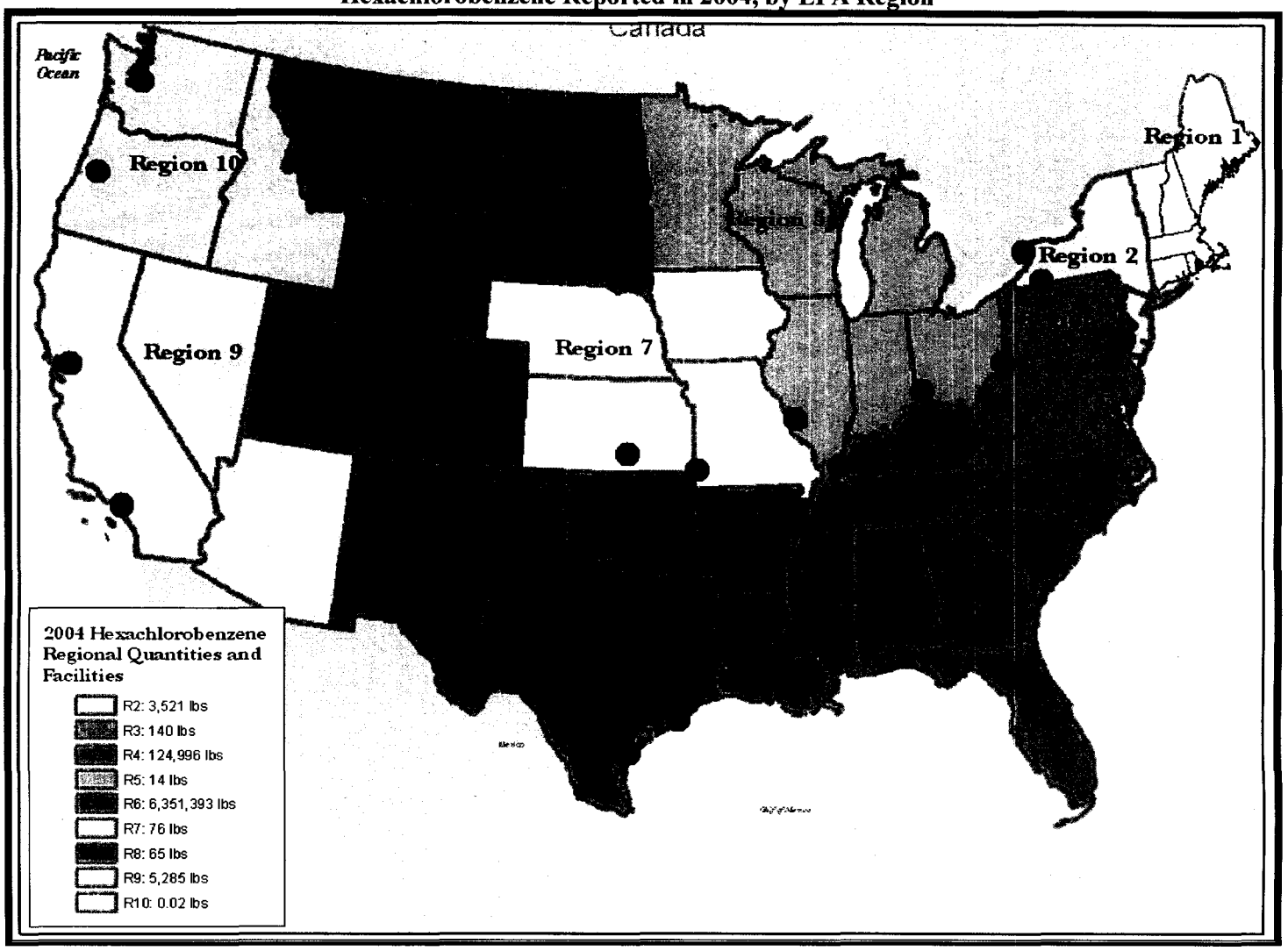


Exhibit 4.110 shows the management of HCB by the facilities in each of the two EPA regions that reported 99 percent of this chemical in 2004. In 2004, these facilities treated approximately 95 percent of the HCB, mostly onsite. Facilities in Region 6 also used onsite energy recovery for approximately 5 percent of the HCB. Less than 1 percent of the HCB was sent to land disposal. One facility in Region 6 reported approximately 99 percent of the total quantity that was recycled in 2004.

Exhibit 4.110. Regional Management Methods for Facilities Reporting 99 Percent of Hexachlorobenzene, 2004

EPA Region	Quantity (pounds) of HCB (2004)	Percent of HCB (2004)	Disposal		Energy Recovery		Treatment		Recycling	
			Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
6	6,351,393	97.9%	662	12,369	330,606	0	5,982,779	24,977	995,799	0
4	124,996	1.9%	0	3,802	0	1	119,171	2,022	2,900	0

State Trends:

In 2004, although facilities in 19 states reported HCB, facilities in only three of these states (Louisiana, Texas, and Tennessee) accounted for over 99 percent of the total quantity of HCB. Exhibits 4.111 and 4.112 show the quantity of HCB, between 2000 and 2004, that was reported by facilities in these three states.

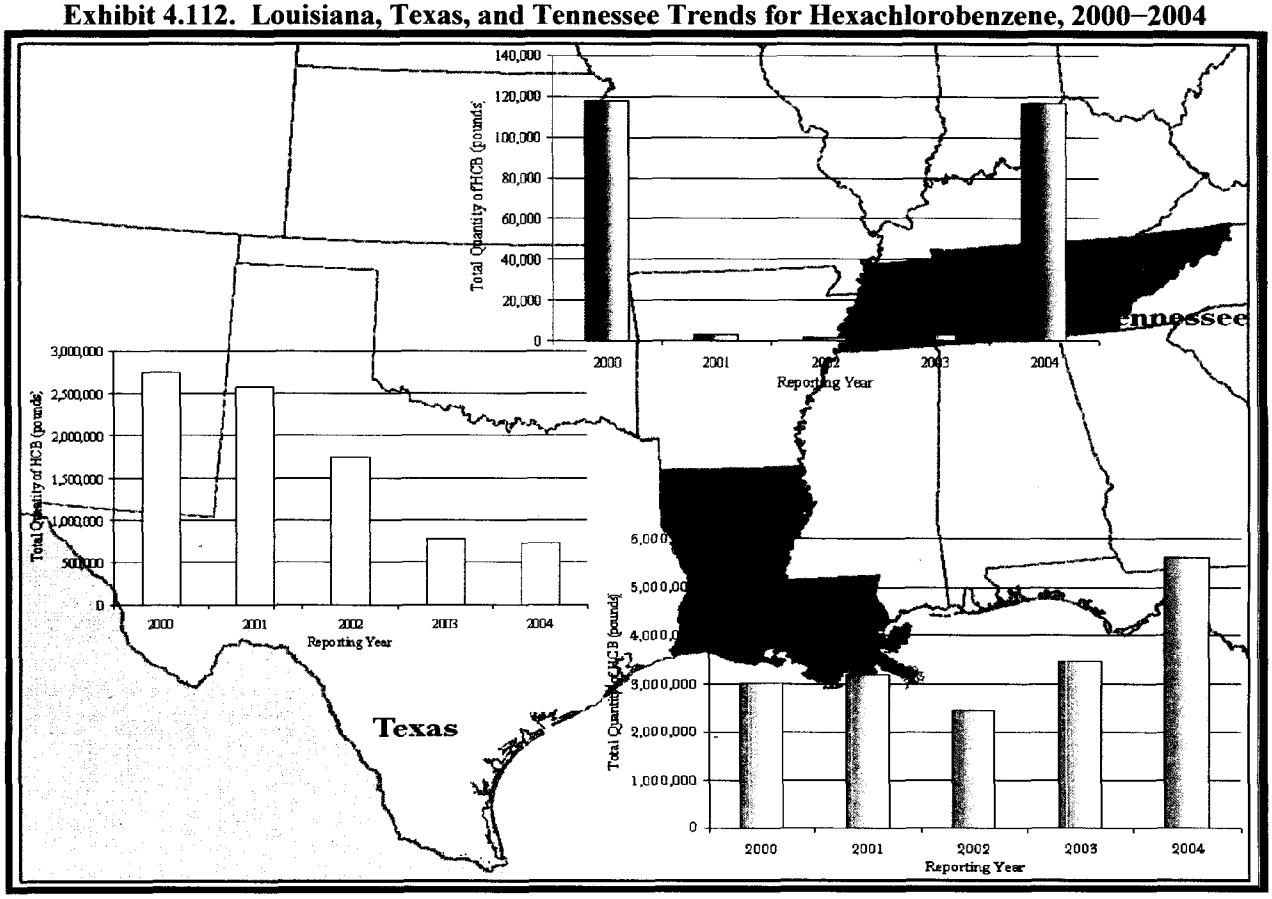
Some trend highlights are:

- Since 2000, facilities in Louisiana accounted for most of the HCB, including approximately 87 percent of the total quantity of this chemical in 2004. In 2004, Louisiana facilities reported approximately 2.1 million more pounds of HCB than they reported in 2003. Most of this increase was reported by one facility, located in Louisiana, which attributed much of the increased quantity to improved flow measurement equipment.
- Since 2000, facilities in Texas have reported a steadily decreasing quantity of HCB – a difference of approximately 2 million pounds. One facility accounted for most of the quantity reported in 2004.
- In Tennessee, one facility accounts for most of the HCB. Although this facility reported relatively lower quantities in 2001–2003, its 2004 quantity increased significantly and was comparable to the quantity reported in 2000.

Exhibit 4.111. State Quantity Trends for Facilities Reporting 99 Percent of Hexachlorobenzene, 2000–2004

State	Total Quantity (pounds) of HCB					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
LA	3,001,834	3,180,684	2,445,788	3,478,265	5,616,058	2,614,224	87.1%	86.6%
TX	2,750,168	2,570,436	1,752,324	772,624	735,335	−2,014,834	−73.3%	11.3%
TN	117,980	3,163	1,765	2,988	116,522	−1,458	−1.2%	1.8%

Exhibit 4.112. Louisiana, Texas, and Tennessee Trends for Hexachlorobenzene, 2000–2004

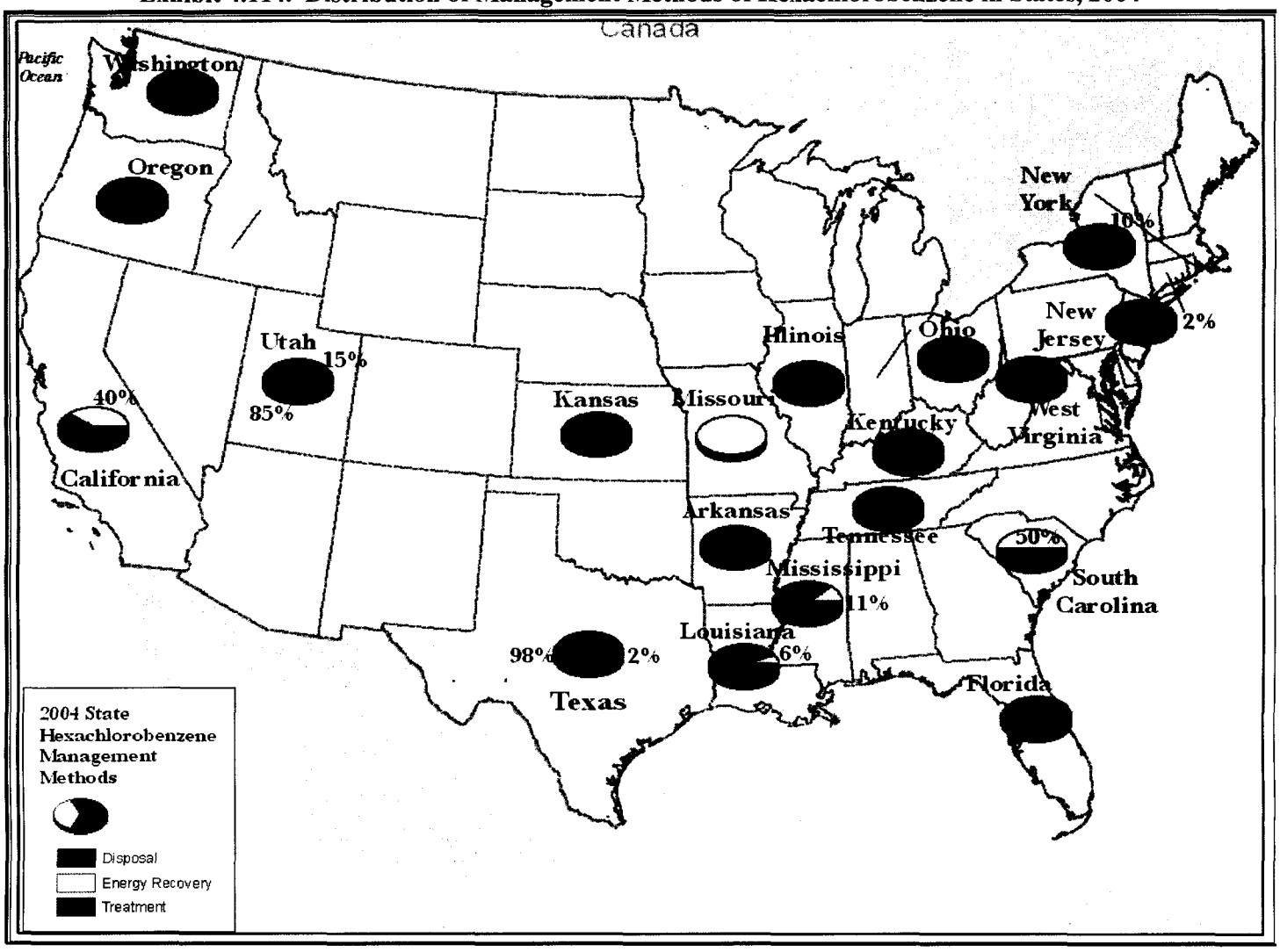


Exhibits 4.113 and 4.114 show how HCB was managed by facilities in the three states (Louisiana, Texas, and Tennessee) that accounted for over 99 percent of the total quantity of HCB in 2004. Most (approximately 95 percent) of the HCB reported by facilities in all three of these states was treated, primarily onsite. A facility in Louisiana also used energy recovery for approximately half of its HCB. One facility in Texas reported approximately 99 percent of the total quantity of HCB that was recycled in 2004.

Exhibit 4.113. Management Methods for Hexachlorobenzene, Facilities in States With 99 Percent of Total Quantity, 2004

State	Total Quantity (pounds) of HCB (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
LA	5,616,058	9	2	329,840	0	5,285,363	843	0	0
TX	735,335	652	12,367	766	0	697,416	24,133	995,799	0
TN	116,522	0	0	0	0	114,971	1,551	0	0

Exhibit 4.114. Distribution of Management Methods of Hexachlorobenzene in States, 2004



Industry Sector (SIC) Trends:

Exhibit 4.115 shows the quantity of HCB for the two industry sectors (SIC codes) in which facilities reported over 99 percent of this chemical in 2004. Facilities in SIC 2869 (Industrial organic chemicals, nec) reported the highest quantities, accounting for approximately 88 percent of the total quantity of HCB in 2004. Since 2002, the quantity of HCB reported by SIC 2869 facilities has increased significantly each year, including an increase of approximately 3 million pounds in 2004. One Louisiana facility reported approximately 85 percent of the total quantity for this industry sector and accounted for approximately 2.3 million pounds of the overall increase in 2004 – attributing much of its increased quantity to improved flow measurement equipment. This same facility had reported SIC 2812 as its primary SIC code in 2000 and 2001 prior to reporting SIC 2869 as its primary SIC code since 2002, resulting in the decreased quantities for SIC 2812 beginning in 2002.

Exhibit 4.115. Industry Sectors Containing Hexachlorobenzene, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported HCB (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2869	Industrial organic chemicals, nec	10	222,500	51,414	1,960,603	2,620,397	5,714,909	5,492,409	88.2%
2812	Alkalies and chlorine	5	5,620,951	5,660,497	2,215,976	903,456	742,935	−4,878,016	11.5%
	Total	**15**	**5,843,451**	**5,711,911**	**4,176,580**	**3,523,853**	**6,457,844**	**614,393**	**99.6%**

Exhibit 4.116 shows how HCB was managed by the 15 facilities in these two industry sectors in 2004. Some observations are:

- Almost 100 percent of the HCB reported by facilities in SIC 2869 (Industrial organic chemicals, nec) was treated, primarily onsite.
- Facilities in SIC 2812 (Alkalies and chlorine) treated approximately 56 percent of their HCB and used onsite energy recovery for the remaining 44 percent of this chemical.
- Only a relatively small quantity of HCB was land disposed.
- One SIC 2869 facility, located in Texas, reported over 99 percent of the recycled HCB in 2004.

Exhibit 4.116. Management Methods for Hexachlorobenzene in Industry Sectors With 99 Percent of Total Quantity, 2004

Primary SIC	SIC Description	Total Quantity (pounds) of HCB (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2869	Industrial organic chemicals, nec	5,714,909	88.1%	662	3,811	0	0	5,686,654	23,782	998,699	0
2812	Alkalies and chlorine	742,935	11.5%	0	1	329,840	0	411,855	1,238	0	0

Hexachloroethane (HCE)

Chemical Information:

CAS Number – 67–72–1

Alternate Names – carbon hexachloride, ethane hexachloride, perchloroethane

General Uses – HCE is mostly used by the military to make weapons that produce smoke, such as smoke pots and grenades used during training. It is also present as an ingredient in fungicides, insecticides, lubricants and plastics.

Potential Hazards – HCE is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

Summary Analysis:

- NATIONAL: In 2004, approximately 3.8 million pounds of HCE were reported by nine facilities; this was approximately a 34 percent decrease compared to the quantity reported in 2000. Since 2000, the quantity of HCE decreased until it increased by approximately 1.1 million pounds or 40 percent in 2004. One facility accounted for 80 percent of the total quantity.
- REGIONAL: Facilities in four EPA regions where facilities reported HCE in 2004; since 2000, most of the HCE was reported by facilities in Region 6, including approximately 99 percent of the total quantity in 2004.
- STATES: Facilities in Louisiana reported approximately 89 percent of the total quantity of HCE in 2004, including an increase of approximately 1.4 million pounds in 2004. Most of this increase was reported by a facility in Louisiana which attributed much of the increase to improved flow measurement equipment.
- MANAGEMENT: Since 2000, treatment has been the primary method used to manage HCE; in 2004 approximately 96 percent of this chemical was treated.
- INDUSTRY SECTORS: Facilities in SIC 2869 (Industrial organic chemicals, nec) and SIC 2812 (Alkalies and chlorine) reported approximately 95 percent of the total quantity of HCE in 2004.

National Trends:

Exhibit 4.117 shows the number of facilities that reported HCE in 2000 to 2004 and the quantities of this PC that were managed via disposal, treatment, energy recovery, and recycling. In 2004, approximately 3.8 million pounds of HCE were reported by nine facilities. Compared to the quantity reported in 2000, there was approximately a 34 percent decrease in 2004. Since 2000, the quantity of HCE showed a trend of decreasing until 2004, when the quantity increased by approximately 1.1 million pounds, or 40 percent.

Since 2000, treatment has been the primary method used to manage HCE; in 2004 approximately 96 percent of this chemical was treated. Significant quantities of HCE were recycled each year, including approximately 2.3 million pounds in 2003 and in 2004.

Exhibit 4.117. National Management Methods for Hexachloroethane, 2000–2004

Management Methods for HCE and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	9	8	9	9	9	0.0%	-
Disposal Quantity (pounds)	2,482	233	306	254	263	-89.4%	0.0%
Energy Recovery Quantity (pounds)	1,245,190	455,985	206,953	139,929	146,243	-88.3%	3.9%
Treatment Quantity (pounds)	4,462,309	3,689,031	3,849,238	2,553,948	3,626,347	-18.7%	96.1%
Priority Chemical Quantity (pounds)	5,709,981	4,145,249	4,056,497	2,694,131	3,772,853	-33.9%	-
Recycling Quantity (pounds)*	1,027,963	850,000	3,530,419	2,336,505	2,279,804	121.8%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization

Exhibit 4.118 shows the number of facilities that reported HCE within various quantity ranges. Of the nine facilities that reported HCE in 2004, one facility accounted for 80 percent of the total quantity and five facilities reported approximately 97 percent of the total quantity of this chemical.

Exhibit 4.118. Distribution of Quantities by Facilities Reporting Hexachloroethane, 2004

HCE (3,772,853 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 - 100 pounds	0	0.0%
101 - 1,000 pounds	1	less than 0.1%
1,001 - 10,000 pounds	0	0.0%
10,001 - 100,000 pounds	3	2.7%
100,001 - 1 million pounds	4	17.9%
> 1 million pounds	1	79.4%

EPA Regional Trends:

Exhibits 4.119 and 4.120 show the quantity of HCE for those five EPA regions where facilities reported this PC in 2000–2004; in 2004 facilities in only four regions reported HCE. Since 2000, most of the HCE was reported by facilities in Region 6, including approximately 99 percent of the total quantity in 2004. From 2000 to 2003 the quantity of HCE steadily decreased; however, in 2004 the quantity increased by approximately 1.1 million pounds, or 40 percent. Most of this increase was reported by a facility in Louisiana which attributed much of the increase to improved flow measurement equipment. A facility located in Oregon (Region 10) that only began reporting HCE in 2003 reported a decrease of approximately 73,000 pounds or 80 percent in 2004.

Exhibit 4.119. Regional Quantities of Hexachloroethane, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
4	0	0	84,900	0	0	NA	0.0%
5	70,764	63,652	63,076	11,549	11,529	−83.7%	0.3%
6	5,638,985	4,081,334	3,907,982	2,590,994	3,742,765	−33.6%	99.2%
7	232	263	539	333	693	198.7%	0.0%
10	0	0	0	91,255	17,867	NA	0.5%
Total	**5,709,981**	**4,145,249**	**4,056,497**	**2,694,131**	**3,772,853**	**−33.9%**	**100.0%**

Exhibit 4.120. Distribution of Facilities Reporting Hexachloroethane in 2004 and the Quantities of Hexachloroethane Reported in 2004, by EPA Region

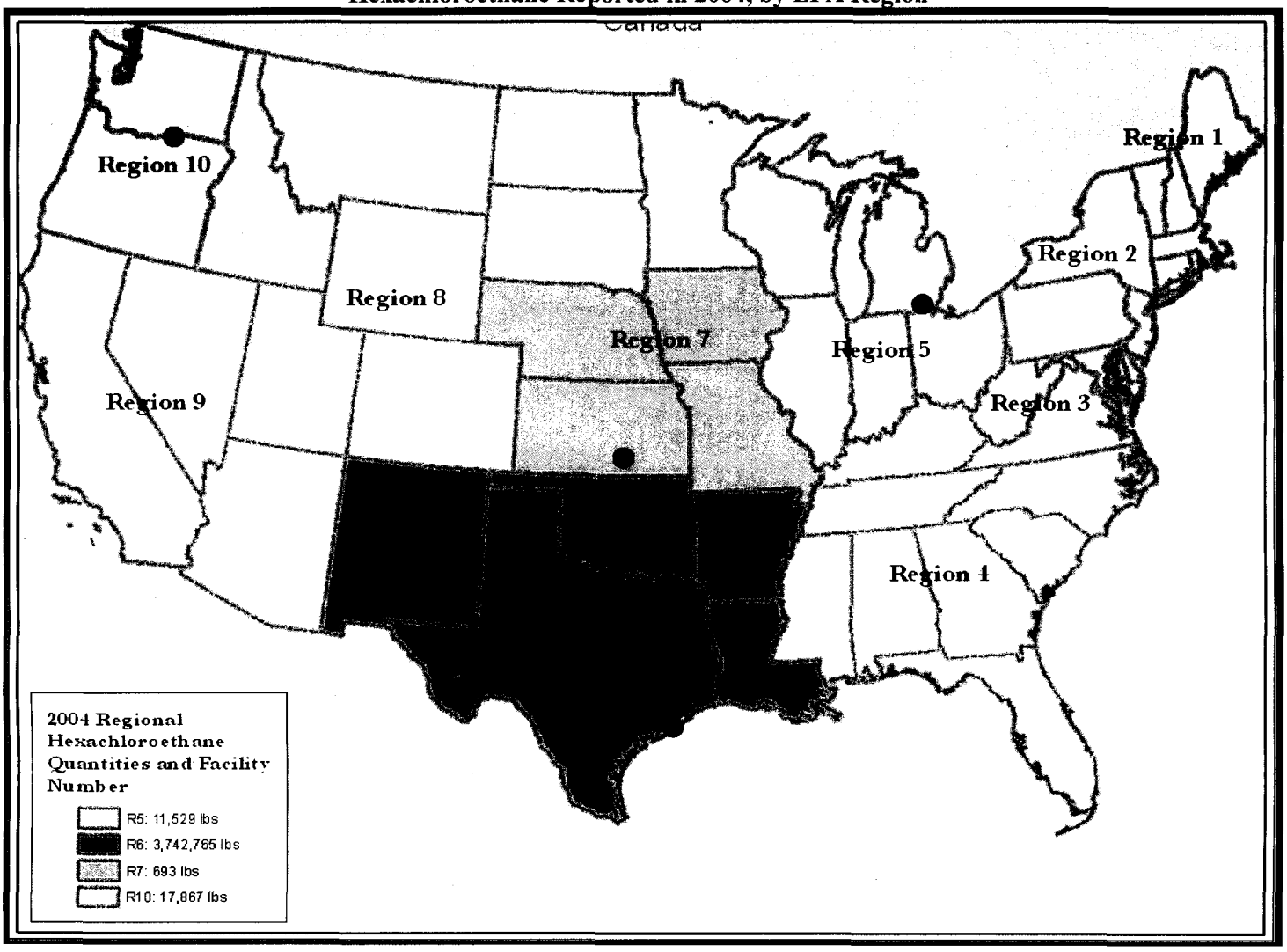


Exhibit 4.121 shows how HCE was managed by facilities in the four EPA regions in 2004. In 2004, approximately 99 percent of the HCE was treated, mostly onsite — by facilities in Region 6. Facilities in Regions 7 and 10 also primarily treated HCE. One facility in Region 5 used offsite energy recovery for all of its HCE. A relatively small quantity of HCE was land disposed. HCE was recycled by facilities in Regions 5 and 6; facilities in each of these two regions recycled a significant quantity compared to the quantity otherwise managed via land disposal, treatment, or energy recovery.

State Trends:

Exhibit 4.122 shows the quantity of HCE reported by facilities in seven states from 2000 to 2004. Facilities in Louisiana accounted for approximately 89 percent of the total quantity of this chemical in 2004, including an increase of approximately 1.4 million pounds in 2004. Most of this increase was reported by a facility in Louisiana which attributed much of the increase to improved flow measurement equipment.

Although Texas facilities reported approximately 11 percent of the total quantity in 2004, they reported a decrease of approximately 2.8 million pounds, or 87 percent, compared to the quantity reported in 2000. Likewise, a facility in Oregon reported a significant decrease from the quantity it reported in 2003. A facility in Michigan reduced its HCE by approximately 83 percent since 2000.

Exhibit 4.121. Regional Management Methods for Hexachloroethane, 2004

EPA Region	Quantity (pounds) of HCE (2004)	Percent of HCE (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
6	3,742,765	99.2%	30	3	134,714	0	3,534,174	73,844	2,237,150	0
10	17,867	0.5%	0	4	0	0	12,813	5,050	0	0
5	11,529	0.3%	0	0	0	11,529	0	0	0	42,654
7	693	0.0%	227	0	0	0	0	466	0	0
Total	**3,772,853**	**100.0%**	**257**	**7**	**134,714**	**11,529**	**3,546,987**	**79,360**	**2,237,150**	**42,654**

Exhibit 4.122. State Quantity Trends for Facilities Reporting Hexachloroethane, 2000–2004

State	Total Quantity (pounds) of Hexachloroethane					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
LA	2,454,853	1,506,255	918,178	1,945,275	3,342,716	887,863	36.2%	88.6%
TX	3,184,132	2,575,079	2,989,804	645,719	400,049	−2,784,083	−87.4%	10.6%
OR	0	0	0	91,255	17,867	17,867	NA	0.5%
MI	68,464	63,652	63,076	11,549	11,529	−56,935	−83.2%	0.3%
KS	232	263	539	333	693	461	198.7%	0.0%
AL	0	0	84,900	0	0	0	NA	0.0%
IN	2,300	0	0	0	0	−2,300	−100.0%	0.0%
Total	**5,709,981**	**4,145,249**	**4,056,497**	**2,694,131**	**3,772,853**	**−1,937,128**	**−33.9%**	**100.0%**

Exhibits 4.123 through 4.126 show the trends for the quantities of HCE in the top five states in which facilities reported this PC in 2004.

Exhibit 4.123. Louisiana and Texas Trends for Hexachloroethane, 2000–2004

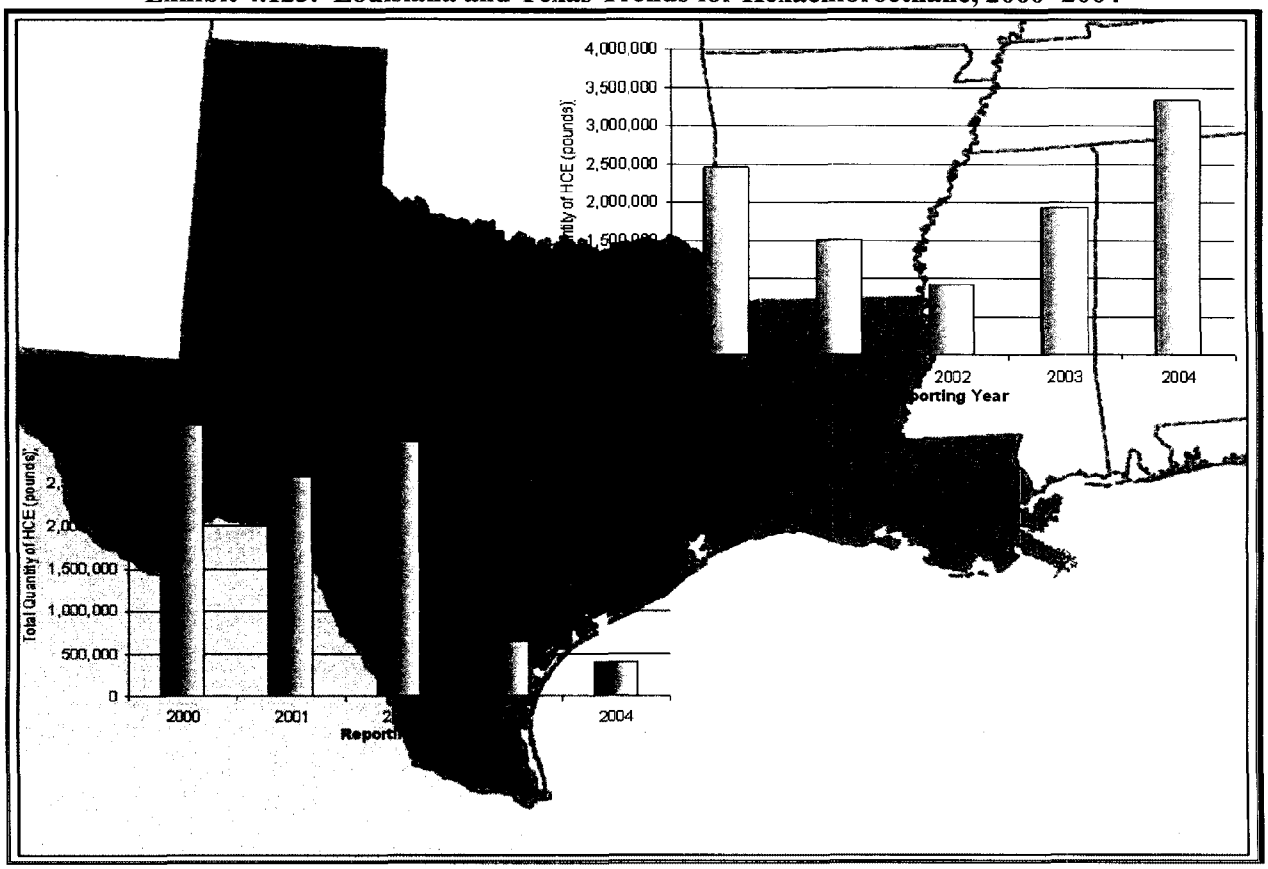


Exhibit 4.124. Oregon Trends for Hexachloroethane, 2000–2004

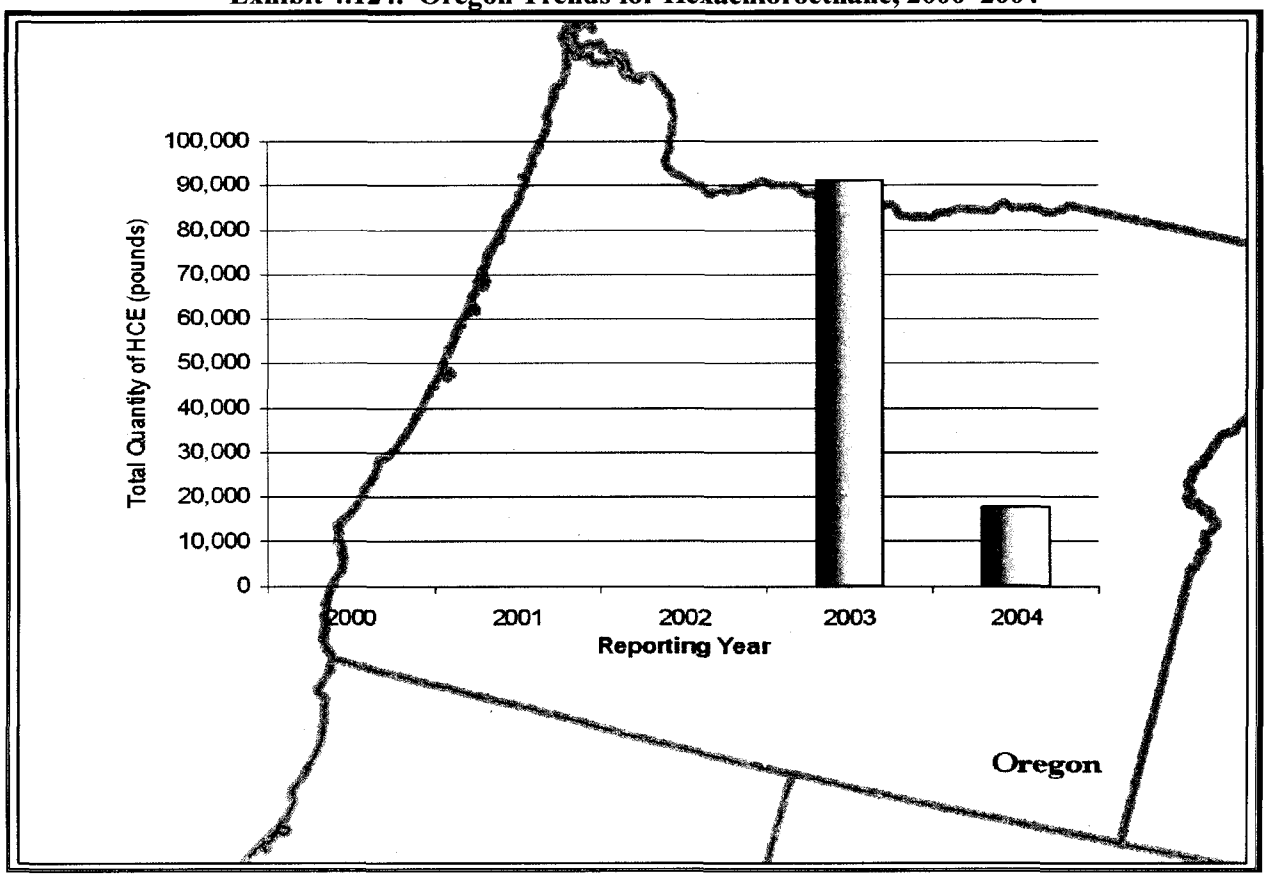


Exhibit 4.125. Michigan Trends for Hexachloroethane, 2000–2004

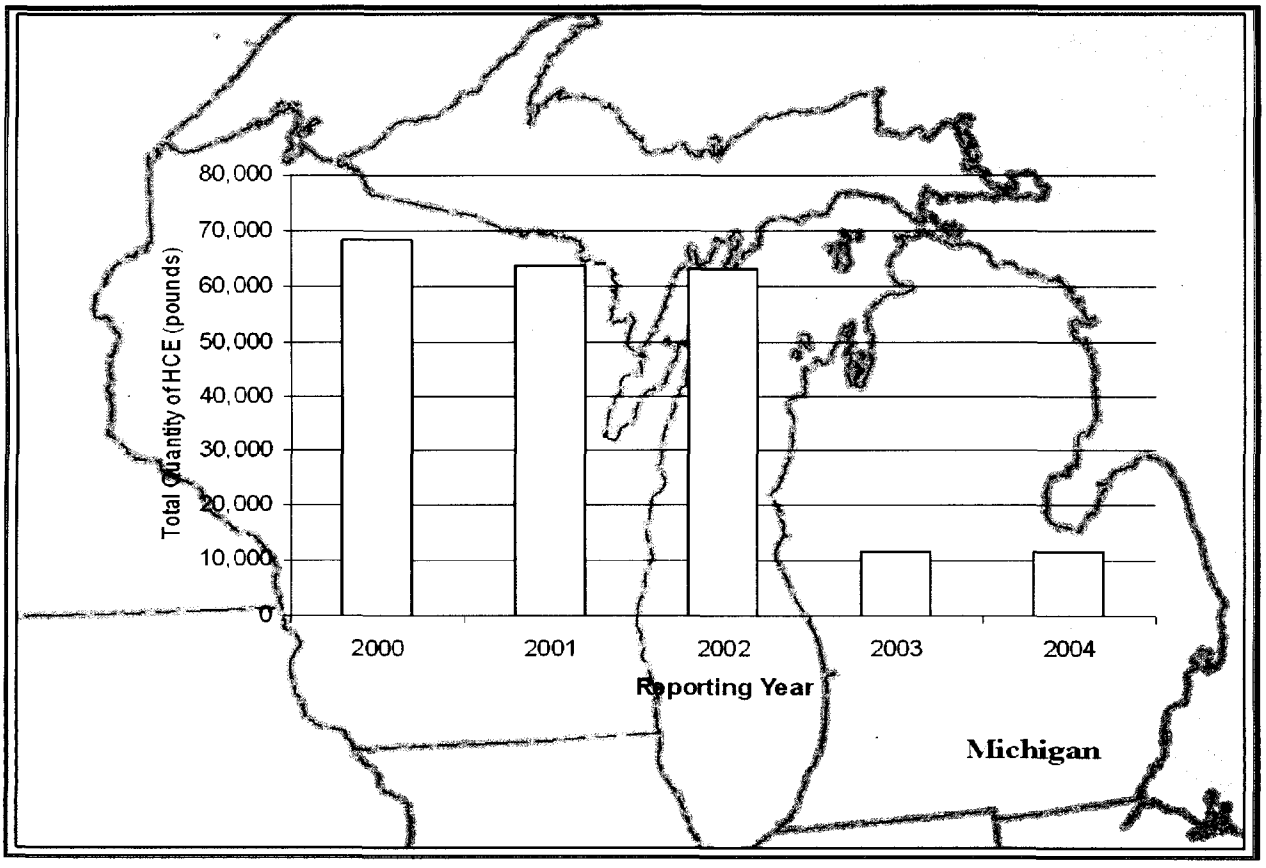
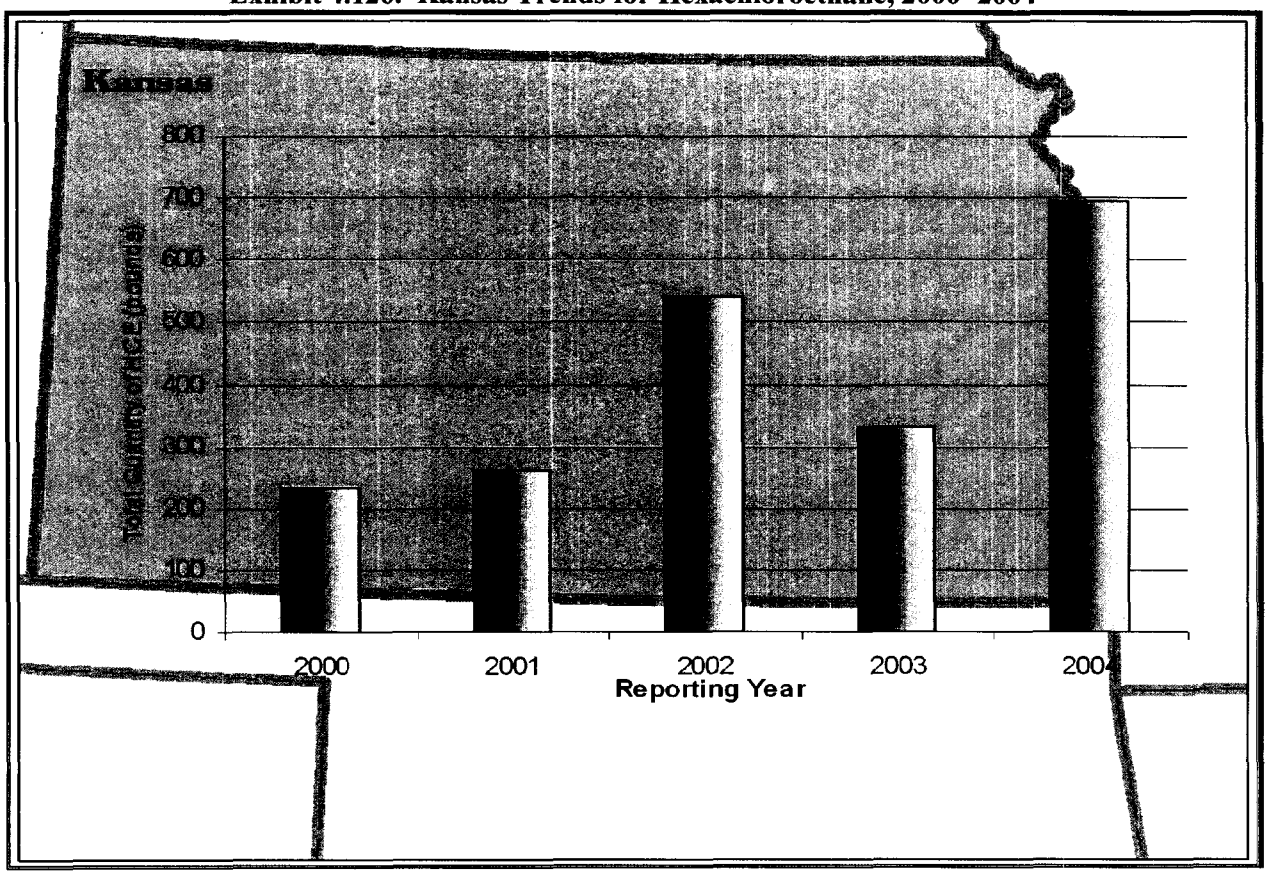


Exhibit 4.126. Kansas Trends for Hexachloroethane, 2000–2004

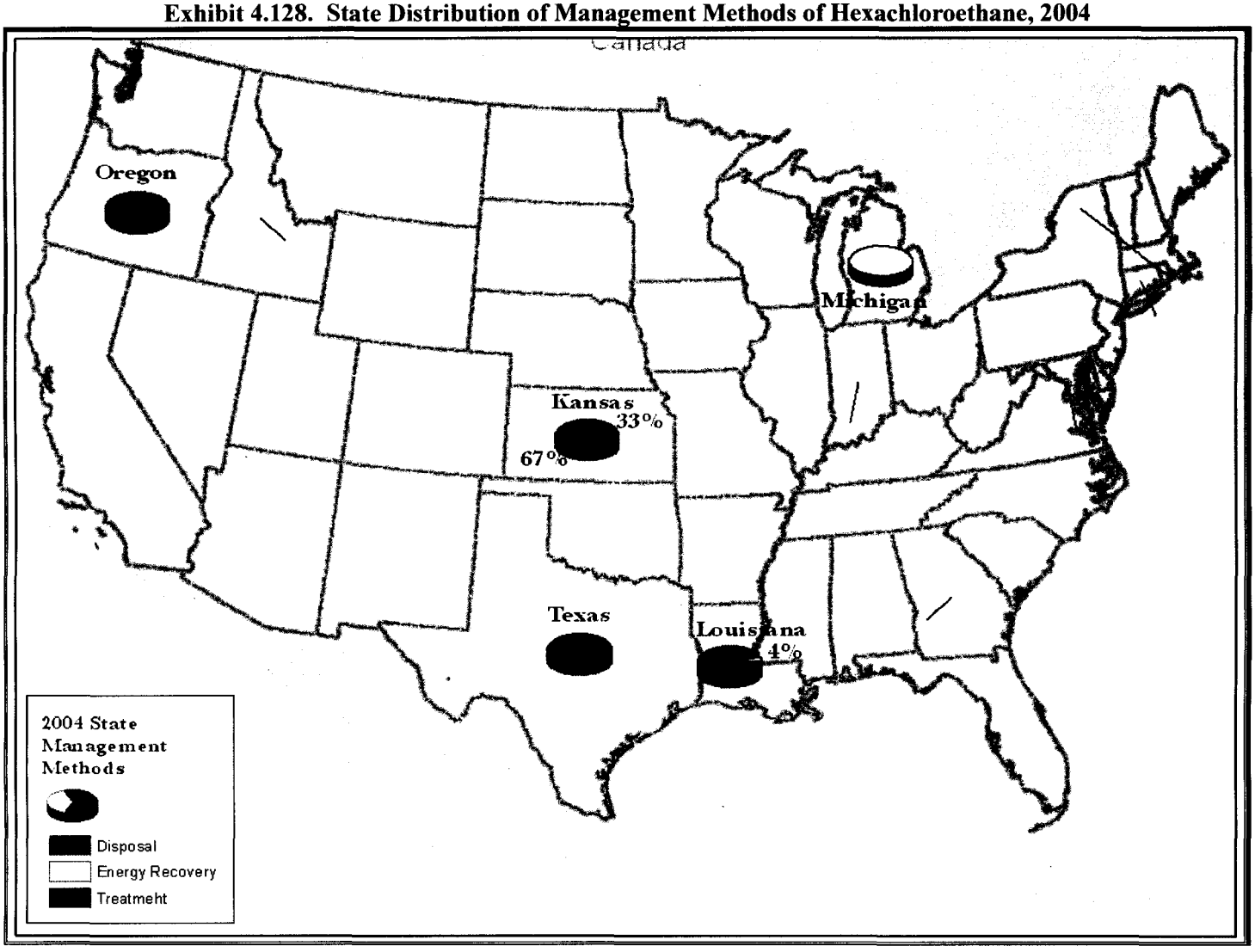


Exhibits 4.127 and 4.128 show how HCE was managed by facilities in the two states in which facilities reported approximately 99 percent of the total quantity of HCE in 2004. Facilities in both these states primarily used onsite treatment to manage the HCE and reported similar recycled quantities.

Exhibit 4.127. Management Methods for Hexachloroethane, Facilities in States With 99 Percent of the Total Quantity, 2004

State	Total Quantity (pounds) of HCE (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
LA	3,342,716	1	0	134,714	0	3,206,938	1,063	1,100,000	0
TX	400,049	29	3	0	0	327,236	72,781	1,137,150	0

Exhibit 4.128. State Distribution of Management Methods of Hexachloroethane, 2004



Industry Sector (SIC) Trends:

Exhibit 4.129 shows the quantity of HCE for the six industry sectors where facilities reported this chemical in 2000–2004.

- Facilities in SIC 2869 (Industrial organic chemicals, nec) and SIC 2812 (Alkalies and chlorine) reported approximately 95 percent of the total quantity of HCE in 2004.
- Since 2002, the quantity of HCE reported by facilities in SIC 2869 increased by approximately 1.1 million pounds. Part of this increased quantity was due to a change in the primary SIC code (from SIC 2812 to SIC 2869) by one of the larger facilities reporting HCE in 2002; the same facility also attributed much of the large increase in 2004 to improved flow measurement equipment at its facility. Conversely, this SIC change caused the SIC 2812 quantity to decrease in 2002. The quantity for SIC 2812 also decreased due to a large decrease in the reported quantity by one of the larger facilities in this industry sector and that facility's subsequent change in primary SIC code (from SIC 2812 to SIC 2821) in 2004. This SIC change, in turn, caused a significant increase in the quantity reported by SIC 2821 facilities in 2004.
- A facility in SIC 9711 (National security) that only began reporting HCE in 2003 reported a decrease of approximately 73,000 pounds or 80 percent in 2004. This facility reduced its use of HCE as a "surrogate" in trial burns done to ensure proper operation of its incinerators.

Exhibit 4.129. Industry Sectors in Which Facilities Reported Hexachloroethane, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported HCE (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2869	Industrial organic chemicals, nec	3	483,682	266,064	801,027	1,900,386	3,229,682	2,746,000	85.6%
2812	Alkalies and chlorine	3	5,155,535	3,815,533	3,107,494	690,941	346,543	−4,808,992	9.2%
2821	Plastics materials and resins	2	68,464	63,652	63,076	11,549	178,762	110,298	4.7%
9711	National security	1	0	0	0	91,255	17,867	17,867	0.5%
3365	Aluminum foundries	0	2,300	0	0	0	0	−2,300	0.0%
3795	Tanks and tank components	0	0	0	84,900	0	0	0	0.0%
	Total	**9**	**5,709,981**	**4,145,249**	**4,056,497**	**2,694,131**	**3,772,853**	**−1,937,128**	**100.0%**

Exhibit 4.130 shows how HCE was managed by the nine facilities in the four industry sectors that reported this chemical in 2004. Facilities in these four industry sectors used onsite treatment for approximately 94 percent of the HCE. Facilities in SIC 2812 (Alkalies and chlorine) used onsite energy recovery for approximately 27 percent of their HCE. Only approximately 500 pounds of HCE were land disposed. Two facilities, one each in SIC codes 2812 and 2821, reported approximately 98 percent of 2.2 million pounds of HCE recycled in 2004.

Exhibit 4.130. Management Methods for Hexachloroethane in Industry Sectors, 2004

Primary SIC	SIC Description	Total Quantity of HCE (2004)	Percent of Total Quantity (2004)	Disposal		Energy Recovery		Treatment		Recycling	
				Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
2869	Industrial organic chemicals, nec	3,229,682	85.6%	0	3	40,885	0	3,117,360	71,434	0	0
2812	Alkalies and chlorine	346,543	9.2%	228	0	93,829	0	250,957	1,529	1,100,000	0
2821	Plastics materials and resins	178,762	4.7%	29	0	0	11,529	165,857	1,347	1,137,150	42,654
9711	National security	17,867	0.5%	0	4	0	0	12,813	5,050	0	0
	Total	**3,772,853**	**100.0%**	**257**	**7**	**134,714**	**11,529**	**3,546,987**	**79,360**	**2,237,150**	**42,654**

Lead and Lead Compounds (Lead)

Chemical Information:

Lead is a heavy, silver–white metal in its pure (elemental) form. When exposed to air, it reacts with it and turns bluish–gray. Its physical properties include a relatively low melting point (327 degrees C), high density, and an ability to shield radiation, sound waves, and mechanical vibrations. Lead exists in either one of two forms: as the pure metal (i.e., lead metal) or as a compound, in which the lead is combined with some other element or elements. Examples of lead compounds include: lead oxide, lead sulfide, and lead acetate. Lead metal and lead compounds are widely used in a variety of products and applications including lead–acid batteries, ammunition, construction materials, solder, metal castings, glass and ceramic products, plastics, electrical cable coverings, lubricating oils and greases, and certain paints.

CAS Number – 7439–92–1

General Uses – Lead is often obtained by primary production through mining of ores or by secondary production through recycling. Lead and lead compounds are used in the manufacture of a variety of products. The most prominent uses of lead are in storage batteries, pigments, ceramic products, ammunition, sheet lead, casting metal, and solder. Various other industries use or make metal products that contains lead. These metal products include sheet lead, casting metals, solder, bearing metals, extruded products, and brass and bronze alloys (EPA 2000/2001 TRI Public Data Release Report).

Potential Hazards – Lead can affect almost every organ and system in the body. The most sensitive is the central nervous system. At high levels, lead can decrease reaction time, cause weakness in fingers, wrists, ankles, and possibly affect the memory. Health effects associated with exposure to inorganic lead includes, but are not limited to, neurotoxicity, developmental delays, hypertension, impaired hearing acuity, impaired hemoglobin synthesis, and male reproductive impairment. Importantly, many of lead's health effects may occur without overt signs of toxicity. Lead has particularly significant effects in children, well before the usual term of chronic exposure can take place (http://www.epa.gov/iris/subst/0277.htm).

Summary Analysis:

- NATIONAL: In 2004, approximately 4,600 facilities reported 32 million pounds of lead. Compared to the quantity reported in 2000, there was a decrease of approximately 5.5 million pounds or 15 percent in 2004.
- REGIONAL: In 2004, facilities in Regions 3, 4, 5, and 7 reported approximately 72 percent of the total quantity; Regions 4 and 5 facilities alone reported approximately 50 percent of the total quantity.
- STATES: Facilities in every state and territory reported lead in 2004; facilities in 16 states reported approximately 80 percent of the total quantity. Indiana facilities reported the largest quantity (4.7 million pounds), accounting for approximately 15 percent of the total quantity.
- FACILITIES: Of the 4,580 facilities that reported lead in 2004, five facilities accounted for approximately 24 percent of the total quantity of this chemical. Fifty-three facilities accounted for approximately 69 percent of the total quantity.
- MANAGEMENT: Almost 100 percent of lead was land disposed.
- INDUSTRY SECTOR: Facilities in more than 300 industry sectors reported lead in 2004; facilities in 17 industry sectors accounted for approximately 90 percent of the total quantity. Facilities in SIC 3341 (Secondary nonferrous metals) and SIC 3312 (Blast furnaces and steel mills) reported approximately 60 percent of the total quantity.

National Trends:

Exhibit 4.131 shows the number of facilities that reported lead in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. Since 2000, lead constituted, by far, the largest quantity of any of the PCs. In 2004, approximately 4,600 facilities reported 32 million pounds of lead and lead compounds.

Some additional observations concerning increases and decreases include:

- Compared to the quantity reported in 2000, there was a decrease of approximately 5.5 million pounds (or 15 percent) in 2004. The quantity also decreased significantly, by 3.1 million pounds (or approximately 9 percent) compared to the quantity reported in 2003.
- Exhibit 4.131 shows that the number of facilities that reported lead since 2001 has been relatively constant. In 2001, there was a significant increase in the number of facilities reporting lead. Most of this increase likely can be attributed to the lowered TRI reporting threshold for lead that became effective for the 2001 TRI reporting year. Although the number of reporting facilities more than quadrupled, the reported PC quantity of lead actually decreased by approximately 1.3 million pounds. As such, quantities of lead newly reported by the facilities due to the lowered TRI reporting threshold were more than offset by decreased quantities reported by the other reporting facilities.
- Almost 100 percent of lead was land disposed. This is indicative of the fact that metals, including lead, are not amenable to destruction via treatment and have no energy value.
- Although treatment and energy recovery quantities were reported for lead since 2000, these quantities have decreased significantly – likely due to improved data quality assurance by the TRI program and increased awareness by reporters that land disposal is the most suitable method to be reported for this chemical.
- In 2004, approximately 707 million pounds of lead were recycled; this was an increase of approximately 92 million pounds or 15 percent compared to the quantity reported in 2003 and was the largest quantity recycled since 2000.

Exhibit 4.131. National Management Methods for Lead and Lead Compounds, 2000–2004

Management Methods for Lead and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	1,073	4,808	4,727	4,656	4,580	328.1%	-
Disposal Quantity (pounds)	31,806,580	33,742,749	34,010,413	35,042,589	31,891,332	0.3%	99.8%
Energy Recovery Quantity (pounds)	11,010	110,629	5,984	265	647	-94.1%	0.0%
Treatment Quantity (pounds)	5,610,482	2,286,114	82,045	27,066	75,631	-98.7%	0.2%
Priority Chemical Quantity (pounds)	37,428,072	36,139,492	34,098,442	35,069,921	31,967,610	-14.6%	-
Recycling Quantity (pounds)*	770,164,125	643,916,565	653,983,019	615,627,694	707,210,558	-8.2%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.132 shows the number of facilities that reported lead, within ranges of quantities. Of the 4,580 facilities that reported lead in 2004, five facilities accounted for approximately 24 percent of the total quantity of this PC. Fifty–three facilities accounted for approximately 69 percent of the total quantity. Approximately 2,650 facilities accounted for less than 0.1 percent of the total quantity of lead in 2004.

Exhibit 4.132. Distribution of Quantities by Facilities Reporting Lead and Lead Compounds, 2004

Lead (31,967,610 pounds)		
Quantity Reported	**Number of Facilities Reporting This Quantity (2004)**	**Percent of Total Quantity of This PC (2004)**
up to 10 pounds	1,586	less than 0.1%
11 – 100 pounds	1,063	0.1%
101 – 1,000 pounds	1,085	1.3%
1,001 – 10,000 pounds	578	6.1%
10,001 – 100,000 pounds	215	23.4%
100,001 – 1 million pounds	48	45.3%
> 1 million pounds	5	23.8%

EPA Regional Trends:

Exhibits 4.133 and 4.134 show the quantity of lead reported by facilities in each EPA Region from 2000 to 2004. In 2004, facilities in Regions 3, 4, 5, and 7 reported approximately 72 percent of the total quantity; Regions 4 and 5 facilities alone reported approximately 50 percent of the total quantity. Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in Regions 4, 5, 8, and 10 reported larger quantities in 2004. The largest increase of approximately 1.3 million pounds was reported by Region 4 facilities.
- In the six Regions where quantities decreased compared to 2000, facilities in Regions 3, 6, and 7 reported decreases of at least 1 million pounds and facilities in Region 2 reported a decrease of approximately 2.4 million pounds.
- Compared to 2003 quantities, facilities in Region 7 reported a decrease of approximately 3.3 million pounds and facilities in Region 4 reported a decrease of approximately 730,000 pounds.

Exhibit 4.133. Regional Quantities of Lead and Lead Compounds, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	346,011	628,798	298,680	343,463	281,452	–18.7%	0.9%
2	3,094,854	1,819,202	1,098,416	987,567	743,143	–76.0%	2.3%
3	4,880,998	4,233,606	2,674,503	3,058,526	3,274,457	–32.9%	10.2%
4	5,447,811	6,258,609	7,405,178	7,495,502	6,768,339	24.2%	21.2%
5	8,611,927	7,963,541	9,157,704	8,939,834	9,032,565	4.9%	28.3%
6	4,063,854	4,472,529	3,027,283	2,658,849	3,022,428	–25.6%	9.5%
7	5,889,663	5,743,321	6,212,781	7,321,440	4,062,679	–31.0%	12.7%
8	1,357,272	1,209,972	1,049,706	1,403,956	1,516,155	11.7%	4.7%
9	2,629,916	2,534,579	2,332,850	2,044,597	2,073,876	–21.1%	6.5%
10	1,105,766	1,275,336	841,342	816,187	1,192,517	7.8%	3.7%
Total	**37,428,072**	**36,139,492**	**34,098,442**	**35,069,921**	**31,967,610**	**–14.6%**	**100.0%**

Exhibit 4.134. Distribution of Facilities Reporting Lead and Lead Compounds in 2004 and the Quantities of Lead and Lead Compounds Reported in 2004 per Region

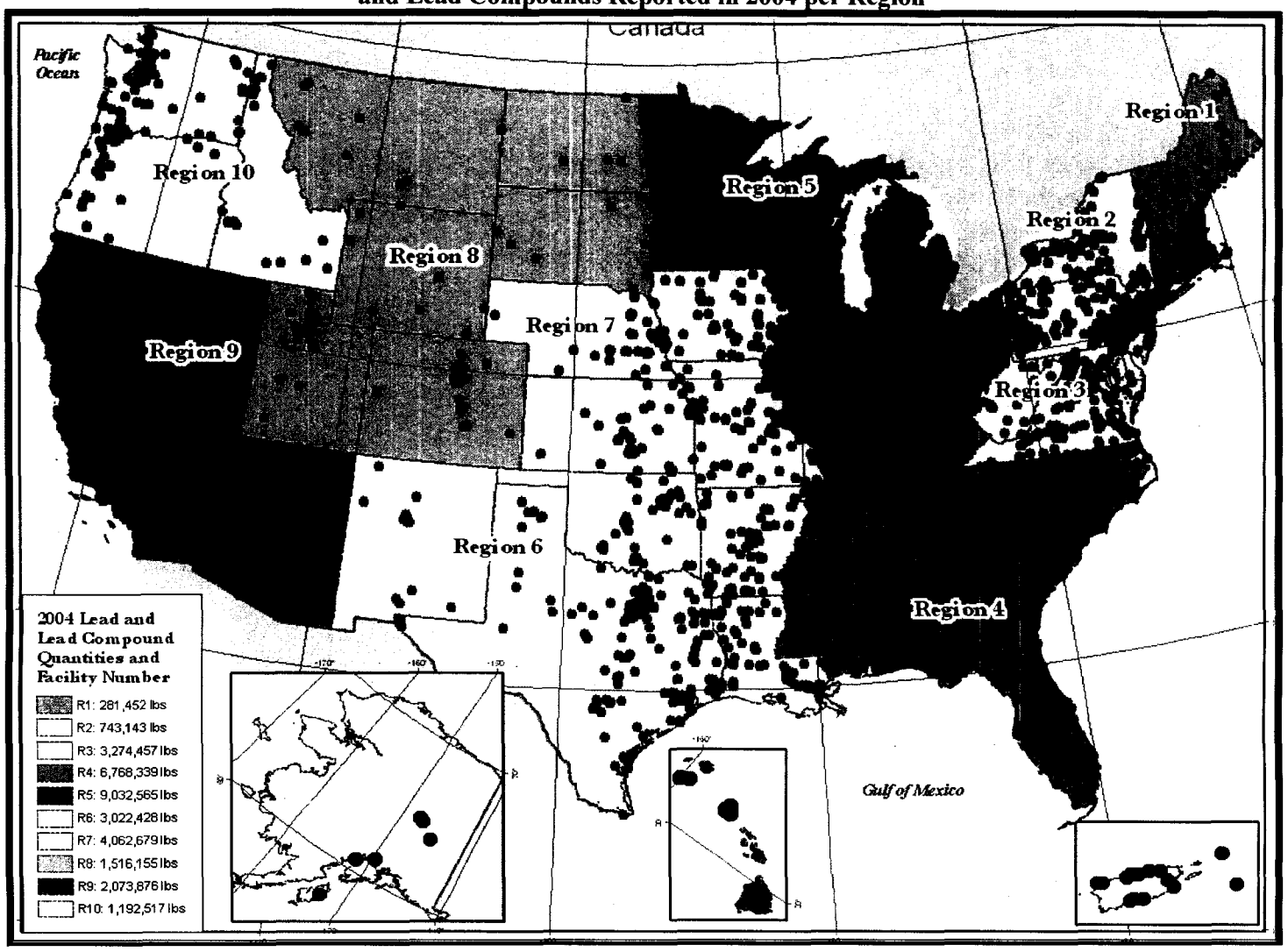


Exhibit 4.135 shows how facilities managed lead, by EPA region, in 2004. Virtually all lead was land disposed; facilities used offsite disposal for approximately 79 percent of this chemical. Facilities in every EPA region reported significant recycling of lead; in every EPA region, the recycled quantity far exceeded the quantity that was land disposed. Facilities in Regions 4, 5, and 7 reported approximately 80 percent of the recycled lead; Region 5 facilities alone reported approximately 45 percent of the total quantity.

Exhibit 4.135. Regional Management Methods for Lead and Lead Compounds, 2004

EPA Region	Quantity of Lead (2004)	Percent of Total Quantity of Lead (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	281,452	0.9%	14,360	266,856	0	0	0	236	39,707	1,654,239
2	743,143	2.3%	227,726	504,065	0	0	333	11,019	4,481,278	22,512,926
3	3,274,457	10.2%	137,739	3,136,407	0	311	0	0	20,357,187	12,542,680
4	6,768,339	21.2%	3,426,153	3,290,635	7	320	1	51,223	46,016,546	92,173,278
5	9,032,565	28.3%	380,091	8,650,313	0	0	3	2,158	252,630,702	62,203,573
6	3,022,428	9.5%	1,290,797	1,731,596	0	0	0	34	26,431,327	16,087,756
7	4,062,679	12.7%	189,366	3,863,302	0	10	0	10,000	62,305,779	48,701,991
8	1,516,155	4.7%	220,583	1,295,533	0	0	0	39	87,137	5,857,994
9	2,073,876	6.5%	382,317	1,690,975	0	0	503	81	15,899,502	10,798,230
10	1,192,517	3.7%	264,173	928,344	0	0	0	0	2,775,543	3,653,184
Total	**31,967,610**	**100.0%**	**6,533,305**	**25,358,027**	**7**	**641**	**840**	**74,790**	**431,024,707**	**276,185,851**

State Trends:

Facilities in every state and territory reported lead in 2004. Exhibit 4.136 shows the quantity of lead, in 2000–2004, in the 16 states where facilities reported approximately 80 percent of the total quantity in 2004. Facilities in Indiana reported the largest quantity (4.7 million pounds) of lead in 2004, accounting for approximately 15 percent of the total quantity. Exhibits 4.137, 4.138, and 4.139 show the trends for the quantities of lead in the top five states in which facilities reported this PC in 2004.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in eight of these 16 states reported a larger quantity of lead in 2004; facilities in Indiana, Alabama, and North Carolina reported an increase of approximately 4.8 million pounds.
- Compared to quantities reported in 2003, facilities in 10 of the 16 states reported an increase; Indiana facilities reported approximately 42 percent of the 2.4 million pound increase in 2004.
- Compared to quantities reported in 2000, facilities in each of the eight states for which the quantity decreased by 2004 reported a decreases of at least 700,000 pounds, with decreases of at least 1 million pounds in four of the states.
- Compared to quantities reported in 2003, facilities in six of the 16 states reported a decrease in 2004; Missouri facilities reported a decrease of approximately 3.3 million pounds, or 67 percent. Most of the decreased quantity in Missouri was reported by one facility.

Exhibit 4.136. State Quantity Trends for Lead and Lead Compounds, Facilities Reporting 80 Percent of the Total Quantity, 2004

State	Total Quantity (pounds) of Lead					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
IN	2,578,527	2,544,316	3,682,342	3,731,079	4,734,448	2,155,921	83.6%	14.8%
AL	1,737,728	2,217,376	3,494,741	3,272,310	3,599,465	1,861,737	107.1%	11.3%
PA	4,408,396	3,419,886	2,043,884	2,431,687	2,531,839	−1,876,557	−42.6%	7.9%
OH	3,311,640	2,766,651	3,120,068	2,596,496	1,982,321	−1,329,319	−40.1%	6.2%
CA	2,614,864	2,294,597	1,957,584	1,640,892	1,776,292	−838,573	−32.1%	5.6%
MO	2,467,289	3,634,772	3,910,471	4,868,664	1,601,701	−865,588	−35.1%	5.0%
TX	1,180,029	2,102,547	1,592,121	1,308,808	1,381,123	201,094	17.0%	4.3%
NE	2,411,580	1,240,341	1,283,688	1,403,425	1,349,842	−1,061,738	−44.0%	4.2%
UT	979,331	881,372	926,109	1,181,262	1,088,558	109,227	11.2%	3.4%
NC	161,130	841,669	880,711	954,008	1,017,120	855,990	531.2%	3.2%
IL	1,777,737	1,197,219	1,014,496	1,097,130	978,242	−799,495	−45.0%	3.1%
IA	969,010	787,513	919,955	944,455	972,383	3,373	0.3%	3.0%
AR	2,524,498	1,846,360	724,049	604,492	707,108	−1,817,390	−72.0%	2.2%
VA	448,922	738,852	570,281	574,045	688,320	239,399	53.3%	2.2%
ID	64,902	178,010	137,261	157,517	550,629	485,727	748.4%	1.7%
SC	1,262,532	1,128,909	1,049,804	1,116,366	545,990	−716,542	−56.8%	1.7%
Total	**28,898,115**	**27,820,390**	**27,307,564**	**27,882,636**	**25,505,382**	**−3,392,733**	**−11.7%**	**79.8%**

Exhibit 4.137. Indiana, Ohio, and Pennsylvania Trends for Lead and Lead Compounds, 2000–2004

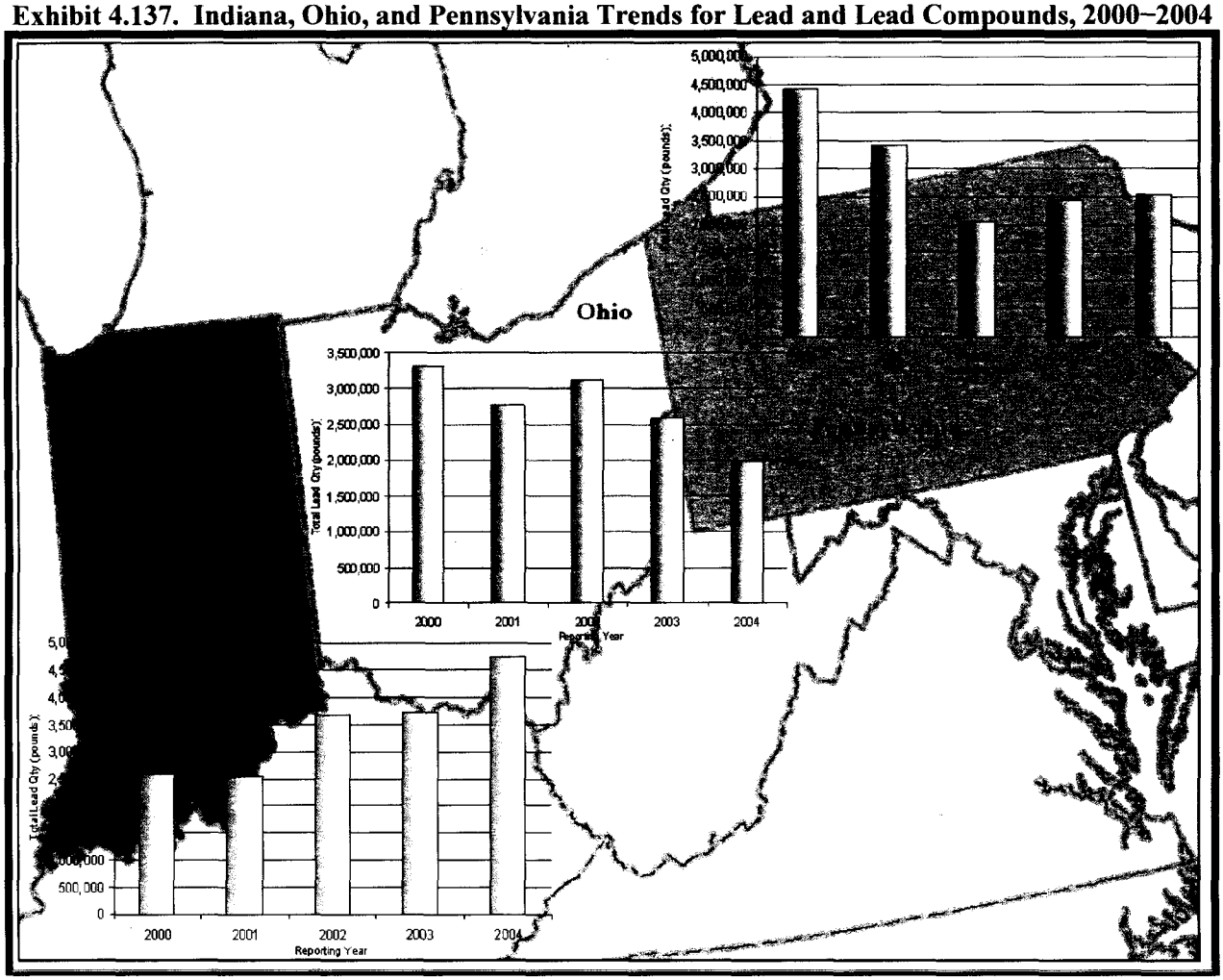


Exhibit 4.138. Alabama Trends for Lead and Lead Compounds, 2000–2004

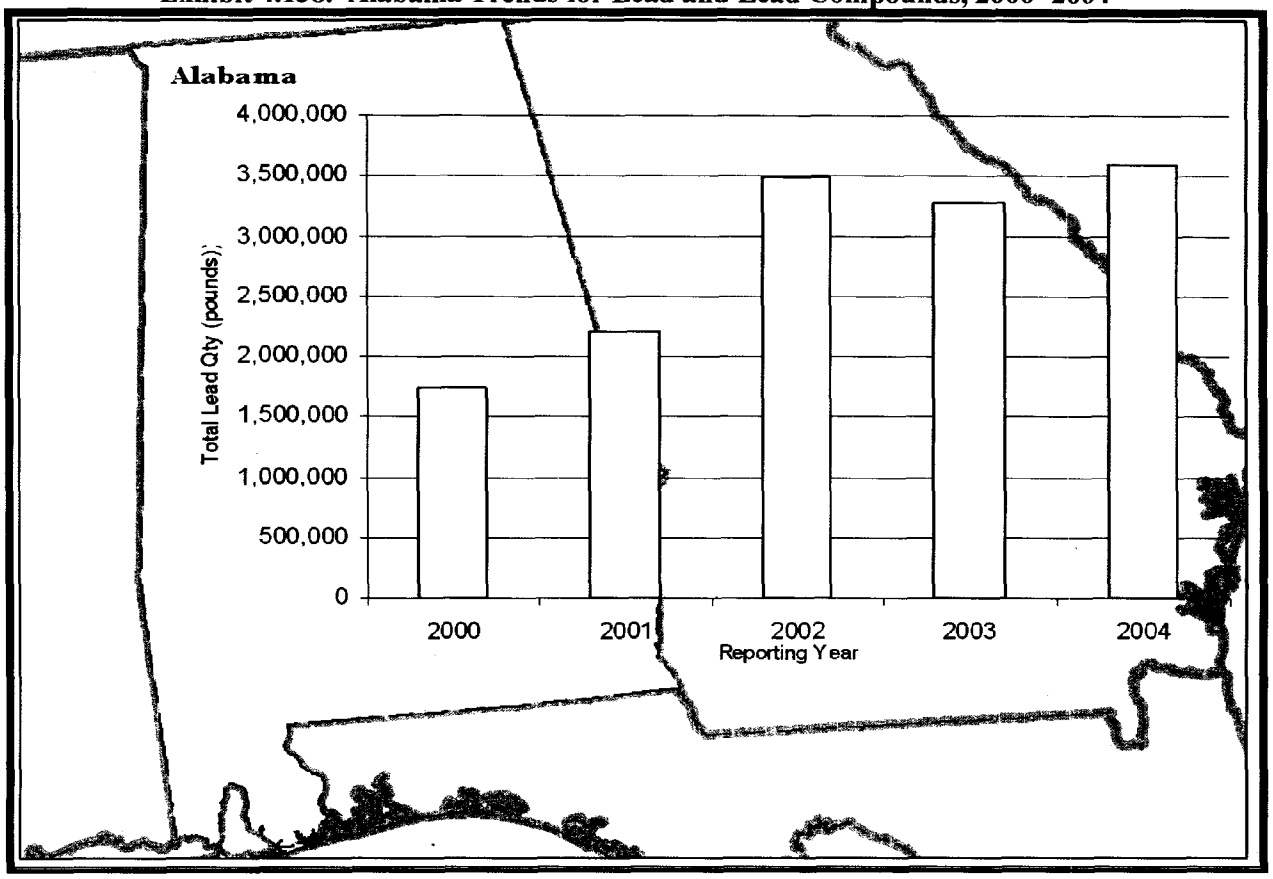
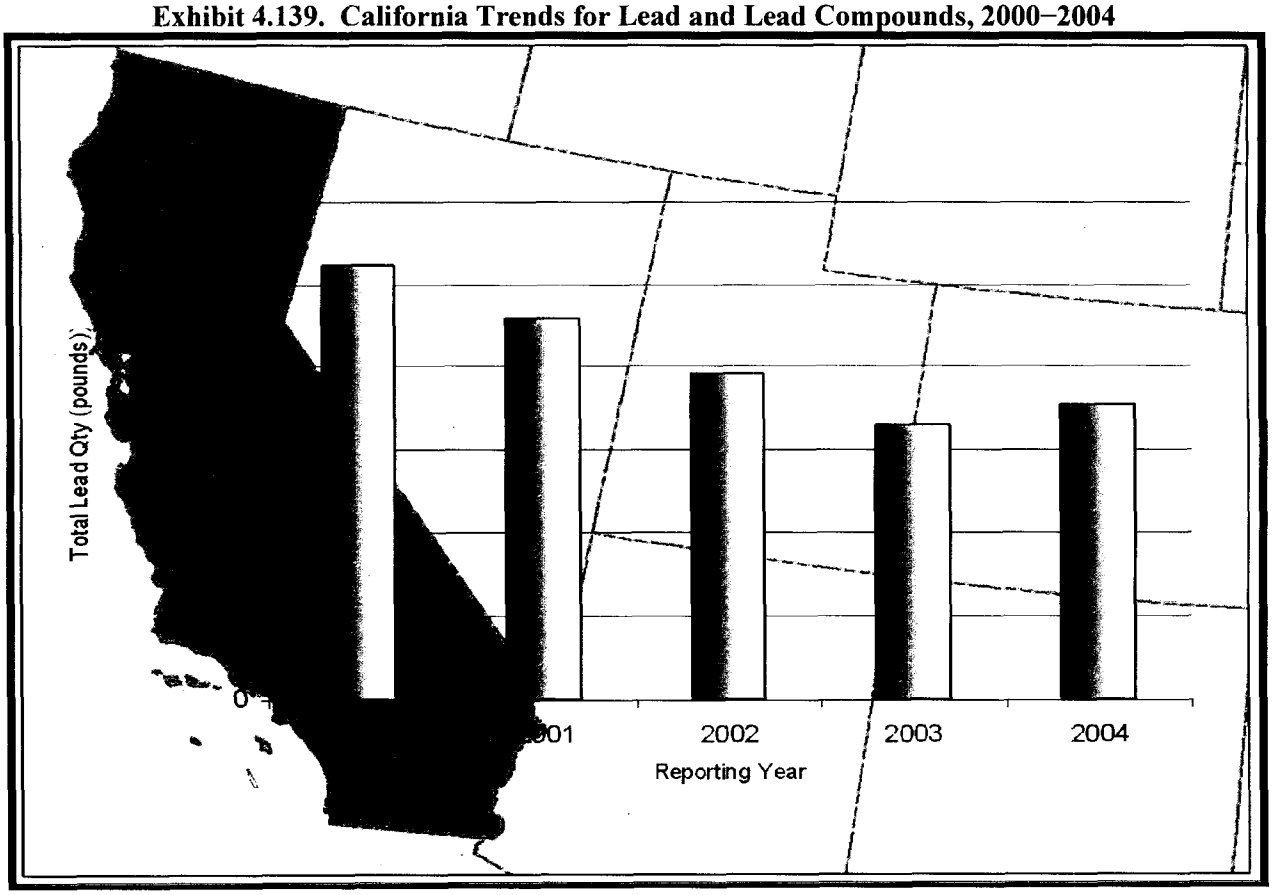


Exhibit 4.139. California Trends for Lead and Lead Compounds, 2000–2004

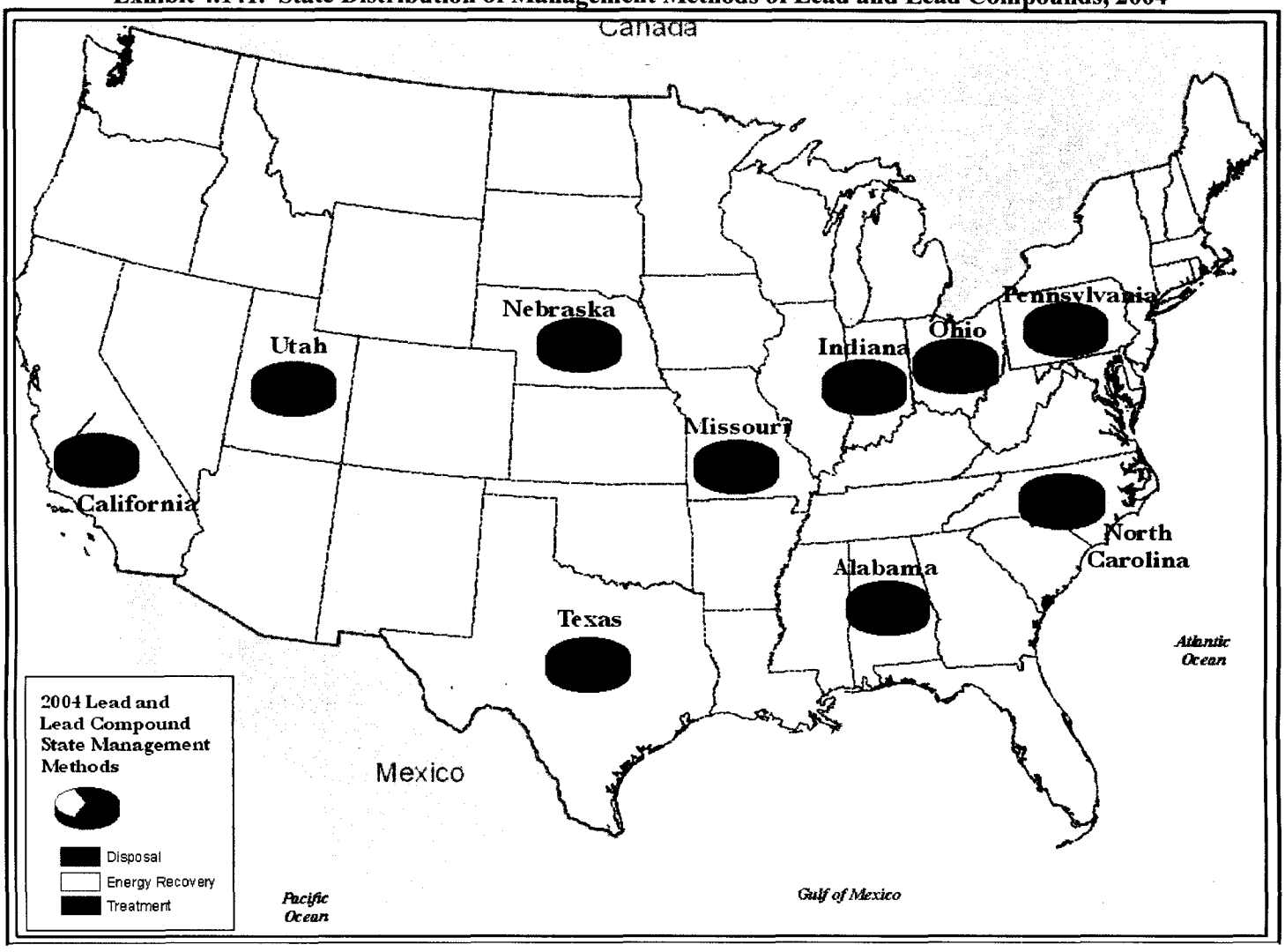


Exhibits 4.140 and 4.141 show how facilities managed lead in the 10 states for which facilities reported at least 1 million pounds of lead in 2004. Virtually 100 percent of the lead reported by facilities in these states was land disposed; facilities used offsite disposal for approximately 82 percent of the disposal quantity. Facilities in many of these states recycled significant quantities of lead, both onsite and offsite, in 2004.

Exhibit 4.140. State Management Methods for Lead and Lead Compounds, Facilities Reporting at Least 1 Million Pounds, 2004

State	Quantity of Lead (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
IN	4,734,448	128,077	4,604,224	0	0	0	2,148	37,953,078	6,307,312
AL	3,599,465	1,982,222	1,617,244	0	0	0	0	19,437,027	1,824,082
PA	2,531,839	6,715	2,525,124	0	0	0	0	19,789,965	6,901,119
OH	1,982,321	79,883	1,902,428	0	0	0	10	15,348,095	36,301,699
CA	1,776,292	135,253	1,640,454	0	0	503	81	15,080,059	10,511,236
MO	1,601,701	168,986	1,432,715	0	0	0	0	17,132,019	15,658,030
TX	1,381,123	677,990	703,098	0	0	0	34	478,527	2,695,904
NE	1,349,842	477	1,339,365	0	0	0	10,000	26	84,355
UT	1,088,558	91,221	997,298	0	0	0	39	13,275	85,741
NC	1,017,120	374,668	591,343	7	2	0	51,100	127,520	17,918,789
Total	**21,062,709**	**3,645,492**	**17,353,294**	**7**	**2**	**503**	**63,412**	**125,359,591**	**98,288,265**

Exhibit 4.141. State Distribution of Management Methods of Lead and Lead Compounds, 2004



Industry Sector (SIC) Trends:

Facilities in more than 300 industry sectors reported lead in 2004. Exhibit 4.142 shows the quantity of lead reported in the 17 industry sectors where facilities accounted for approximately 90 percent of this chemical in 2004. Facilities in SIC 3341 (Secondary nonferrous metals) and SIC 3312 (Blast furnaces and steel mills) reported approximately 60 percent of the total quantity of lead in 2004; facilities in each sector reported over 9 million pounds.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in 10 of these 17 industry sectors reported a larger quantity of lead in 2004.
- Compared to quantities reported in 2000, facilities in SIC 9711 (National security) reported an increase of approximately 2.2 million pounds. These facilities, primarily military installations, began reporting significant increases in 2001; most of the increased quantity is likely due to the increase in training and other activities at military installations in support of military operations to counter terrorism worldwide, including in Afghanistan and Iraq.

- Compared to quantities reported in 2000, facilities in two other industry sectors: SIC 3321 (Gray and ductile iron foundries) and SIC 8733 (Noncommercial research organizations) also reported large increases of 738,000 pounds and 500,000 pounds, respectively. A Department of Energy facility in Idaho accounted for most of the increase reported by SIC 8733 facilities.
- Compared to quantities reported in 2000, facilities in seven of the 17 industry sectors reported a decreased quantity of lead in 2004; the largest decreases of 3.5 million pounds and 727,000 pounds were reported by facilities in SIC 2819 (Industrial inorganic chemicals, nec) and SIC 3229 (Pressed and blown glass, nec), respectively.
- Compared to quantities reported in 2003, facilities in seven of the 16 industry sectors reported an increase; most notably, facilities in SIC 3312 (Blast furnaces and steel mills) reported an increase of 1.6 million pounds in 2004.
- Compared to quantities reported in 2003, facilities in nine of the 16 industry sectors reported a decrease; facilities in two industry sectors: SIC 3341 (Secondary nonferrous metals) and SIC 3321 (Gray and ductile iron foundries) reported decreases of 2.9 million pounds and 813,000 pounds, respectively. Most of the decreased quantity for SIC 3341 facilities was reported by a facility in Missouri which attributed the decrease to a lower production level in 2004 and process adjustments that resulted in a decrease in the concentration of lead in the slag.

Exhibit 4.143 shows how facilities managed lead in the five industry sectors for which facilities reported at least 1 million pounds of lead in 2004; facilities in these five industry sectors accounted for approximately 76 percent of the total quantity. Virtually 100 percent of the quantity reported by facilities in these industry sectors was land disposed, mostly offsite. Facilities in SIC 9711 (National security) primarily used onsite disposal. Facilities in each of these industry sectors recycled approximately 46 percent of the national total recycled quantity of lead in 2004; SIC 3341 facilities reported approximately 95 percent of the recycling reported by facilities in these five industry sectors.

Exhibit 4.142. Industry Sectors Containing Lead and Lead Compounds, Facilities Reporting 90 Percent of the Total Quantity, 2004

Primary SIC	SIC Description	Number of Facilities That Reported Lead (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3341	Secondary nonferrous metals	89	10,113,688	9,409,708	11,582,821	12,638,279	9,782,666	−331,022	30.6%
3312	Blast furnaces and steel mills	84	9,428,975	7,766,719	7,098,315	7,726,717	9,361,873	−67,102	29.3%
9711	National security	108	160,317	2,197,581	2,466,010	2,642,477	2,375,382	2,215,065	7.4%
3321	Gray and ductile iron foundries	137	959,498	2,625,256	2,942,616	2,510,574	1,697,804	738,306	5.3%
2819	Industrial inorganic chemicals, nec	73	4,553,382	1,810,764	1,411,839	1,217,083	1,057,561	−3,495,821	3.3%
3229	Pressed and blown glass, nec	34	1,715,864	1,538,505	1,282,440	1,161,252	988,756	−727,108	3.1%
3691	Storage batteries	58	722,480	269,737	332,210	502,985	803,083	80,602	2.5%
8733	Noncommercial research organizations	8	106	203,442	153,930	425,799	500,269	500,163	1.6%
3315	Steel wire and related products	36	955,200	795,912	421,572	502,771	496,974	−458,226	1.6%
3679	Electronic components, nec	114	578,214	236,204	156,985	276,457	350,832	−227,382	1.1%
3357	Nonferrous wire drawing and insulating	77	479,446	472,973	305,248	460,381	341,539	−137,907	1.1%
3482	Small arms ammunition	13	118,945	189,330	152,552	131,453	184,967	66,022	0.6%
2621	Paper mills	79	119,700	160,241	199,952	183,015	175,515	55,815	0.5%
3471	Plating and polishing	242	41,189	213,725	99,549	145,030	172,260	131,071	0.5%
2611	Pulp mills	55	12,400	147,759	135,024	176,770	160,819	148,419	0.5%
2874	Phosphatic fertilizers	11	0	241,921	144,699	141,793	150,333	150,333	0.5%
2631	Paperboard mills	73	0	124,600	110,849	125,784	130,406	130,406	0.4%
	Total	**1,291**	**29,959,404**	**28,404,377**	**28,996,611**	**30,968,618**	**28,731,041**	**−1,228,363**	**89.9%**

Exhibit 4.143. Management Methods for Lead and Lead Compounds in Industry Sectors (Facilities Reporting at Least 1 Million Pounds), 2004

Primary SIC	SIC Description	Total Quantity of Lead (2004)	Percent of Total Quantity (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
3341	Secondary nonferrous metals	9,782,666	30.6%	2,208,052	7,574,614	0	0	0	0	285,530,639	24,483,921
3312	Blast furnaces and steel mills	9,361,873	29.3%	167,698	9,194,176	0	0	0	0	312,584	13,993,144
9711	National security	2,375,382	7.4%	2,272,975	102,408	0	0	0	0	449,999	557,985
3321	Gray and ductile iron foundries	1,697,804	5.3%	397,304	1,300,500	0	0	0	0	99,808	353,586
2819	Industrial inorganic chemicals, nec	1,057,561	3.3%	181,428	876,092	0	0	40	0	52,969	338,594
	Total	**24,275,286**	**75.9%**	**5,227,456**	**19,047,790**	**0**	**0**	**40**	**0**	**286,445,999**	**39,727,230**

Lindane

Chemical Information:

CAS Number – 58–89–9

Alternate Names – Hexachlorocyclohexane, gamma–

General Uses – Lindane was mainly used on fruit and vegetable crops to kill insects. It also was used as an ingredient in ointments that help cure head lice, body lice, and scabies. It has not been made in the United States since 1977, but it may still be imported into the country and formulated. Only individuals who are certified may use this chemical.

Potential Hazards – Lindane is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

Summary Analysis:

- NATIONAL: No lindane was reported in 2004.
- REGIONAL: From 2000 to 2003, lindane was reported by two facilities – one each in EPA Regions 8 and 10. Only the facility in Region 10 (Idaho) reported lindane in multiple years.
- FACILITY: The largest quantity (183 pounds) of lindane was reported in 2002, when the two facilities mentioned above, reported this chemical; both facilities used lindane as a feed treatment. Except in 2002, only one facility reported lindane in 2000–2001 and in 2003. That facility indicated that it planned to eliminate the future use of lindane. As such, it now appears lindane will no longer be reported.
- MANAGEMENT: Treatment was the primary method used to manage lindane in 2000–2003.
- INDUSTRY SECTOR: Both facilities that reported lindane were in SIC 2879 (Pesticides and agricultural chemicals, nec).

National Trends:

Exhibit 4.144 shows the number of facilities that reported lindane in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, no lindane was reported. Since 2000, no more than two facilities reported lindane in a given year. The largest quantity of lindane was reported in 2002 when two facilities reported this chemical. Except in 2002, only one and the same facility reported lindane in 2000–2001 and in 2003. The facility that had reported lindane in 2000–2003 indicated it was eliminating the future use of lindane as a feed treatment. As such, it now appears lindane will no longer be reported. Treatment was the primary method used to manage lindane; some lindane was land disposed in 2000 and 2001. The one facility that reported lindane in 2000–2003 also recycled a significant quantity of this chemical in each reporting year.

Exhibit 4.144. National Management Methods for Lindane, 2000–2004

Management Methods for Lindane and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Total Quantity of This PC (2004)
Number of Facilities	1	1	2	1	0	−100.0%	-
Disposal Quantity (pounds)	17	16	0	0	0	−100.0%	NA
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	NA
Total Treatment Quantity (pounds)	47	30	183	71	0	−100.0%	NA
Total PC Quantity (pounds)	64	46	183	71	0	−100.0%	-
Total Recycled (pounds)*	215	188	163	179	0	−100.0%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

EPA Regional Trends:

Exhibit 4.145 shows the quantity of lindane reported by two facilities – one each in EPA Regions 8 and 10, from 2000 to 2004. In 2004, no facilities reported lindane. The facility in Region 8 only reported lindane in 2002.

Exhibit 4.145. Regional Quantity of Lindane Reported, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
8	0	0	86	0	0	NA	NA
10	64	46	97	71	0	−100.0%	NA
Total	**64**	**46**	**183**	**71**	**0**	**−100.0%**	**NA**

State Trends:

Since 2000, only two facilities reported lindane — one facility each in Idaho and North Dakota (Exhibit 4.146). The facility in North Dakota only reported lindane in 2002; the facility in Idaho reported lindane each year from 2000 to 2003. No facility reported lindane in 2004.

Exhibit 4.146. State Quantity Trends for Lindane, Based on Largest Quantity in 2003, 2000–2004

State	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of This PC (2004)
ID	64	46	97	71	0	NA
ND	0	0	86	0	0	NA
Total	**64**	**46**	**183**	**71**	**0**	**NA**

Industry Sector (SIC) Trends:

Only two facilities, both in SIC 2879 (Pesticides and agricultural chemicals, nec) reported lindane in 2000–2003 (Exhibit 4.147). Each of these facilities used lindane as a feed treatment. The facility that had reported lindane each year from 2000 to 2003 indicated it planned to eliminate use of lindane. As such, no lindane is expected to be reported after 2003.

Exhibit 4.147. Industry Sectors Containing Lindane, 2000–2004

Primary SIC	SIC Code Description	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
2879	Pesticides and agricultural chemicals, nec	64	46	183	71	0

Mercury and Mercury Compounds (Mercury)

Chemical Information:

Mercury (CAS 7439–97–6) is a heavy, silver–white metal that exists as a liquid at ambient temperatures.

CAS Number – 7439–97–6

General Uses – Mercury is a precious metal used in chlor–alkali production, wiring devices, switching mechanisms, amalgam dental fillings, and measurement and control instruments. Industries also manufacture and process mercury reagents, catalysts, and medicinal chemicals. Metal ores, coal, crude oil, and fuel oils contain mercury as a trace constituent. Mercury is produced as a byproduct of gold ore mining operations. Secondary production of mercury involves the recovery of mercury from dismantled equipment and recovery from scrap and industrial wastes using a thermal or chemical extractive process. Major sources of recycled or recovered mercury include scrap from instrument and electrical manufactures (lamps and switches), wastes and sludge from laboratories and electrolytic refining plants, mercury batteries, and dental amalgams. Mercury is also found as a trace contaminant in fossil fuels and waste materials. The combination of the elevated temperature of the process and the volatility of mercury results in their being emitted in the combustion gas exhaust stream.

Potential Hazards – The nervous system is sensitive to all forms of mercury. Methyl mercury and metallic mercury vapors are more harmful than other forms. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus.

Summary Analysis:

- NATIONAL: The national quantity of mercury decreased approximately 41 percent compared to the national quantity reported in 2000. However, in 2004, there was a 41 percent increase in quantities compared to the quantities reported in 2003.
- REGIONAL: In 2004, facilities in Regions 4 and 9 reported approximately 53 percent of mercury. Facilities in four Regions (4, 5, 6, and 9) reported 84 percent of the total quantity.
- STATE: Facilities in almost every state and territory reported mercury in 2004. Facilities in 11 states reported approximately 80 percent of the total quantity; facilities in California reported the largest quantity (approximately 13,800 pounds) of mercury in 2004, accounting for approximately 27 percent of the total quantity.
- FACILITIES: In 2004, 586 facilities reported approximately 51,700 pounds of mercury. Of these, 10 facilities accounted for approximately 63 percent of the total quantity of this chemical. Fifty–five facilities accounted for almost 87 percent of the total quantity.
- MANAGEMENT: In 2004, 100 percent of the mercury was land disposed. From 2000 to 2002, approximately 450,000 pounds of mercury were consistently recycled each year, significantly increased in 2003, and then increased dramatically by approximately 24 percent in 2004, when approximately 608,000 pounds were recycled.
- INDUSTRY SECTOR: Facilities in approximately 100 industry sectors reported mercury in 2004; facilities in seven of the sectors accounted for approximately 80 percent of the total quantity. Fifty–two percent of the total quantity was reported by facilities in SIC 9711 (National security) and SIC 3312 (Blast furnaces and steel mills).
- PROGRAMS: The Office of Solid Waste has a number of ongoing projects such as "The Mercury Challenge" and "The Mercury in Schools Project" to reduce mercury.

National Trends:

In 2004, 586 facilities reported approximately 51,700 pounds of mercury. Exhibit 4.148 shows the number of facilities that reported mercury in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. From 2000 to 2004 the number of facilities reporting this chemical increased by 24 percent. However, the quantity of mercury decreased approximately 41 percent compared to the quantity reported in 2000. Interestingly, in 2004, there was a 41 percent increase in quantity compared to the quantity reported in 2003.

In 2004, 100 percent of the mercury was land disposed. This is indicative of the fact that metals, including mercury, are not amenable to destruction via treatment and have no energy value. Although treatment and energy recovery quantities were reported for mercury in previous years, these quantities are steadily decreasing – likely due to improved data quality assurance by the Toxics Release Inventory (TRI) program and increased awareness by reporting facilities that land disposal is the most suitable method to be reported for this chemical. From 2000 to 2002, approximately 450,000 pounds of mercury were consistently recycled each year, significantly increased in 2003, and then increased dramatically by approximately 24 percent in 2004 when approximately 608,000 pounds were recycled.

Exhibit 4.148. National Management Methods for Mercury and Mercury Compounds, 2000–2004

Management Methods for Mercury Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	475	502	518	546	586	24.0%	-
Disposal Quantity (pounds)	83,619	90,930	92,028	36,728	51,697	−38.2%	100.0%
Energy Recovery Quantity (pounds)	55	2	0	0	0	−100.0%	0.0%
Treatment Quantity (pounds)	3,446	36,594	1,860	4	0	−100.0%	0.0%
Priority Chemical Quantity (pounds)	87,120	127,526	93,888	36,732	51,697	−40.7%	-
Recycling Quantity (pounds)*	450,262	442,890	456,063	491,314	607,957	35.0%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.149 shows the number of facilities that reported mercury, within ranges of quantities. Of the 586 facilities that reported mercury in 2004, 10 facilities accounted for approximately 63 percent of the total quantity of this chemical. Fifty–five facilities accounted for almost 87 percent of the total quantity.

Exhibit 4.149. Distribution of Quantities by Facilities Reporting Mercury and Mercury Compounds, 2004

Mercury (51,697 pounds)		
Quantity Reported	**Number of Facilities Reporting This Quantity (2004)**	**Percent of Total Quantity of This PC (2004)**
up to 10 pounds	347	1.8%
11 – 100 pounds	184	11.4%
101 – 1,000 pounds	45	24.2%
1,001 – 10,000 pounds	9	38.6%
10,001 – 100,000 pounds	1	24.0%
100,001 – 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.150 and 4.151 show the quantity of mercury reported by facilities in each EPA region in 2000 to 2004. In 2004, facilities in Regions 4 and 9 reported approximately 53 percent of mercury. Facilities in four Regions (4, 5, 6, and 9) reported 84 percent of the total quantity.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in four EPA regions reported an increase of approximately 35,000 pounds in 2004. Approximately 67 percent of this increase, or approximately 12,800 pounds, was reported by facilities in Region 9. A federal facility in California accounted for most of this increase as well as the large increase reported by Region 9 facilities in 2001.
- Compared to quantities reported in 2000, facilities in six of the 10 EPA regions reported a decreased quantity in 2004. Facilities in Regions 3, 6, and 7 reported decreases of at least 1 million pounds and facilities in Region 2 reported a decrease of approximately 2.4 million pounds. Of the overall 35,000 pound decrease from 2000 to 2004, most of the decrease was due to a pulp mill in Washington that reported approximately 23,500 pounds in 2000 but then did not report mercury since then.
- Compared to quantities reported in 2003, facilities in EPA Regions 4 and 9 accounted for most of the increase reported in 2004; a federal facility in each of these regions accounted for most of the increase.
- Compared to 2003 quantities, facilities in Region 3 reported a decrease of approximately 4,000 pounds.

Exhibit 4.150. Regional Quantities of Mercury and Mercury Compounds, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	4,200	647	611	1,877	532	–87.3%	1.0%
2	2,192	1,447	2,253	1,040	794	–63.8%	1.5%
3	2,989	21,280	6,022	7,423	3,484	16.6%	6.7%
4	15,626	35,690	49,080	6,874	13,532	–13.4%	26.2%
5	16,045	4,875	5,032	8,027	9,167	–42.9%	17.7%
6	18,274	9,461	20,412	6,150	6,682	–63.4%	12.9%
7	903	719	1,614	1,053	1,512	67.6%	2.9%
8	370	322	551	664	588	58.9%	1.1%
9	1,326	51,571	6,962	2,229	14,081	961.6%	27.2%
10	25,193	1,515	1,351	1,397	1,325	–94.7%	2.6%
Total	**87,120**	**127,526**	**93,888**	**36,732**	**51,697**	**–40.7%**	**100.0%**

Exhibit 4.151. Distribution of Facilities Reporting Mercury and Mercury Compounds in 2004 and the Quantities of Mercury and Mercury Compounds Reported in 2004 per EPA Region

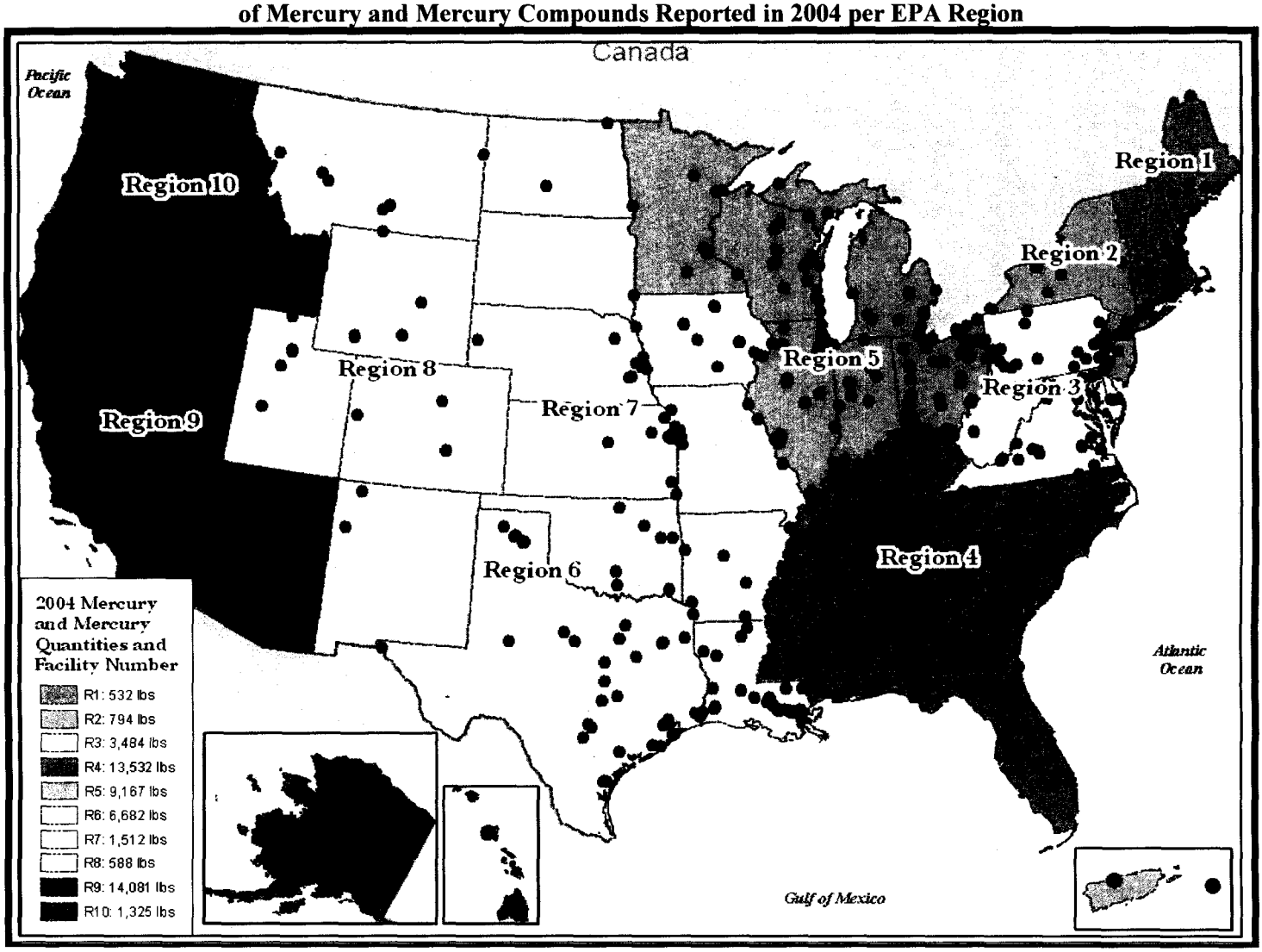


Exhibit 4.152 shows how facilities managed mercury, by EPA region, in 2004. All the mercury was land disposed. Facilities in Region 3 reported approximately 80 percent of the 608,000 pounds of mercury recycled in 2004.

Exhibit 4.152. Regional Management Methods for Mercury and Mercury Compounds, 2004

EPA Region	Quantity (pounds) of Mercury (2004)	Percent of Total Quantity of Mercury (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	532	1.0%	28	503	0	0	0	0	0	1,737
2	794	1.5%	12	782	0	0	0	0	54	228
3	3,484	6.7%	165	3,319	0	0	0	0	455,050	32,744
4	13,532	26.2%	5,681	7,851	0	0	0	0	46,984	13,211
5	9,167	17.7%	407	8,760	0	0	0	0	4,950	9,506
6	6,682	12.9%	1,376	5,306	0	0	0	0	28,929	13,751
7	1,512	2.9%	138	1,375	0	0	0	0	0	516
8	588	1.1%	408	180	0	0	0	0	0	69
9	14,081	27.2%	261	13,819	0	0	0	0	30	182
10	1,325	2.6%	954	371	0	0	0	0	0	16
Total	**51,697**	**100.0%**	**9,429**	**42,267**	**0**	**0**	**0**	**0**	**535,998**	**71,959**

State Trends:

Facilities in almost every state and territory reported mercury in 2004. Exhibit 4.153 shows the quantity of mercury, in 2000–2004, for the 11 states where facilities reported approximately 80 percent of the total quantity in 2004. Facilities in California reported the largest quantity (approximately 13,800 pounds) of mercury in 2004, accounting for approximately 27 percent of the total quantity. Facilities in California, Ohio, and Texas reported approximately 50 percent of the total quantity of this chemical in 2004.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in California reported the largest increase, approximately 12,700 pounds, in 2004. Most of this increase was reported by a federal facility that began reporting this chemical in 2001. Facilities in three other states: Florida, South Carolina, and Alabama, also reported significant increases.
- Compared to quantities reported in 2000, Region 4 facilities reported a decrease of approximately 9,200 pounds; most of this decrease was due to a facility that no longer reported this chemical in 2003 and 2004.
- Compared to 2003 quantities, facilities in California reported an increase of approximately 12,100 pounds in 2004. Most of this increase was reported by a federal facility where mercury is a by–product from a geothermal energy plant; carbon was used to extract the mercury from the geothermal stream and was land disposed. A federal facility in South Carolina reported most of this state's increase of 2,900 pounds in 2004; it disposed of 23 drums of stockpiled mercury wastes.
- Compared to 2003 quantities, facilities in Delaware reported a decrease of approximately 1,100 pounds in 2004.

Exhibit 4.153. State Quantity Trends for Mercury and Mercury Compounds in Which Facilities Reported 80 Percent of the Total Quantity, 2004

State	Total Quantity (pounds) of Mercury					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
CA	1,043	51,282	6,639	1,713	13,784	12,740	1221.2%	26.7%
OH	9,061	1,991	1,811	5,447	7,145	−1,916	−21.1%	13.8%
TX	4,237	6,330	3,087	4,233	4,950	713	16.8%	9.6%
FL	214	1,284	1,188	2,011	3,297	3,083	1442.7%	6.4%
SC	122	203	272	241	3,145	3,022	2469.9%	6.1%
AL	913	8,271	15,863	2,503	2,970	2,057	225.4%	5.7%
TN	2,854	1,935	1,962	1,008	1,700	−1,154	−40.4%	3.3%
LA	1,898	2,941	16,979	1,721	1,417	−481	−25.4%	2.7%
KY	10,574	22,518	27,938	88	1,382	−9,192	−86.9%	2.7%
WV	320	16,773	1,009	1,249	1,173	854	267.1%	2.3%
DE	1,327	1,047	1,277	2,150	1,086	−241	−18.2%	2.1%
Total	**32,562**	**114,574**	**78,026**	**22,364**	**42,048**	**9,485**	**29.1%**	**81.3%**

Exhibits 4.154 through 4.157 show the trends for the quantities of mercury for the five top states in which facilities reported this PC in 2004.

Exhibit 4.154. California Trends for Mercury and Mercury Compounds, 2000–2004

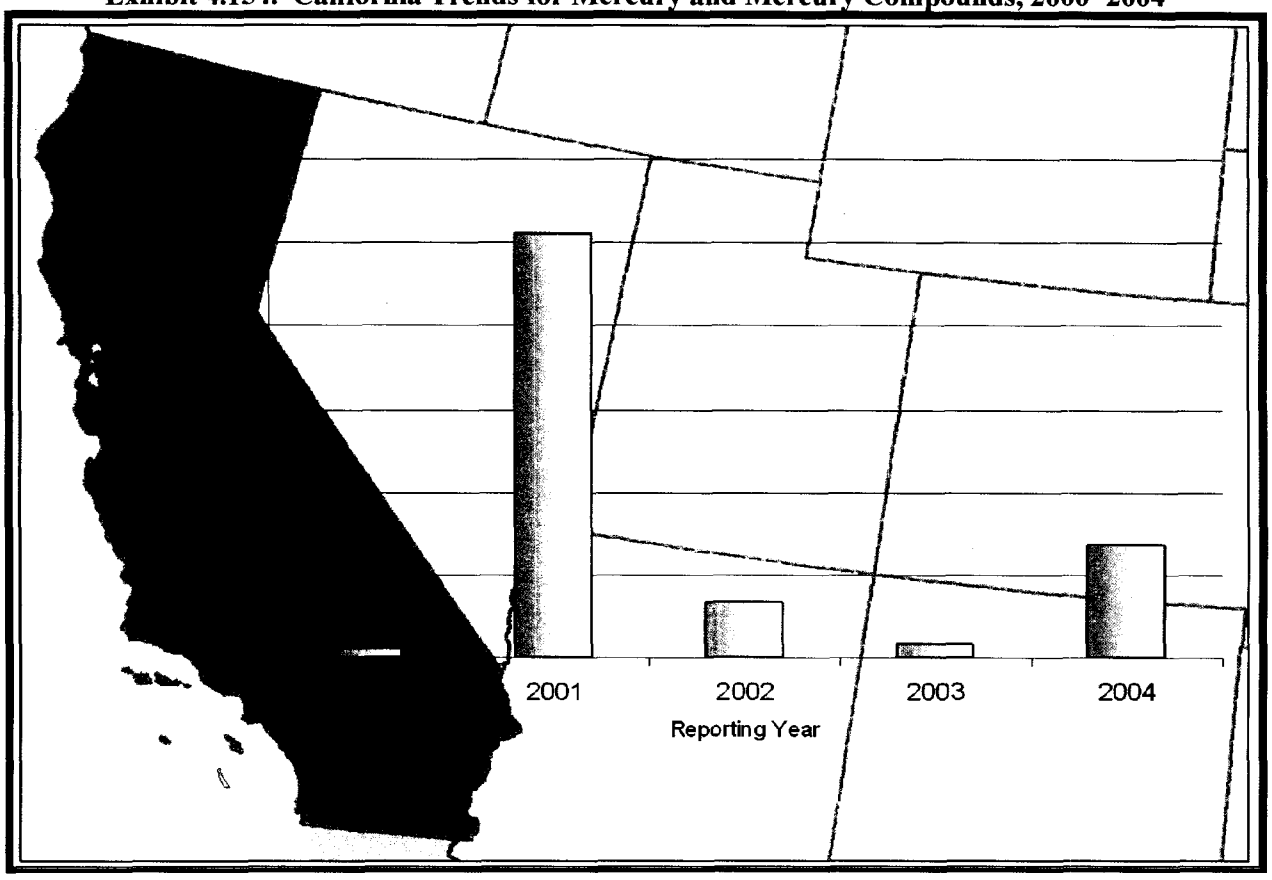


Exhibit 4.155. Ohio Trends for Mercury and Mercury Compounds, 2000–2004

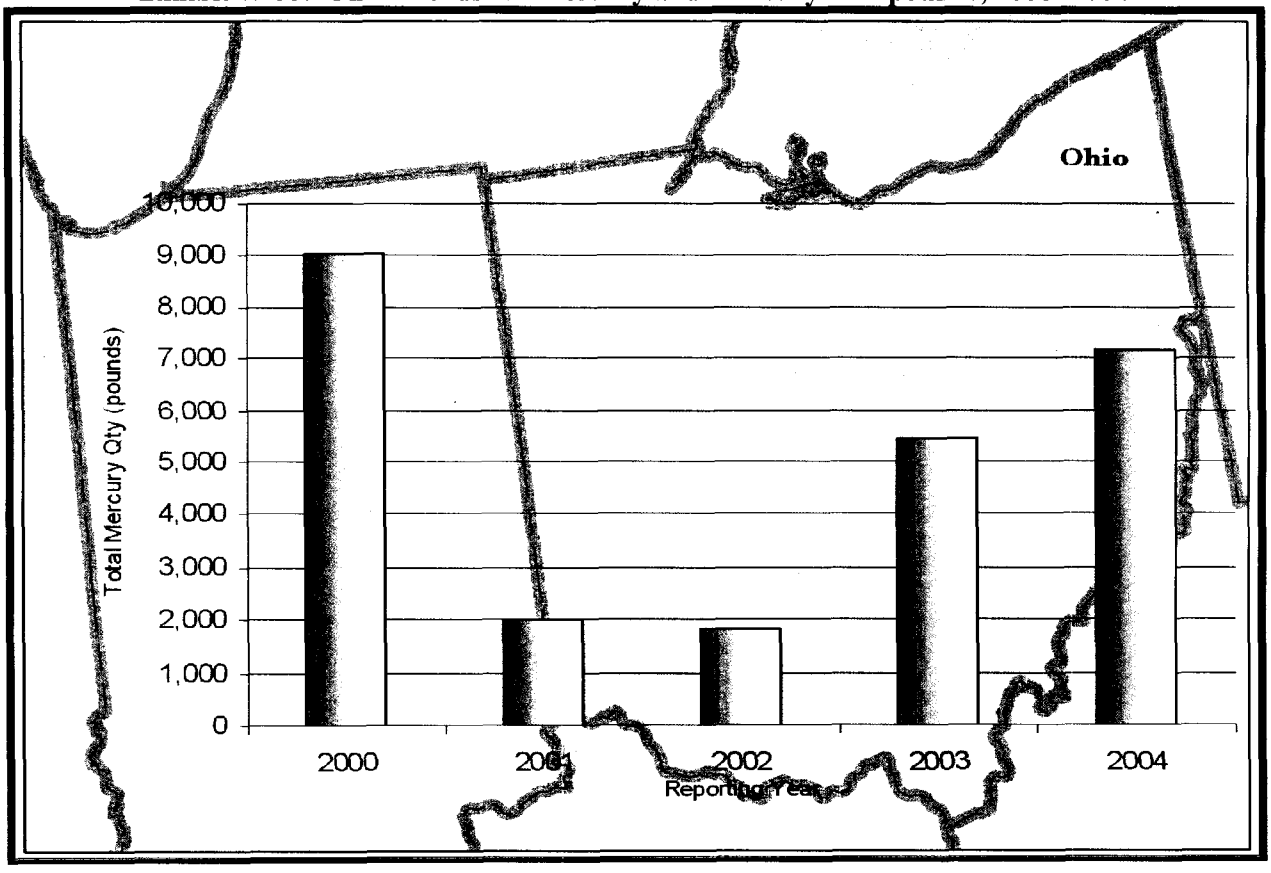


Exhibit 4.156. Texas Trends for Mercury and Mercury Compounds, 2000–2004

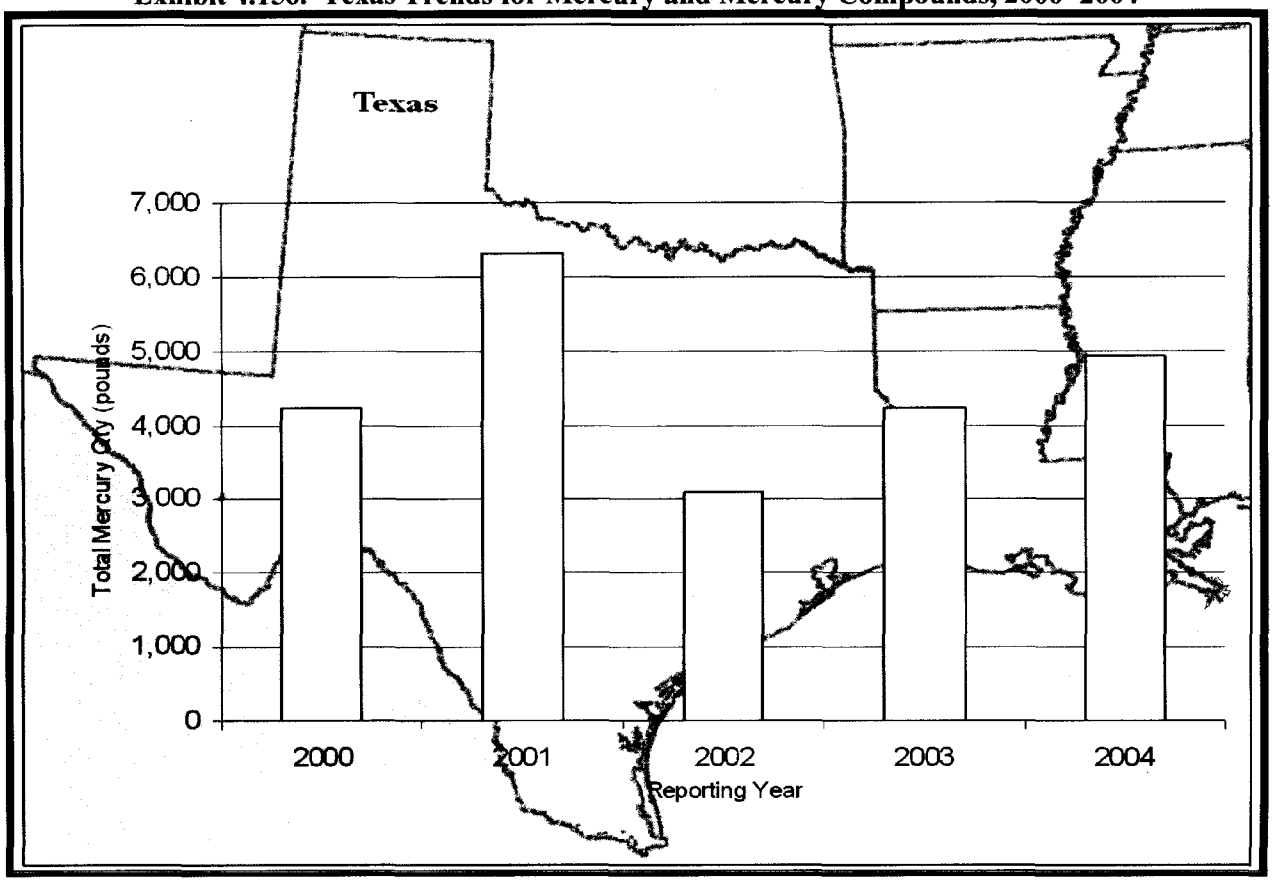


Exhibit 4.157. South Carolina and Florida Trends for Mercury and Mercury Compounds, 2000–2004

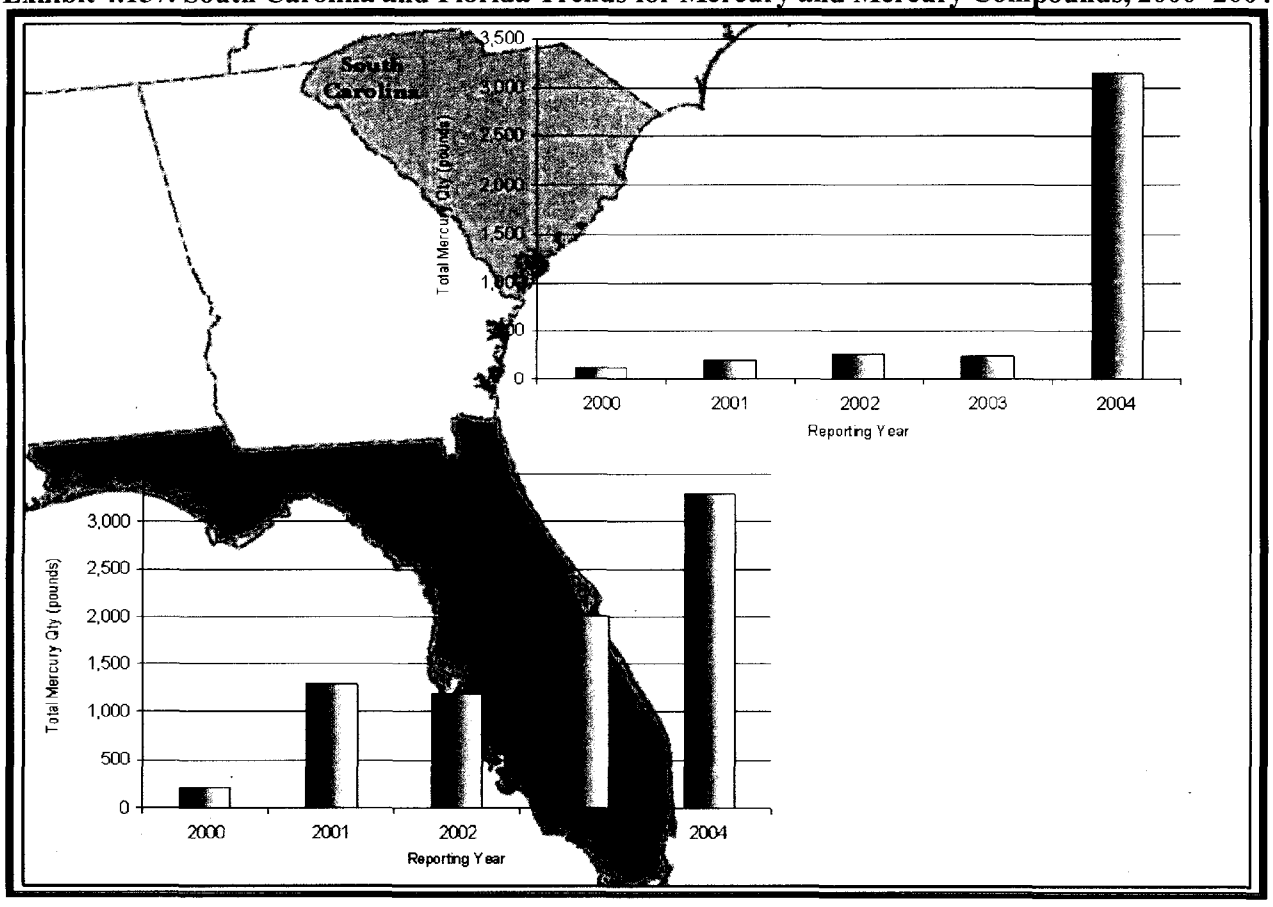


Exhibit 4.158 shows how facilities managed mercury in these 11 states. All of the mercury from facilities in these states was land disposed, mostly (85 percent) offsite. For numerous facilities in these states, the recycling quantities were considerably greater than the quantities that were land disposed. A facility in West Virginia reported approximately 50 percent of the mercury recycled in 2004.

Exhibit 4.158. Management Methods for Mercury and Mercury Compounds, Facilities in States with at Least 1 Million Pounds, 2004

State	Quantity of Mercury (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
CA	13,784	25	13,758	0	0	0	0	0	77
OH	7,145	122	7,024	0	0	0	0	39	5,764
TX	4,950	1,186	3,764	0	0	0	0	0	12,959
FL	3,297	3,273	24	0	0	0	0	0	2,674
SC	3,145	53	3,092	0	0	0	0	0	1,988
AL	2,970	202	2,768	0	0	0	0	21,740	526
TN	1,700	1,433	267	0	0	0	0	25,159	201
LA	1,417	100	1,317	0	0	0	0	28,929	705
KY	1,382	67	1,315	0	0	0	0	0	1,458
WV	1,173	10	1,163	0	0	0	0	105,510	0
DE	1,086	38	1,048	0	0	0	0	1,600	16
Total	**42,048**	**6,508**	**35,540**	**0**	**0**	**0**	**0**	**182,977**	**26,370**

Industry Sector (SIC) Trends:

Facilities in approximately 100 industry sectors reported mercury in 2004. Exhibit 4.159 shows the quantity of mercury reported in the seven industry sectors where facilities accounted for approximately 80 percent of mercury in 2004. Facilities in two of these industry sectors accounted for approximately 52 percent of the total quantity: SIC 9711 (National security) and SIC 3312 (Blast furnaces and steel mills).

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000 and in 2003, facilities in SIC 9711 reported the largest increase, approximately 16,000 pounds. Two federal facilities, one in California and the other in South Carolina, accounted for most of this increase.
- Compared to quantities reported in 2000, facilities in four of the seven industry sectors reported significant decreases. For example, facilities in SIC 3312 (Blast furnaces and steel mills) reported a 50 percent decrease and facilities in SIC 2869 (Industrial organic chemicals, nec) reported an 88 percent decrease. One source of mercury reported by facilities in SIC 3312 is "shredder fluff" that contains mercury from automobile switches and is obtained from scrap yards for use as feedstock in blast furnaces. EPA recently reached agreement with the steel and auto industries to recover these switches from vehicles before they are scrapped.
- Compared to 2003 quantities, facilities in SIC 2812 (Alkalies and chlorine) and SIC 2819 (Industrial inorganic chemicals, nec) reported decreases of approximately 30 percent.

Exhibit 4.159. Industry Sectors Containing Mercury and Mercury Compounds, Facilities Reporting 80 Percent of the Total Quantity, 2004

Primary SIC	SIC Description	Number of Facilities That Reported Mercury (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
9711	National security	6	55	47,568	5,394	656	15,744	15,689	30.5%
3312	Blast furnaces and steel mills	52	22,720	4,216	3,279	8,020	11,273	−11,447	21.8%
2812	Alkalies and chlorine	10	5,834	25,273	6,808	6,361	4,383	−1,451	8.5%
2819	Industrial inorganic chemicals, nec	15	2,034	4,657	5,078	6,036	4,382	2,347	8.5%
2911	Petroleum refining	90	6,564	4,800	2,220	2,391	2,791	−3,773	5.4%
3479	Metal coating and allied services	1	0	6,680	11,560	1,083	1,780	1,780	3.4%
2869	Industrial organic chemicals, nec	21	9,753	22,625	28,093	514	1,139	−8,613	2.2%
	Total	**195**	**46,959**	**115,820**	**62,433**	**25,062**	**41,491**	**−5,468**	**80.3%**

Exhibit 4.160 shows how facilities managed mercury in these seven industry sectors in 2004. These facilities land disposed all of the mercury; approximately 88 percent was disposed of offsite. Facilities in SIC 2819 (Industrial organic chemicals, nec) and SIC 2812 (alkalies and chlorine) reported most of the recycled quantity of mercury in 2004.

Exhibit 4.160. Management Methods for Mercury and Mercury Compounds in Industry Sectors (Facilities Reporting at Least 1 Million Pounds), 2004

Primary SIC	SIC Description	Total Quantity of Mercury (2004)	Percent of Total Quantity (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
9711	National security	15,744	30.5%	13	15,730	0	0	0	0	0	576
3312	Blast furnaces and steel mills	11,273	21.8%	78	11,195	0	0	0	0	75	1,537
2812	Alkalies and chlorine	4,383	8.5%	287	4,096	0	0	0	0	187,820	23,216
2819	Industrial inorganic chemicals, nec	4,382	8.5%	4,021	361	0	0	0	0	347,940	35,496
2911	Petroleum refining	2,791	5.4%	728	2,063	0	0	0	0	72	963
3479	Metal coating and allied services	1,780	3.4%	0	1,780	0	0	0	0	0	0
2869	Industrial organic chemicals, nec	1,139	2.2%	51	1,088	0	0	0	0	0	700
	Total	**41,491**	**100%**	**5,178**	**36,313**	**0**	**0**	**0**	**0**	**535,907**	**62,488**

OSW Activities to Measurably Reduce Mercury

The Office of Solid Waste (OSW) has several ongoing projects to reduce mercury. Since December 31, 2005, two of these projects have resulted in a reduction of more than 40,000 pounds of Mercury in the two projects for which we track reductions of mercury:

- The Mercury Challenge
- The Mercury In Schools Project

Mercury Challenge:
Mercury is widely present in industrial facilities. To help reduce this presence, EPA is working through the National Partnership of Environmental Priorities (NPEP) to launch the Mercury Challenge. The Mercury Challenge encourages NPEP partners to replace mercury–containing equipment with mercury–free alternatives. By eliminating mercury from their facilities, partners can reduce potential worker exposure and minimize the risk and cost of mercury spills and their subsequent cleanups as well as save facilities the cost of disposing mercury–bearing wastes.

As of August 2006, 27 facilities within the NPEP program have committed to reduce 38,393 pounds of mercury by 2010. Currently, 7,391 pounds of mercury have been successfully eliminated. We are continuing to encourage other facility partners to identify ways to reduce mercury in their wastes.

Mercury in Schools:
In April 2004, EPA launched the Mercury in Schools Chemical Cleanout Campaign (SC3). This program is designed to remove mercury, as well as other excess hazardous chemicals, from secondary schools; promote safe management of chemicals; and raise national awareness of the problem. Mercury is a focus of this campaign, given the number of contamination problems encountered in the past several years.

EPA Headquarters provided seed money to the 10 EPA regions to clean out approximately 75 schools. EPA has initiated discussion among federal agencies for developing a coordinated effort to remove stockpiles of chemicals from K–12 schools and improve future chemical management practices. Once a federal lead is established, we will solidify relationships with external partners from industry, academia, and school associations, among others.

As of December 2005, schools have reported eliminating 2,930 pounds of mercury. One of the school systems participating in the SC3 mercury initiative is the Rochester City School District. The District has three programs in place that address the issue of safer schools through better chemical management. Those programs include: the training of all science teachers in hazard communication and safe chemical storage of mercury); a program in which teachers identify excess mercury that the Environmental Safety Director is responsible for safely disposing of; the improving of the lab chemical procurement practices so that only the quantities necessary are ordered including the use of lab kits); and a restriction against accepting donated chemicals.

Other OSW Efforts to Reduce Mercury:

Mercury Public Service Announcement (PSA):
OSW staff is working with the Minnesota Pollution Control Agency to develop a PSA using Clancy, the only U.S. dog trained to sniff mercury. The PSA will use Clancy as a spokes–dog to identify sources of elemental mercury in order to educate people about the dangers of mercury, and to highlight the need for proper handling and disposal of mercury. The PSA is being developed in response to several highly publicized, expensive cleanups of mercury spills in schools.

Universal Waste Rule: Mercury–Containing Equipment:
EPA has proposed to add mercury containing devices (e.g., thermometers and switches) to the Universal Waste Rule. For widely–generated hazardous wastes, this rule facilitates entry into the waste management system, encourages recycling and keeps wastes out of the municipal waste stream. EPA is expediting this rule and plans to finalize it in Fall 2006.

Mercury Lamps:
OSW is administering a 2 million dollar lamp recycling outreach program to promote the recycling of mercury–containing lamps. This effort is supported through 10 cooperative agreements with state and non–profit organizations that use these funds to create lamp recycling outreach programs targeting commercial and industrial users of mercury–containing lamps.

The goal of this program is to take a proactive role in increasing the national recycling rate (which is approximately 24%). To support this effort, OSW coordinated a Recyclers' Partnership Meeting (February 22, 2006) and plans to:

- Coordinate a Recyclers' Partnership Meeting (February 22, 2006)
- Revamp OSW's Mercury Lamp Recycling Web site;
- Finalize a Mercury Lamp Recycling Fact Sheet;
- Conduct direct outreach to specific target audiences (i.e., large chain stores, commercial property managers, and others); and
- Serve as a clearinghouse for outreach ideas and information.

Gray Bag Use in Dental Offices for Mercury:
OSW and the American Dental Association (ADA) are currently working together to promote proper management of dental amalgam wastes from dental offices. Dental amalgam is composed of 50 percent mercury. The ADA and EPA are seeking to increase recycling of the waste dental amalgam generated in more than 100,000 U.S. dental offices.

NPEP Partnerships to Reduce Mercury in Products:
Many current uses of mercury in products have cost effective, mercury–free alternatives. EPA invites companies that commit to reducing and/or phasing out mercury in their products to become partners in EPA's National Partnership for Environmental Priorities. As a component of these partnerships, EPA also promotes mercury–containing product take–back and recycling programs.

International and Artisanal Gold Mining:
OSW has provided technical assistance to the Global Environmental Fund (GEF) project on the management of mercury in artisanal gold mining for the last four years. The GEF/United Nations Industrial Development Organization (UNIDO) program involves the environmental monitoring of human health and the environment in six countries as well as the introduction of alternative mining methods to reduce or eliminate the use of mercury in gold mining. OSW is currently participating in an effort to provide additional financial support to this program.

International Mercury Reduction in Mining:
OSW has provided technical assistance to other Mercury Mining activities that are not GEF- related. One activity is the Amazon Basin Commission which is related to the reduction in the use of mercury in artisanal gold mining in the Amazon. Over the last two years we have provided technical support to the Commission regarding the scope of mercury use and evaluation of alternative gold recovery methods. These activities are a part of the United Nations Environmental Program (UNEP), a collaboration by various parts of the Agency to provide technical assistance to those countries not participating in GEF.

Mercury Video for Use in Schools:
The video is features Clancy, the only mercury–detecting dog in the United States, and is designed primarily to:

- Increase awareness (among school children and their parents) of mercury and its dangers;
- Educate about the need for proper handling and disposal of mercury and mercury–containing products; and
- Keep our children, families, and communities safe.

Thermostat Recycling Corporation/Product Stewardship Institute Incentive Pilot:
Last summer, OSW partially funded (by grant to the Product Stewardship Institute – PSI) a thermostat recycling incentive pilot project. This pilot project involves a coordinated effort among industry, States (Indiana and Oregon), EPA, the Thermostat Recycling Corporation (TRC), and PSI, to offer a rebate to contractors who replace and recycle old mercury–containing thermostats with new Energy Star thermostats in Indiana and Oregon. The pilot project began in January 2006 and will determine whether or not a rebate enhances the recycling rate of mercury–containing thermostats. If the pilot is a success, TRC plans to expand the effort nationwide.

Methoxychlor

Chemical Information:

Methoxychlor is an organochlorine used as a general insecticide. It is a pale– yellow powder with a slightly fruity or musty odor. However, it is available in many forms, including powders, emulsifiable concentrates, granules, and an aerosol. Methoxychlor is similar in structure to dichlorodiphenyltrichloroethane (DDT), but it is less toxic.

CAS Number – 72–43–5

Alternate Names – 2,2–bis(p–methoxyphenyl)–1,1,1–trichloroethane

General Uses – Methoxychlor is used to kill insects such as flies, mosquitoes, cockroaches, chiggers, etc. Methoxychlor also is used on agricultural crops, livestock, grain storage, home gardens, and pets. EPA has approved the use of methoxychlor as a pesticide and fumigant on more than 85 crops such as fruits, vegetables, forage crops, and shade trees. It may also be applied to large areas such as beaches, estuaries, and marshes for control of flies and mosquito larvae and may be used for spray treatment of barns, grain bins, mushroom houses, other agricultural premises, and garbage and sewage areas. (EPA 2000/2001 TRI Public Data Release Report)

Potential Hazards – Methoxychlor is highly toxic; it may be fatal if inhaled, swallowed or absorbed through the skin.

Summary Analysis:

- REGIONAL: One facility in Region 7 (Kansas) reported a quantity of methoxychlor in each year from 2000 to 2002. Aside from this facility, one other facility in Region 7 (Missouri) and a facility in Region 8 (Colorado) reported methoxychlor in 2000. In 2004, only one facility in Region 6 (Texas) reported methoxychlor.
- FACILITIES: In 2004, one facility reported 766 pounds of methoxychlor. Since 2000, no more than three facilities reported methoxychlor in a given year. In 2003, no methoxychlor was reported.
- INDUSTRY SECTOR: Since 2000, only four facilities in three industry sectors have reported methoxychlor. A facility in SIC 2819 (Industrial inorganic chemicals, nec) reported the largest quantity (766 pounds) of methoxychlor in 2004; this facility used its onsite industrial furnace to treat wastes containing methoxychlor that were generated by an offsite facility.

National Trends:

Exhibit 4.161 shows the number of facilities that reported methoxychlor in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. Since 2000, no more than three facilities reported methoxychlor in a given year. The largest quantity of methoxychlor was reported in 2004 when one facility reported 766 pounds of this chemical. This facility used its onsite industrial furnace to treat wastes containing methoxychlor that were generated by an offsite facility. Only one facility reported methoxychlor in multiple years from 2000 to 2002. This facility used methoxychlor in fly spray for horses but has not used it since 2002. No other facilities reported this chemical in more than one year. In 2003, no methoxychlor was reported. It now appears that methoxychlor will no longer be reported.

Except for one pound that was land disposed in the period 2000–2002, treatment was the primary method used to manage methoxychlor.

Exhibit 4.161. National Management Methods for Methoxychlor, 2000–2004

Management Methods for Methoxychlor and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method — Percent of Total Quantity of This PC (2004)
Number of Facilities	3	1	1	0	1	−66.7%	-
Disposal Quantity (pounds)	1	1	1	0	0	−100.0%	NA
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	NA
Total Treatment Quantity (pounds)	16	0	0	0	766	4810.3%	NA
Total PC Quantity (pounds)	17	1	1	0	766	4353.5%	-
Total Recycled (pounds)*	0	0	0	0	0	NA	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

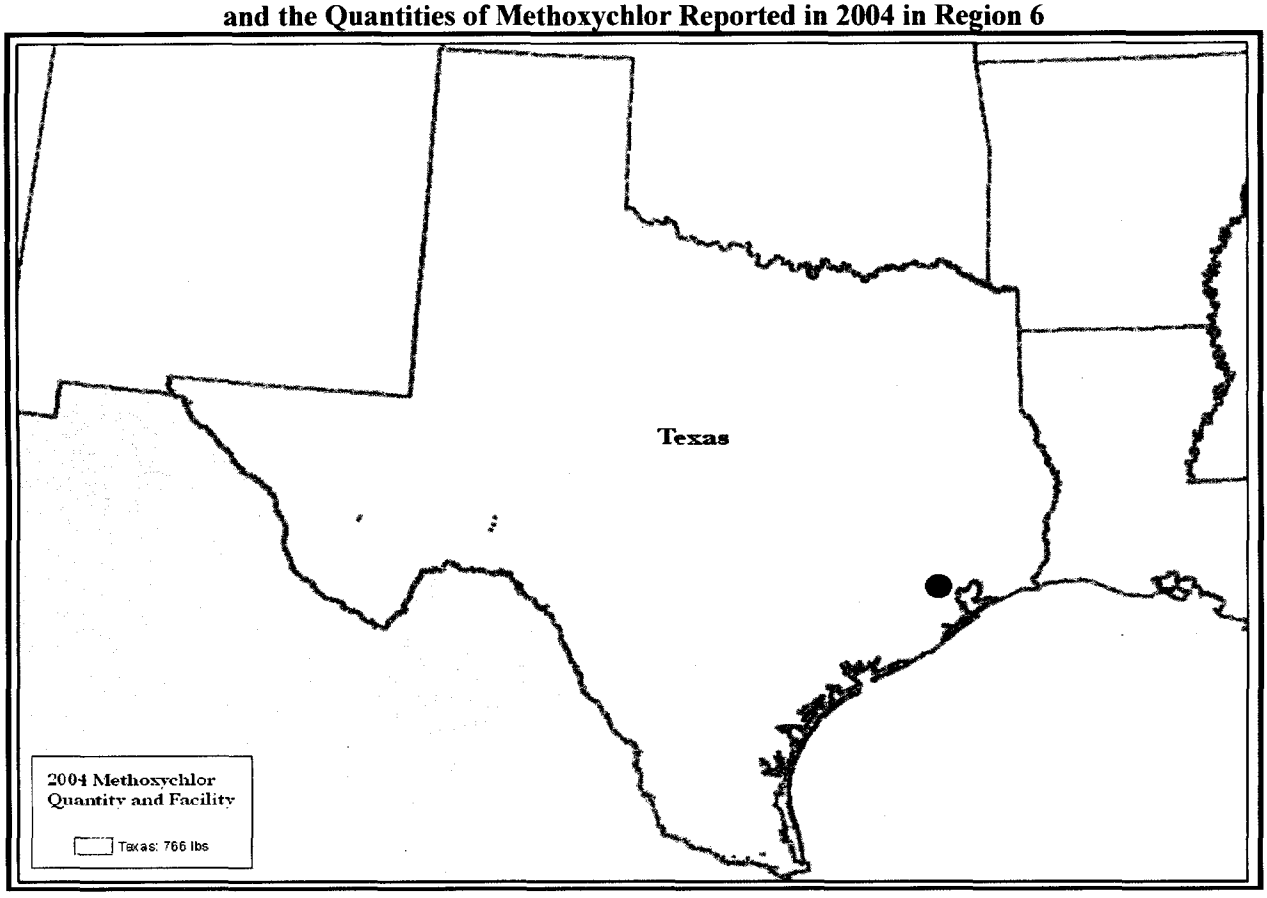
EPA Regional Trends:

Exhibits 4.162 and 4.163 show the quantity of methoxychlor reported by facilities in three EPA regions in 2000 to 2004. One facility in Region 7 reported a quantity of methoxychlor in each year from 2000–2002. Aside from this facility, one other facility in Region 7 and a facility in Region 8 reported methoxychlor in 2000. In 2004, only facility in Region 6 reported methoxychlor. This facility treated (incinerated) wastes containing methoxychlor generated by an offsite facility. No methoxychlor was reported in 2003.

Exhibit 4.162. Regional Quantity of Methoxychlor, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
6	0	0	0	0	766	NA	100.00%
7	12	1	1	0	0	−100.0%	0.00%
8	5	0	0	0	0	−100.0%	0.00%
Total	**17**	**1**	**1**	**0**	**766**	**4353.5%**	**100.00%**

Exhibit 4.163. Distribution of Facilities Reporting Methoxychlor in 2004 and the Quantities of Methoxychlor Reported in 2004 in Region 6



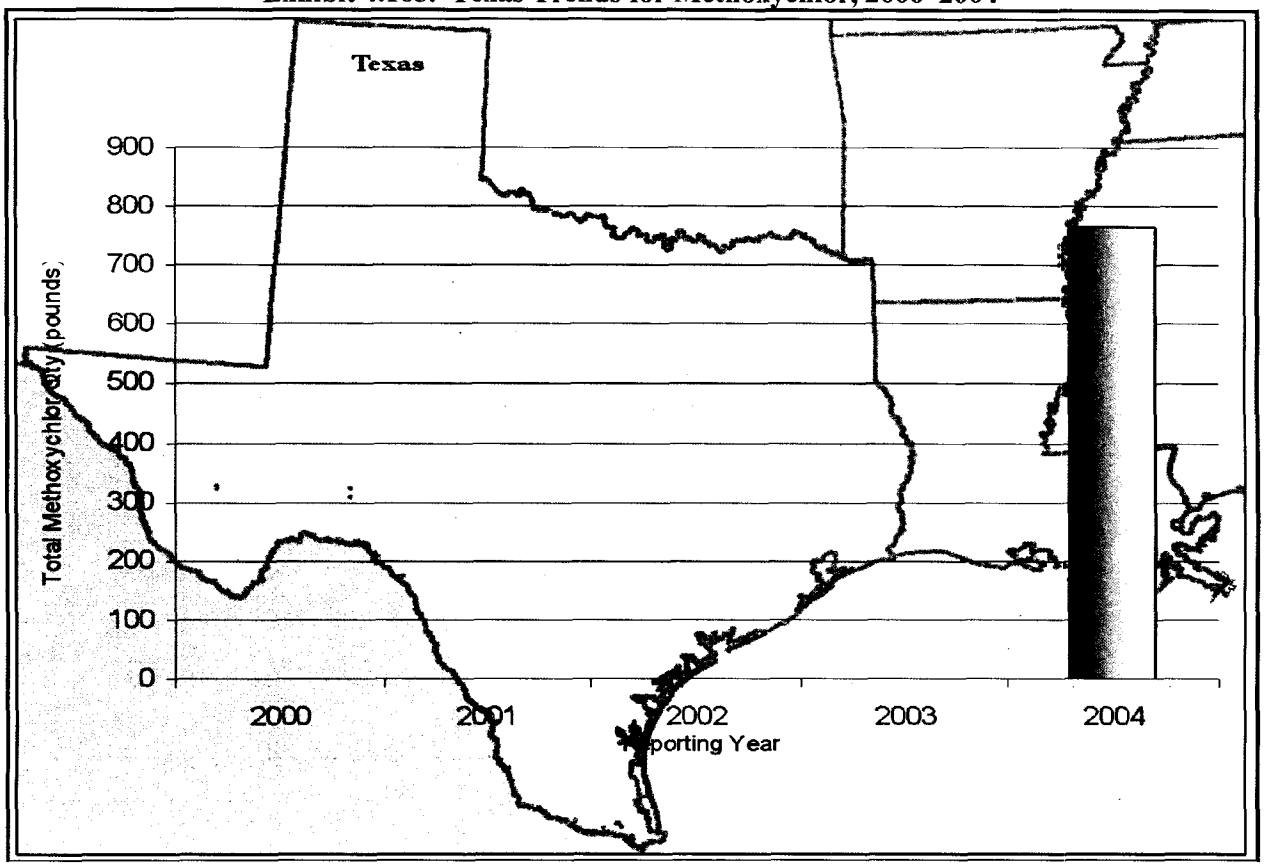
State Trends:

Since 2000, only four facilities have reported methoxychlor –one facility each in Texas, Kansas, Missouri, and Colorado (Exhibit 4.164). Only the Kansas facility reported methoxychlor in multiple years from 2000 to 2002. No facilities reported methoxychlor in 2003. Exhibit 4.165 shows the trends for the quantity of methoxychlor reported by a facility in Texas – the only facility to report this PC in 2004.

Exhibit 4.164. State Quantity Trends for Methoxychlor, Based on Largest 2004 Quantity, 2000–2004

State	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
TX	0	0	0	0	766	766	NA	100.0%
KS	3	1	1	0	0	−3	−100.0%	0.0%
MO	9	0	0	0	0	−9	−100.0%	0.0%
CO	5	0	0	0	0	−5	−100.0%	0.0%
Total	**17**	**1**	**1**	**0**	**766**	**749**	**4353.5%**	**100.0%**

Exhibit 4.165. Texas Trends for Methoxychlor, 2000–2004



Industry Sector (SIC) Trends:

Exhibit 4.166 shows the quantity of methoxychlor reported by four facilities in 2000–2004, by industry sector. Two of the four facilities were in SIC 2879 (Pesticides and agricultural chemicals, nec). One facility was in each of the other two industry sectors. A facility in SIC 2819 (Industrial inorganic chemicals, nec) reported 766 pounds of methoxychlor in 2004; this facility used its onsite industrial furnace to treat wastes containing methoxychlor that were generated by an offsite facility. This might have been a one time occurrence. Only one facility, in SIC 2879 (Pesticides and agricultural chemicals, nec), reported methoxychlor in multiple years (2000 to 2002). This facility used methoxychlor in fly spray for horses but has not used it since 2002.

Exhibit 4.166. Industry Sectors Containing Methoxychlor, 2000–2004

Primary SIC	SIC Code Description	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
2819	Industrial inorganic chemicals, nec	0	0	0	0	766
2879	Pesticides and agricultural chemicals, nec	8	1	1	0	0
2899	Chemical preparations, nec	9	0	0	0	0

Naphthalene

Chemical Information:

CAS Number – 91–20–3

Alternate Names – naphthalin, tar camphor, white tar

General Uses – Naphthalene is used to make products like mothballs that repel and keep moths away. It is also used to make dyes, leather goods, and insecticide.

Potential Hazards – Naphthalene is flammable/combustible. In addition, exposure to large doses of naphthalene can damage or destroy red blood cells. The International Agency for Research on Cancer (IARC) has evaluated naphthalene and classified it as "possibly carcinogenic to humans (Group 2B)" (IARC Monographs Vol. 82, 2002). In addition, the National Toxicology Program (NTP) has recently evaluated naphthalene and classified it as "reasonably anticipated to be a human carcinogen" (Eleventh Report on Carcinogens; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, 2004).

Summary Analysis:

- NATIONAL: In 2004, 638 facilities reported approximately 13.1 million pounds of naphthalene. Compared to the quantity reported in 2000, there was a decrease of approximately 1.3 million pounds, or approximately 9 percent, in 2004. However, compared to the amount reported in 2003, the quantity increased significantly, by approximately 2.8 million pounds.
- REGIONAL/STATES: In 2004, approximately 89 percent of the naphthalene was reported by facilities in Regions 3, 4, 5, and 6. Facilities in 10 states accounted for 85 percent of the total quantity of naphthalene in 2004; facilities in Texas, Louisiana, and West Virginia reported 52 percent of the total quantity.
- FACILITIES: Almost 200 more facilities reported naphthalene in 2004. Many of these facilities began reporting naphthalene in 2004 due to the lowering of the TRI de minimis level for naphthalene starting with the 2004 TRI reporting year. Of the 638 facilities that reported naphthalene in 2004, 38 facilities accounted for approximately 71 percent of the total quantity of this chemical.
- MANAGEMENT: Since 2000, facilities used treatment and energy recovery to manage most of the naphthalene. In 2004, these two methods were used to manage approximately 95 percent of the naphthalene. Land disposal has consistently been used for 4 to 5 percent of the total quantity.
- INDUSTRY SECTORS: Facilities in seven industry sectors accounted for 80 percent of the naphthalene in 2004. Facilities in three of these industry sectors: SIC 2911 (Petroleum Refining), SIC 2869 (Industrial organic chemicals, nec), and SIC 3479 (Metal coating and allied services) reported approximately 53 percent of the total quantity of naphthalene in 2004. Large increases in 2004 were attributed to compliance with air regulations (SIC 2911) and the shutdown of facilities in SIC 2865 (Cyclic crudes and intermediates) that caused increased quantities of naphthalene due to such activities as tank and process equipment cleanouts and processing of residuals, etc.

National Trends:

Exhibit 4.167 shows the number of facilities that reported naphthalene in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, 638 facilities reported approximately 13.1 million pounds of naphthalene. Compared to the quantity reported in 2000, there was a decrease of approximately 1.3 million pounds or approximately 9 percent in 2004. However, compared to the quantity reported in 2003, the quantity increased significantly, by approximately 2.8 million pounds.

The number of facilities that reported naphthalene in 2004 increased significantly compared to prior reporting years. Almost 200 more facilities reported naphthalene in 2004. Many of these facilities began reporting naphthalene in 2004 due to the lowering of the TRI de minimis level for this chemical from 1.0 to 0.1 percent starting with the 2004 TRI reporting year. For example, approximately 50 more facilities in SIC 5171 (Petroleum bulk stations) began reporting naphthalene in 2004; off–spec fuel and/or tank cleanout wastes may be the source of the naphthalene.

Since 2000, facilities used treatment and energy recovery to manage most of the naphthalene. In 2004, these two methods were used to manage approximately 95 percent of the naphthalene. Land disposal has consistently been used for 4 to 5 percent of the total quantity. Compared to the quantity of naphthalene recycled in 2000, there was an increase of 7 million pounds or approximately 57 percent in recycling in 2004, including an increase of approximately 750,000 pounds compared to the quantity recycled in 2003.

Exhibit 4.167. National Management Methods for Naphthalene, 2000–2004

Management Methods for Naphthalene and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity This PC (2004)
Number of Facilities	417	415	422	449	638	53.0%	-
Disposal Quantity (pounds)	619,269	481,138	467,568	545,366	645,508	4.2%	4.9%
Energy Recovery Quantity (pounds)	4,949,512	5,534,195	5,012,871	4,195,410	5,496,651	11.1%	42.0%
Treatment Quantity (pounds)	8,856,797	3,979,180	5,548,040	5,553,696	6,939,616	-21.6%	53.0%
Priority Chemical Quantity (pounds)	14,425,578	9,994,513	11,028,479	10,294,471	13,081,776	-9.3%	100%
Recycling Quantity (pounds)*	12,247,468	6,330,744	25,698,374	18,495,108	19,249,442	57.2%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.168 shows the number of facilities that reported naphthalene within various quantity ranges. Of the 638 facilities that reported naphthalene in 2004, 38 facilities accounted for approximately 71 percent of the total quantity of this chemical. Approximately 21 percent or 135 of the facilities reported 95 percent of the total quantity of naphthalene in 2004.

Exhibit 4.168. Distribution of Quantities by Facilities Reporting Naphthalene, 2004

Naphthalene (13,081,776 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	102	less than 0.1%
11 – 100 pounds	90	less than 0.1%
101 – 1,000 pounds	155	0.5%
1,001 – 10,000 pounds	156	4.6%
10,001 – 100,000 pounds	97	23.8%
100,001 – 1 million pounds	37	58.4%
> 1 million pounds	1	12.8%

EPA Regional Trends:

Exhibits 4.169 and 4.170 show the quantity of naphthalene reported by facilities in each EPA Region in 2000 to 2004. In 2004, approximately 89 percent of the naphthalene was reported by facilities in Regions 3, 4, 5, and 6.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in six of the ten EPA regions reported larger quantities of naphthalene in 2004. The largest increase of approximately 1 million pounds was reported by Region 3 facilities; one facility, located in West Virginia, accounted for approximately 483,000 pounds of this increase.
- Compared to quantities reported in 2000, facilities in Region 6 reported a decrease of approximately 3.2 million pounds in 2004.
- Compared to 2003 quantities, facilities in seven of the 10 EPA regions reported an increased quantity of naphthalene, including increases of 1.6 million pounds in Region 6; 722,000 pounds in Region 4; and 391,000 pounds in Region 3.
- Compared to 2003 quantities, facilities in Region 5 reported a decrease of approximately 376,000 pounds in 2004.

Exhibit 4.169. Regional Quantity of Naphthalene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	98,486	84,422	65,479	50,171	66,146	−32.8%	0.5%
2	378,957	344,184	467,921	442,270	617,285	62.9%	4.7%
3	727,688	2,224,159	1,184,495	1,328,025	1,719,079	136.2%	13.1%
4	1,322,322	1,173,147	1,125,888	1,023,018	1,744,989	32.0%	13.3%
5	2,366,556	1,817,819	3,230,936	2,743,833	2,367,760	0.1%	18.1%
6	9,023,112	3,990,653	4,508,993	4,216,149	5,851,732	−35.1%	44.7%
7	176,702	141,198	155,030	158,280	207,469	17.4%	1.6%
8	81,252	15,841	6,249	8,187	22,991	−71.7%	0.2%
9	207,186	146,215	201,672	231,506	206,754	−0.2%	1.6%
10	43,317	56,875	81,817	93,034	277,570	540.8%	2.1%
Total	**14,425,578**	**9,994,513**	**11,028,479**	**10,294,471**	**13,081,776**	**−9.3%**	**100.0%**

Exhibit 4.170. Distribution of Facilities Reporting Naphthalene in 2004 and the Quantities of Naphthalene Reported in 2004, by EPA Region

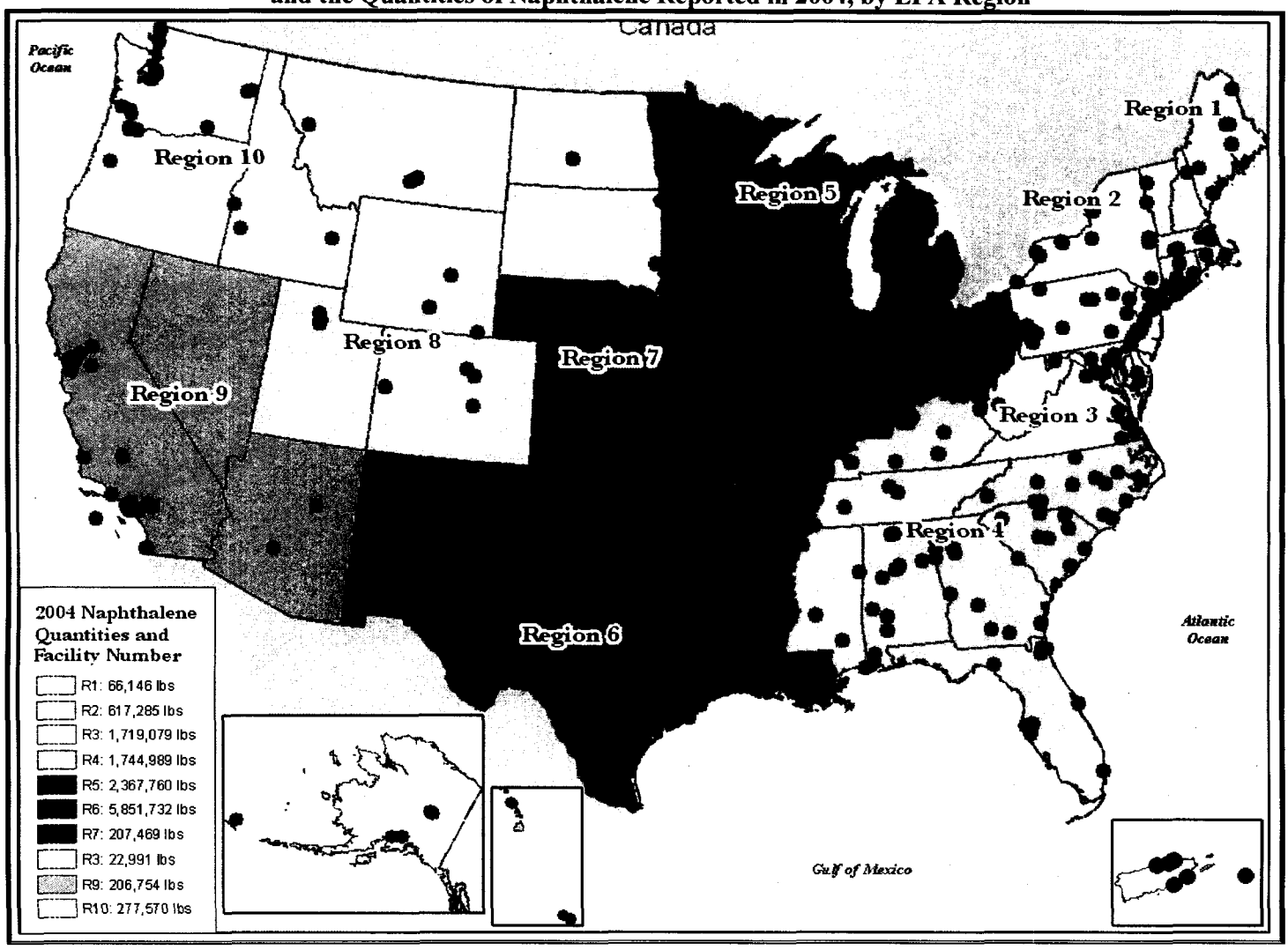


Exhibit 4.171 shows how facilities managed naphthalene, by EPA region, in 2004. Approximately 7 million pounds, or approximately 53 percent, of the naphthalene was treated, primarily onsite. Energy recovery (both onsite and offsite) was used for approximately 5.5 million pounds, or 42 percent, of the total quantity of naphthalene. Region 6 facilities reported 80 percent of the recycling of naphthalene in 2004.

Exhibit 4.171. Regional Management Methods for Naphthalene, 2004

EPA Region	Quantity (pounds) of Naphthalene (2004)	Percent of Naphthalene (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	66,146	0.5%	2	954	45,877	6,800	9,551	2,961	0	4,023
2	617,285	4.7%	35	9,659	60,739	211,289	219,771	115,793	64,101	2,134
3	1,719,079	13.1%	9	60,182	902,086	125,514	581,470	49,818	1,075,276	69,652
4	1,744,989	13.3%	272	53,945	282,479	674,639	721,951	11,705	852,094	94,384
5	2,367,760	18.1%	2,337	276,385	435,417	535,508	1,082,215	35,898	1,522,400	43,783
6	5,851,732	44.7%	150,299	68,137	882,499	870,604	3,376,601	503,591	7,145,938	8,172,816
7	207,469	1.6%	1,182	16,707	60,173	8,696	97,447	23,264	8,832	2,519
8	22,991	0.2%	31	126	21	9,441	11,686	1,686	20,532	107
9	206,754	1.6%	72	4,780	142,399	8,577	40,410	10,517	14,253	2,732
10	277,570	2.1%	295	98	232,565	1,330	37,816	5,465	143,369	10,497
Total	**13,081,776**	**100.0%**	**154,534**	**490,974**	**3,044,255**	**2,452,397**	**6,178,918**	**760,699**	**10,846,795**	**8,402,647**

State Trends:

Exhibit 4.172 shows the quantity of naphthalene that was reported between 2000 and 2004 in the 10 states where facilities accounted for 85 percent of the total quantity of naphthalene in 2004. Facilities in Texas, Louisiana, and West Virginia reported 52 percent of the total quantity.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in six of these 10 states reported a larger quantity of naphthalene in 2004, including increases of 843,000 pounds in West Virginia, 649,000 pounds in Alabama, and 413,000 pounds in Louisiana. One facility in West Virginia accounted for 53 percent of the total increase reported by West Virginia facilities. This facility incinerated larger quantities of naphthalene in 2004 due to difficulties encountered in trying to separate the naphthalene for recovery.
- Compared to quantities reported in 2000, facilities in Texas reported a decrease of approximately 3.5 million pounds in 2004. Indiana facilities reported a decrease of approximately 253,000 pounds or 21 percent.
- Compared to quantities reported in 2003, facilities in nine of these 10 states reported an increased quantity in 2004, including increases of 1.2 million pounds in Texas, 680,000 pounds in Alabama, 400,000 pounds in Louisiana, and 269,000 pounds in Michigan. The pending shutdown of two facilities -- one in Alabama and one in Michigan, accounted for most of the increased quantity in these states; the increased naphthalene is due to such activities as cleanout of tanks, processing of residuals, cleanups, etc. Compared to quantities reported in 2003, Indiana facilities reported a decrease of 864,000 pounds in 2004. One facility accounted for most of this decrease; in 2004 this facility used considerably less paint (containing naphthalene) to paint steel coils.

Exhibit 4.172. State Quantity Trends for Naphthalene (Facilities Reporting 85 Percent of the Total Quantity), 2004

State	Total Quantity (pounds) of Naphthalene					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
TX	8,240,904	3,282,625	3,602,391	3,454,587	4,691,688	−3,549,216	−43.1%	35.9%
LA	695,668	629,883	798,615	708,621	1,109,004	413,336	59.4%	8.5%
WV	184,046	1,529,958	463,919	683,120	1,027,079	843,033	458.1%	7.9%
IN	1,220,382	843,409	1,521,948	1,831,284	967,201	−253,182	−20.7%	7.4%
AL	162,031	149,150	150,950	130,511	810,775	648,744	400.4%	6.2%
PA	482,895	514,200	513,066	505,740	645,350	162,455	33.6%	4.9%
NJ	372,436	334,688	458,297	432,447	549,524	177,088	47.5%	4.2%
IL	537,601	528,898	502,868	474,777	530,708	−6,893	−1.3%	4.1%
OH	479,469	320,800	1,003,435	185,250	465,946	−13,523	−2.8%	3.6%
MI	98,716	104,159	187,468	241,542	367,474	268,758	272.3%	2.8%
Total	**12,474,148**	**8,237,770**	**9,202,957**	**8,647,879**	**11,164,748**	**−1,309,400**	**−10.5%**	**85.3%**

Exhibits 4.173 and 4.174 show the trends for the quantities of naphthalene for the five top states with facilities that reported this PC in 2004.

Exhibit 4.173. Texas, Louisiana, and Alabama Trends for Naphthalene, 2000–2004

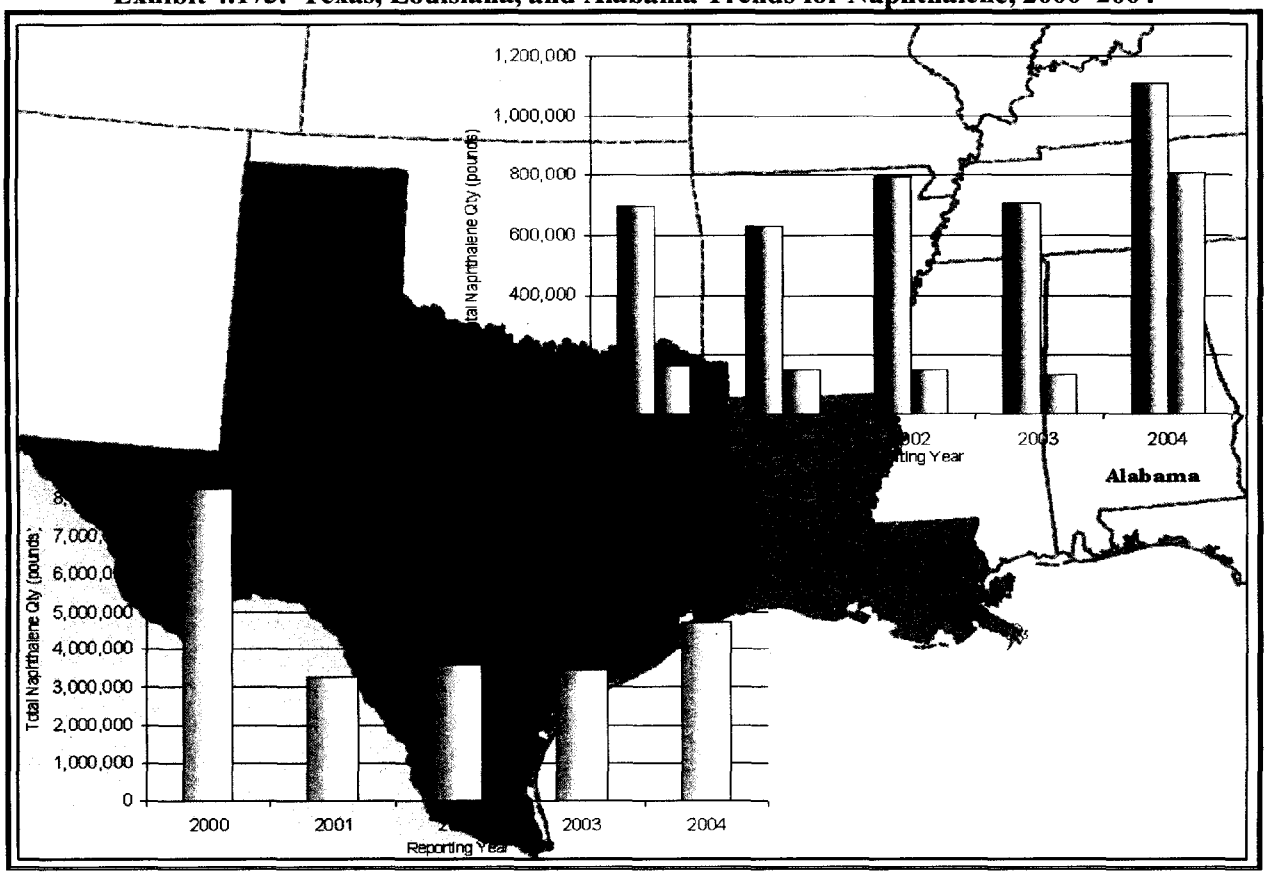
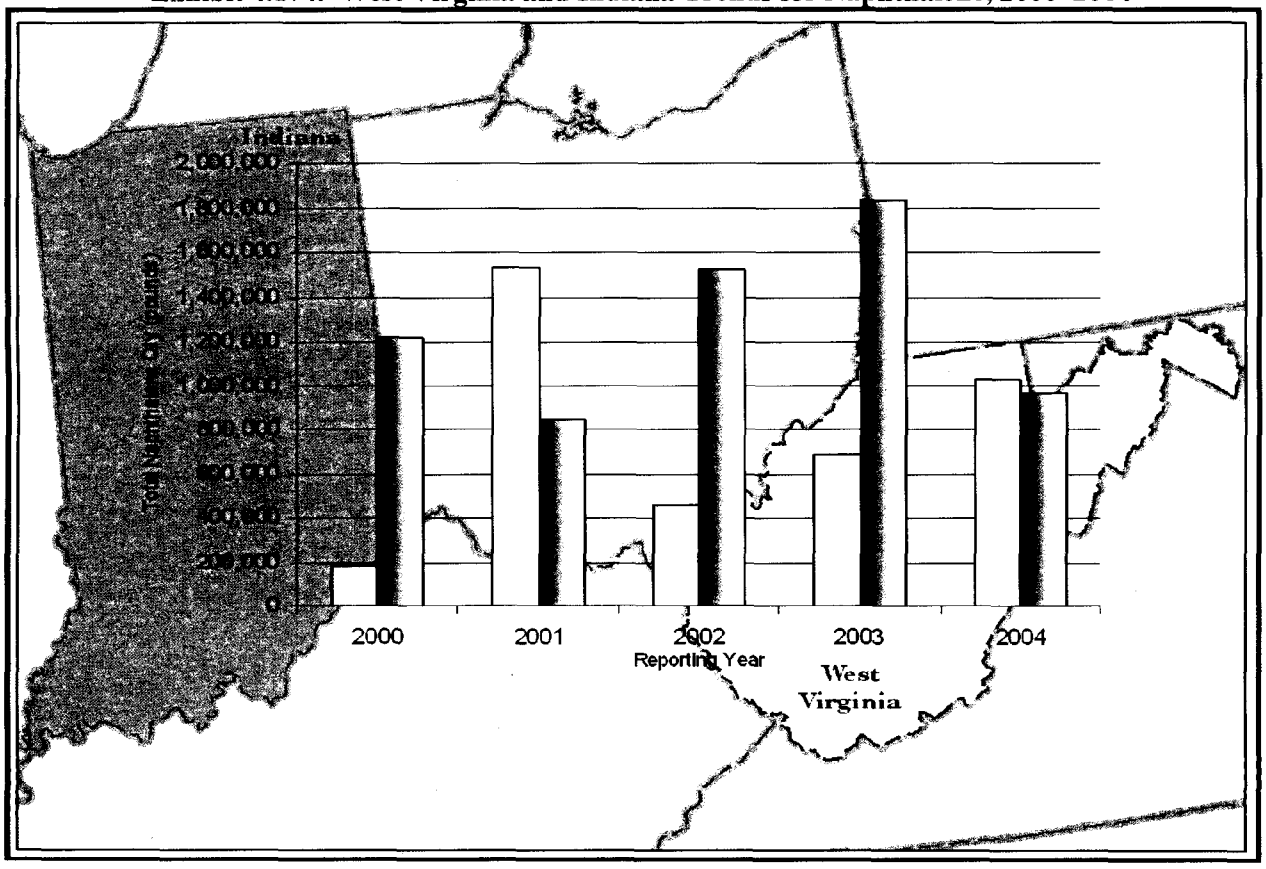


Exhibit 4.174. West Virginia and Indiana Trends for Naphthalene, 2000–2004



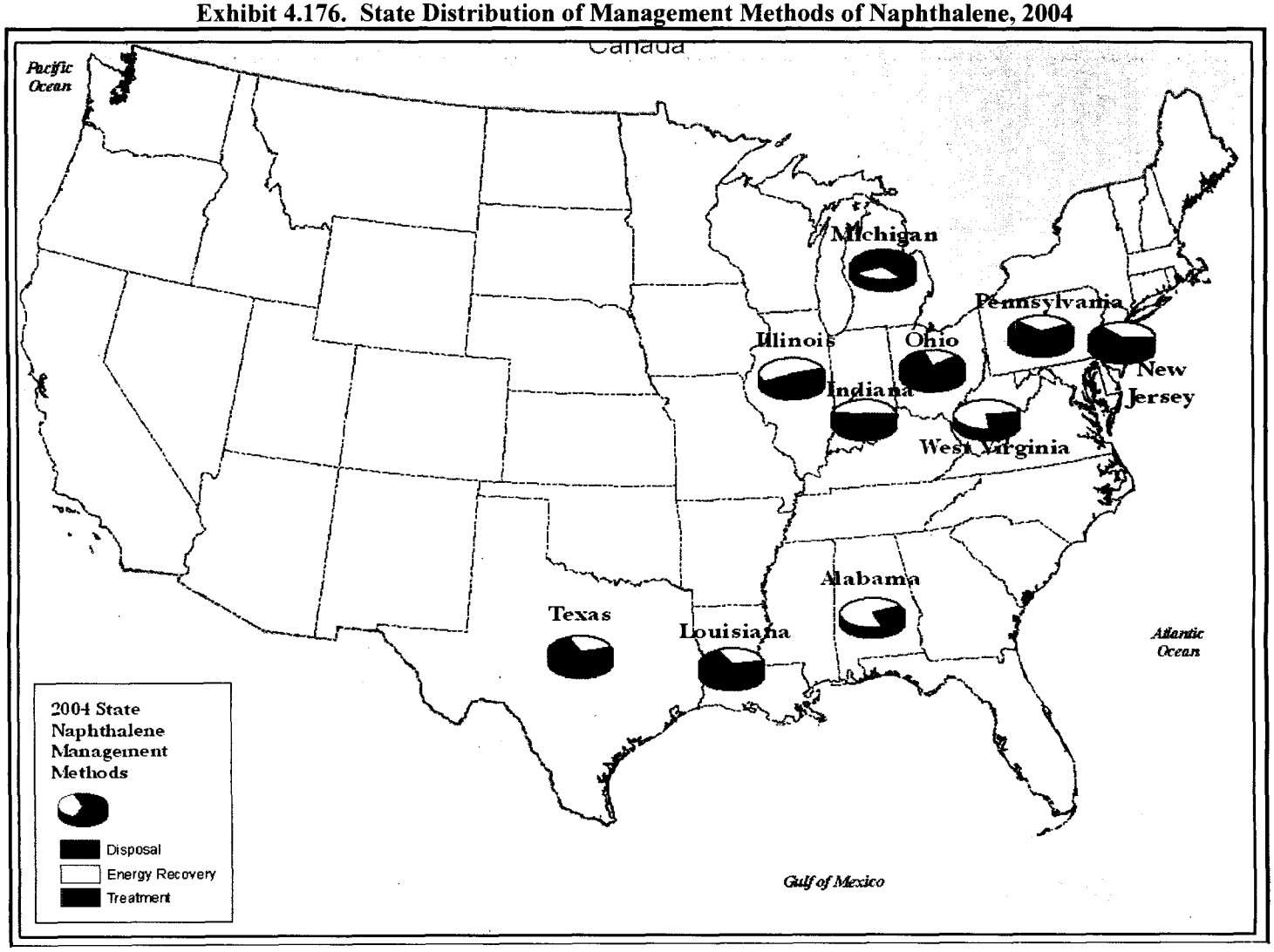
Exhibits 4.175 and 4.176 show how facilities managed naphthalene in the 10 states from which facilities reported 85 percent of this PC in 2004. Facilities in most of these states used either treatment or energy

recovery to manage naphthalene. Michigan facilities primarily used land disposal. In 2004, approximately 97 percent of recycled naphthalene was reported by facilities in Texas, Louisiana, Illinois, and Pennsylvania.

Exhibit 4.175. Management Methods for Naphthalene, Facilities in States With 85 Percent of the Total Quantity, 2004

State	Total Quantity (pounds) of Naphthalene (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
TX	4,691,688	139,232	35,905	516,321	857,952	2,669,911	472,366	4,036,668	8,162,003
LA	1,109,004	1,794	25,382	354,075	7,622	689,203	30,928	2,796,230	10,811
WV	1,027,079	0	21,141	765,647	2,700	233,833	3,758	320,002	5,304
IN	967,201	21	247	190,881	276,622	497,684	1,745	110,896	3,391
AL	810,775	0	49,312	30,099	583,802	145,961	1,601	58,966	86,551
PA	645,350	9	36,186	113,130	118,504	335,320	42,199	739,422	64,336
NJ	549,524	22	5,732	0	209,327	218,920	115,523	1,162	1,148
IL	530,708	759	18,703	113,487	166,260	212,275	19,225	1,323,520	2,606
OH	465,946	1,268	41,949	37,894	61,549	308,970	14,315	10,549	16,081
MI	367,474	200	204,308	93,155	24,602	44,915	294	65,760	21,110
Total	**11,164,748**	**143,305**	**438,866**	**2,214,689**	**2,308,940**	**5,356,993**	**701,955**	**9,463,175**	**8,373,342**

Exhibit 4.176. State Distribution of Management Methods of Naphthalene, 2004



Industry Sector (SIC) Trends:

Exhibit 4.177 shows the quantity of naphthalene reported in the seven industry sectors where facilities accounted for 80 percent of this chemical in 2004. Facilities in three of these industry sectors: SIC 2911 (Petroleum Refining), SIC 2869 (Industrial organic chemicals, nec), and SIC 3479 (Metal coating and allied services) reported approximately 53 percent of the total quantity of naphthalene in 2004.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in four of these seven industry sectors reported a significantly larger quantity of naphthalene in 2004. Increases of nearly 1 million pounds were reported by facilities in SIC 2869 (Industrial organic chemicals, nec) and SIC 2865 (Cyclic crudes and intermediates).
- Compared to quantities reported in 2000, facilities in three of these seven industry sectors reported a decreased quantity of naphthalene in 2004; the largest decrease of 2.7 million pounds was reported by facilities in SIC 2911 (Petroleum Refining).
- Compared to quantities reported in 2003, facilities in five of these seven industry sectors reported an increase; most notably, facilities in SIC 2911 (Petroleum Refining) reported an increase of approximately 1.3 million pounds in 2004. The facility that accounted for most of this increase attributed this increase to compliance with air regulations.
- Facilities in three other industry sectors: SIC 2865 (Cyclic crudes and intermediates), SIC 2879 (Pesticides and agricultural chemicals, nec), and SIC 2869 (Industrial organic chemicals, nec) also reported large increases, ranging from 433,000 pounds to 745,000 pounds, in 2004. One facility in SIC 2879 accounted for much of the total increase reported by facilities in this industry sector; this facility incinerated larger quantities of naphthalene in 2004 due to difficulties encountered in trying to separate the naphthalene for recovery. The ongoing shutdown of a couple of facilities in SIC 2865 accounted for most of the increase for this sector; increased quantities of naphthalene were due to such activities as the clean–out of tanks and process equipment, processing of residuals, etc. A facility in SIC 2869 reported a large increase in 2004 due to the purchase of fuel oil (as an alternative to natural gas) from a waste broker that contained significant quantity of naphthalene.
- Compared to quantities reported in 2003, facilities in SIC 3479 (Metal coating and allied services) reported a significant decrease of approximately 646,000 pounds. One facility accounted for most of this decrease; in 2004 this facility used considerably less paint (containing naphthalene) to paint steel coils.

Exhibit 4.177. Industry Sectors With Facilities Reporting Naphthalene (Facilities Reporting 80 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Number of Facilities That Reported Naphthalene (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2911	Petroleum refining	107	5,412,818	1,254,939	1,319,374	1,345,053	2,683,990	−2,728,828	20.5%
2869	Industrial organic chemicals, nec	44	1,362,180	1,126,888	2,003,084	1,882,383	2,315,835	953,655	17.7%
3479	Metal coating and allied services	35	1,772,408	1,582,663	2,344,524	2,580,483	1,934,195	161,787	14.8%
2865	Cyclic crudes and intermediates	11	786,566	592,369	1,549,766	1,002,559	1,747,572	961,006	13.4%
2879	Pesticides and agricultural chemicals, nec	14	92,901	1,382,053	143,629	330,346	825,149	732,248	6.3%
2821	Plastics materials and resins	29	662,107	398,380	635,225	605,237	557,612	−104,495	4.3%
4925	Gas production and/or distribution	1	628,055	270,467	197,741	324,962	346,451	−281,604	2.6%
	Total	**241**	**10,717,035**	**6,607,759**	**8,193,343**	**8,071,023**	**10,410,804**	**−306,231**	**79.6%**

Exhibit 4.178 shows how facilities managed naphthalene in these seven industry sectors in 2004. Facilities in these industry sectors used a mix of energy recovery and treatment to manage naphthalene. Facilities in SIC 2865 (Cyclic crudes and intermediates) reported most of the naphthalene that was land disposed. Facilities in SIC 2911 (Petroleum refining), SIC 2869 (Industrial organic chemicals, nec), and SIC 2865 (Cyclic crudes and intermediates) reported approximately 97 percent of the naphthalene recycled in 2004.

Exhibit 4.178. SIC Management Methods of Naphthalene (Facilities Reporting 80 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Total Quantity of Naphthalene (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2911	Petroleum refining	2,683,990	20.5%	5,877	14,744	3,033	27,019	2,600,901	32,417	7,251,192	19,603
2869	Industrial organic chemicals, nec	2,315,835	17.7%	584	28,295	516,099	601,232	785,090	384,535	945,521	8,121,729
3479	Metal coating and allied services	1,934,195	14.8%	0	0	536,167	100,749	1,286,251	11,029	3,614	10,759
2865	Cyclic crudes and intermediates	1,747,572	13.4%	131,295	237,327	162,391	904,586	103,708	208,266	1,208,469	86,550
2879	Pesticides and agricultural chemicals, nec	825,149	6.3%	5	10	765,647	700	32,303	26,484	319,952	0
2821	Plastics materials and resins	557,612	4.3%	9	9,161	103,890	359,007	61,321	24,225	25,309	14,886
4925	Gas production and/or distribution	346,451	2.6%	0	47	0	259,653	85,958	793	105,058	0
	Total	**10,410,804**	**79.6%**	**137,770**	**289,583**	**2,087,227**	**2,252,945**	**4,955,531**	**687,749**	**9,859,115**	**8,253,527**

Polycyclic Aromatic Compounds (PACs)

Chemical Information:

PACs, also known as polycyclic aromatic hydrocarbons (PAHs), are a group of more than 100 different chemicals that are characterized by hydrogen and carbon arranged in two or more fused benzene rings. As pure chemicals, PACs generally exist as colorless, white, or pale yellow–green solids. Most PACs are found as a mixture of two or more PACs. The TRI PAC group includes the following chemicals: benzo(a)Anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(j,k)fluorine, benzo(k)fluoranthene, benzo(rst)pentaphene, benzo(a)Phenanthrene, benzo(a)pyrene, dibenz(a,h)acridine, dibenz(a,j)acridine, dibenzo(a,h)Anthracene, dibenzo(c,g)carbazole, dibenzo(a,e)fluoranthene, dibenzo(a,e)pyrene, dibenzo(a,h)pyrene, dibenzo(a,l)pyrene, dimethylbenz(a)Anthracene, indeno[1,2,3–cd]pyrene, methylcholanthrene, methylchrysene and nitropyrene

General Uses – Most, if not all, PACs are byproducts of combustion or impurities and not created for use themselves. PACs may be formed as byproducts of both human and natural activities. They are produced or emitted during thermal processes such as the incomplete combustion of organic compounds, pyrolysis, or the processing of fossil fuels, bitumens, or nonfossil fuels. There are presently no known commercial uses for PACs. In the past, some PACs were produced in small quantities for research purposes or used in medicines or in the production of dyes, plastics, or pesticides. Other industrial contributors are the aerospace industry, coke ovens (various activities), petroleum refining, and primary aluminum production. PACs are used to conduct research, and to make dyes, plastics, pesticides and medicines.

Potential Hazards – PACs are harmful by ingestion, inhalation and skin absorption. In addition, most PACs emit toxic fumes when heated to decomposition. Many PACs have caused tumors in laboratory animals that were exposed to the chemicals through their food, from breathing contaminated air, and when the chemical was applied to their skin. Although there are no human data that specifically link exposure to PACs to human cancers, PACs are a component of mixtures that have been associated with human cancer. These include coal tar, soots, coke oven emissions and cigarette smoke.

Summary Analysis:

- NATIONAL: In 2004, 684 facilities reported approximately 13.8 million pounds of PACs. Compared to the quantity reported in 2000, there was a decrease of approximately 2.8 million pounds or approximately 17 percent in 2004.
- REGIONAL: Facilities in Regions 4 and 6 reported 84 percent of the total quantity of PACs in 2004.
- STATES: From 2000 to 2004, facilities in almost every state and territory reported PACs. Facilities in 10 states accounted for 90 percent of the total quantity in 2004. Facilities in four of these states (Texas, Louisiana, Tennessee, and Kentucky) reported approximately 69 percent of the total quantity.
- FACILITIES: Of the 684 facilities that reported PACs in 2004, six facilities reported approximately 56 percent of the total quantity of this chemical; 19 facilities reported approximately 88 percent of the total quantity.
- MANAGEMENT: In 2004, facilities used energy recovery and treatment to manage approximately 92 percent of the PACs.
- INDUSTRY SECTORS: From 2000 to 2004, facilities in 133 industry sectors reported PACs; facilities in 86 of these industry sectors reported PACs in 2004. Exhibit 4.189 shows the quantity of PACs for the 10 industry sectors in which facilities reported 95 percent of these chemicals in 2004.

National Trends:

Exhibit 4.179 shows the number of facilities that reported PACs in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, 684 facilities reported approximately 13.8 million pounds of PACs. Compared to the quantity reported in 2000, there was a decrease of approximately 2.8 million pounds, or approximately 17 percent in 2004. The quantity of PACs steadily decreased from 2000 to 2003 but then increased by approximately 1.2 million pounds in 2004. Since 2000, the number of facilities that reported PACs increased slightly each year so that by 2004 an additional 58 facilities had reported these chemicals.

In 2004, facilities used energy recovery and treatment to manage approximately 92 percent of the PACs. Since 2000, energy recovery was primarily used to manage PACs; the steadily decreasing energy recovery quantities from 2000 to 2003 reflected the overall decreasing quantity of PACs. Treatment of PACs steadily increased since 2001. Disposal quantities decreased by approximately 64 percent since 2000 but increased by approximately 23 percent in 2004. Recycling of PACs has steadily decreased since 2000 – from approximately 3 million pounds in 2000 to 1.4 million pounds in 2004. Since 2000, recycling of PACs steadily decreased from almost 16.6 million pounds in 2000 to approximately 12.7 million pounds in 2003, an overall decrease of 55 percent.

Exhibit 4.179. National Management Methods for Polycyclic Aromatic Compounds, 2000–2004

Management Methods for PACs and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	626	664	644	673	684	9.3%	-
Disposal Quantity (pounds)	3,219,247	1,618,516	723,590	939,058	1,152,715	-64.2%	8.3%
Energy Recovery Quantity (pounds)	8,677,000	8,236,116	6,859,497	5,946,455	6,677,304	-23.0%	48.4%
Treatment Quantity (pounds)	4,673,803	4,227,491	5,191,965	5,769,728	5,979,074	27.9%	43.3%
Priority Chemical Quantity (pounds)	16,570,049	14,082,123	12,775,052	12,655,240	13,809,093	-16.7%	-
Recycling Quantity (pounds)*	3,014,337	2,750,150	2,431,817	1,711,810	1,362,226	-54.8%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.180 shows the number of facilities that reported PACs within various quantity ranges. Of the 684 facilities that reported PACs in 2004, six facilities reported approximately 56 percent of the total quantity of this chemical; 19 facilities reported approximately 88 percent of the total quantity.

Exhibit 4.180. Distribution of Quantities by Facilities Reporting Polycyclic Aromatic Compounds, 2004

PACs (13,809,093 pounds)		
Quantity Reported	**Number of Facilities Reporting This Quantity (2004)**	**Percent of Total Quantity of This PC (2004)**
up to 10 pounds	238	less than 0.1%
11 – 100 pounds	162	less than 0.1%
101 – 1,000 pounds	133	0.3%
1,001 – 10,000 pounds	89	2.2%
10,001 – 100,000 pounds	43	9.8%
100,001 – 1 million pounds	13	32.0%
> 1 million pounds	6	55.6%

EPA Regional Trends:

Exhibits 4.181 and 4.182 show the quantity of PACs reported by facilities in each EPA region in 2000 to 2004. Facilities in Regions 4 and 6 reported 84 percent of the total quantity of PACs in 2004.

Compared to the quantities of PACs reported in 2000, the quantity decreased in seven of the 10 EPA regions in 2004; decreases ranged from 30 percent in Region 8 to 99 percent in Region 10. Facilities in each of EPA Regions 4 and 10 reported decreases of approximately 2 million pounds. Conversely, facilities in Region 6 reported an increase of approximately 1.9 million pounds, compared to quantities reported in 2000.

Compared to the quantities of PACs reported in 2003, facilities in seven of the 10 EPA regions reported an increased quantity. Included among these increased quantities, facilities in EPA Regions 4 and 6 reported significant increases of 490,000 pounds and 744,000 pounds of PACs, respectively. Facilities in EPA Region 3 reported a decrease of approximately 161,000 pounds or 22 percent.

Exhibit 4.181. Regional Quantities of Polycyclic Aromatic Compounds, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	185,086	546,054	618,076	611,571	618,569	234.2%	4.5%
2	218,104	159,033	144,086	160,372	123,909	−43.2%	0.9%
3	827,552	1,287,836	633,639	733,165	571,792	−30.9%	4.1%
4	6,593,109	4,724,638	2,088,158	3,622,996	4,366,887	−33.8%	31.6%
5	1,122,382	996,036	974,838	696,760	757,983	−32.5%	5.5%
6	5,308,010	5,220,874	7,626,243	6,696,407	7,186,841	35.4%	52.0%
7	26,634	28,108	13,079	32,452	34,488	29.5%	0.2%
8	156,567	127,706	54,675	62,894	109,333	−30.2%	0.8%
9	18,443	13,921	5,417	4,046	11,670	−36.7%	0.1%
10	2,114,163	977,916	616,841	34,579	27,620	−98.7%	0.2%
Total	**16,570,049**	**14,082,123**	**12,775,052**	**12,655,240**	**13,809,093**	**−16.7%**	**100.0%**

Exhibit 4.182. Distribution of Facilities Reporting Polycyclic Aromatic Compounds in 2004 and the Quantities of Polycyclic Aromatic Compounds Reported in 2004, by EPA Region

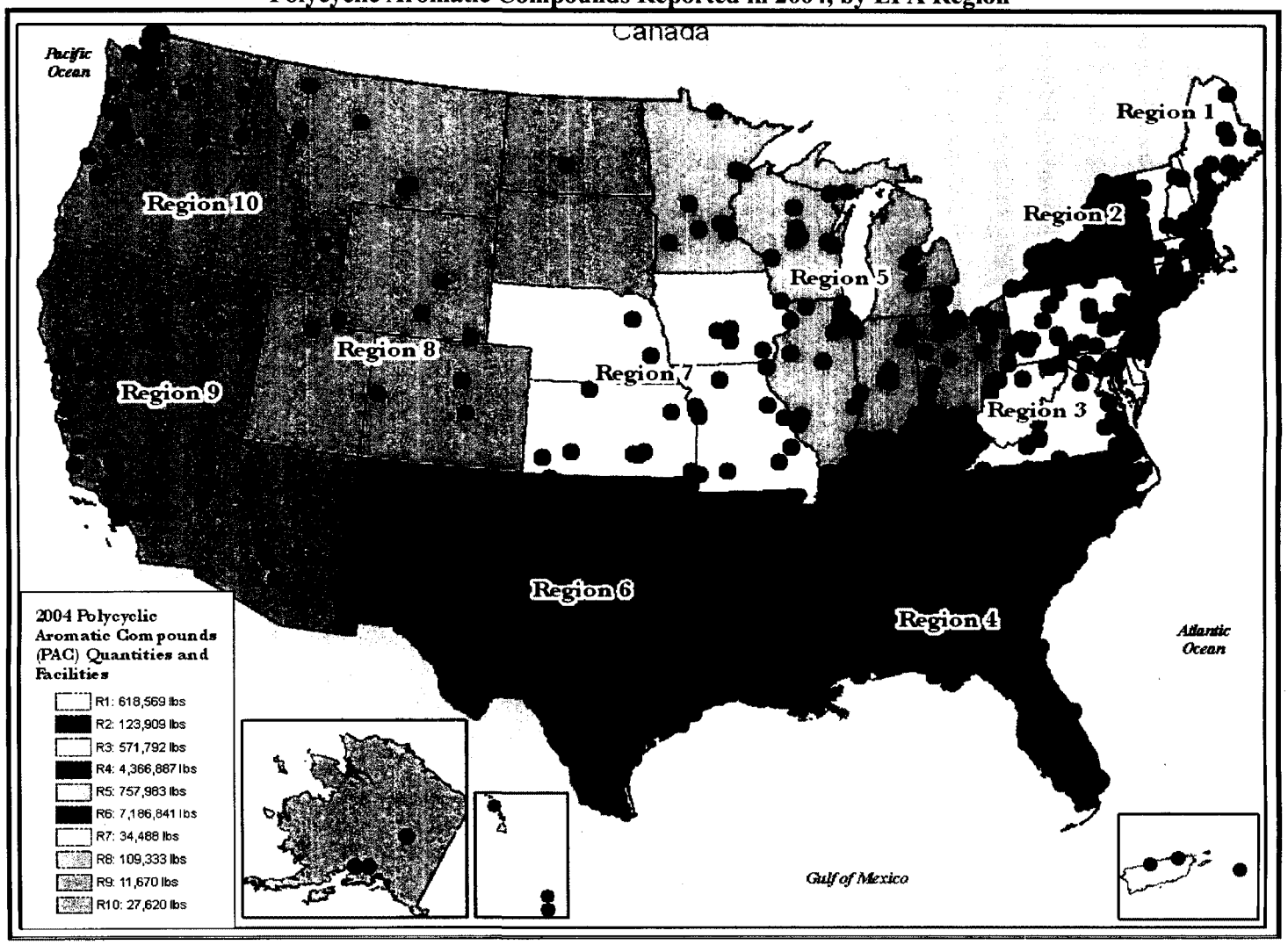


Exhibit 4.183 shows how facilities managed PACs, by EPA region, in 2004. Approximately 89 percent of the PACs were managed using onsite energy recovery and/or onsite treatment. Facilities in all but three EPA regions (Regions 3, 9, and 10) relied on these two methods to manage the majority of the PACs quantity. Facilities in EPA Regions 3, 9, and 10 used land disposal to manage 78 percent, 86 percent, and 49 percent, respectively, of their PACs quantity.

In 2004, these facilities recycled approximately 1.4 million pounds of PACs. Facilities in five EPA regions (Regions 3, 4, 5, 6, and 10) reported over 99 percent of the total recycled quantity; Region 6 facilities alone reported approximately 38 percent of the total quantity.

Exhibit 4.183. Regional Management Methods for Polycyclic Aromatic Compounds, 2004

EPA Region	Quantity (pounds) of PACs (2004)	Percent of Total Quantity of PACs (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	618,569	4.5%	6,666	6,564	576,418	112	23,905	4,904	0	1,180
2	123,909	0.9%	632	25,029	3,901	449	89,531	4,367	3,979	105
3	571,792	4.1%	585	445,567	31	11,151	93,401	21,057	197,535	59,142
4	4,366,887	31.6%	27,983	158,618	2,141,893	63,956	1,950,083	24,353	225,816	30,512
5	757,983	5.5%	3,266	153,179	34,503	98,504	465,541	2,989	157,225	607
6	7,186,841	52.0%	2,114	290,617	3,586,567	50,652	3,218,223	38,667	282,567	238,064
7	34,488	0.2%	219	5,250	260	954	26,022	1,782	136	108
8	109,333	0.8%	1,322	1,423	103,722	2,567	98	201	655	0
9	11,670	0.1%	6,935	3,147	66	177	1	1,344	0	612
10	27,620	0.2%	1,440	12,158	130	1,289	12,323	280	163,395	589
Total	**13,809,093**	**100.0%**	**51,162**	**1,101,553**	**6,447,492**	**229,812**	**5,879,129**	**99,945**	**1,031,308**	**330,918**

State Trends:

From 2000 to 2004, facilities in almost every state and territory reported PACs. Exhibit 4.184 shows the quantities of PACs reported in the 10 states where facilities accounted for 90 percent of the total quantity of this chemical in 2004. Facilities in four of these states (Texas, Louisiana, Tennessee, and Kentucky) reported approximately 69 percent of the total quantity.

Compared to quantities reported in 2000, facilities in seven of these 10 states reported an increased quantity in 2004. These increases included 1.2 million pounds in Texas, 969,000 pounds in Kentucky, and 519,000 pounds in Maine. A decrease of 3 million pounds in Tennessee largely offset the increased quantities.

Compared to quantities reported in 2003, facilities in eight of these 10 states reported an increase in 2004, including an increase of 540,000 pounds by facilities in Tennessee.

Exhibit 4.184. State Quantity Trends for Polycyclic Aromatic Compounds, (Facilities Reporting 90 percent), 2004

State	Total Quantity (pounds) of PACs					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
TX	2,401,016	2,435,035	3,403,118	3,312,687	3,591,540	1,190,523	49.6%	26.0%
LA	1,954,370	1,928,887	2,175,928	2,244,512	2,357,586	403,216	20.6%	17.1%
TN	4,843,397	3,223,956	555,317	1,274,029	1,813,901	−3,029,496	−62.5%	13.1%
KY	727,451	709,075	865,582	1,533,430	1,696,087	968,637	133.2%	12.3%
AR	811,269	630,017	749,267	824,374	1,049,691	238,422	29.4%	7.6%
ME	1,146	474,454	541,375	525,393	519,741	518,595	45253.1%	3.8%
IN	397,933	365,493	441,039	460,296	480,391	82,458	20.7%	3.5%
NC	495,362	231,354	221,772	385,129	357,623	−137,739	−27.8%	2.6%
WV	417,101	290,437	132,348	141,384	312,824	−104,276	−25.0%	2.3%
SC	205,398	208,708	165,023	257,340	257,494	52,096	25.4%	1.9%
Total	**12,254,442**	**10,497,415**	**9,250,770**	**10,958,573**	**12,436,877**	**182,435**	**1.5%**	**90.1%**

Exhibits 4.185 and 4.186 show the trends for the quantities of PACs for the top five states in which facilities reported this PC in 2004.

Exhibit 4.185. Texas, Louisiana, and Arkansas Trends for Polycyclic Aromatic Compounds, 2000–2004

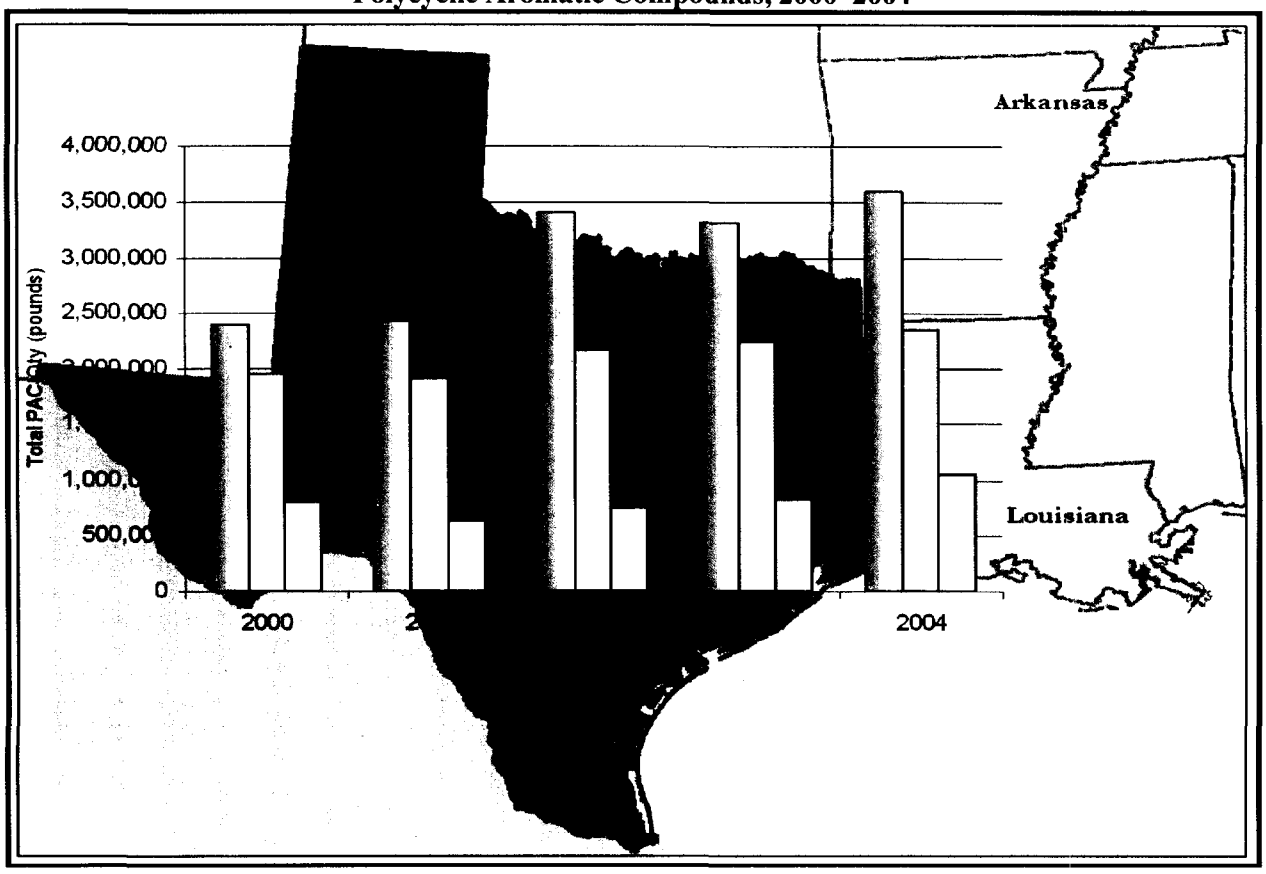
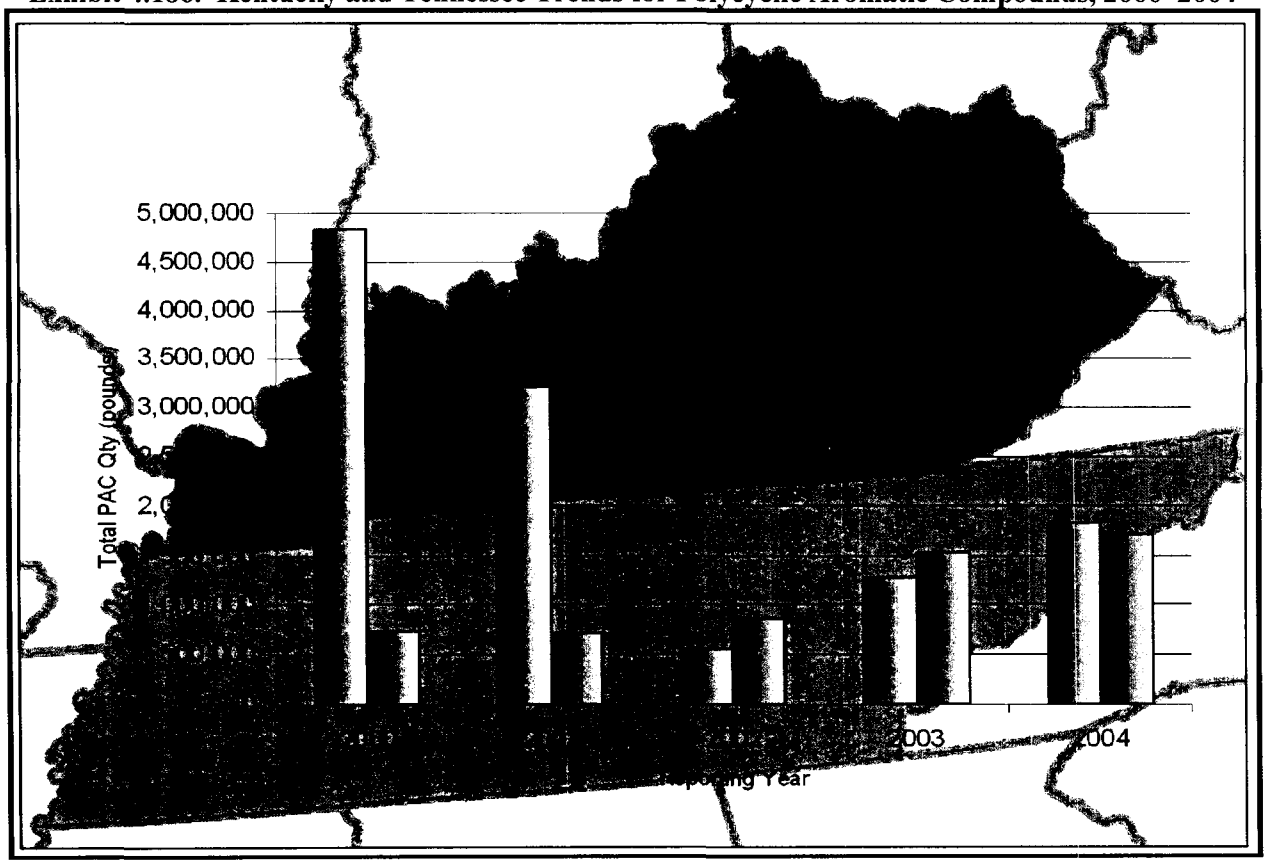


Exhibit 4.186. Kentucky and Tennessee Trends for Polycyclic Aromatic Compounds, 2000–2004

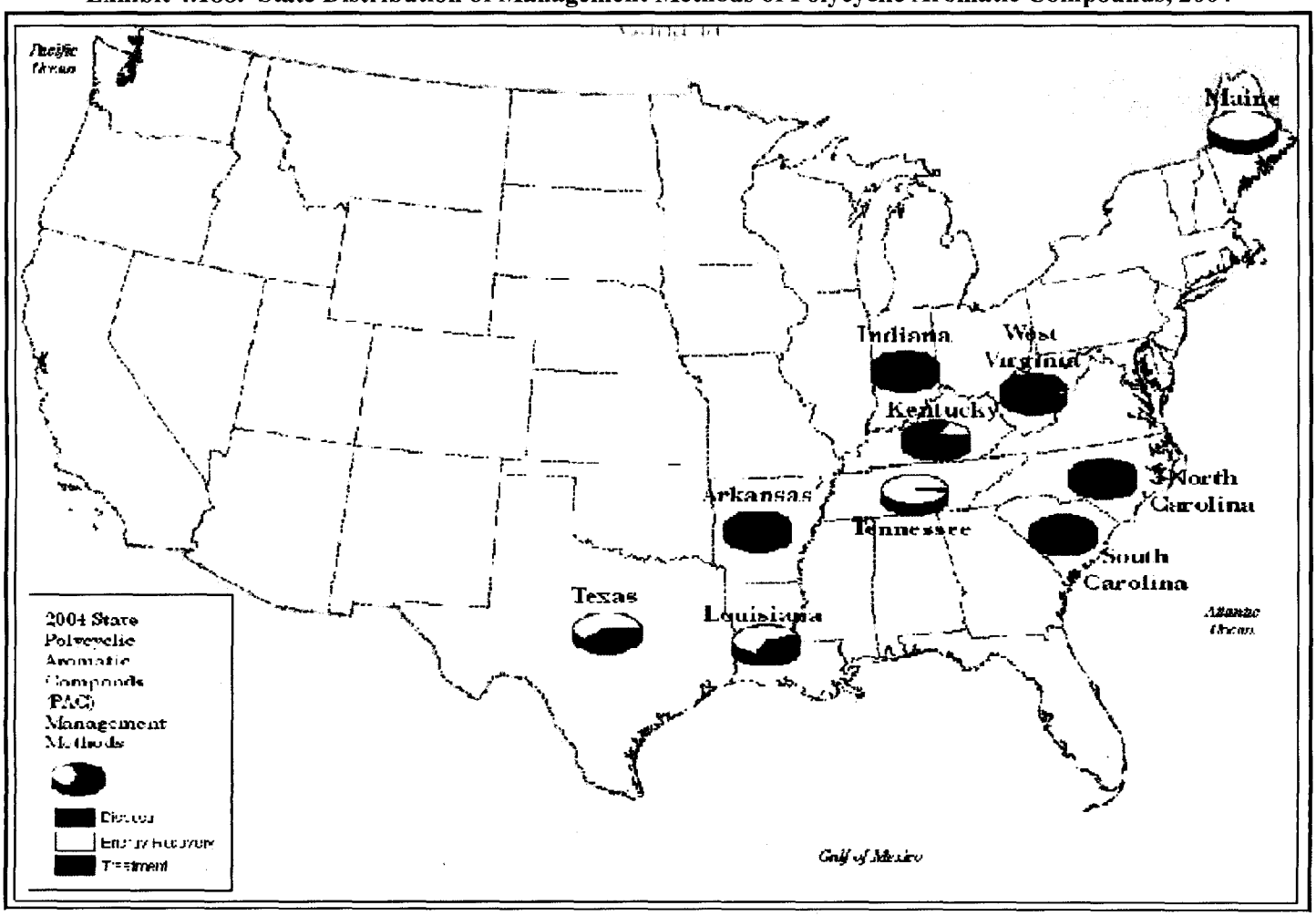


Exhibits 4.187 and 4.188 show how facilities in these 10 states managed PACs in 2004. Most of the facilities in these states used onsite energy recovery and/or onsite treatment for the majority of the PACs. Facilities in West Virginia land disposed most of the PACs; South Carolina facilities also land disposed a significant portion of the PACs quantity. Facilities in Texas, Louisiana, and South Carolina recycled approximately 700,000 pounds of PACs or approximately 84 percent of the total quantity of PACs recycled by facilities in these 10 states.

Exhibit 4.187. Management Methods for Polycyclic Aromatic Compounds, Facilities in States With 90 Percent of the Total Quantity, 2004

State	Total Quantity of PACs (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
TX	3,591,540	591	5,751	2,094,475	43,306	1,417,335	30,081	217,738	4,260
LA	2,357,586	1,084	98,774	1,492,092	1,065	757,022	7,549	64,769	233,228
TN	1,813,901	13,140	699	1,765,506	1,432	32,461	663	28,208	113
KY	1,696,087	6	8,528	299,136	1,268	1,380,968	6,181	6,329	498
AR	1,049,691	163	3,351	0	5,203	1,040,903	72	0	115
ME	519,741	105	421	518,380	21	808	5	0	0
IN	480,391	0	42,914	0	28	437,014	435	99,496	10
NC	357,623	106	7,991	0	501	348,646	378	15	162
WV	312,824	280	298,108	11	9,105	3,021	2,300	0	0
SC	257,494	151	63,008	0	5,118	184,548	4,669	179,606	27
Total	**12,436,877**	**15,627**	**529,544**	**6,169,601**	**67,047**	**5,602,725**	**52,333**	**596,160**	**238,415**

Exhibit 4.188. State Distribution of Management Methods of Polycyclic Aromatic Compounds, 2004



Industry Sector (SIC) Trends:

In 2000–2004, facilities in 133 industry sectors reported PACs; facilities in 86 of these industry sectors reported PACs in 2004. Exhibit 4.189 shows the quantity of PACs for the 10 industry sectors in which facilities reported 95 percent of these chemicals in 2004.

Compared to quantities reported in 2000, facilities in seven of these 10 industry sectors reported an increased quantity in 2004. Facilities in SIC 2911 (Petroleum refining) and SIC 2895 (Carbon black) reported two of the larger increases of 1 million pounds and 486,000 pounds, respectively. Conversely, facilities in SIC 3624 (Carbon and graphite products) and SIC 3334 (Primary aluminum) reported large decreases of 2.9 million pounds and 1.6 million pounds, respectively.

Compared to quantities reported in 2003, facilities in eight of these 10 industry sectors reported an increased quantity in 2004. These included increases of 818,000 pounds by SIC 3624 facilities and 247,000 pounds by SIC 2865 facilities. Most of the increased quantity for SIC 3624 was reported by a facility in Tennessee that uses coal tar pitch (containing PACs) for producing carbon electrodes. Increased processing of the coal tar pitch in 2004 resulted in increased quantities of PACs in wastes. Facilities in SIC 3312 (Blast furnaces and steel mills) reported a decrease of approximately 89,000 pounds. Most of this decrease occurred because a facility in Pennsylvania reported "normal" quantities of PACs following an increase in 2003 that resulted from cleaning tanks, clean–ups, and off–spec coke oven tar.

Exhibit 4.190 shows how facilities in these 10 industry sectors managed PACs in 2004. Facilities in these 10 industry sectors used onsite treatment and/or onsite energy recovery to manage approximately 91 percent of the total PACs quantity. In seven of the 10 industry sectors, these were the primary management methods for PACs. Facilities in three of these industry sectors: SIC 2865 (Cyclic crudes and intermediates), SIC 3011 (Tires and inner tubes), and SIC 3312 (Blast furnaces and steel mills) primarily used offsite disposal for PACs. In 2004, facilities in these 10 industry sectors recycled almost 1 million pounds of PACs. Facilities in four industry sectors (SICs 3334, 3312, 2911, and 3624) reported approximately 91 percent of the recycled quantity.

Exhibit 4.189. Industry Sectors Containing Polycyclic Aromatic Compounds, (Facilities Reporting 95 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Number of Facilities That Reported PACs (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2895	Carbon black	19	3,708,379	3,417,056	3,879,720	4,008,847	4,193,938	485,559	30.4%
3624	Carbon and graphite products	18	6,415,783	4,292,839	1,753,730	2,723,779	3,541,485	−2,874,298	25.6%
2911	Petroleum refining	82	656,118	878,206	2,663,901	1,649,597	1,683,041	1,026,923	12.2%
3334	Primary aluminum	13	3,123,285	1,798,358	1,394,522	1,436,079	1,559,987	−1,563,298	11.3%
2865	Cyclic crudes and intermediates	7	488,224	414,759	518,982	239,008	485,559	−2,666	3.5%
2992	Lubricating oils and greases	3	356,394	318,494	421,399	444,658	457,270	100,876	3.3%
2037	Frozen fruits and vegetables	1	0	345,565	386,531	381,671	377,822	377,822	2.7%
3011	Tires and inner tubes	46	204,787	263,445	173,853	251,153	352,590	147,803	2.6%
2824	Organic fibers, noncellulosic	5	5,008	26,975	87,238	183,822	206,106	201,097	1.5%
3312	Blast furnaces and steel mills	6	20,928	21,963	14,585	279,226	189,972	169,044	1.4%
	Total	**200**	**14,978,906**	**11,777,659**	**11,294,461**	**11,597,839**	**13,047,770**	**−1,931,136**	**94.5%**

Exhibit 4.190. Industry Sector Management Methods for Polycyclic Aromatic Compounds, (Facilities Reporting 95 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Total Quantity of Polycyclic Aromatic Compounds (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2895	Carbon black	4,193,938	30.4%	418	6,497	3,555,521	0	631,269	233	0	0
3624	Carbon and graphite products	3,541,485	25.6%	13,055	18,407	2,064,653	65	1,443,983	1,322	182,306	498
2911	Petroleum refining	1,683,041	12.2%	4,268	14,771	103,990	71,163	1,473,839	15,010	227,081	1,472
3334	Primary aluminum	1,559,987	11.3%	1,084	25,562	0	0	1,531,914	1,427	273,057	0
2865	Cyclic crudes and intermediates	485,559	3.5%	0	404,136	70	76,883	608	3,862	6,956	28,500
2992	Lubricating oils and greases	457,270	3.3%	0	28,635	0	0	428,635	0	0	0
2037	Frozen fruits and vegetables	377,822	2.7%	0	0	377,822	0	0	0	0	0
3011	Tires and inner tubes	352,590	2.6%	159	347,435	0	3,497	0	1,500	994	2,279
2824	Organic fibers, noncellulosic	206,106	1.5%	3	10	77,251	0	128,841	0	0	0
3312	Blast furnaces and steel mills	189,972	1.4%	0	138,817	0	0	51,118	37	190,403	58,000
	Total	**13,047,770**	**94.5%**	**18,986**	**984,272**	**6,179,307**	**151,607**	**5,690,207**	**23,391**	**880,797**	**90,749**

Polychlorinated Biphenyls (PCBs)

Chemical Information:

PCBs are mixtures of chemicals that form clear to yellow, oily liquids or white, crystalline (sand–like) solids and hard resins.

CAS Number – 1336–36–3

Alternate Names – Aroclor 1242, Aroclor 1254

General Uses – PCBs are used in insulating fluids of electrical systems. PCBs can also be a byproduct of certain process chemical reactions.

Potential Hazards – PCBs are probable carcinogens. These chemicals can affect the human reproductive system, can cause liver damage, and also can damage the nervous system. PCBs can irritate the eyes and may cause an acne–like rash (chloracne), which may persist for years. (New Jersey Department of Health and Senior Services, Hazardous Substance Fact Sheet –April 2002).

Summary Analysis:

- In 2004, 36 facilities reported approximately 68,000 pounds of PCBs. Compared to the national quantity reported in 2000, there was a decrease of approximately 42,000 pounds in 2004. In 2004, however, there was an increase of approximately 13,000 pounds or 25 percent, compared to the quantity of PCBs reported in 2003.
- REGIONAL: Compared to the quantities of PCBs reported in 2000, the quantity decreased in every EPA region by 2004. In 2004, facilities in EPA Regions 4 and 6 reported approximately 98 percent of the total quantity of PCBs.
- STATES: From 2000 to 2004, facilities in 34 states reported PCBs; by 2004, facilities in only 16 states reported this chemical. Facilities in only three of these states (Tennessee, Louisiana, and Texas) accounted for 98 percent of the total quantity of PCBs in 2004.
- FACILITIES: In 2004, one facility reported 61 percent of the total quantity of PCBs. Of the 36 facilities that reported PCBs in 2004, six facilities reported approximately 96 percent of the total quantity. In 2004, the number of facilities that reported PCBs decreased by 40 percent, compared to the quantities in 2000.
- MANAGEMENT: In 2000–2004, treatment was the primary method used to manage PCBs, including 94.5 percent of the total quantity in 2004.
- INDUSTRY SECTOR: Since 2000, facilities in 47 industry sectors reported PCBs. By 2004, facilities in only 17 industry sectors reported PCBs. In 2004, three industry sectors: SIC 2869 – Industrial organic chemicals, nec, SIC 2812 –Alkalies and chlorine, and SIC 3312 – Blast furnaces and steel mills reported 98 percent of this chemical.

National Trends:

Exhibit 4.191 shows the number of facilities that reported PCBs in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, 36 facilities reported approximately 68,000 pounds of PCBs. Compared to the quantity reported in 2000, there was a decrease of approximately 42,000 pounds, or 38 percent, in 2004. Since 2000, the number of facilities reporting PCBs also decreased by 40 percent. In 2004, however, there was an increase of approximately 13,000 pounds, or 25 percent, compared to the quantity of PCBs reported in 2003.

From 2000 to 2004, treatment was the primary method used to manage PCBs, including 94.5 percent of the total quantity in 2004. Land disposal of PCBs has steadily decreased by approximately 74 percent; land disposal was used for 5.5 percent of the total quantity of PCBs in 2004. Only relatively small quantities of PCBs were managed using energy recovery. In 2004, facilities reported recycling of 366 pounds of PCBs.

Exhibit 4.191. National Management Methods for Polychlorinated Biphenyls, 2000–2004

Management Methods for PCBs and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	60	53	44	46	36	−40.0%	-
Disposal Quantity (pounds)	14,350	10,229	6,495	6,276	3,710	−74.1%	5.5%
Energy Recovery Quantity (pounds)	63	344	650	40	25	−60.7%	0.0%
Treatment Quantity (pounds)	95,060	45,092	97,661	48,110	64,023	−32.6%	94.5%
Priority Chemical Quantity (pounds)	109,472	55,665	104,806	54,426	67,758	−38.1%	-
Recycling Quantity (pounds)*	436	379	14	466	366	−16.1%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.192 shows the number of facilities that reported PCBs within various quantity ranges. In 2004, one facility reported 61 percent of the total quantity of PCBs. Of the 36 facilities that reported PCBs in 2004, six facilities reported approximately 96 percent of the total quantity.

Exhibit 4.192. Distribution of Quantities by Facilities Reporting Polychlorinated Biphenyls, 2004

PCBs (67,758 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	5	less than 0.1%
11 – 100 pounds	16	1.0%
101 – 1,000 pounds	9	3.0%
1,001 – 10,000 pounds	5	35.1%
10,001 – 100,000 pounds	1	60.9%
100,001 – 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.193 and 4.194 show the quantity of PCBs reported by facilities in nine EPA regions in 2000 to 2004. Compared to the quantities of PCBs reported in 2000, the quantity decreased in every EPA region by 2004. Facilities in EPA Regions 5 and 9 reported the largest decreases of 16,400 pounds and 11,500 pounds, respectively.

In 2004, facilities in EPA Regions 4 and 6 reported approximately 98 percent of the total quantity of PCBs. Facilities in six of the eight EPA regions reported a decreased quantity of PCBs in 2004, compared to the quantities reported in 2003. Facilities in Regions 4 and 6 reported overall increases of approximately 15,000 pounds and 7,000 pounds, respectively.

Exhibit 4.193. Regional Quantities of Polychlorinated Biphenyls, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
1	6,015	15	5	117	61	−99.0%	0.1%
2	1,278	6,119	119	464	155	−87.9%	0.2%
3	2,088	1,146	12,140	799	376	−82.0%	0.6%
4	45,277	21,069	32,272	28,608	43,327	−4.3%	63.9%
5	16,749	1,542	3,365	2,285	295	−98.2%	0.4%
6	25,495	16,099	17,905	16,045	22,962	−9.9%	33.9%
7	431	73	87	151	25	−94.2%	0.0%
9	12,098	6,174	38,856	5,957	558	−95.4%	0.8%
10	42	3,427	57	0	0	−100.0%	0.0%
Total	**109,472**	**55,665**	**104,806**	**54,426**	**67,758**	**−38.1%**	**100.0%**

Exhibit 4.194. Distribution of Facilities Reporting Polychlorinated Biphenyls, in 2004 and the Quantities of Polychlorinated Biphenyls Reported in 2004, by EPA Region

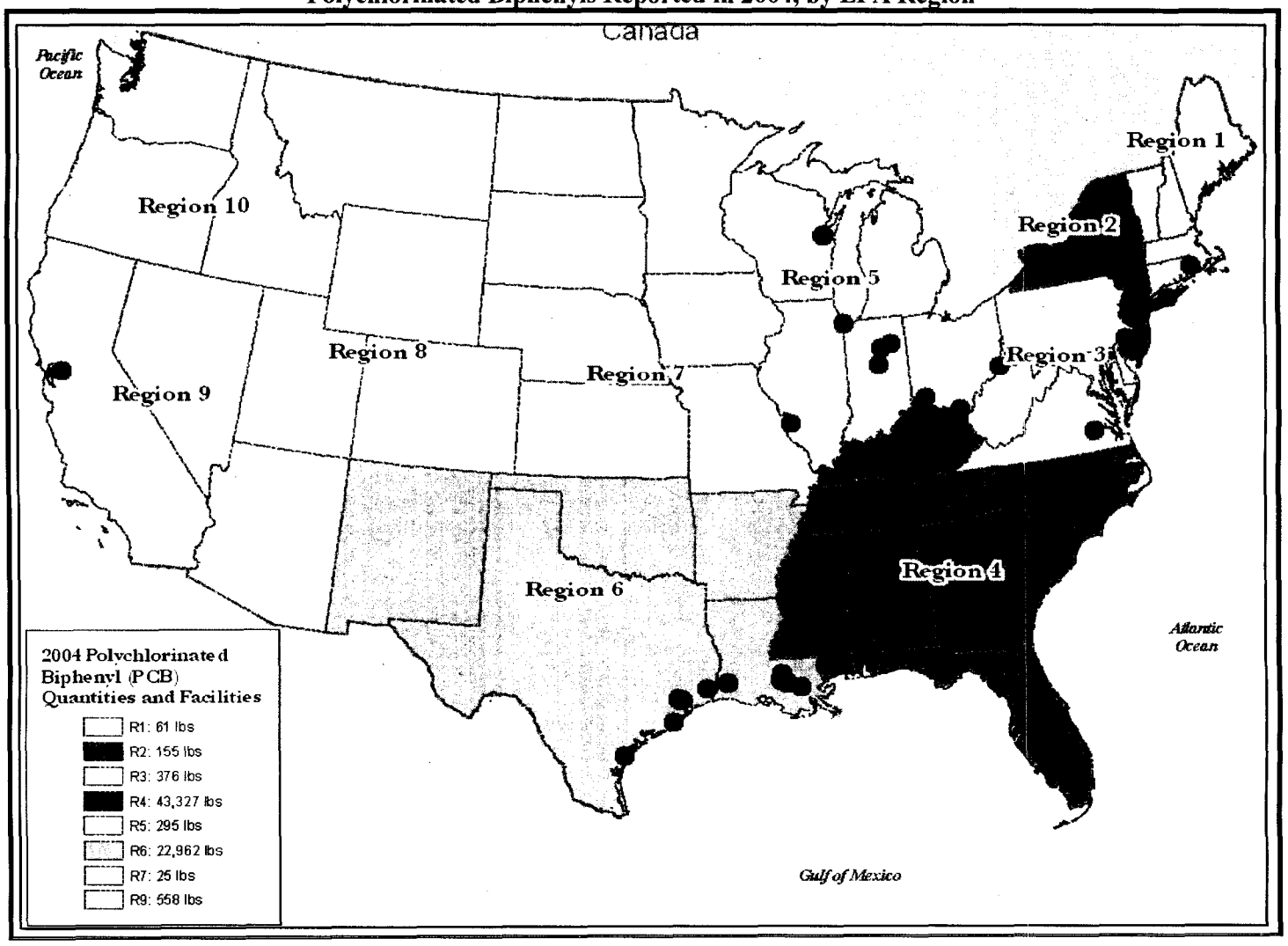


Exhibit 4.195 shows how facilities managed PCBs, by EPA region, in 2004. In 2004, facilities in six of the eight EPA regions treated most of the PCBs. Facilities in EPA Regions 2 and 5 primarily used offsite land disposal. One facility in Region 6 reported approximately 95 percent of the recycled quantity of PCBs in 2004.

Exhibit 4.195. Regional Management Methods for Polychlorinated Biphenyls, 2004

EPA Region	Quantity of PCBs (2004)	Percent of Total Quantity of PCBs (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
1	61	0.1%	0	1	0	0	0	60	0	0
2	155	0.2%	0	132	0	11	0	12	0	18
3	376	0.6%	0	0	0	0	0	376	0	0
4	43,327	63.9%	1,922	44	0	0	0	41,361	0	0
5	295	0.4%	3	171	14	0	2	105	0	1
6	22,962	33.9%	0	1,438	0	0	21,070	453	347	0
7	25	0.0%	0	0	0	0	0	25	0	0
9	558	0.8%	0	0	0	0	0	558	0	0
Total	**67,758**	**100.0%**	**1,925**	**1,786**	**14**	**11**	**21,072**	**42,951**	**347**	**19**

State Trends:

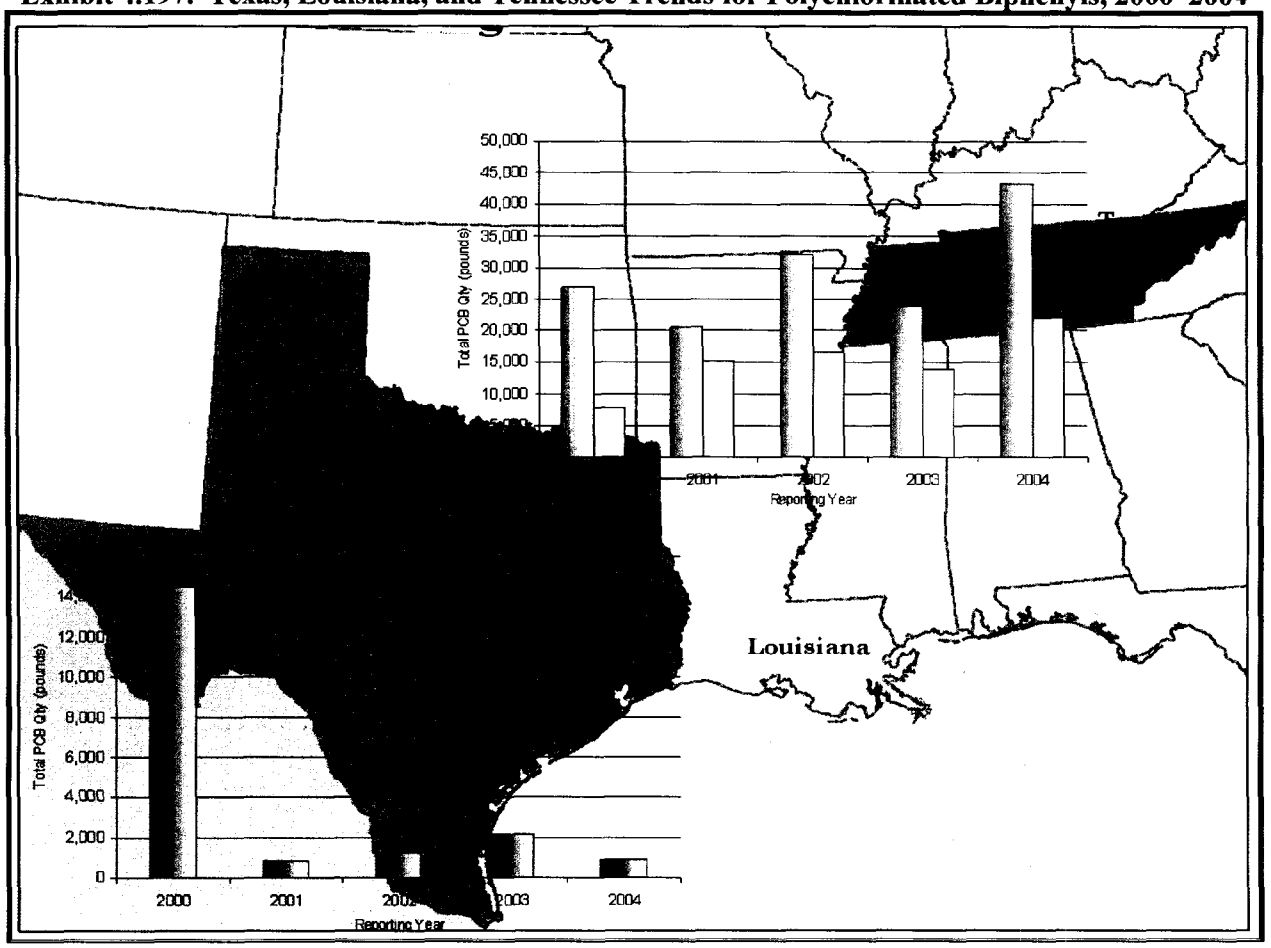
From 2000 to 2004, facilities in 34 states reported PCBs; by 2004, facilities in only 16 states reported this chemical. Facilities in only three of these states (Tennessee, Louisiana, and Texas) accounted for 98 percent of the total quantity of PCBs in 2004 (Exhibits 4.196 and 4.197). Since 2000, the quantity of PCBs reported in both Tennessee and Louisiana increased significantly; much of the increases were reported in 2004. Other trend highlights are:

- In Tennessee, one facility accounted for most of the increase in 2004; PCBs are produced as a residual from a high temperature catalytic process and the quantity correlates to production quantity.
- In Louisiana, two facilities accounted for most of the increase reported in 2004; the PCBs are generated as residuals from the manufacturing processes and the quantity fluctuates depending on feedstock composition.
- Since 2000, facilities in Texas reported a decrease of approximately 13,600 pounds or 94 percent.

Exhibit 4.196. State Quantity Trends for Polychlorinated Biphenyls, (Facilities Reporting 98 percent of Quantity Total), 2004

State	Total Quantity (pounds) of PCBs					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
TN	26,905	20,583	32,096	23,901	43,225	16,320	60.7%	63.8%
LA	7,811	15,203	16,620	13,881	22,059	14,248	182.4%	32.6%
TX	14,492	881	1,251	2,164	903	−13,589	−93.8%	1.3%
Total	**49,208**	**36,668**	**49,967**	**39,946**	**66,187**	**16,979**	**34.5%**	**97.7%**

Exhibit 4.197. Texas, Louisiana, and Tennessee Trends for Polychlorinated Biphenyls, 2000–2004

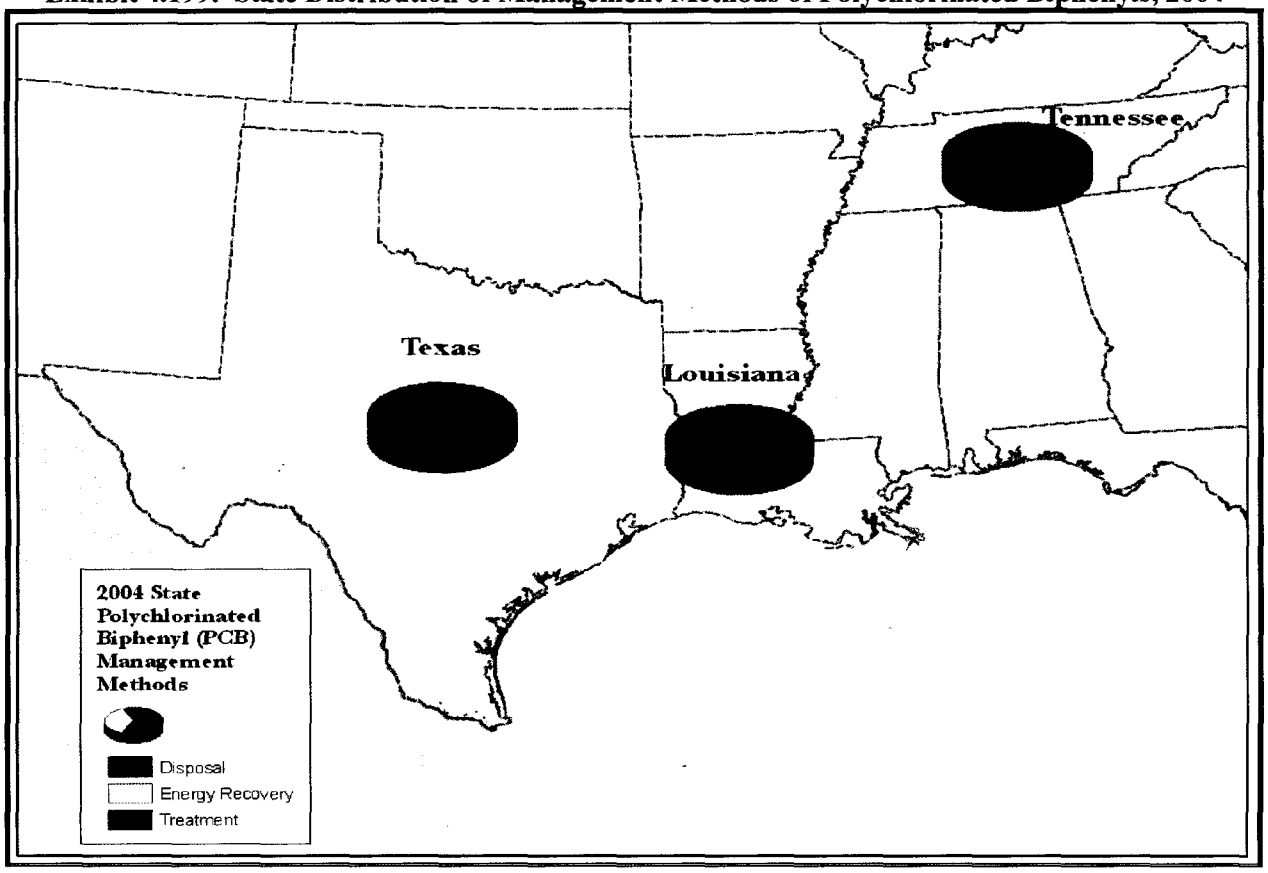


Exhibits 4.198 and 4.199 show how facilities in these three states managed PCBs in 2004. These facilities treated approximately 95 percent of the PCBs and land disposed approximately 3,400 pounds. A facility in Texas reported recycling 347 pounds of PCBs in 2004.

Exhibit 4.198. State Management Methods for Polychlorinated Biphenyls, (Facilities Reporting 95 Percent of the Total Quantity), 2004

State	Total Quantity of PCBs (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
TN	43,225	1,922	40	0	0	0	41,263	0	0
LA	22,059	0	1,191	0	0	20,681	187	0	0
TX	903	0	248	0	0	389	266	347	0
Total	**66,187**	**1,922**	**1,478**	**0**	**0**	**21,070**	**41,716**	**347**	**0**

Exhibit 4.199. State Distribution of Management Methods of Polychlorinated Biphenyls, 2004



Industry Sector (SIC) Trends:

Since 2000, facilities in 47 industry sectors reported PCBs. By 2004, facilities in only 17 industry sectors reported PCBs. Exhibit 4.200 shows the quantity of PCBs for the three industry sectors in which facilities reported 98 percent of this chemical in 2004. Facilities in SIC 2869 (Industrial organic chemicals, nec) reported the highest quantities, accounting for approximately 74 percent of the total quantity of PCBs in 2004. Since 2000, SIC 2869 facilities reported a steadily increasing quantity of PCBs, including an increase of approximately 22,000 pounds in 2004, compared to the quantity reported in 2003. Most of this increase was reported by one facility that attributed the increased quantity of PCBs to increased production in which PCBs are produced as a residual from a high temperature catalytic process.

Since 2000, facilities in SIC 2812 (Alkalies and chlorine) had reported a steadily decreasing quantity of PCBs until 2004 when the quantity increased by approximately 5,000 pounds. Most of this increase was reported by two facilities at which PCBs are generated as residuals from the manufacturing processes; the quantity of PCBs fluctuates depending on feedstock composition and production level.

Facilities in SIC 3312 (Blast furnaces and steel mills) reported a decrease of approximately 1,300 pounds in 2004. Much of this decrease was due to a facility in Minnesota that had reported an average of approximately 1,400 pounds in 2000–2003 but did not report PCBs in 2004.

Exhibit 4.200. Industry Sectors Containing Polychlorinated Biphenyls, (Facilities Reporting 98 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Number of Facilities That Reported PCBs (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2869	Industrial organic chemicals, nec	8	574	19,250	33,438	28,158	49,794	49,220	73.5%
2812	Alkalies and chlorine	3	21,604	15,262	13,173	8,214	13,266	-8,338	19.6%
3312	Blast furnaces and steel mills	3	4,443	3,495	4,773	5,497	3,121	-1,322	4.6%
	Total	**14**	**26,621**	**38,007**	**51,384**	**41,869**	**66,181**	**39,560**	**97.7%**

Exhibit 4.201 shows how facilities in these industry sectors managed PCBs in 2004. Facilities in SIC 2869 (Industrial organic chemicals, nec) and SIC 2812 (Alkalies and chlorine) used treatment for most of the PCBs quantity; SIC 2869 facilities primarily used offsite treatment, SIC 2812 facilities used mostly onsite treatment. The entire quantity of PCBs reported by facilities in SIC 3312 (Blast furnaces and steel mills) was land disposed. One SIC 2869 facility reported recycling 347 pounds of PCBs in 2004.

Exhibit 4.201. Industry Sector Management Methods for Polychlorinated Biphenyls, (Facilities Reporting 98 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Total Quantity of PCBs (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2869	Industrial organic chemicals, nec	49,794	73.5%	0	214	0	0	7,928	41,652	347	0
2812	Alkalies and chlorine	13,266	19.6%	0	3	0	0	13,084	179	0	0
3312	Blast furnaces and steel mills	3,121	4.6%	1,922	1,199	0	0	0	0	0	0
	Total	**66,181**	**97.7%**	**1,922**	**1,415**	**0**	**0**	**21,012**	**41,831**	**347**	**0**

Pendimethalin

Chemical Information:

Pendimethalin is a orange–yellow crystalline solid and is formulated in liquid, solid, and granular forms, and also as an emulsifiable concentrate.

CAS Number – 40487–42–1

Alternate Names – 3, 4–xylidine, benzenamine, penoxalin

General Uses – Pendimethalin is used as a pre–emergence and postemergence herbicide on cotton, dry onions, dry bulb shallots, edible beans, corn, legumes, garlic, grain, nonbearing fruit, nut crops, peanuts, potatoes, rice, soybeans, sugar cane, sunflowers, sweet corn, and sweet lupine. It is also used for pre–emergence control of many annual grasses and certain broadleaf weeds. Pendimethalin is applied by broadcasting, directed spray, and soil treatment.

Potential Hazards – This chemical is considered to have low acute toxicity and was added to the TRI based on liver toxicity. It is slightly toxic via exposure to it by eating or drinking contaminated food or water.

Summary Analysis:

- NATIONAL: In 2004, seven facilities reported approximately 476,000 pounds of pendimethalin. Compared to the quantity of pendimethalin reported in 2000, there was a 29 percent decrease in 2004. The quantity of pendimethalin increased each year since 2001.
- REGIONAL/STATE: In 2004, facilities in Regions 4 and 7 reported approximately 94 percent of the pendimethalin. Facilities in only four states (Florida, Missouri, Iowa, and Ohio) reported pendimethalin; facilities in Missouri and Florida reported 94 percent of the total quantity.
- FACILITIES: Of the seven facilities that reported pendimethalin in 2004, one facility accounted for approximately 55 percent of the total quantity of this chemical.
- MANAGEMENT: Since 2000, facilities have used treatment and land disposal to manage 56 percent and 44 percent, respectively, of the pendimethalin.
- INDUSTRY SECTOR: In 2004, facilities in three industry sectors (SIC 2879 – Pesticides and agricultural chemicals, nec, SIC 2061– Raw cane sugar, and SIC 2875 – Fertilizers, mixing only) reported pendimethalin. Compared to the quantities of pendimethalin reported in 2000, facilities in SIC 2879 reported a decrease of approximately 379,000 pounds.

National Trends:

Exhibit 4.202 shows the number of facilities that reported pendimethalin in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, seven facilities reported approximately 476,000 pounds of pendimethalin. Compared to the quantity of pendimethalin reported in 2000, there was a 29 percent decrease in 2004. The quantity of pendimethalin increased each year since 2001.

Since 2000, facilities have used treatment and land disposal to manage 56 percent and 44 percent, respectively, of the pendimethalin. The quantity disposed of has increased each year since 2000, with significant increases in 2003 and in 2004. No energy recovery for pendimethalin was reported from 2000 to 2004. Aside from over 41,000 pounds of pendimethalin recycled in 2002, no more than 6,000 pounds of pendimethalin were recycled in other years since 2000.

Exhibit 4.202. National Management Methods for Pendimethalin, 2000–2004

Management Methods of Pendimethalin and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	8	12	11	8	7	−12.5%	-
Disposal Quantity (pounds)	24,529	70,570	72,404	139,764	210,222	757.0%	44.2%
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	0.0%
Treatment Quantity (pounds)	649,602	129,625	349,423	289,787	265,473	−59.1%	55.8%
Priority Chemical Quantity (pounds)	674,131	200,195	421,827	429,551	475,695	−29.4%	-
Recycling Quantity (pounds)*	2,000	6,000	41,401	4,360	2,875	43.7%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.203 shows the number of facilities that reported pendimethalin within various quantity ranges. Of the seven facilities that reported pendimethalin in 2004, one facility accounted for approximately 55 percent of the total quantity of this chemical. Five of the seven facilities reported approximately 99 percent of the total quantity of pendimethalin in 2004.

Exhibit 4.203. Distribution of Quantities by Facilities Reporting Pendimethalin, 2004

Pendimethalin (475,695 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 – 100 pounds	0	0.0%
101 – 1,000 pounds	0	0.0%
1,001 – 10,000 pounds	2	1.1%
10,001 – 100,000 pounds	4	44.2%
100,001 – 1 million pounds	1	54.7%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.204 and 4.205 show the quantity of pendimethalin reported by facilities in five EPA regions in 2000 to 2004. In 2004, facilities in Regions 4 and 7 reported approximately 94 percent of the pendimethalin. The quantity of pendimethalin reported by Region 4 facilities increased significantly, compared to the quantities reported in 2000 as well as in 2003, by 167,000 pounds and 68,000 pounds, respectively. Since 2000, facilities in Region 7 reported a decrease of approximately 373,000 pounds.

Exhibit 4.204. Regional Quantity of Pendimethalin, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2	6,316	346	665	0	0	−100.0%	0.0%
4	20,342	69,555	68,909	119,470	187,711	822.8%	39.5%
5	13,082	7,984	11,246	25,505	26,549	102.9%	5.6%
7	634,391	122,181	341,007	284,576	261,435	−58.8%	55.0%
9	0	129	0	0	0	NA	0.0%
Total	**674,131**	**200,195**	**421,827**	**429,551**	**475,695**	**−29.4%**	**100.0%**

Exhibit 4.205. Distribution of Facilities Reporting Pendimethalin in 2004 and the Quantities of Pendimethalin Reported in 2004, by Region

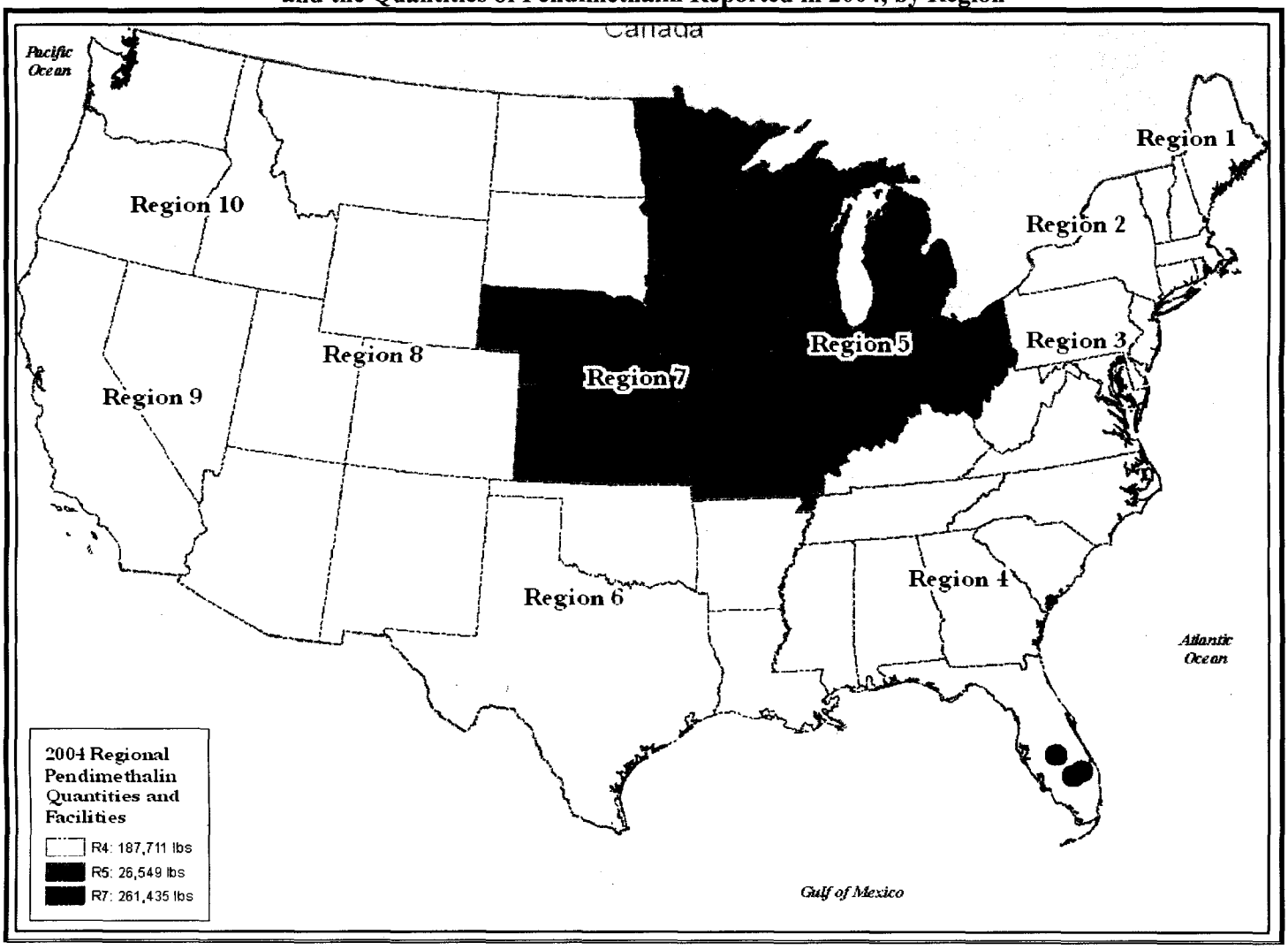


Exhibit 4.206 shows how facilities managed pendimethalin in the three EPA regions in 2004. Facilities in Regions 4 and 5 land disposed most of the pendimethalin. Region 7 facilities treated virtually 100 percent of the pendimethalin. In 2004, one facility in each of Regions 4 and four reported some recycling of pendimethalin.

Exhibit 4.206. Regional Management Methods for Pendimethalin, 2004

EPA Region	Quantity of Pendimethalin (2004)	Percent of Pendimethalin (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	187,711	39.5%	158,889	28,822	0	0	0	0	451	0
5	26,549	5.6%	0	22,510	0	0	0	4,039	2,424	0
7	261,435	55.0%	1	0	0	0	250,000	11,434	0	0
Total	**475,695**	**100.0%**	**158,890**	**51,332**	**0**	**0**	**250,000**	**15,473**	**2,875**	**0**

Exhibit 4.207. State Quantity Trends for Pendimethalin, 2000–2004

State	Total Quantity (pounds) of Pendimethalin					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)			
MO	630,401	111,401	339,641	280,131	260,235	−370,166	−58.7%	54.7%
FL	20,342	61,613	57,219	119,470	187,711	167,369	822.8%	39.5%
OH	13,082	7,984	11,246	25,505	26,549	13,467	102.9%	5.6%
IA	3,990	10,780	1,350	4,445	1,200	−2,790	−69.9%	0.3%
GA	0	7,524	11,050	0	0	0	NA	0.0%
NJ	6,316	346	665	0	0	−6,316	−100.0%	0.0%
AL	0	418	640	0	0	0	NA	0.0%
NE	0	0	16	0	0	0	NA	0.0%
CA	0	129	0	0	0	0	NA	0.0%
Total	**674,131**	**200,195**	**421,827**	**429,551**	**475,695**	**−198,436**	**−29.4%**	**100.0%**

Exhibits 4.208, 4.209, and 4.210 show the trends for the quantities of pendimethalin in the top states in which facilities reported this PC in 2004.

Exhibit 4.208. Iowa and Missouri Trends for Pendimethalin, 2000–2004

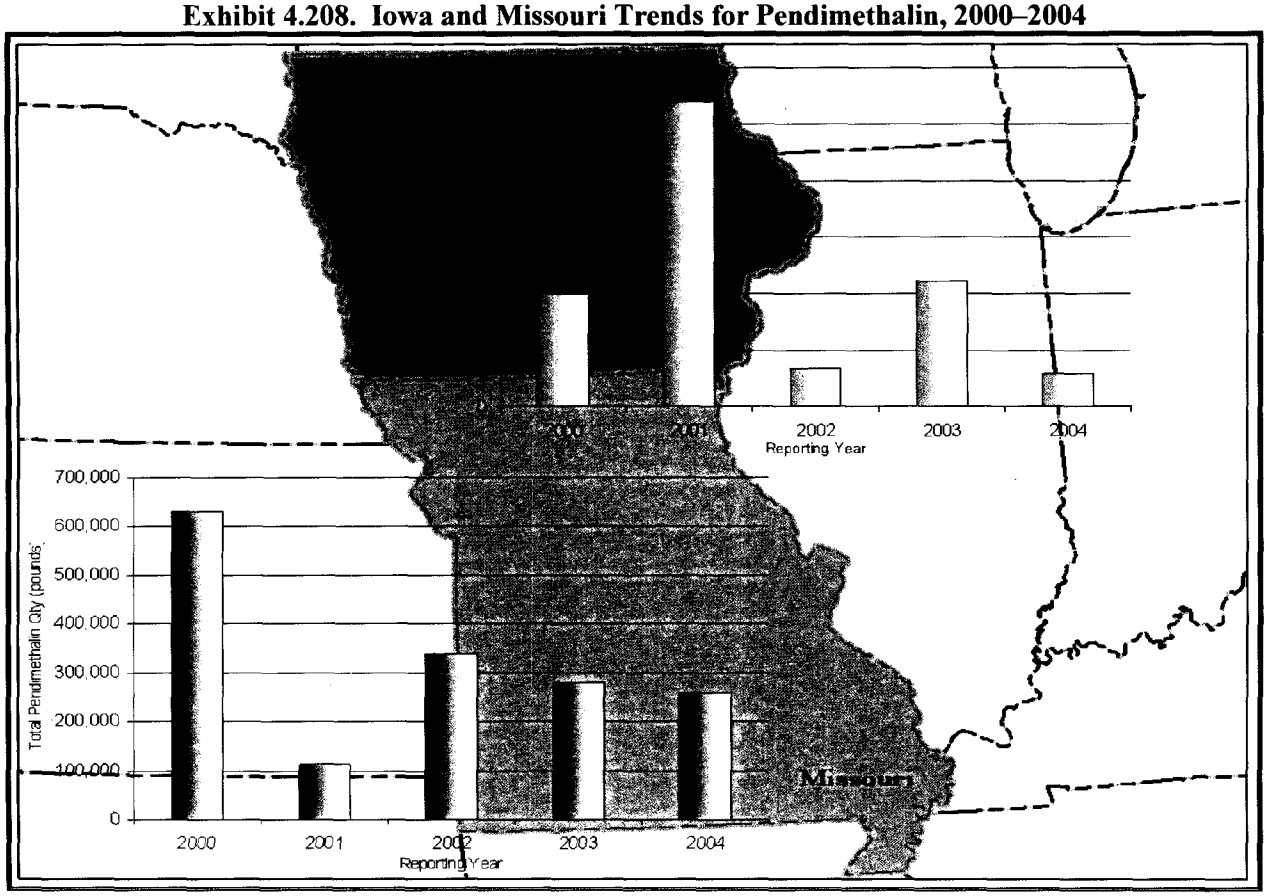


Exhibit 4.209. Georgia and Florida Trends for Pendimethalin, 2000–2004

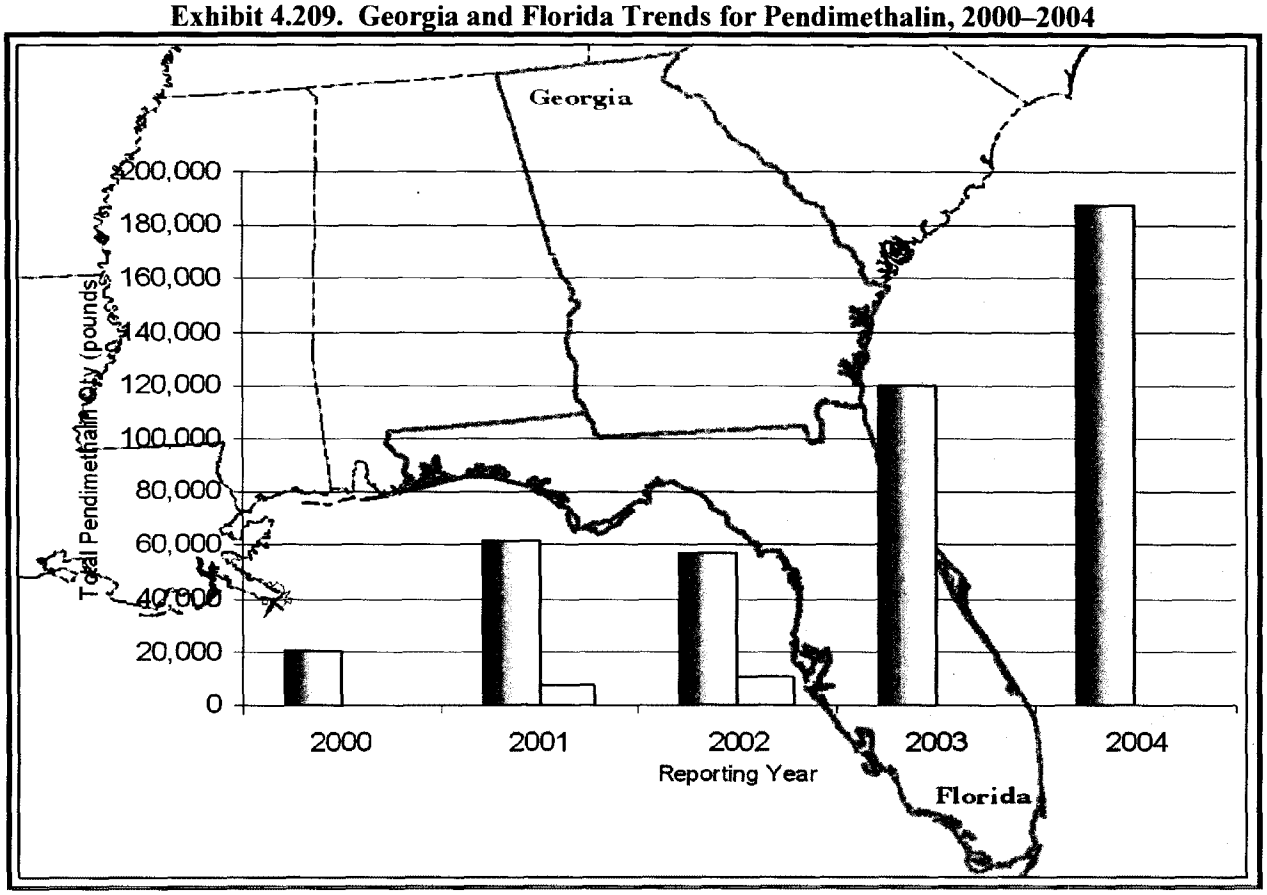
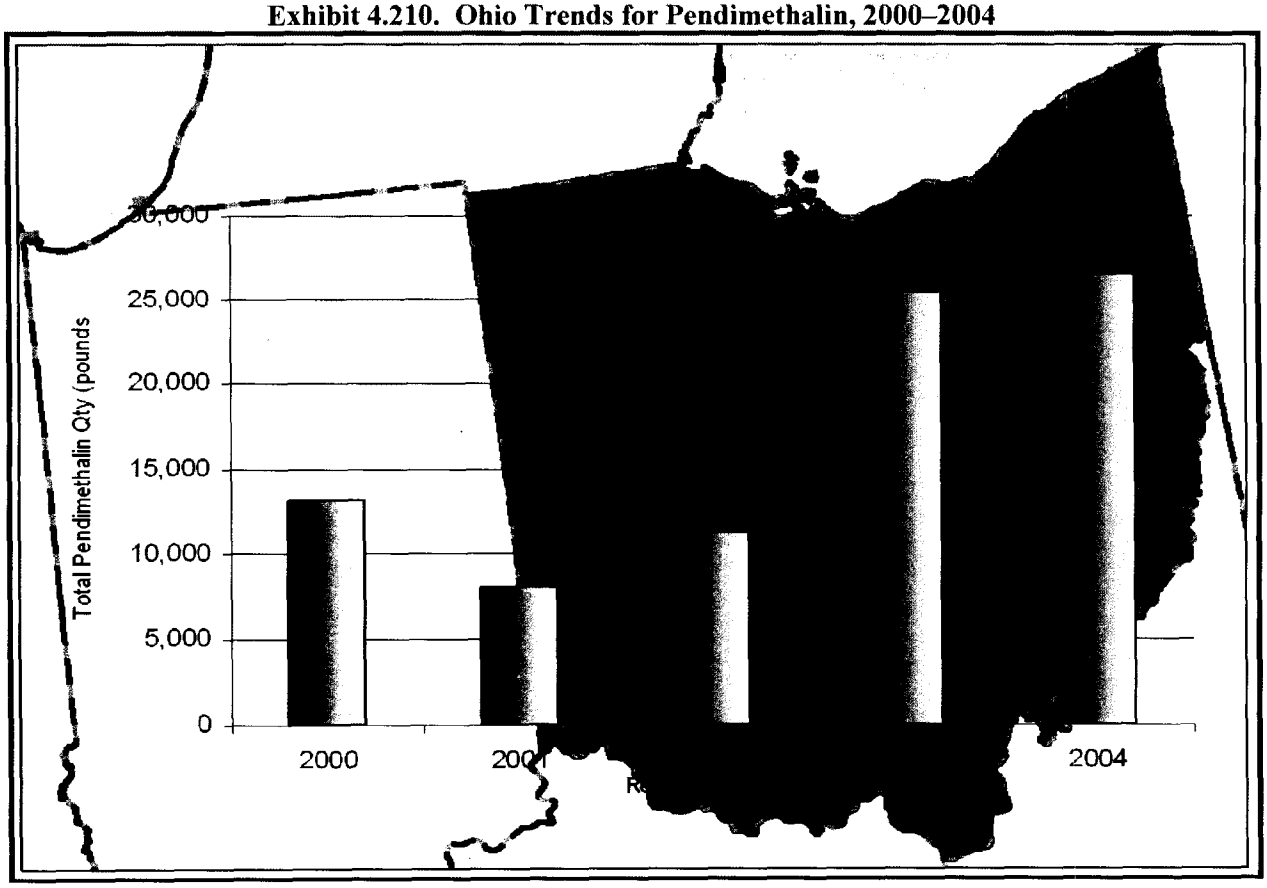


Exhibit 4.210. Ohio Trends for Pendimethalin, 2000–2004

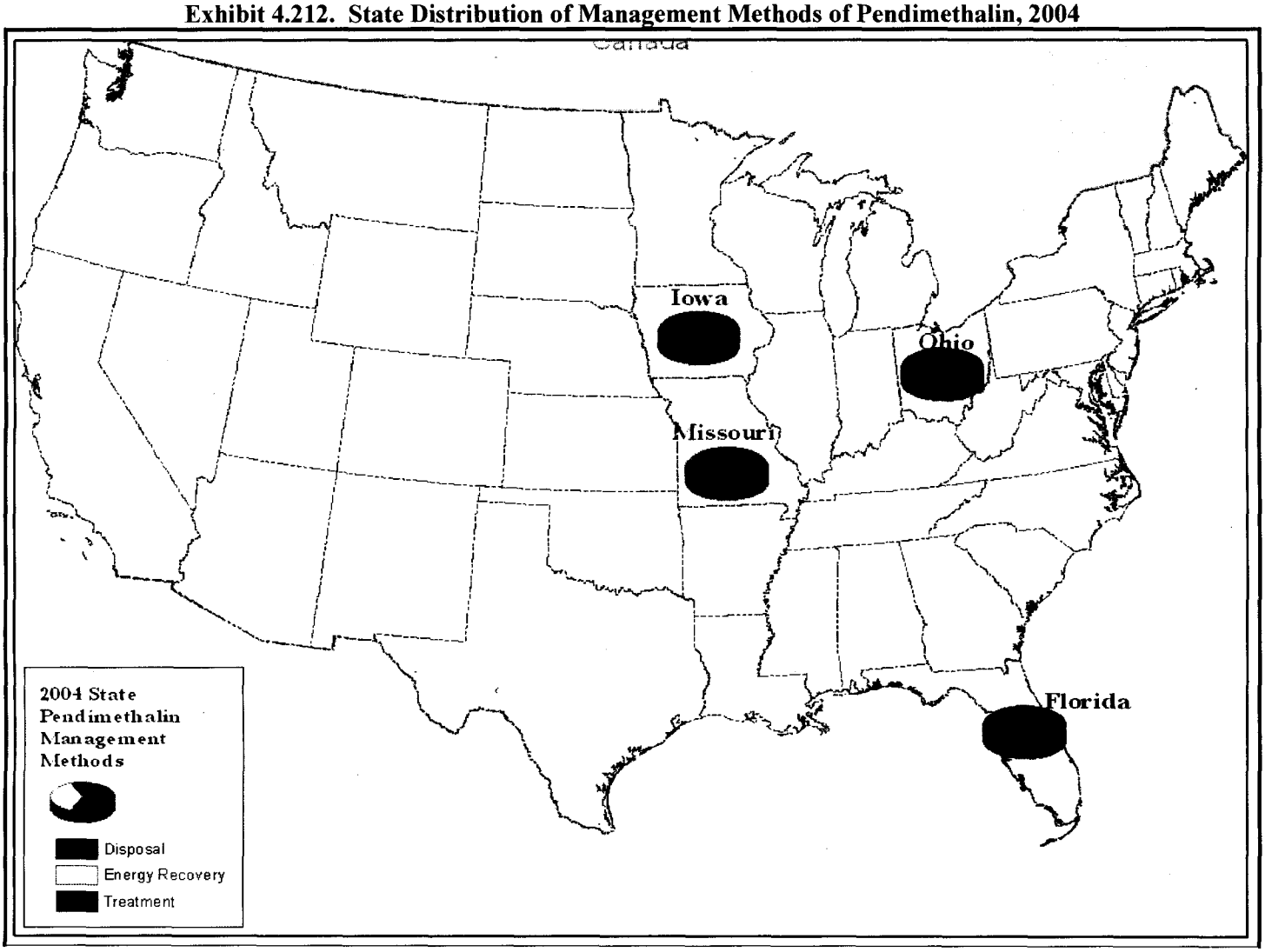


Exhibits 4.211 and 4.212 show how the seven facilities, located in four states, managed pendimethalin in 2004. Facilities in Florida and Ohio primarily land disposed pendimethalin. Facilities in Iowa and Missouri treated virtually 100 percent of the pendimethalin. Less than 3,000 pounds of pendimethalin were recycled in 2004; a facility in Ohio reported most of the recycled quantity.

Exhibit 4.211. State Management Methods for Pendimethalin, 2004

State	Total Quantity of Pendimethalin (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
FL	187,711	158,889	28,822	0	0	0	0	451	0
IA	1,200	0	0	0	0	0	1,200	0	0
MO	260,235	1	0	0	0	250,000	10,234	0	0
OH	26,549	0	22,510	0	0	0	4,039	2,424	0
Total	**475,695**	**158,890**	**51,332**	**0**	**0**	**250,000**	**15,473**	**2,875**	**0**

Exhibit 4.212. State Distribution of Management Methods of Pendimethalin, 2004



Industry Sector (SIC) Trends:

Exhibit 4.213 shows the quantity of pendimethalin reported by facilities in six industry sectors from 2000 to 2004. In 2004, only seven facilities in three industry sectors reported pendimethalin. Compared to the quantities of pendimethalin reported in 2000, facilities in SIC 2879 (Pesticides and agricultural chemicals, nec) reported a decrease of approximately 379,000 pounds. Since 2000, two facilities in Florida have reported used SIC 2061 (Raw cane sugar) or SIC 2062 (Cane sugar refining). As such, the quantities for these two industry sectors are in reality from the same two facilities.

Exhibit 4.213. Industry Sectors Containing Pendimethalin, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Pendimethalin (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2879	Pesticides and agricultural chemicals, nec	2	640,375	122,342	341,007	284,576	261,435	-378,940	55.0%
2061	Raw cane sugar	2	20,342	0	0	0	158,889	138,547	33.4%
2875	Fertilizers, mixing only	3	13,082	56,650	23,656	43,014	55,371	42,289	11.6%
2062	Cane sugar refining	0	0	20,889	56,499	101,961	0	0	0.0%
2869	Industrial organic chemicals, nec	0	332	185	665	0	0	-332	0.0%
2874	Phosphatic fertilizers	0	0	129	0	0	0	0	0.0%
	Total	**7**	**674,131**	**200,195**	**421,827**	**429,551**	**475,695**	**-198,436**	**100.0%**

Exhibit 4.214 shows how facilities in these three industry sectors managed pendimethalin in 2004. Onsite treatment was the primary method used by facilities in SIC 2879. The two facilities in SIC 2061 used onsite land disposal. Facilities in SIC 2875 primarily used offsite land disposal. In 2004, two of the SIC 2875 facilities reported some recycling of pendimethalin.

Exhibit 4.214. Industry Sector Management Methods for Pendimethalin, 2004

Primary SIC	SIC Description	Total Quantity of Pendimethalin (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2879	Pesticides and agricultural chemicals, nec	261,435	55.0%	1	0	0	0	250,000	11,434	0	0
2061	Raw cane sugar	158,889	33.4%	158,889	0	0	0	0	0	0	0
2875	Fertilizers, mixing only	55,371	11.6%	0	51,332	0	0	0	4,039	2,875	0
	Total	**475,695**	**100.0%**	**158,890**	**51,332**	**0**	**0**	**250,000**	**15,473**	**2,875**	**0**

Pentachlorobenzene

Chemical Information:

CAS Number – 608–93–5

Alternate Names – 1,2,3,4,5–Pentachlorobenzene

General Uses – Pentachlorobenzene is used to make pentachloronitrobenzene, a fungicide. In addition, it has been and is currently used as a fire retardant.

Potential Hazards – Short–term exposure to pentachlorobenzene can affect the central nervous system. Long–term exposure can affect the liver and kidneys and can cause tissue lesions.

Summary Analysis:

- NATIONAL: In 2004, seven facilities reported approximately 609,000 pounds of pentachlorobenzene. Compared to the quantity of pentachlorobenzene reported in 2000, there was a 154 percent decrease in 2004; there likewise was an increase of 124,000 pounds, or 26 percent, compared to the 2003 quantity.
- REGIONAL/STATE: Facilities in Region 6 reported almost 100 percent of the pentachlorobenzene; three facilities in Louisiana reported over 99 percent of the total quantity.
- FACILITIES: Of the seven facilities that reported pentachlorobenzene in 2004, two facilities accounted for over 99 percent of the total quantity of this chemical.
- MANAGEMENT: Since 2000, virtually the entire quantity of pentachlorobenzene was treated.
- INDUSTRY SECTOR: Two facilities in each of two sectors: SIC 2812 (Alkalies and chlorine) and SIC 2869 (Industrial organic chemicals, nec) reported over 99 percent of the total quantity in 2004.

National Trends:

Exhibit 4.215 shows the number of facilities that reported pentachlorobenzene in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, seven facilities reported approximately 609,000 pounds of pentachlorobenzene. Since 2000, no more than seven facilities reported pentachlorobenzene in any year. Compared to the quantity of pentachlorobenzene reported in 2000, there was a 154 percent decrease in 2004; there likewise was an increase of 124,000 pounds, or 26 percent, compared to the 2003 quantity.

Since 2000, virtually the entire quantity of pentachlorobenzene was treated. Relatively little recycling of pentachlorobenzene was reported in 2000–2004.

Exhibit 4.215. National Management Methods for Pentachlorobenzene, 2000–2004

Management Methods of Pentachlorobenzene and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	5	4	5	5	7	40.0%	-
Disposal Quantity (pounds)	13	1	3	26	30	132.3%	0.0%
Energy Recovery Quantity (pounds)	0	0	0	0	1,335	NA	0.2%
Treatment Quantity (pounds)	239,838	487,718	311,142	484,707	607,325	153.2%	99.8%
Priority Chemical Quantity (pounds)	239,852	487,719	311,145	484,733	608,691	153.8%	-
Recycling Quantity (pounds)*	1	770	210	18,111	399	39800.0%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.216 shows the number of facilities that reported pentachlorobenzene within various quantity ranges. Of the seven facilities that reported pentachlorobenzene in 2004, two facilities accounted for more than 99 percent of the total quantity of this chemical.

Exhibit 4.216. Distribution of Quantities by Facilities Reporting Pentachlorobenzene, 2004

Pentachlorobenzene (608,691 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 – 100 pounds	2	less than 0.1%
101 – 1,000 pounds	2	0.3%
1,001 – 10,000 pounds	1	0.4%
10,001 – 100,000 pounds	0	0.0%
100,001 – 1 million pounds	2	99.3%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibits 4.217 and 4.218 show the quantity of pentachlorobenzene reported by facilities in each EPA Region in 2000 to 2004. In 2004, facilities in Region 6 reported almost 100 percent of the pentachlorobenzene. In Region 6, facilities reported an increase of approximately 369,000 pounds since 2000, including an increase of 124,000 pounds since 2003.

Exhibit 4.217. Regional Quantity Trends for Pentachlorobenzene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
4	8	0	0	0	30	275.0%	0.00%
5	76	66	103	93	59	–22.5%	0.01%
6	239,768	487,483	310,972	484,640	608,602	153.8%	99.99%
8	0	170	70	0	0	NA	0.00%
Total	**239,852**	**487,719**	**311,145**	**484,733**	**608,691**	**153.8%**	**100.0%**

Exhibit 4.218. Distribution of Facilities Reporting Pentachlorobenzene in 2004 and the Quantities of Pentachlorobenzene Reported in 2004, by EPA Region

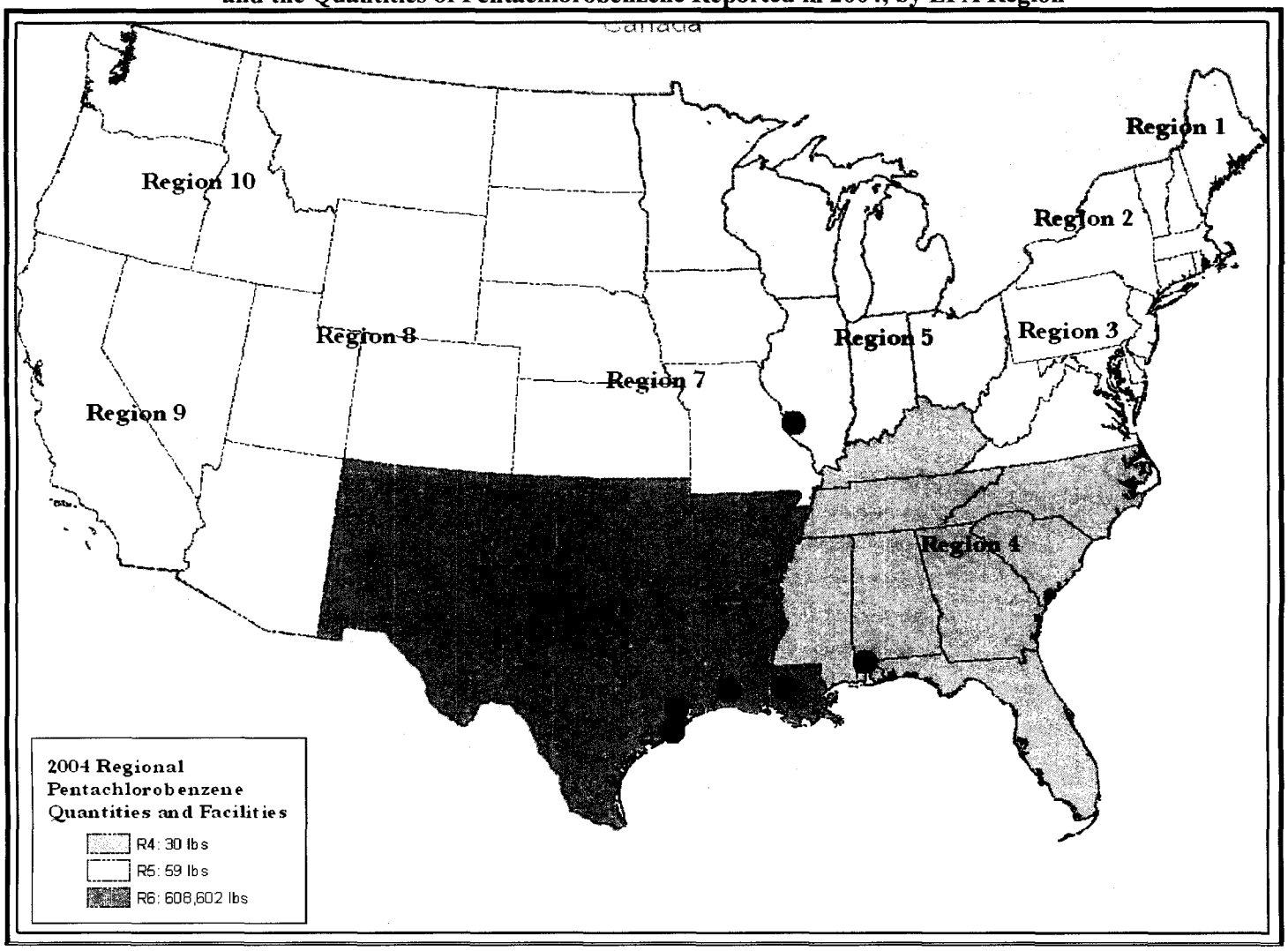


Exhibit 4.219 shows how facilities in each of these three EPA regions managed pentachlorobenzene in 2004. In 2004, virtually 100 percent of pentachlorobenzene was treated onsite by these facilities. Only relatively small quantities of pentachlorobenzene were land disposed or sent to energy recovery. A facility in Region 6 recycled approximately 400 pounds of pentachlorobenzene in 2004.

State Trends:

Facilities in only six states reported pentachlorobenzene in 2000–2004; in 2004, facilities in four states reported this chemical (Exhibits 4.220 and 4.221). In 2004, three facilities in Louisiana reported over 99 percent of the total quantity. Since 2000, these Louisiana facilities reported an increase of approximately 607,000 pounds or approximately 412 percent. These facilities also reported a significant increase of approximately 156,000 pounds compared to the quantities reported in 2003.

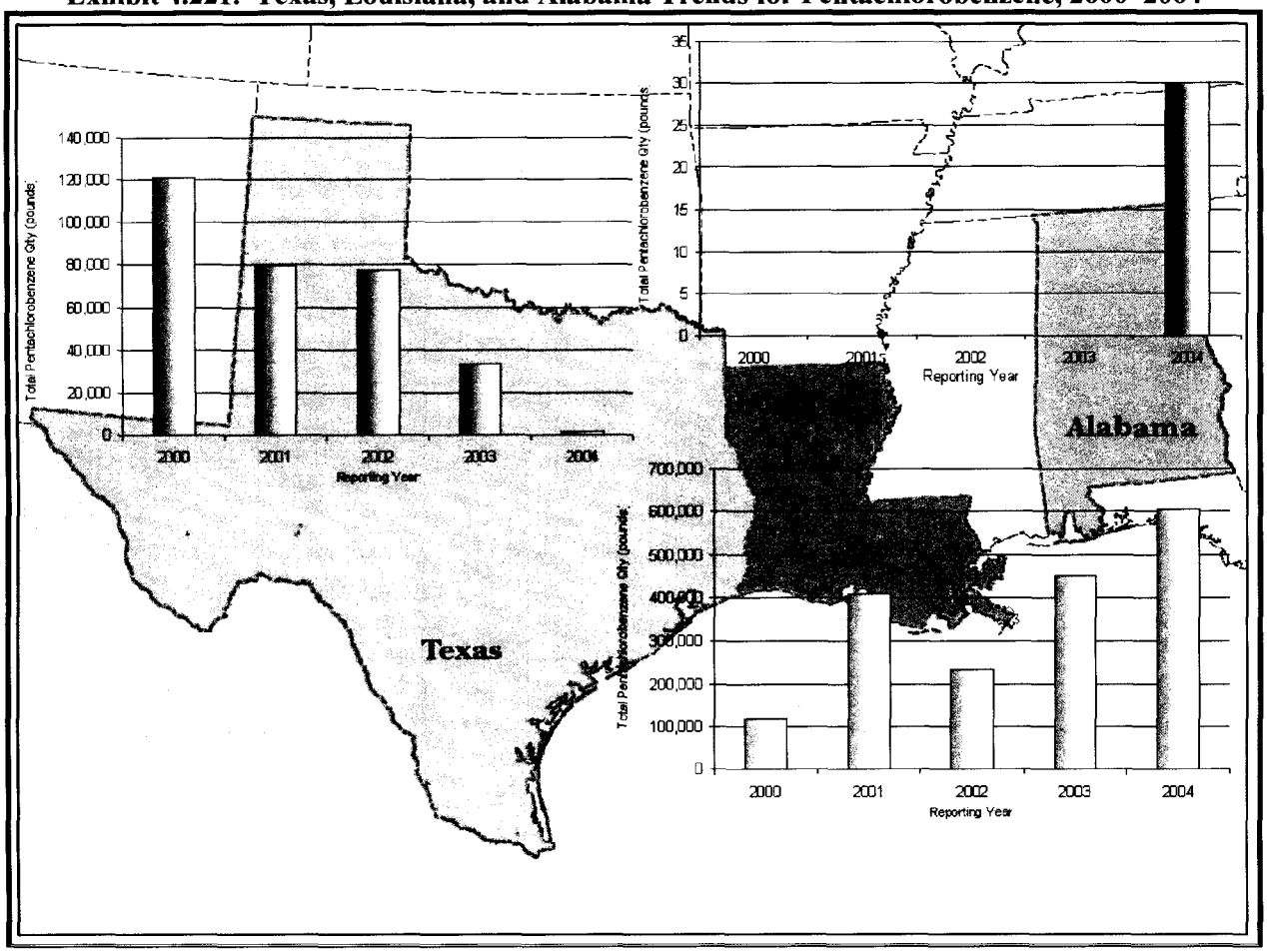
Exhibit 4.219. Regional Management Methods for Pentachlorobenzene, 2004

EPA Region	Quantity (pounds) of Pentachlorobenzene (2004)	Percent of Total Quantity of Pentachlorobenzene (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	30	0.00%	0	0	0	0	0	30	0	0
5	59	0.01%	0	0	0	0	0	59	0	0
6	608,602	99.99%	30	0	1,335	0	606,667	570	399	0
Total	**608,691**	**100.00%**	**30**	**0**	**1,335**	**0**	**606,667**	**659**	**399**	**0**

Exhibit 4.220. State Quantity Trends for Pentachlorobenzene, 2000–2004

State	Total Quantity (pounds) of Pentachlorobenzene					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
LA	118,629	407,918	233,271	451,249	606,963	488,334	411.6%	99.7%
TX	121,138	79,565	77,701	33,391	1,639	−119,500	−98.6%	0.3%
IL	76	66	103	93	59	−17	−22.5%	0.0%
AL	0	0	0	0	30	30	NA	0.0%
CO	0	170	70	0	0	0	NA	0.0%
KY	8	0	0	0	0	−8	−100.0%	0.0%
Total	**239,852**	**487,719**	**311,145**	**484,733**	**608,691**	**368,839**	**153.8%**	**100.0%**

Exhibit 4.221. Texas, Louisiana, and Alabama Trends for Pentachlorobenzene, 2000–2004

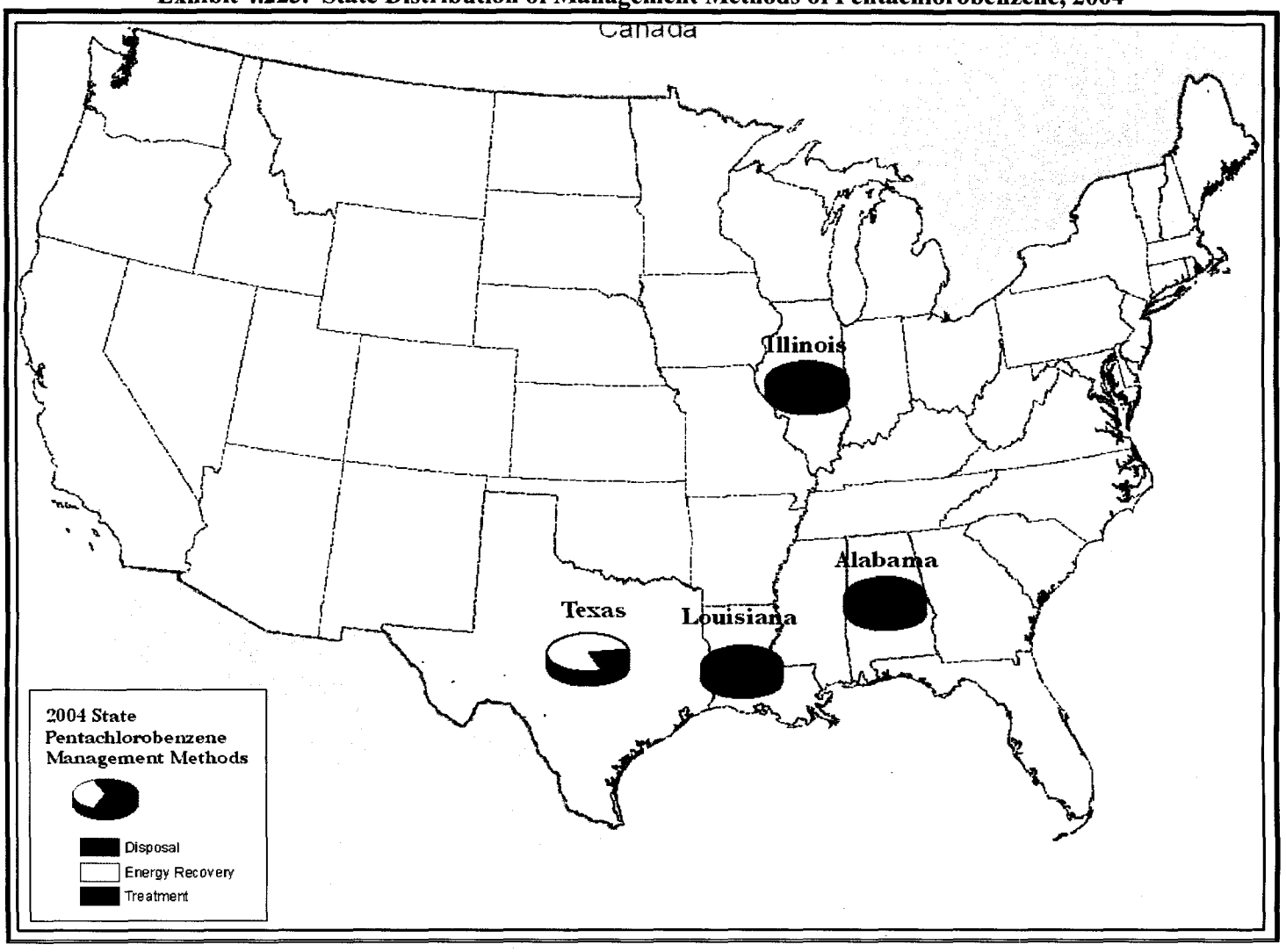


Exhibits 4.222 and 4.223 show how facilities in the four states managed pentachlorobenzene in 2004. Overall, nearly 100 percent of the pentachlorobenzene was treated, primarily onsite. Two facilities in Texas primarily used onsite energy recovery. Only a relatively small quantity of pentachlorobenzene was land disposed by a facility in Texas. This same facility reported the only recycling of pentachlorobenzene in 2004.

Exhibit 4.222. State Management Methods for Pentachlorobenzene, 2000–2004

State	Total Quantity of Pentachlorobenzene (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
LA	606,963	0	0	0	0	606,465	498	0	0
TX	1,639	30	0	1,335	0	202	72	399	0
IL	59	0	0	0	0	0	59	0	0
AL	30	0	0	0	0	0	30	0	0
Total	**608,691**	**30**	**0**	**1,335**	**0**	**606,667**	**659**	**399**	**0**

Exhibit 4.223. State Distribution of Management Methods of Pentachlorobenzene, 2004



Industry Sector (SIC) Trends:

Exhibit 4.224 shows the quantity of pentachlorobenzene reported by facilities in six industry sectors from 2000 to 2004. Two facilities in each of two sectors: SIC 2812 (Alkalies and chlorine) and SIC 2869 (Industrial organic chemicals, nec) reported more than 99 percent of the total quantity in 2004. Compared to quantities reported in 2000, both these facilities reported large increases of 140,000 pounds and 224,000 pounds, respectively, in 2004. These included increases of 51,000 pounds and 69,000 pounds, respectively, compared to quantities these facilities reported in 2003.

The large increase that occurred in 2003 for the SIC 2869 facilities is misleading. For the 2003 reporting year, two facilities (one in Louisiana, one in Texas) changed their primary SIC code from 2812 to 2869. In 2004, one of these facilities further changed its primary SIC code from SIC 2869 to SIC 2821, resulting in approximately 3,600 pounds reported for SIC 2821.

Exhibit 4.224. Industry Sectors Containing Pentachlorobenzene, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Pentachlorobenzene (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2812	Alkalies and chlorine	1	239,768	487,483	307,772	329,626	380,240	140,472	62.5%
2869	Industrial organic chemicals, nec	1	8	0	3,200	155,014	224,023	224,015	36.8%
2821	Plastics materials and resins	2	0	0	0	0	3,573	3,573	0.6%
2819	Industrial inorganic chemicals, nec	1	0	170	70	0	766	766	0.1%
2865	Cyclic crudes and intermediates	1	76	66	103	93	59	−17	0.0%
2879	Pesticides and agricultural chemicals, nec	1	0	0	0	0	30	30	0.0%
	Total	**7**	**239,852**	**487,719**	**311,145**	**484,733**	**608,691**	**368,839**	**100.0%**

Exhibit 4.225 shows how facilities in these five industry sectors managed pentachlorobenzene in 2004. In 2004, most of the pentachlorobenzene was treated, primarily onsite. Facilities in both SIC 2865 and SIC 2879 used offsite treatment.

Exhibit 4.225. Industry Sector Management Methods for Pentachlorobenzene, 2004

Primary SIC	SIC Description	Total Quantity of Pentachlorobenzene (2004	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2812	Alkalies and chlorine	380,240	62.5%	0	0	0	0	379,742	498	0	0
2869	Industrial organic chemicals, nec	224,023	0.0%	0	0	0	0	224,023	0	0	0
2821	Plastics materials and resins	3,573	0.6%	30	0	569	0	2,902	72	399	0
2819	Industrial inorganic chemicals, nec	766	36.8%	0	0	766	0	0	0	0	0
2865	Cyclic crudes and intermediates	59	0.1%	0	0	0	0	0	59	0	0
2879	Pesticides and agricultural chemicals, nec	30	0.0%	0	0	0	0	0	30	0	0
	Total	**608,691**	**100.0%**	**30**	**0**	**1,335**	**0**	**606,667**	**659**	**399**	**0**

Pentachlorophenol

Chemical Information:

CAS Number – 87–86–5

Alternate Names – 2,3,4,5,6–Pentachlorophenol

General Uses – Pentachlorophenol was used as a biocide to kill small organisms and is now used as a wood preservative to protect wood from decay and insect attack.

Potential Hazards – Pentachlorophenol is toxic; inhalation, ingestion, or skin contact may cause severe injury or death.

Summary Analysis:

- NATIONAL: In 2004, 15 facilities reported approximately 117,000 pounds of pentachlorophenol; this is the fewest number of facilities reporting this chemical in 2000–2004. Compared to the quantity of pentachlorophenol reported in 2000, there was an increase of approximately 47,000 pounds or 68 percent in 2004.
- REGIONAL: In 2004, facilities in five of the EPA regions reported pentachlorophenol. Compared to the quantities reported in 2000, facilities in EPA Region 4 reported a large increase of approximately 84,000 pounds. Most of this increase was reported by two facilities, one each in Mississippi and South Carolina.
- STATES: Facilities in three states (Mississippi, South Carolina, and Missouri) reported approximately 93 percent of the total quantity of this chemical in 2004.
- MANAGEMENT: Since 2000, facilities primarily treated pentachlorophenol offsite, including 66 percent of the total quantity in 2004. Energy recovery was used for approximately 32 percent of the total quantity. Only a small quantity of pentachlorophenol was recycled in 2004.
- FACILITIES: Of the 15 facilities that reported pentachlorophenol in 2004, two facilities accounted for 84 percent of the total quantity.
- INDUSTRY SECTOR: In 2004, all 15 facilities that reported pentachlorophenol were in SIC 2491 (Wood preserving). Compared to quantities reported in both 2000 and 2003, facilities in SIC 2491 reported a large increase in 2004. Two facilities accounted for most of the increase, attributing the increase to the combination of increased production of pentachlorophenol treated wood and a different technique for estimating the concentration of pentachlorophenol in waste streams.

National Trends:

Exhibit 4.226 shows the number of facilities that reported pentachlorophenol from 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, 15 facilities reported approximately 117,000 pounds of pentachlorophenol; this is the fewest number of facilities reporting this chemical for 2000–2004. Compared to the quantity of pentachlorophenol reported in 2000, there was an increase of approximately 47,000 pounds or 68 percent in 2004; the quantity had been steadily decreasing since 2000.

Since 2000, facilities primarily treated pentachlorophenol, including 66 percent of the total quantity in 2004. From 2000 to 2003, facilities used energy recovery and disposal for only approximately 13 percent of the pentachlorophenol. However, in 2004, the energy recovery quantity increased dramatically to approximately 32 percent of the total quantity. Only a small quantity of pentachlorophenol was recycled in 2004.

Exhibit 4.226. National Management Method Trends for Pentachlorophenol, 2000–2004

Management Methods for Pentachlorophenol and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	24	25	20	18	15	–37.5%	-
Disposal Quantity (pounds)	1,573	2,198	112	1,381	1,966	25.0%	1.7%
Energy Recovery Quantity (pounds)	4,019	5,017	4,319	2,153	37,625	836.1%	32.1%
Treatment Quantity (pounds)	64,240	47,123	32,425	24,761	77,673	20.9%	66.2%
Priority Chemical Quantity (pounds)	69,832	54,339	36,856	28,295	117,264	67.9%	-
Recycling Quantity (pounds)*	10,000	3,160	3,261	54	72	–99.3%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.227 shows the number of facilities that reported pentachlorophenol within various ranges of quantities. Of the 15 facilities that reported pentachlorophenol in 2004, two facilities accounted for 84 percent of the total quantity.

Exhibit 4.227. Distribution of Quantities by Facilities Reporting Pentachlorophenol, 2004

Pentachlorophenol (117,264 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 – 100 pounds	2	less than 0.1%
101 – 1,000 pounds	7	3.3%
1,001 – 10,000 pounds	4	12.3%
10,001 – 100,000 pounds	2	84.4%
100,001 – 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibit 4.228 shows the quantity of pentachlorophenol reported by facilities in eight EPA regions in 2000 to 2004. In 2004, facilities in five of the EPA regions reported pentachlorophenol.

Compared to the quantities reported in 2000, facilities in EPA Region 4 reported a large increase of approximately 84,000 pounds. Most of this increase was reported by two facilities, one each in Mississippi and South Carolina. These facilities attributed the increase to the combination of increased production of pentachlorophenol treated wood and a different technique for estimating the concentration of pentachlorophenol in waste streams. In EPA Region 3, the decreased quantity occurred because a facility that had reported pentachlorophenol for 2000–2002, no longer reported it.

Compared to quantities reported in 2003, facilities in EPA Region 4 reported a large increase of approximately 82,000 pounds. As previously noted, most of this increase was reported by two facilities, one each in Mississippi and South Carolina.

Exhibit 4.228. Regional Quantity of Pentachlorophenol, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total quantity of This PC (2004)
3	42,012	20,298	715	0	0	−100.0%	0.0%
4	17,320	26,337	28,263	19,360	101,266	484.7%	86.4%
5	0	2,697	953	589	0	NA	0.0%
6	192	541	4,003	4,105	4,205	2090.3%	3.6%
7	2	637	726	1,459	9,015	450650.0%	7.7%
8	0	599	555	0	0	NA	0.0%
9	3,400	755	1,099	955	607	−82.1%	0.5%
10	6,906	2,475	542	1,827	2,171	−68.6%	1.9%
Total	**69,832**	**54,339**	**36,856**	**28,295**	**117,264**	**67.9%**	**100.0%**

Exhibit 4.229. Distribution of Facilities Reporting Pentachlorophenol in 2004 and the Quantities of Pentachlorophenol Reported in 2004, by EPA Region

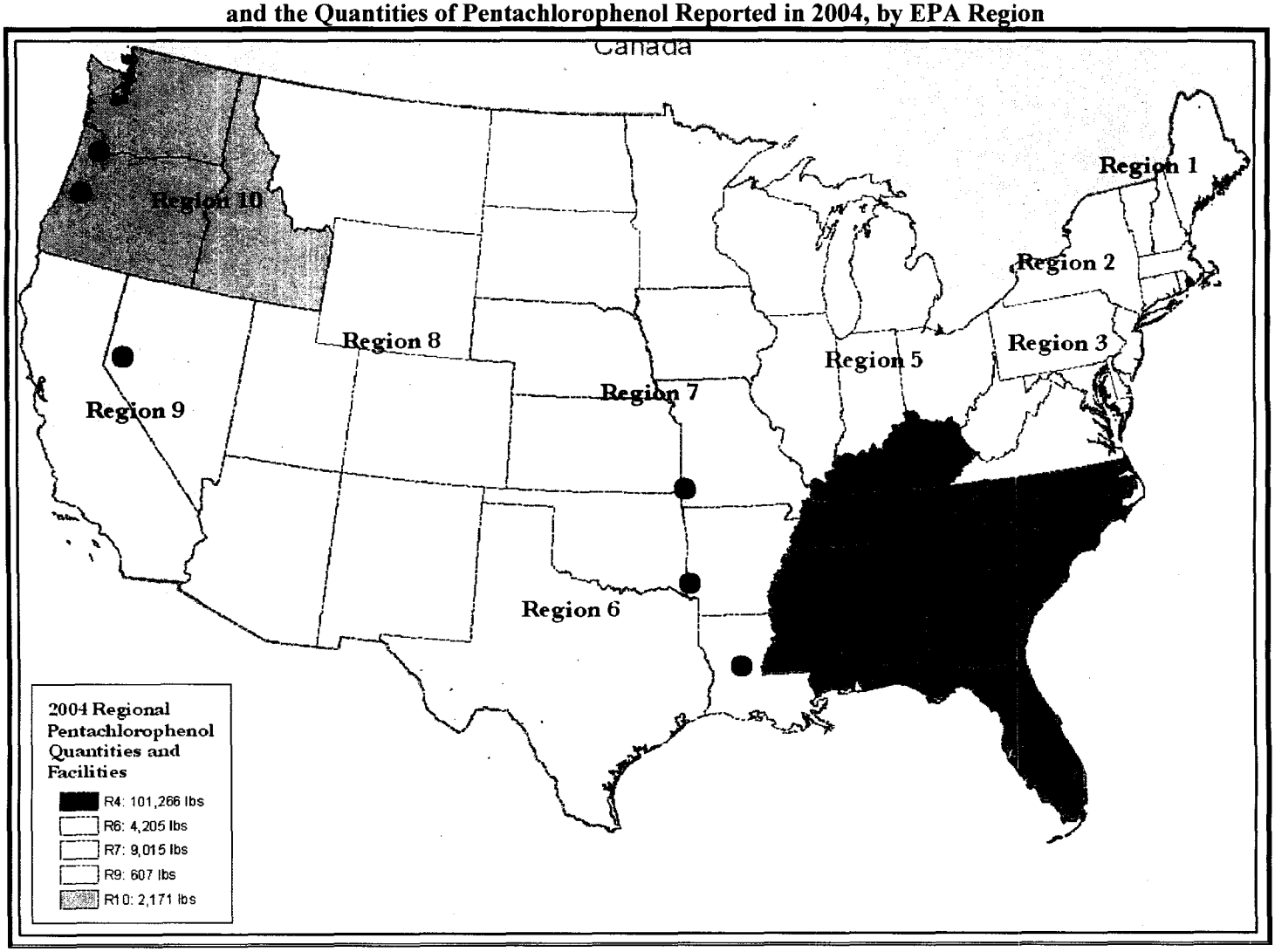


Exhibit 4.230 shows how facilities, by EPA region, managed pentachlorophenol in 2004. In 2004, facilities used offsite treatment for approximately 66 percent of the pentachlorophenol and offsite energy recovery for approximately 32 percent of the total quantity. Two facilities in EPA Region 6 reported most of the offsite disposal; these facilities land disposed approximately 45 percent of the pentachlorophenol.

State Trends:

Facilities in 15 states reported pentachlorophenol in 2000–2004 (Exhibit 4.231). Facilities in three states (Mississippi, South Carolina, and Missouri) reported approximately 93 percent of the total quantity of this chemical in 2004. Compared to quantities reported in both 2000 and 2003, facilities in Mississippi and South Carolina reported large increases in 2004. One facility in each of these two states accounted for most of the increase; both facilities attributed the increase to the combination of increased production of pentachlorophenol treated wood and a different technique for estimating the concentration of pentachlorophenol in waste streams. In Maryland, the decreased quantity occurred because a facility that had reported pentachlorophenol for 2000–2002, no longer reported it.

Exhibit 4.230. Regional Management Methods for Pentachlorophenol, 2004

EPA Region	Quantity (pounds) of Pentachlorophenol (2004)	Percent of Total Quantity of Pentachlorophenol (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	101,266	86.4%	0	5	0	28,780	236	72,245	52	0
6	4,205	3.6%	0	1,903	0	0	0	2,302	0	0
7	9,015	7.7%	0	0	0	8,845	0	170	0	0
9	607	0.5%	0	0	0	0	0	607	0	0
10	2,171	1.9%	0	58	0	0	0	2,112	0	20
Total	**117,264**	**100.0%**	**0**	**1,966**	**0**	**37,625**	**236**	**77,437**	**52**	**20**

Exhibit 4.231. State Quantity Trends for Facilities Reporting Pentachlorophenol, 2000–2004

State	Total Quantity (pounds) of Pentachlorophenol					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
MS	3,068	6,753	18,505	10,861	55,776	52,708	1718.0%	47.6%
SC	2,358	13,025	5,511	6,186	43,660	41,302	1751.6%	37.2%
MO	2	637	726	1,459	9,015	9,013	450650.0%	7.7%
AR	102	508	3,944	2,770	2,705	2,603	2552.3%	2.3%
OR	5,182	1,624	542	1,827	2,171	−3,011	−58.1%	1.9%
LA	90	33	59	1,335	1,500	1,410	1566.7%	1.3%
AL	6,358	3,229	2,900	924	1,017	−5,341	−84.0%	0.9%
NC	3,684	1,430	1,011	1,157	813	−2,871	−77.9%	0.7%
NV	1,400	445	1,099	955	607	−793	−56.6%	0.5%
MN	0	2,697	953	589	0	0	NA	0.0%
GA	1,852	1,900	336	232	0	−1,852	−100.0%	0.0%
MD	42,012	20,298	715	0	0	−42,012	−100.0%	0.0%
SD	0	599	555	0	0	0	NA	0.0%
WA	1,724	851	0	0	0	−1,724	−100.0%	0.0%
CA	2,000	310	0	0	0	−2,000	−100.0%	0.0%
Total	**69,832**	**54,339**	**36,856**	**28,295**	**117,264**	**47,432**	**67.9%**	**100.0%**

Exhibits 4.232, 4.233, and 4.234 show trends for the quantities of pentachlorophenol reported by facilities in these five states.

Exhibit 4.232. Missouri, Arkansas, and Mississippi Trends for Pentachlorophenol, 2000–2004

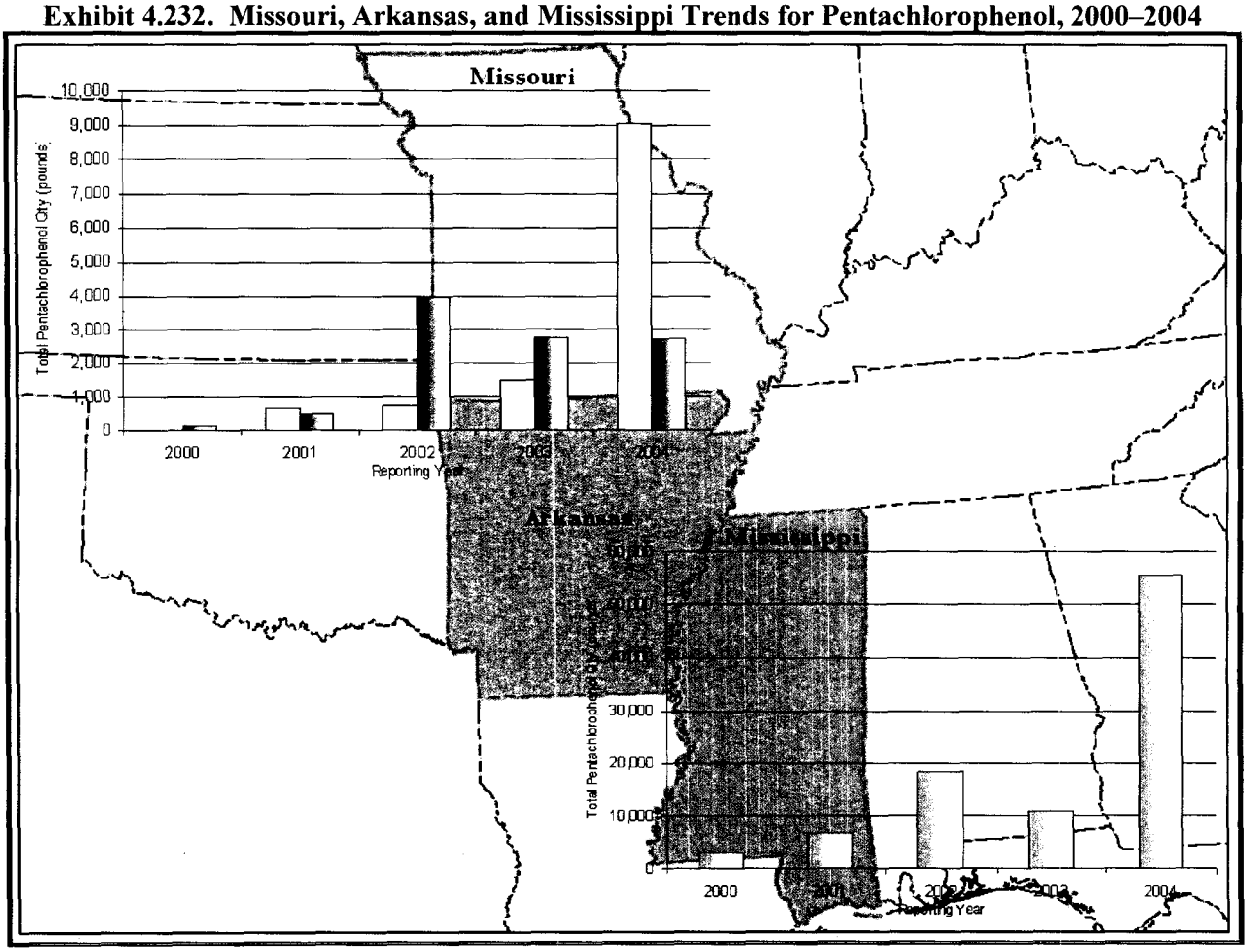


Exhibit 4.233. South Carolina Trends for Pentachlorophenol, 2000–2004

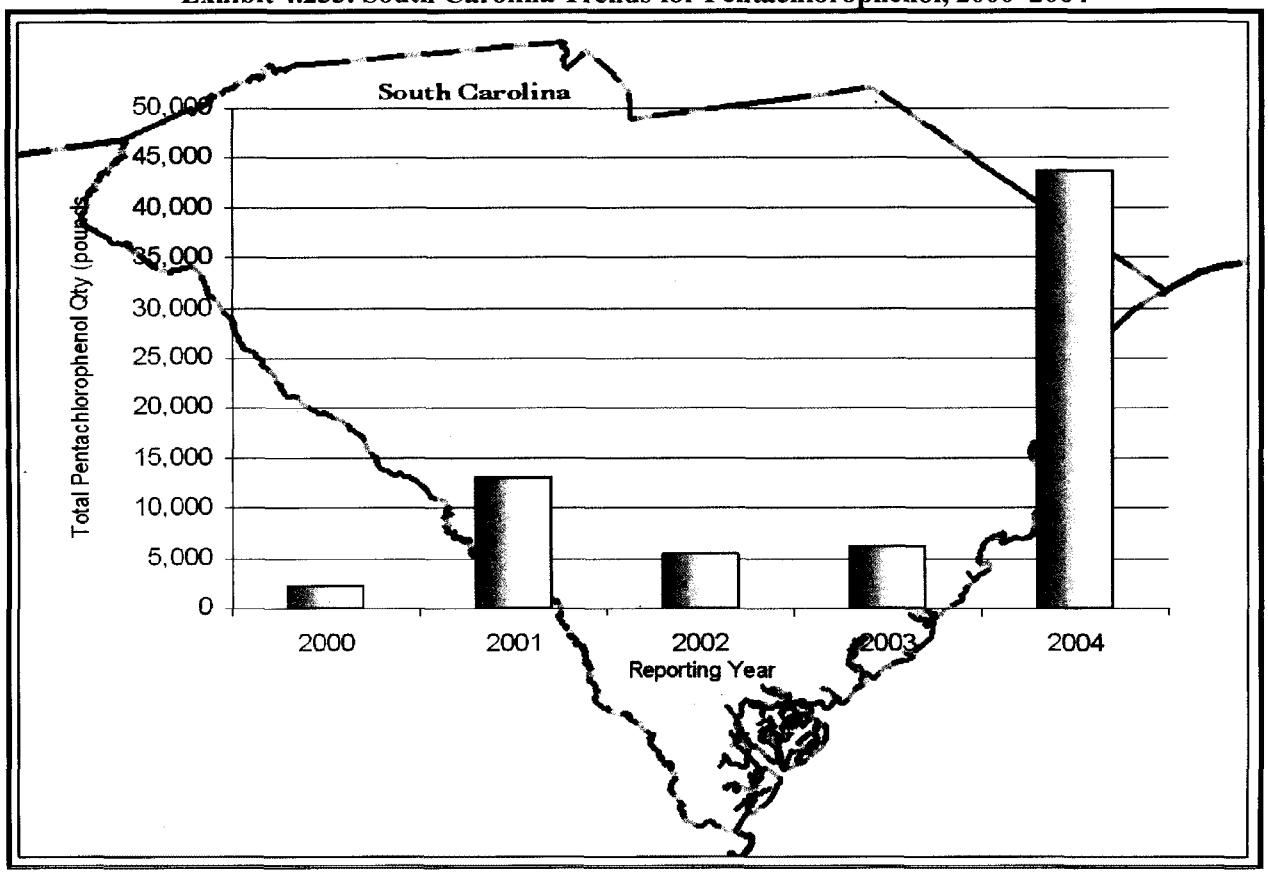


Exhibit 4.234. Oregon Trends for Pentachlorophenol, 2000–2004

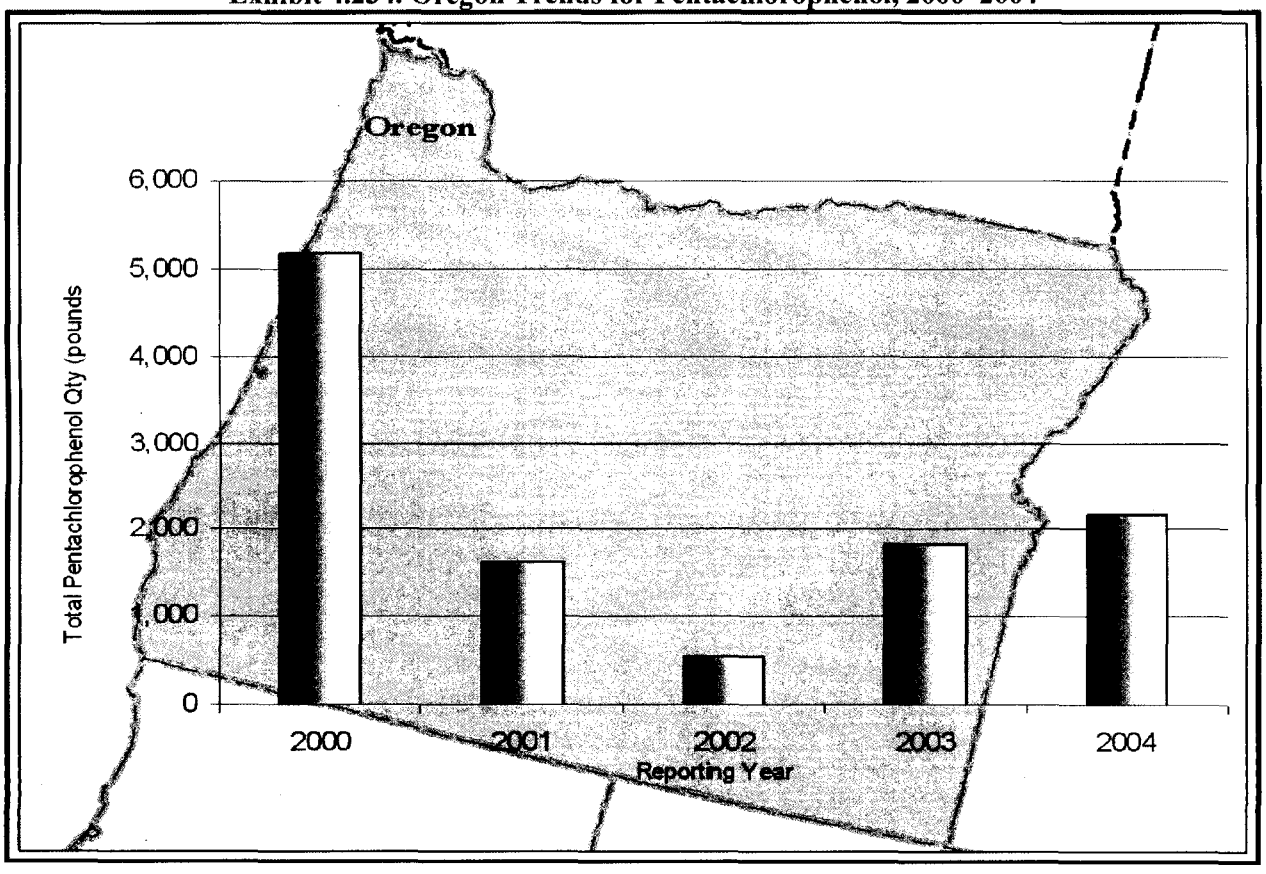


Exhibit 4.235 shows how facilities managed pentachlorophenol, by state, in 2004. Facilities in all nine states used offsite treatment to manage pentachlorophenol; facilities in four of the states also used offsite energy recovery. Facilities in Louisiana and Arkansas land disposed a significant portion of their pentachlorophenol. Very little recycling of pentachlorophenol was reported in 2004.

Exhibit 4.235. State Management Methods for Pentachlorophenol, 2004

State	Total Quantity of Pentachlorophenol (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
AL	1,017	0	0	0	688	72	257	52	0
AR	2,705	0	803	0	0	0	1,902	0	0
LA	1,500	0	1,100	0	0	0	400	0	0
MO	9,015	0	0	0	8,845	0	170	0	0
MS	55,776	0	5	0	6,311	25	49,435	0	0
NC	813	0	0	0	0	40	773	0	0
NV	607	0	0	0	0	0	607	0	0
OR	2,171	0	58	0	0	0	2,112	0	20
SC	43,660	0	0	0	21,780	99	21,780	0	0
Total	**117,264**	**0**	**1,966**	**0**	**37,625**	**236**	**77,437**	**52**	**20**

Industry Sector (SIC) Trends:

Exhibit 4.236 shows the quantity of pentachlorophenol reported by facilities in four industry sectors for 2000–2004. In 2004, all 15 facilities that reported pentachlorophenol were in SIC 2491 (Wood preserving). Compared to quantities reported in both 2000 and 2003, facilities in SIC 2491 reported a large increase in 2004. Two facilities accounted for most of the increase, attributing the increase to the combination of increased production of pentachlorophenol–treated wood and a different technique for estimating the concentration of pentachlorophenol in waste streams.

Exhibit 4.237 shows how 15 facilities in the wood preserving industry sector managed pentachlorophenol in 2004. Facilities used offsite treatment for approximately 66 percent of the pentachlorophenol and offsite energy recovery for approximately 32 percent. Land disposal was only used for less than 2,000 pounds or approximately 2 percent of the pentachlorophenol.

Exhibit 4.236. Industry Sectors Containing Pentachlorophenol, 2000–2004

Primary SIC	SIC Description	Number of Facilities That Reported Pentachlorophenol (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2491	Wood preserving	15	27,378	34,016	36,116	28,286	117,264	89,886	100.0%
2869	Industrial organic chemicals, nec	0	42,012	0	0	0	0	−42,012	0.0%
2879	Pesticides and agricultural chemicals, nec	0	0	20,298	715	0	0	0	0.0%
5169	Chemicals and allied products, nec	0	442	25	25	9	0	−442	0.0%
	Total	**15**	**69,832**	**54,339**	**36,856**	**28,295**	**117,264**	**47,432**	**100.0%**

Exhibit 4.237. Industry Sector Management Methods for Pentachlorophenol, 2004

Primary SIC	SIC Description	Total Quantity of Pentachlorophenol (2004	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2491	Wood preserving	117,264	100.0%	0	1,966	0	37,625	236	77,437	52	20
	Total	**117,264**	**100.0%**	**0**	**1,966**	**0**	**37,625**	**236**	**77,437**	**52**	**20**

Phenanthrene

Chemical Information:

CAS Number – 85–01–8

Alternate Names – PhenAnthracene

General Uses – Phenanthrene is used to make dyes, plastics, pesticides, explosives and drugs. It has also been used to make bile acids, cholesterol and steroids.

Potential Hazards – Phenanthrene may cause irritation to the skin and respiratory tract. It emits acrid smoke and fumes when heated to decomposition.

Summary Analysis:

- NATIONAL: In 2004, 55 facilities reported approximately 2.3 million pounds of phenanthrene. Compared to the quantity reported in 2000, there was a significant increase of approximately 1.3 million pounds or approximately 131 percent in 2004.
- REGIONAL: In 2004, facilities in EPA Regions 4 and 6 reported 90 percent of the phenanthrene.
- STATES: For 2000–2004, facilities in 25 states reported phenanthrene. In 2004, facilities in five states reported 96 percent of the total quantity of phenanthrene in 2004. Facilities in Texas and Kentucky reported 70 percent of the total quantity.
- MANAGEMENT: Facilities used both energy recovery and treatment to manage phenanthrene; there was no apparent trend regarding the extent to which these methods were used from one year to the next. In 2004, approximately 52 percent of the total quantity of phenanthrene was sent to energy recovery, approximately 44 percent was treated, and 4 percent was land disposed.
- FACILITIES: Of the 55 facilities that reported phenanthrene in 2004, five facilities reported approximately 94 percent of the total quantity of this chemical.
- INDUSTRY SECTOR: Facilities in five industry sectors reported more than 99 percent of the phenanthrene in 2004.

National Trends:

Exhibit 4.238 shows the number of facilities that reported phenanthrene in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, 55 facilities reported approximately 2.3 million pounds of phenanthrene. Compared to the quantity reported in 2000, there was a significant increase of approximately 1.3 million pounds or approximately 131 percent in 2004. Compared to the quantity reported in 2003, the quantity also increased significantly, by approximately 531,000 pounds or approximately 29 percent. In 2004, 10 more facilities reported phenanthrene than did in 2000.

For 2000–2004, facilities used both energy recovery and treatment to manage phenanthrene; there was no apparent trend regarding the extent to which these methods were used from one year to the next. In 2004, approximately 52 percent of the total quantity of phenanthrene was sent to energy recovery, approximately 44 percent was treated, and 4 percent was land disposed. Since 2000, recycling of phenanthrene increased by approximately 89 percent; 833,000 pounds of phenanthrene were recycled in 2004.

Exhibit 4.238. National Management Method Trends for Phenanthrene, 2000–2004

Management Methods for Phenanthrene and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	45	51	50	54	55	22.2%	-
Disposal Quantity (pounds)	20,094	74,673	42,529	73,264	86,541	330.7%	3.7%
Energy Recovery Quantity (pounds)	178,622	98,317	2,196,260	749,069	1,226,086	586.4%	52.2%
Treatment Quantity (pounds)	818,822	63,250	70,549	995,472	1,035,638	26.5%	44.1%
Priority Chemical Quantity (pounds)	1,017,538	236,240	2,309,338	1,817,805	2,348,265	130.8%	-
Recycling Quantity (pounds)*	441,402	477,928	1,000,783	769,120	833,087	88.7%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.239 shows the number of facilities that reported phenanthrene within various quantity ranges. Of the 55 facilities that reported phenanthrene in 2004, five facilities reported approximately 94 percent of the total quantity of this chemical. Two of these facilities accounted for approximately 68 percent of the total quantity.

Exhibit 4.239. Distribution of Quantities by Facilities Reporting for Phenanthrene, 2004

Phenanthrene (2,348,265 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	4	less than 0.1%
11 – 100 pounds	10	less than 0.1%
101 – 1,000 pounds	20	0.4%
1,001 – 10,000 pounds	12	2.0%
10,001 – 100,000 pounds	4	3.5%
100,001 – 1 million pounds	5	94.1%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibit 4.240 shows the quantity of phenanthrene reported by facilities in eight EPA regions in 2000 to 2004. In 2004, facilities in EPA Regions 4 and 6 reported 90 percent of the phenanthrene. Facilities in these two EPA regions accounted for most of the national increase of phenanthrene, compared to quantities reported in both 2000 and in 2003. Two facilities accounted for most of the increase in Region 4; one facility in Kentucky attributed its increase to an increase in the production of carbon rods, the shutdown of another facility, located in Alabama, generated increased quantities wastes from the cleanout of tanks and process equipment.

One facility accounted for most of the increase in Region 6. This facility had not previously reported phenanthrene; it attributed the increase to its use of fuel oil (containing phenanthrene) purchased from a waste broker.

Exhibit 4.240. Regional Quantity Trends of Phenanthrene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3	9,793	31,682	25,603	64,569	45,657	366.2%	1.9%
4	6,140	1,850	3,982	745,198	924,232	14952.6%	39.4%
5	188,791	77,479	373,060	228,969	190,644	1.0%	8.1%
6	798,299	119,911	1,900,205	768,548	1,177,789	47.5%	50.2%
7	3,140	1,610	1,380	793	1,232	−60.8%	0.1%
8	9,186	1,302	2,772	3,269	2,439	−73.4%	0.1%
9	47	1,133	1,244	5,213	5,157	10872.3%	0.2%
10	2,142	1,273	1,091	1,246	1,115	−47.9%	0.0%
Total	**1,017,538**	**236,240**	**2,309,338**	**1,817,805**	**2,348,265**	**130.8%**	**100.0%**

Exhibit 4.241 shows how facilities managed phenanthrene, by EPA region, in 2004. Facilities in six of these eight EPA regions used energy recovery and/or treatment for most of the phenanthrene. Approximately 86,500 pounds of phenanthrene were land disposed in 2004; facilities in several EPA regions used disposal as the primary method to manage phenanthrene. In 2004, approximately 833,000 pounds of phenanthrene were recycled by these facilities; Region 6 facilities reported approximately 72 percent of this quantity.

State Trends:

In 2000–2004, facilities in 25 states reported phenanthrene. Exhibit 4.242 shows the quantity of phenanthrene that was reported between 2000 and 2004 in the five states where facilities accounted for 96 percent of the total quantity of phenanthrene in 2004. Facilities in Texas and Kentucky reported 70 percent of the total quantity.

Compared to the quantities reported in 2000, facilities in all five of these states reported a significant increase in 2004. Except for Indiana, facilities in the other four states also reported significant increases compared to the 2003 quantities.

The large increase in Kentucky resulted primarily from a facility that increased its production of carbon rods. One facility accounted for most of the increase in Louisiana; this facility had not previously reported phenanthrene and attributed the increase to its use of fuel oil (containing phenanthrene) purchased from a waste broker. The increased quantity in Alabama was primarily due to the shutdown of a facility which generated increased quantities wastes from the cleanout of tanks and process equipment.

Exhibit 4.241. Regional Management Methods for Phenanthrene, 2004

EPA Region	Quantity (pounds) of Phenanthrene (2004)	Percent of Total Quantity of Phenanthrene (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
3	45,657	1.9%	0	31,851	0	49	4,041	9,716	25,804	33,000
4	924,232	39.4%	0	27,450	0	97,050	799,482	250	16,531	64,095
5	190,644	8.1%	0	14,016	0	800	173,402	2,426	83,890	0
6	1,177,789	50.2%	216	10,807	1,116,846	11,169	8,060	30,691	0	602,568
7	1,232	0.1%	0	1,232	0	0	0	0	0	0
8	2,439	0.1%	762	20	0	110	1,530	17	914	0
9	5,157	0.2%	0	187	0	0	4,890	80	0	655
10	1,115	0.0%	0	0	60	2	1031	22	5,630	0
Total	**2,348,265**	**100.0%**	**978**	**85,563**	**1,116,906**	**109,180**	**992,436**	**43,202**	**132,769**	**700,318**

Exhibit 4.242. State Quantity Trends for Phenanthrene (Facilities Reporting 96 Percent of the Total Quantity), 2004

State	Total Quantity (pounds) of Phenanthrene					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
TX	792,923	99,828	1,884,994	757,623	845,663	52,740	6.7%	36.0%
KY	0	0	1,500	740,470	804,786	804,786	NA	34.3%
LA	4,478	19,355	10,689	5,234	325,024	320,546	7158.2%	13.8%
IN	17,274	5,423	90	200,452	170,452	153,178	886.8%	7.3%
AL	5,895	1,235	1,917	3,901	118,803	112,908	1915.3%	5.1%
Total	**820,570**	**125,841**	**1,899,191**	**1,707,680**	**2,264,728**	**1,444,158**	**176.0%**	**96.4%**

Exhibit 4.243 shows how facilities in these five states managed phenanthrene in 2004. Facilities in these states used onsite energy recovery and/or onsite treatment for approximately 92 percent of the phenanthrene. Less than 2 percent of the total quantity of phenanthrene was land disposed (mostly offsite); a facility in Alabama undergoing shutdown reported approximately 60 percent of the phenanthrene sent to offsite disposal. Facilities in three of these states reported recycling approximately 749,000 pounds of phenanthrene in 2004; a facility in Texas reported approximately 80 percent of the total recycled quantity.

Exhibit 4.243. Management Methods for Phenanthrene, Facilities in States With 94 Percent of the Total Quantity, 2004

State	Total Quantity of Phenanthrene (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
TX	845,663	196	7,974	796,846	9,713	1,040	29,894	0	602,568
KY	804,786	0	4,804	0	250	799,482	250	0	0
LA	325,024	0	1,790	320,000	0	2,600	634	0	0
IN	170,452	0	6	0	0	170,016	430	81,984	0
AL	118,803	0	22,003	0	96,800	0	0	0	64,095
Total	**2,264,728**	**196**	**36,577**	**1,116,846**	**106,763**	**973,138**	**31,208**	**81,984**	**666,663**

Industry Sector (SIC) Trends:

For 2000–2004, facilities in 17 industry sectors reported phenanthrene. Exhibit 4.244 shows the quantities of phenanthrene reported by the five industry sectors in which facilities accounted for more than 99 percent of the total quantity of this chemical in 2004. In 2004, facilities in SIC 3334 (Primary aluminum) reported 34 percent of the total quantity of phenanthrene. One facility, located in Kentucky, reported most of this quantity. In SIC 2819 (Industrial inorganic chemicals, nec), one facility, located in Texas, reported 100 percent of the total quantity of phenanthrene.

Compared to quantities reported in 2000, facilities in three of these five industry sectors reported large increases in 2004. One facility in SIC 3334 (Primary aluminum) primarily accounted for the increase in this industry sector. This facility, which began reporting phenanthrene in 2003, uses coal tar pitch and coke to produce carbon rods for aluminum smelting. The coal tar pitch contains phenanthrene; increased production of carbon rods results in an increased quantity of phenanthrene. The increase for SIC 2819 (Industrial inorganic chemicals, nec) was caused when the only facility now reporting phenanthrene n this industry sector changed to this SIC code from its previous SIC code 2812 (Alkalies and chlorine) in 2003. Conversely, facilities in SIC 2869 (Industrial organic chemicals, nec) reported a decrease of approximately 383,000 pounds; several facilities in this industry sector reported smaller quantities of phenanthrene beginning in 2001.

Compared to quantities reported in 2003, facilities in four of these five industry sectors reported an increased quantity in 2004. These included increases of 330,000 pounds by facilities in SIC 2869 and 111,000 pounds by facilities in SIC 2865 (Cyclic crudes and intermediates). Most of the increased quantity for SIC 2869 was reported by a facility in Louisiana that had not previously reported phenanthrene and attributed the increase to its use of fuel oil (containing phenanthrene) purchased from a waste broker. The increased quantity for SIC 2865 was primarily due to the shutdown of a facility at which increased quantities of wastes containing phenanthrene were generated from the cleanout of tanks and process equipment.

Exhibit 4.244. Industry Sectors Containing Phenanthrene (Facilities Reporting 99 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Number of Facilities That Reported Phenanthrene (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
3334	Primary aluminum	2	2,142	250	1,179	741,470	804,914	802,772	34.3%
2819	Industrial inorganic chemicals, nec	1	48,330	18,968	0	728,646	797,429	749,099	34.0%
2869	Industrial organic chemicals, nec	8	747,185	83,624	66,903	33,886	364,031	-383,154	15.5%
2911	Petroleum refining	21	28,725	8,701	16,516	221,246	195,337	166,612	8.3%
2865	Cyclic crudes and intermediates	5	181,781	97,255	387,495	51,255	161,904	-19,877	6.9%
	Total	**37**	**1,008,163**	**208,798**	**472,094**	**1,776,503**	**2,323,615**	**1,315,452**	**99.0%**

Exhibit 4.245 shows how facilities in these five industry sectors managed phenanthrene in 2004. Except for facilities in SIC 2865 (Cyclic crudes and intermediates), facilities in the other four industry sectors primarily used onsite treatment and/or onsite energy recovery to manage phenanthrene. Facilities in SIC 2865 used offsite energy recovery to manage approximately 60 percent of the phenanthrene; 34 percent of the phenanthrene was sent to offsite disposal. A facility in Alabama undergoing shutdown reported most of the phenanthrene sent to offsite disposal. Some recycling of phenanthrene was reported by facilities in five of the six industry sectors. In 2004, facilities in these industry sectors reported recycling of approximately 676,000 pounds of phenanthrene; one facility in Texas accounted for 89 percent of the total recycling quantity reported by facilities in these industry sectors.

Exhibit 4.245. Industry Sector Management Methods for Phenanthrene (Facilities Reporting 99 Percent of the Total Quantity), 2004

Primary SIC	SIC Description	Total Quantity of Phenanthrene (2004	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
3334	Primary aluminum	804,914	34.3%	628	4,804	0	0	799,482	0	624	0
2819	Industrial inorganic chemicals, nec	797,429	34.0%	72	0	796,846	0	511	0	0	0
2869	Industrial organic chemicals, nec	364,031	15.5%	53	2,960	320,000	9,713	3,104	28,201	0	602,115
2911	Petroleum refining	195,337	8.3%	225	8,413	60	1,867	181,913	2,859	6,464	1,108
2865	Cyclic crudes and intermediates	161,904	6.9%	0	55,156	0	96,800	7,191	2,757	1,568	64,095
	Total	**2,323,615**	**99.0%**	**978**	**71,333**	**1,116,906**	**108,380**	**992,201**	**33,817**	**8,656**	**667,318**

Quintozene

Chemical Information:

Quintozene is a white or colorless crystalline solid with a characteristic pleasant odor.

CAS Number – 82–68–8

Alternate Names – nitroPentachlorobenzene, quintobenzene, pentachloronitrobenzene

General Uses – Quintozene is used as a fungicide for seed treatment, soil application, and as a slime inhibitor in industrial waters. It is also used to prevent the growth of fungi on grass, lawn flowers, ornamental crops, shrubs and in gardens.

Potential Hazards – Quintozene is harmful if swallowed, inhaled, or absorbed through the skin. It may cause irritation. In addition, this chemical emits toxic fumes of chlorine, carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride gas and phosgene when heated to decomposition. It also may cause potential liver toxicity (EPA Integrated Risk Information System – IRIS).

Summary Analysis:

- NATIONAL: In 2004, only three facilities reported approximately 281,000 pounds of quintozene. Compared to the quantity reported in 2000, there was a decrease of approximately 27,000 pounds or 9 percent.
- REGIONAL/ STATE: In 2004, facilities in only three of the EPA regions reported quintozene. One facility in EPA Region 9 (California) reported approximately 91 percent of the total quantity of quintozene.
- FACILITIES: Of the three facilities that reported quintozene in 2004, one facility reported approximately 91 percent of the total quantity.
- MANAGEMENT: From 2000 to 2004, facilities primarily used energy recovery to manage quintozene, including 75 percent of this chemical in 2004.
- INDUSTRY SECTOR: In 2004, only three facilities, all in SIC 2879 (Pesticides and agricultural chemicals, nec), reported quintozene. Compared to quantities reported in 2000, these facilities reported approximately 20,000 less pounds of quintozene in 2004.

National Trends:

Exhibit 4.246 shows the number of facilities that reported quintozene in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, only three facilities reported approximately 281,000 pounds of quintozene. Compared to the quantity reported in 2000, there was a decrease of approximately 27,000 pounds or 9 percent. Compared to the quantity reported in 2003, the quantity increased significantly, by approximately 45,000 pounds, or by approximately 19 percent.

For 2000–2004, facilities primarily used energy recovery to manage quintozene, including 75 percent of this chemical in 2004. In 2004, facilities treated approximately 25 percent of the quintozene – an increase of 58,000 pounds, or approximately 499 percent compared to the quantity treated in 2003. Only relatively small quantities of quintozene were disposed of since 2000; none was disposed of in 2004. Since 2000, relatively small quantities of quintozene were recycled; in 2003 and 2004, only approximately 100 pounds were recycled.

Exhibit 4.246. National Management Method Trends for Quintozene, 2000–2004

Management Methods for Quintozene and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method -- Percent of Quantity of This PC (2004)
Number of Facilities	6	7	4	5	3	-50.0%	-
Disposal Quantity (pounds)	4,999	6,025	21	693	0	-100.0%	0.0%
Energy Recovery Quantity (pounds)	296,406	205,972	195,927	223,510	211,477	-28.7%	75.3%
Treatment Quantity (pounds)	6,361	3,125	9,159	11,613	69,510	992.8%	24.7%
Priority Chemical Quantity (pounds)	307,766	215,122	205,107	235,816	280,987	-8.7%	-
Recycling Quantity (pounds)*	2,299	2,365	184	105	110	-95.2%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.247 shows the number of facilities that reported quintozene within various quantity ranges in 2004. Of the three facilities that reported quintozene in 2004, one facility reported approximately 91 percent of the total quantity.

Exhibit 4.247. Distribution of Quantities by Facilities Reporting Quintozene, 2004

Quintozene (280,987 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 – 100 pounds	0	0.0%
101 – 1,000 pounds	1	0.2%
1,001 – 10,000 pounds	0	0.0%
10,001 – 100,000 pounds	1	9.1%
100,001 – 1 million pounds	1	90.7%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibit 4.248 shows the quantity of quintozene reported by facilities in five EPA regions in 2000 to 2004. In 2004, facilities in only three of the EPA regions reported quintozene. One facility in EPA Region 9 reported approximately 91 percent of the total quantity of quintozene in 2004.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, there was a large increase of approximately 25,000 pounds in Region 4 in 2004. One facility accounted for this increase; this facility reported a steadily increasing quantity of quintozene since 2000. The facility attributes the much larger quantity in 2004 to a newly formulated product; however, it anticipated decreased production of the new product in 2005.
- Since 2000, a facility in EPA Region 9 has consistently reported most of the quintozene, generated in the production of a technical grade pesticide. In 2004 this facility reported approximately 41,000 fewer pounds of quintozene compared to the quantity reported in 2000 but reported an increase of approximately 27,000 pounds compared to the 2003 quantity. Since 2000, this facility's reported quantities of quintozene reflect both increases and decreases in production.

Exhibit 4.248. Regional Quantity of Quintozene, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
4	751	931	1,970	3,166	25,485	3293.5%	9.1%
5	7,221	5,976	0	0	0	−100.0%	0.0%
6	0	589	0	679	523	NA	0.2%
7	3,388	1,654	7,210	4,014	0	−100.0%	0.0%
9	296,406	205,972	195,927	227,957	254,979	−14.0%	90.7%
Total	**307,766**	**215,122**	**205,107**	**235,816**	**280,987**	**−8.7%**	**100.0%**

Exhibit 4.249 shows how facilities managed quintozene, by EPA region, in 2004. The Region 9 facility used offsite energy recovery for approximately 83 percent of its quintozene. The remaining 17 percent of its quintozene, along with 100 percent of the quintozene from the facilities in the other two EPA regions, was treated offsite. In 2004, these facilities reported very little recycling of quintozene.

Exhibit 4.249. Regional Management Methods for Quintozene, 2004

EPA Region	Quantity (pounds) of Quintozene (2004)	Percent of Total Quantity of Quintozene (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	25,485	9.1%	0	0	0	0	0	25,485	110	0
6	523	0.2%	0	0	0	0	0	523	0	0
9	254,979	90.7%	0	0	0	211,477	0	43,502	0	0
Total	**280,987**	**100.0%**	**0**	**0**	**0**	**211,477**	**0**	**69,510**	**110**	**0**

State Trends:

Exhibit 4.250 shows the quantity of quintozene that was reported by facilities in five states, between 2000 and 2004. Some highlights include:

- One facility in California accounted for 91 percent of the total quantity of this chemical in 2004. Compared to quantities reported in 2000, this facility reported approximately 41,000 fewer pounds of quintozene in 2004. It reported an increase of approximately 27,000 pounds compared to the 2003 quantity. This facility's reported quantities of quintozene reflect both increases and decreases in production of a technical grade pesticide.
- In 2004, a facility in Georgia reported an increase of approximately 25,000 pounds, compared to quantity reported in 2000. This facility reported a steadily increasing quantity of quintozene since 2000 and attributed the increase in 2004 to a newly formulated product.
- Facilities in Ohio and Iowa no longer report quintozene.

Exhibit 4.250. State Quantity Trends for Quintozene, 2004

State	Total Quantity (pounds) of Quintozene					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
CA	296,406	205,972	195,927	227,957	254,979	−41,427	−14.0%	90.7%
GA	751	931	1,970	3,166	25,485	24,734	3293.5%	9.1%
LA	0	589	0	679	523	523	NA	0.2%
IA	3,388	1,654	7,210	4,014	0	−3,388	−100.0%	0.0%
OH	7,221	5,976	0	0	0	−7,221	−100.0%	0.0%
Total	**307,766**	**215,122**	**205,107**	**235,816**	**280,987**	**−26,779**	**−8.7%**	**100.0%**

Exhibit 4.251 shows how facilities in these three states managed quintozene in 2004. The facility in California used offsite energy recovery for approximately 83 percent of its quintozene. The remaining 17 percent of its quintozene, along with 100 percent of the quintozene from the two facilities in Georgia and Louisiana, was treated offsite. In 2004, these facilities reported very little recycling of quintozene.

Exhibit 4.251. State Management Methods for Quintozene, 2004

State	Total Quantity of Quintozene (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
CA	254,979	0	0	0	211,477	0	43,502	0	0
GA	25,485	0	0	0	0	0	25,485	110	0
LA	523	0	0	0	0	0	523	0	0
Total	**280,987**	**0**	**0**	**0**	**211,477**	**0**	**69,510**	**110**	**0**

Industry Sector (SIC) Trends:

Exhibit 4.252 shows the quantities of quintozene reported by facilities in two industry sectors in 2000–2004. In 2004, only three facilities, all in SIC 2879 (Pesticides and agricultural chemicals, nec), reported quintozene. Compared to quantities reported in 2000, facilities in SIC 2879 reported approximately 20,000 less pounds of quintozene in 2004. In 2004, SIC 2879 facilities reported an increase of approximately 45,000 pounds. One facility in SIC 2879 accounted for 91 percent of the total quantity of quintozene in 2004. This facility's reported quantities of quintozene reflect both increases and decreases in production of a technical grade pesticide.

In 2004, another SIC 2879 facility, located in Georgia, reported an increase of approximately 25,000 pounds, compared to quantity reported in 2000. This facility reported a steadily increasing quantity of quintozene since 2000 and attributes the large increase in 2004 to a newly formulated product.

Exhibit 4.253 shows how facilities in SIC 2879 (Pesticides and agricultural chemicals, nec) managed quintozene in 2004. One of the three facilities primarily used offsite energy recovery. The remaining quantity of quintozene from this facility as well as from the other two facilities in this industry sector was treated offsite. None of the quintozene was land disposed in 2004. One of the facilities recycled 110 pounds of quintozene in 2004.

Exhibit 4.252. Industry Sectors Containing Quintozene, 2004

Primary SIC	SIC Description	Number of Facilities That Reported Quintozene (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2875	Fertilizers, mixing only	0	7,221	5,976	0	0	0	−7,221	0.0%
2879	Pesticides and agricultural chemicals, nec	3	300,545	209,146	205,107	235,816	280,987	−19,558	100.0%
	Total	**3**	**307,766**	**215,122**	**205,107**	**235,816**	**280,987**	**−26,779**	**100.0%**

Exhibit 4.253. SIC Management Methods of Quintozene, 2004

Primary SIC	SIC Description	Total Quantity of Quintozene (2004)	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2879	Pesticides and agricultural chemicals, nec	280,987	100.0%	0	0	0	211,477	0	69,510	110	0
	Total	**280,987**	**100.0%**	**0**	**0**	**0**	**211,477**	**0**	**69,510**	**110**	**0**

Trifluralin

Chemical Information:

Trifluralin is a yellow–orange crystalline solid

CAS Number – 1582–09–8

Alternate Names – 2,6–dinitro–N,N–dipropyl–4–(trifluoromethyl)–benzamine, benzeneamine

General Uses – Trifluralin is an herbicide used primarily on cotton and soybean crops. Production of trifluralin has declined since restrictions on product formulation were implemented in 1982 due to carcinogenicity and mutagenicity concerns. It is used on soybean crops, cotton, wheat, alfalfa, sunflowers and many other crops.

Potential Hazards – Trifluralin is an irritant of the eyes and skin. It emits toxic fumes of fluorine and nitrogen oxides when heated to decomposition and has potential liver toxicity and blood effects (EPA Integrated Risk System ––IRIS).

Summary Analysis:

- NATIONAL: In 2004, only nine facilities reported approximately 82,000 pounds of trifluralin. Compared to the quantity reported in 2000, there was a decrease of approximately 6,600 pounds or 7.5 percent. One facility reported nearly 76 percent of the total quantity.
- REGIONAL: In 2004 facilities in only four of the regions reported trifluralin. Facilities in Region 7 reported 84 percent of the total quantity.
- STATES: For 2000–2004, facilities in 14 states reported trifluralin; by 2004 only facilities in five of these states reported this chemical. One facility in Iowa accounted for 76 percent of the total quantity of this chemical in 2004.
- MANAGEMENT: Since 2000, most of the trifluralin was treated.
- INDUSTRY SECTOR: Facilities in only three industry sectors reported trifluralin in 2004. Facilities in SIC 2879 (Pesticides and agricultural chemicals, nec) reported 97 percent of the trifluralin.

National Trends:

Exhibit 4.254 shows the number of facilities that reported trifluralin in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. In 2004, only nine facilities reported approximately 82,000 pounds of trifluralin. Compared to the quantity reported in 2000, there was a decrease of approximately 6,600 pounds or 7.5 percent. Compared to the quantity reported in 2003, the quantity increased significantly, by approximately 24,000 pounds or by approximately 42 percent. The number of facilities that reported trifluralin in 2004 decreased by 40 percent compared to the number of facilities that had reported trifluralin in 2000–2003.

Since 2000, most of the trifluralin was treated. Since 2003, disposal of trifluralin has been decreasing; in 2004, 78 percent less trifluralin was disposed than in 2000. No quantity of trifluralin was sent to energy recovery. Since 2000, only relatively small quantities of trifluralin were recycled, including only 81 pounds in 2004.

Exhibit 4.254. National Management Methods for Trifluralin, 2000–2004

Management Methods for Trifluralin and Number of Facilities	2000	2001	2002	2003	2004	Percent Change (2000–2004)	Management Method – Percent of Quantity of This PC (2004)
Number of Facilities	15	16	15	14	9	–40.0%	-
Disposal Quantity (pounds)	11,030	13,193	12,167	5,634	2,444	–77.8%	3.0%
Energy Recovery Quantity (pounds)	0	0	0	0	0	NA	0.0%
Treatment Quantity (pounds)	77,227	79,670	50,377	51,758	79,224	2.6%	97.0%
Priority Chemical Quantity (pounds)	88,257	92,863	62,544	57,392	81,668	–7.5%	-
Recycling Quantity (pounds)*	2,000	2,001	5,675	159	81	–95.9%	-

*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented for the purpose of providing some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

Exhibit 4.255 shows the number of facilities that reported trifluralin within various quantity ranges. Of the nine facilities that reported trifluralin in 2004, one facility reported nearly 76 percent of the total quantity. Five of the facilities reported 99 percent of the total quantity.

Exhibit 4.255. Distribution of Quantities by Facilities Reporting Trifluralin, 2004

Trifluralin (81,668 pounds)		
Quantity Reported	Number of Facilities Reporting This Quantity (2004)	Percent of Total Quantity of This PC (2004)
up to 10 pounds	0	0.0%
11 – 100 pounds	2	0.2%
101 – 1,000 pounds	2	1.0%
1,001 – 10,000 pounds	4	23.2%
10,001 – 100,000 pounds	1	75.6%
100,001 – 1 million pounds	0	0.0%
> 1 million pounds	0	0.0%

EPA Regional Trends:

Exhibit 4.256 shows the quantity of trifluralin reported in seven EPA regions by facilities in 2000 to 2004.

Some observations include:

- In 2004 facilities in only four of the regions reported trifluralin.
- Facilities in Region 7 reported 84 percent of the total quantity. Compared to quantities reported in 2000, Region 7 facilities reported a decrease of approximately 17,000 pounds or approximately 20 percent in 2004; compared to 2003, however, an increase of approximately 21,000 pounds or 45 percent was reported. Most of the increased quantity in 2004 was attributed to increased production of a herbicide at one of the Region 7 facilities. One facility likewise reported most of the increase reported in 2004 for Region 6; this facility produced a new herbicide in 2003 and increased its production in 2004.

Exhibit 4.256. Regional Quantity of Trifluralin, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2	0	206	0	0	0	NA	0.0%
4	872	10,415	5,764	464	556	-36.2%	0.7%
5	1,159	713	1,886	3,228	2,569	121.7%	3.1%
6	0	1	2	6,522	10,000	NA	12.2%
7	85,608	80,530	54,272	47,178	68,543	-19.9%	83.9%
9	375	998	620	0	0	-100.0%	0.0%
10	243	0	0	0	0	-100.0%	0.0%
Total	**88,257**	**92,863**	**62,544**	**57,392**	**81,668**	**-7.5%**	**100.0%**

Exhibit 4.257 shows how facilities managed trifluralin, by EPA region, in 2004. Overall, approximately 97 percent of the trifluralin was treated, of which 91 percent was offsite. Facilities in EPA Regions 4, 6, and 7 primarily used this management method. One facility in EPA Region 5, which accounted for the majority of the Region 5 quantity of trifluralin, sent 100 percent of its trifluralin to offsite disposal. In 2004, no trifluralin was sent to energy recovery and very little recycling of trifluralin was reported.

Exhibit 4.257. Regional Management Methods for Trifluralin, 2004

EPA Region	Quantity (pounds) of Trifluralin (2004)	Percent of Total Quantity of Trifluralin (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
			Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
4	556	0.7%	0	0	0	0	0	556	0	0
5	2,569	3.1%	0	2,444	0	0	76	49	81	0
6	10,000	12.2%	0	0	0	0	4,600	5,400	0	0
7	68,543	83.9%	0	0	0	0	0	68,543	0	0
Total	**81,668**	**100.0%**	**0**	**2,444**	**0**	**0**	**4,676**	**74,548**	**81**	**0**

State Trends:

From 2000 to 2004, facilities in 14 states reported trifluralin; by 2004 only facilities in five of these states reported this chemical. Exhibit 4.258 shows the quantity of trifluralin that was reported by facilities in these five states, between 2000 and 2004. Some highlights include:

- One facility in Iowa accounted for 76 percent of the total quantity of this chemical in 2004. Compared to quantities reported in 2000, this facility reported approximately 41,000 fewer pounds of trifluralin in 2004. However, it reported an increase of approximately 29,000 pounds compared to the 2003 quantity. The facility attributed most of the increased quantity to increased production of a herbicide in 2004.
- In Texas, one facility accounted for the increased quantity of trifluralin in 2003 and 2004. This facility produced a new herbicide in 2003 and increased its production in 2004.
- The decrease of approximately 5,000 pounds in Missouri was mostly due to a decrease in the production of a herbicide at one facility.

Exhibit 4.258. State Quantity Trends for Trifluralin, 2004

State	Total Quantity (pounds) of Trifluralin					Change in Quantity (2000–2004)	Percent Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
	2000	2001	2002	2003	2004			
IA	66,091	65,187	19,519	33,267	62,021	−4,070	−6.2%	75.9%
TX	0	1	2	6,320	10,000	10,000	NA	12.2%
MO	11,493	6,543	25,953	11,511	6,522	−4,971	−43.3%	8.0%
OH	1,154	713	1,886	3,211	2,569	1,415	122.6%	3.1%
MS	872	80	178	464	556	−316	−36.2%	0.7%
Total	**79,610**	**72,524**	**47,538**	**54,773**	**81,668**	**2,057**	**2.6%**	**100.0%**

Exhibit 4.259 shows how facilities in these five states managed trifluralin in 2004. Facilities in four of these five states used treatment, mostly offsite, to manage trifluralin. One facility in Ohio sent all of its trifluralin to offsite disposal; this same facility reported the entire quantity of recycled trifluralin in 2004.

Exhibit 4.259. State Management Methods for Trifluralin, 2004

State	Total Quantity of Trifluralin (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
IA	62,021	0	0	0	0	0	62,021	0	0
MO	6,522	0	0	0	0	0	6,522	0	0
MS	556	0	0	0	0	0	556	0	0
OH	2,569	0	2,444	0	0	76	49	81	0
TX	10,000	0	0	0	0	4,600	5,400	0	0
Total	**81,668**	**0**	**2,444**	**0**	**0**	**4,676**	**74,548**	**81**	**0**

Industry Sector (SIC) Trends:

From 2000 to 2004, facilities in seven industry sectors reported trifluralin; by 2004, facilities in only three of the industry sectors reported this chemical. Exhibit 4.260 shows the quantity of trifluralin reported by facilities in these three industry sectors from 2000 to 2004. In 2004, facilities in SIC 2879 (Pesticides and agricultural chemicals, nec) reported 97 percent of the trifluralin. One of the seven facilities in this industry sector reported 76 percent of the national total quantity of trifluralin in 2004. This facility accounted for most of the increase of approximately 28,000 pounds in 2004.

Exhibit 4.261 shows how facilities in these three industry sectors managed trifluralin in 2004. Facilities in SIC 2879 (Pesticides and agricultural chemicals, nec) treated trifluralin, mostly (94 percent offsite). The facility in SIC 2875 (Fertilizers, mixing only) sent all of its trifluralin to offsite disposal; this facility also reported the only quantity (81 pounds) of trifluralin recycled in 2004. The facility in SIC 2032 (Canned specialties) used both onsite and offsite treatment for its trifluralin.

Exhibit 4.260. Industry Sectors Containing Trifluralin, 2004

Primary SIC	SIC Description	Number of Facilities That Reported Trifluralin (2004)	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Change in Quantity (2000–2004)	Percent of Total Quantity of This PC (2004)
2879	Pesticides and agricultural chemicals, nec	7	78,589	82,373	50,677	51,402	79,139	550	96.9%
2875	Fertilizers, mixing only	1	1,186	1,067	2,636	3,014	2,444	1,258	3.0%
2032	Canned specialties	1	105	96	86	95	85	−20	0.1%
	Total	**9**	**79,880**	**83,536**	**53,399**	**54,511**	**81,668**	**1,788**	**100.0%**

Exhibit 4.261. SIC Management Methods of Trifluralin, 2004

Primary SIC	SIC Description	Total Quantity of Trifluralin (2004	Percent of Total Quantity (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2879	Pesticides and agricultural chemicals, nec	85	96.9%	0	0	0	0	76	9	0	0
2875	Fertilizers, mixing only	2,444	3.0%	0	2,444	0	0	0	0	81	0
2032	Canned specialties	79,139	0.1%	0	0	0	0	4,600	74,539	0	0
	Total	**81,668**	**100.0%**	**0**	**2,444**	**0**	**0**	**4,676**	**74,548**	**81**	**0**

Priority Chemicals (PCs) Not Reportable to TRI

Seven of the 31 Priority Chemicals are not reported to TRI. As such, we currently are unable to analyze generation and management trends for these chemicals. EPA is evaluating the potential use of Hazardous Waste BR data for future trends analyses of these PCs. We present some information about these PCs, including the CAS number, alternative names, and general uses.

Priority Chemicals (PCs) Not Reported to TRI	
1,2,4,5–Tetrachlorobenzene	Acenaphthylene
4–Bromophenyl phenyl ether	Endosulfan, beta–/Endosulfan, alpha
Acenaphthene	Fluorene
Pyrene	

1,2,4,5–Tetrachlorobenzene

Chemical Information – 1,2,4,5–Tetrachlorobenzene is an odorless man-made substance that can range in appearance from a colorless crystal to a white flaky or chunky solid.

CAS Number – 95–94–3

Alternate Names – benzene tetrachloride, s–tetrachlorobenzene

General Uses – 1,2,4,5–Tetrachlorobenzene is used as an intermediate or building block to make herbicides, insecticides and defoliants. It is also used to make other chemicals such as 2,4,5–Trichlorophenol and 2,4,5–Trichlorophenoxyacetic acid.

Potential Hazards – Exposure to 1,2,4,5–Tetrachlorobenzene can cause eye and skin irritation and can affect the ability to breathe.

4–Bromophenyl phenyl ether

Chemical Information – 4–Bromophenyl phenyl ether is found in liquid form. No other information about its appearance is available.

CAS Number – 101–55–3

Alternate Names – 1–bromo–4–phenoxybenzene, 4–bromodiphenyl ether, p–bromodiphenyl ether, 4–bromophenoxybenzene, 4–bromophenyl phenyl ether

General Uses – 4–Bromophenyl phenyl ether is primarily used for research purposes. In the past it was used as a flame retardant.

Potential Hazards – 4–Bromophenyl phenyl ether is combustible. Fires involving this chemical should be extinguished with dry chemical, carbon dioxide, and/or halon extinguishers.

Acenaphthene

Chemical Information – Acenaphthene looks like a white crystal–like solid.

CAS Number – 83–32–9

Alternate Names – 1,2–dihydroacenaphthene, 1,2–dihydroacenaphthylene, 1,8–ethylenenaphthalene, ethylene naphthalene, naphthyleneethylene, peri–ethylenenaphthalene

General Uses – Acenaphthene is used to make dyes, plastics and pesticides.

Potential Hazards – Acenaphthene is harmful by inhalation, ingestion or skin absorption. It emits toxic fumes of carbon monoxide and carbon dioxide when heated to decomposition.

Acenaphthylene

Chemical Information – Acenaphthylene is one of a group of chemicals called polycyclic aromatic hydrocarbons, PAHs. PAHs are solid and range in appearance from colorless to white or pale yellow–green.

CAS Number – 208–96–8

Alternate Names – 1,2–dehydroacenaphthalene

General Uses – Acenaphthylene is used to make dyes, plastics and pesticides.

Potential Hazards – Many PAHs have caused tumors in laboratory animals that were exposed to the chemicals through their food, from breathing contaminated air and when applied to their skin. However, these effects have not been seen in humans.

Endosulfan, beta–/Endosulfan, alpha

Chemical Information – Endosulfan looks like a brown–colored crystal and has an odor like turpentine.

Alpha CAS Number – 959–98–8, **Beta CAS Number** – 33213–65–9

Alternate Names – hexachloro–5–norbornene–2,3–dimethanol, cyclic sulfite

General Uses – Endosulfan is used as an insecticide on crops. It has not been produced in the United States since 1982, but it has been used to make other chemicals.

Potential Hazards – Breathing, eating or drinking high doses of endosulfan can cause convulsions and death.

Fluorene

Chemical Information – Fluorene is one of a group of chemicals called polycyclic aromatic hydrocarbons, PAHs for short. PAHs are solid and range in appearance from colorless to white or pale yellow–green.

CAS Number – 86–73–7

Alternate Names – 2,2'–methylenebiphenyl, 2,3–benzindene, o–biphenylenemethane, 9H–fluorene, alpha–diphenylenemethane–9H–fluorene, diphenylenemethane

General Uses – Fluorene is used to make dyes, plastics and pesticides.

Potential Hazards – Fluorene is not very flammable but any fire involving this compound **can** produce dangerous vapors.

Pyrene

Chemical Information – Pyrene is colorless crystal–like solid but can also look yellow.

CAS Number – 129–00–0

Alternate Names – benzo[def]phenanthrene, beta–pyrene

General Uses – Pyrene is used to make dyes, plastics and pesticides. It is also used to make benzo(a)pyrene.

Potential Hazards – Pyrene is toxic if absorbed through the skin. It emits acrid smoke and fumes when heated to decomposition.

Section 5
Trends for the Priority Chemicals at Federal Facilities (2000-2004)

Introduction

This section presents information regarding Priority Chemicals (PCs) that federal facilities (i.e., facilities that are owned or operated by the federal government) report to the TRI Program on national, EPA regional and state levels. Within each of these levels, facility data are aggregated by the associated federal agency. For the purposes of this Report, we also included government-owned, contractor-operated (GOCO) federal facilities. We included only those federal facilities that reported one or more of the PCs to TRI and that indicated they were a federal or GOCO facility on the TRI Form R. We made no attempt to identify federal facilities that did not indicate on the TRI Form R they were a federal or GOCO facility.

How Do Federal Facilities' Priority Chemicals Addressed in This Report Relate to the Executive Order on Priority Chemicals?

On April 21, 2000, Executive Order (EO) 13148: *Greening the Government through Leadership in Environmental Management* mandated that federal agencies reduce the use of identified PCs by at least 50 percent by December 31, 2006. Section 503(b) of the Executive Order mandates: "Within 9 months of the date of this order, the Administrator, in coordination with the Workgroup established in section 306 of this order, shall develop a list of not less than 15 priority chemicals used by the Federal Government that may result in significant harm to human health or the environment and that have known, readily available, less harmful substitutes for identified applications and purposes."

An Interagency Workgroup subsequently decided to initially address five chemicals: lead, cadmium, mercury, naphthalene, and PCBs. It is important to note that the focus of the mandate in EO Section 503 is to reduce the "use" of the identified chemicals at federal facilities. Federal agencies are required to collect information regarding efforts to reduce use of the EO PCs from each federal facility within their jurisdictions and submit an annual report to EPA.

This section shows trends regarding the generation and management of the eight PCs that federal facilities reported for 2004, out of 24 that are reported to the TRI. The following discussion refers solely to the generation and management of PCs from a waste minimization perspective and is separate from the EO mandate regarding the use of chemicals at federal facilities.

Summary Analysis– Priority Chemicals at Federal Facilities for 2004

- Approximately 3.4 million pounds of eight PCs were reported by 193 federal facilities.
- Federal facilities in Regions 4 and 10 reported approximately 51 percent of the total national quantity of PCs generated by federal facilities.
- Department of Defense (DOD) facilities in New Jersey (Region 2), North Carolina and South Carolina (Region 4), Texas (Region 6), California (Region 9) and Oregon (Region 10) and a Department of Energy (DOE) facility in Idaho (Region 10) reported approximately 52 percent of the total national quantity of PCs reported by federal facilities.
- Federal facilities' primary method of PC management was disposal, with 95 percent disposed of in 2004. This likely reflects the fact that lead and lead compounds comprise 95 percent of the PC quantity reported by federal facilities, and land disposal is the primary means of managing metals/metal compounds.

- Federal facilities in four EPA Regions: Region 4 (27.8%), Region 10 (18.8%), Region 6 (13.7%), and Region 9 (10.7%), reported approximately 71 percent of the lead and lead compounds.
- Of the 193 federal facilities that reported a PC quantity, 53 federal facilities accounted for 94 percent of the total quantity, and six accounted for more than one third (36%).
- Facilities in the DOD and DOE accounted for approximately 96 percent of the PCs.

Generation of Priority Chemicals by Federal Facilities (2000–2004)

National Overview of Generation Trends

In 2004, 193 federal facilities reported approximately 3.4 million pounds of eight PCs. Although both the number of reporting facilities and the total quantity of PCs increased significantly in 2001, compared to the year 2000, they have remained relatively constant since 2002. In 2001, there was a large increase in both the number of reporting facilities and the total quantity of PCs they reported (Exhibits 5-1 and 5-2). Most of the increase was attributed to facilities in SIC 9711 (National Security), primarily military installations, reporting larger quantities of lead and lead compounds. This increased quantity was likely caused by:

1. A lower TRI reporting threshold for lead and lead compounds that took effect in 2001.
2. Guidance issued by the DOD in 2000 requiring ranges to report, effective as of the 2001 TRI Reporting year.
3. The increase in training and other activities at federal facilities in support of military and security operations to counter terrorism worldwide.

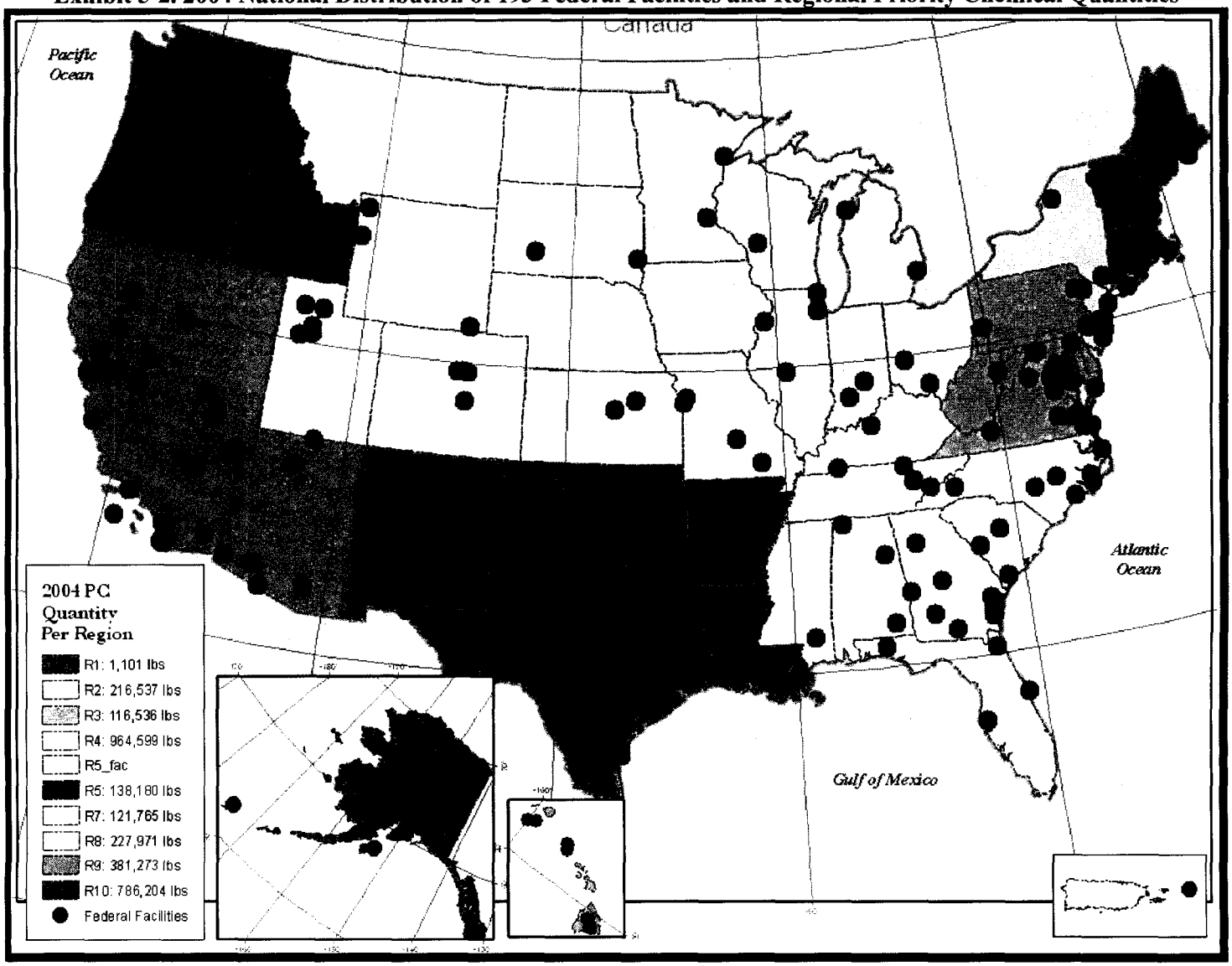
The DOD's ongoing implementation of the Base Realignment and Closure (BRAC) process is another factor that potentially affects the generation of PCs by DOD facilities. Congress authorized this process to allow DOD to reorganize its base structure to more efficiently and effectively support United States forces and increase operational readiness (http://www.dod.mil/brac/faqs001.html). Actions such as the closing of facilities or shifting of mission will probably affect the quantities of PCs generated by a particular facility. We do not know the possible cumulative impact of the BRAC process on the total quantity of PCs that DOD facilities generate.

Exhibit 5.1. National Management Methods Trends for Priority Chemicals at Federal Facilities, 2000-2004

Management Methods for PCs and Number of Federal Facilities	2000	2001	2002	2003	2004	Percent Change (2000-2004)	Management Method - Percent of Total PC Quantity (2004)
Number of federal facilities reporting a PC quantity	27	139	159	193	193	614.80%	-
Total PC quantity (pounds)	272,611	2,519,149	3,448,214	3,497,629	3,425,586	1156.60%	-
Total Disposal (pounds)	266,207	2,386,771	3,069,592	3,353,971	3,255,705	1123.00%	95.0%
Total Treatment (pounds)	3,801	43,102	358,659	137,012	144,393	3699.10%	4.2%
Total Energy Recovery (pounds)	2,603	89,276	19,962	6,646	25,487	879.10%	0.7%
Total Recycling (pounds)*	328,452	1,226,605	991,144	1,093,820	1,253,389	281.60%	-

*Note: This Report primarily shows only quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these management methods offer the greatest opportunities for waste minimization. Because recycled PC wastes are already directed to their best uses, recycling does not count as a PC management method and we cannot show their percentage. We list them to show their relative quantities.

Exhibit 5-2. 2004 National Distribution of 193 Federal Facilities and Regional Priority Chemical Quantities



Exhibits 5.3 and 5.4 show overall trends concerning the management of PCs by federal facilities.

Since 2002, federal facilities, on average, have used land disposal for approximately 3.2 million pounds of PCs. Since 2001, federal facilities annually have recycled approximately 1.1 million pounds of PCs Lead and lead compounds accounted for most of both the disposal and recycling quantities.

Since 2001, federal facilities used energy recovery for only a relatively small portion of the PCs, including less than 1 percent of the total PC quantity in 2004. Although federal facilities used treatment to a greater extent than energy recovery, only 4.2 percent of the PCs were treated in 2004.

Exhibit 5.3. National Trends in Disposal and Recycling for Priority Chemicals at Federal Facilities, 2000-2004

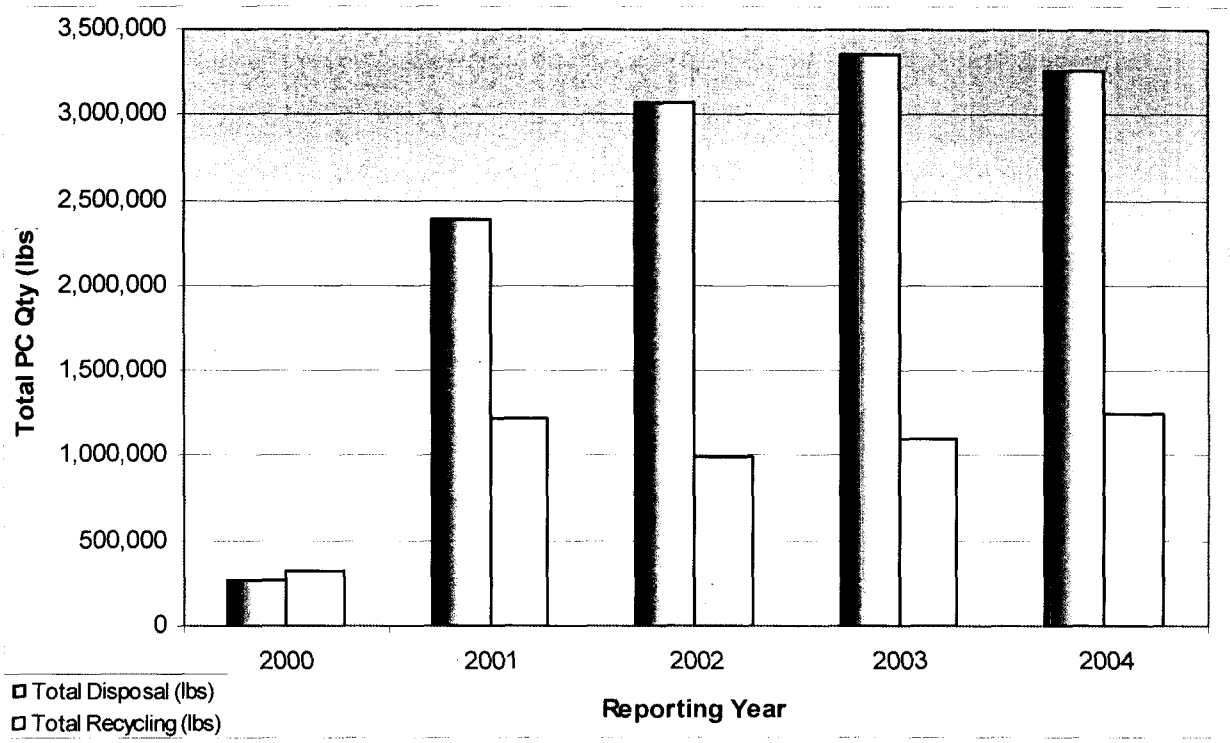
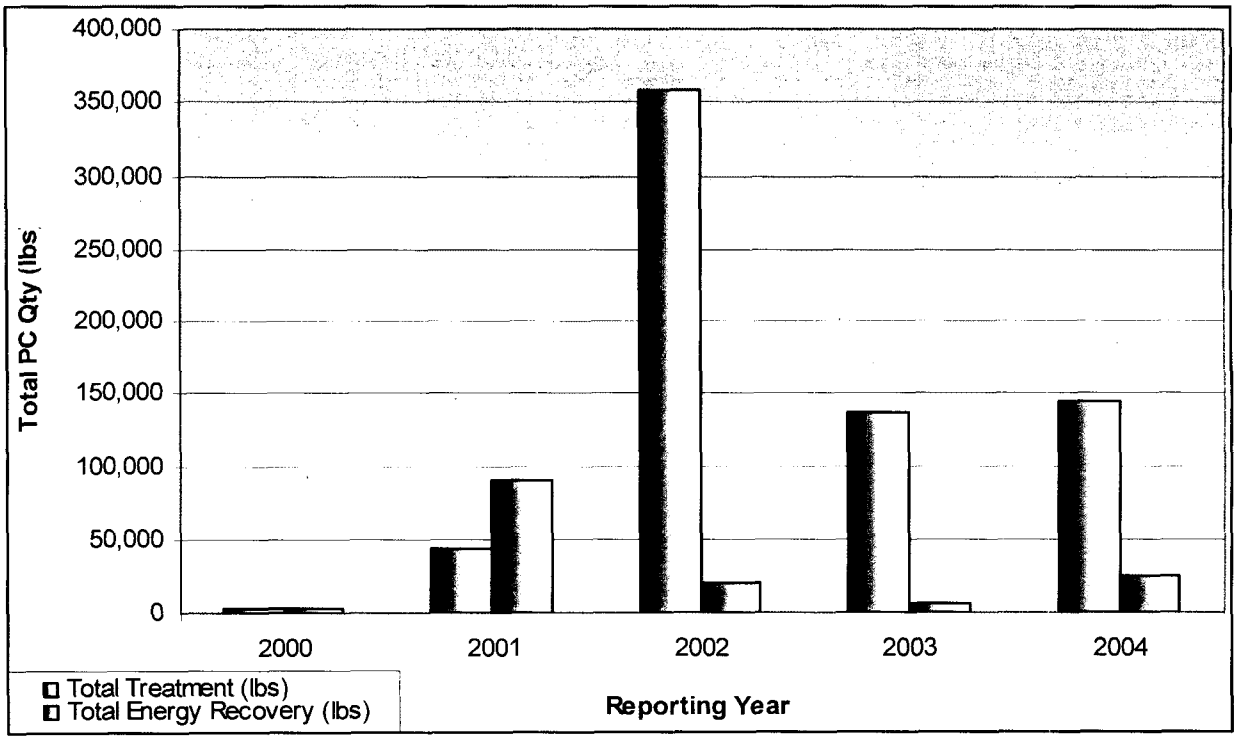


Exhibit 5.4. National Trends in Treatment and Energy Recovery for Priority Chemicals at Federal Facilities (2000-2004)



Overall, federal facilities have reported 10 of the PCs since 2000, including eight PCs in 2004. Since 2002, federal facilities reported approximately 3.5 million pounds of PCs (Exhibit 5.5).

Exhibit 5.5. Priority Chemicals Reported by Federal Facilities Nationwide, 2000 –2004

Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total PC Quantity in 2004
Lead and lead compounds	265,816	2,467,080	3,063,682	3,350,962	3,239,011	94.6%
1,2,4-trichlorobenzene	0	0	272,827	45,552	123,783	3.6%
Naphthalene	2,675	2,764	20,905	7,570	18,245	0.5%
Hexachloroethane	0	-	84,900	91,255	17,867	0.5%
Mercury and mercury compounds	457	48,537	5,721	1,350	15,959	0.5%
Polycyclic aromatic compounds (PACs)	54	0	16	928	10,665	0.3%
Hexachlorobenzene	0	28	0	0	54	0.0%
Polychlorinated biphenyls (PCBs)	3,597	740	162	6	2	0.0%
Benzo(g,h,i)perylene	1	0	0	5	0	0.0%
Dioxin and dioxin-like compounds	11	1	0	0	0	0.0%
Total	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**	**100.0%**

Although federal facilities reported less than 5 percent of the total national quantity of PCs in 2004, they accounted for a relatively significant portion of the total national PC quantity of lead and lead compounds (10.1%) and mercury and mercury compounds (30.9%) (Exhibit 5.6).

Exhibit 5.6. Comparison of Priority Chemicals Reported by All TRI Facilities and Only Federal Facilities in 2004

Chemical Name	Quantity (pounds) Reported by All Facilities (including Federal Facilities) in 2004	Quantity (pounds) Reported by Federal Facilities in 2004	Percent of Total National Quantity of This PC Reported by Federal Facilities (2004)
Lead and lead compounds	31,967,610	3,239,011	10.1%
1,2,4-trichlorobenzene	1,888,685	123,783	6.6%
Naphthalene	13,081,776	18,245	0.1%
Hexachloroethane	3,772,853	17,867	0.5%
Mercury and mercury compounds	51,697	15,959	30.9%
Polycyclic aromatic compounds (PACs)	13,809,093	10,665	0.1%
Hexachlorobenzene	6,485,490	54	0.0%
Polychlorinated biphenyls (PCBs)	67,758	2	0.0%
Total	**71,124,962**	**3,425,586**	**4.8%**

Of the 193 federal facilities that reported a PC quantity in 2004, 53 federal facilities accounted for 94 percent of the total quantity; six facilities accounted for almost 36 percent of the total quantity (Exhibit 5.7).

Exhibit 5.7. Distribution of Primary Chemicals Among Federal Facilities in 2004

Quantity Reported by Federal Facilities	Number of Federal Facilities Reporting This Quantity	Percent of Total Quantity Reported by Federal Facilities
up to 10 pounds	13	less than 0.1%
11 - 100 pounds	22	less than 0.1%
101 - 1,000 pounds	59	0.6%
1,001 - 10,000 pounds	46	5.4%
10,001 - 100,000 pounds	47	58.3%
100,001 - 1 million pounds	6	35.6%
> 1 million pounds	0	0.0%
Total	**193**	**100%**

Exhibit 5.8 shows the number of federal facilities reporting each PC from 2000 through 2004. The majority of the 193 federal facilities reporting PCs in 2003 and 2004 reported lead and lead compounds.

Exhibit 5.8. Number of Federal Facilities That Reported Each Priority Chemical 2000–2004

Chemical Name	2000	2001	2002	2003	2004
Lead and lead compounds	15	148	157	184	172
Naphthalene	2	3	17	25	33
Mercury and mercury compounds	16	11	8	12	9
Polycyclic aromatic compounds (PACs)	1	0	1	2	2
1,2,4 - Trichlorobenzene	0	0	2	1	1
Hexachlorobenzene	0	1	0	0	1
Hexachloroethane	0	-	1	1	1
Polychlorinated bipenyls (PCBs)	3	3	2	1	1
Benzo(g,h,i)perylene	1	0	0	1	0
Dioxin and dioxin-like compounds	3	1	3	0	0

Regional Overview of Generation Trends

Regional Insights:

- Lead and lead compounds in seven EPA regions decreased in 2004. Among the decreased quantities were: Region 7 (-209,118 pounds), Region 4 (-199,558 pounds), Region 9 (-123,274 pounds), and Region 5 (-121,410 pounds).
- Lead and lead compounds increased in three EPA regions in 2004, including an increase of 413,559 pounds in Region 10.
- In 2004, the quantity of naphthalene increased significantly in Region 4, including more than doubling compared to the quantity reported in 2003.
- Federal facilities in Region 4 eliminated 1,2,4-trichlorobenzene and hexachloroethane. Likewise, federal facilities in Region 10 reported a large decrease in hexachloroethane; however, in Region 10, there was a large increase in 1,2,4-trichlorobenzene.
- PACs increased significantly in Region 5.
- Mercury and mercury compounds increased significantly in Region 9.

Federal facilities in EPA Regions 4 and 10 reported approximately 51 percent of the total national quantity of PCs generated by federal facilities in 2004 (Exhibit 5-9). In six of the 10 regions, the quantity of PCs decreased compared to the quantities reported in 2003.

Exhibit 5.9. Regional Quantity of Priority Chemicals Reported by Federal Facilities, 2000–2004

EPA Region	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity Reported by Federal Facilities (2004)
1	54	1,161	10,177	892	1,101	0.0%
2	1,023	124,236	300,487	274,585	216,537	6.3%
3	2,424	72,253	93,315	135,492	116,536	3.4%
4	132,358	827,163	1,245,576	1,155,241	964,599	28.2%
5	28,040	162,325	154,401	249,531	138,180	4.0%
6	11,190	392,688	404,566	309,771	471,419	13.8%
7	7,779	128,476	175,175	330,883	121,765	3.6%
8	3,844	58,226	88,651	183,364	227,971	6.7%
9	44,385	567,791	685,665	489,928	381,273	11.1%
10	41,513	184,831	290,202	367,943	786,204	23.0%
Total	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**	**100%**

Exhibit 5.10 shows the quantities of each PC reported by federal facilities in each EPA region from 2000 to 2004. Federal facilities in four EPA regions reported approximately 71 percent of the lead and lead compounds: Region 4 (27.8%), Region 10 (18.8%), Region 6 (13.7%), and Region 9 (10.7%).

Exhibit 5.10. Regional Quantity of Priority Chemicals Reported by Federal Facilities, 2000–2004

EPA Region	Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of PCs Reported by Federal Facilities (2004)
1	Lead and lead compounds	0	698	865	870	765	0.0%
	Naphthalene	0	463	9,312	21	336	0.0%
	Polycyclic aromatic compounds (PACs)	54	0	0	0	0	0.0%
	Benzo(g,h,i)perylene	1	0	0	0	0	0.0%
2	Lead and lead compounds	0	123,385	300,322	273,978	216,395	6.3%
	Mercury and mercury compounds	106	600	140	600	140	0.0%
	Polychlorinated biphenyls (PCBs)	917	252	25	6	2	0.0%
3	Lead and lead compounds	2,424	72,010	93,284	135,329	116,155	3.4%
	Mercury and mercury compounds	0	9	0	83	307	0.0%
	Naphthalene	0	0	32	79	75	0.0%
	Polychlorinated biphenyls (PCBs)	0	234	0	0	0	0.0%
4	Lead and lead compounds	126,972	824,325	998,882	1,150,433	950,874	27.8%
	Naphthalene	2,641	2,229	1,418	4,771	10,653	0.3%
	Mercury and mercury compounds	53	354	239	37	3,072	0.1%
	1,2,4-Trichlorobenzene	0	0	160,000	0	0	0.0%
	Hexachloroethane	0	0	84,900	0	0	0.0%
	Polychlorinated biphenyls (PCBs)	2,681	254	137	0	0	0.0%
	Dioxin and dioxin-like compounds	11	1	0	0	0	0.0%
5	Lead and lead compounds	28,023	162,242	152,513	247,808	126,398	3.7%
	Polycyclic aromatic compounds (PACs)	0	0	0	0	10,544	0.3%
	Naphthalene	0	72	1,888	1,722	1,236	0.0%
	Mercury and mercury compounds	17	10	0	0	2	0.0%
6	Lead and lead compounds	10,980	392,688	396,155	309,352	468,974	13.7%
	Naphthalene	0	0	8,255	369	2,445	0.1%
	Mercury and mercury compounds	210	0	156	50	0	0.0%
7	Lead and lead compounds	7,726	128,471	175,174	330,883	121,765	3.6%
	Mercury and mercury compounds	53	5	1	0	0	0.0%

EPA Region	Chemical Name	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of PCs Reported by Federal Facilities (2004)
8	Lead and lead compounds	3,844	58,198	88,650	182,643	227,736	6.6%
	Naphthalene	0	0	1	4	181	0.0%
	Hexachlorobenzene	0	28	0	0	54	0.0%
	Mercury and mercury compounds	0	0	0	23	1	0.0%
	Polycyclic aromatic compounds (PACs)	0	0	0	690	0	0.0%
	Benzo(g,h,i)perylene	0	0	0	5	0	0.0%
9	Lead and lead compounds	44,385	520,241	680,485	488,976	365,702	10.7%
	Mercury and mercury compounds	0	47,550	5,180	474	12,425	0.4%
	Naphthalene	0	0	0	478	3,146	0.1%
10	Lead and lead compounds	41,462	184,823	177,353	230,689	644,248	18.8%
	1,2,4-Trichlorobenzene	0	0	112,827	45,552	123,783	3.6%
	Hexachloroethane	0	0	0	91,255	17,867	0.5%
	Naphthalene	34	0	0	125	173	0.0%
	Polycyclic aromatic compounds (PACs)	0	0	16	238	121	0.0%
	Mercury and mercury compounds	17	8	6	84	13	0.0%
	Dioxin and dioxin-like compounds	0	0	0	0	0	0.0%
	Total	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**	**100%**

Analysis of Priority Chemicals within Federal Agencies

Exhibit 5.11 shows the quantity of PCs reported by federal agencies from 2000 to 2004. Facilities in the DOD and DOE accounted for approximately 96 percent of the PCs reported by federal facilities in 2004.

Exhibit 5.11. Quantity of Priority Chemicals Reported by Federal Department or Agency, 2000–2004

Agency	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity for Federal Facilities in 2004
Department of Defense	173,174	2,077,685	2,840,783	2,776,003	2,541,598	74.2%
Department of Energy	15,778	301,969	412,225	585,141	748,702	21.9%
Department of Homeland Security	83,333	109,323	155,257	119,335	120,650	3.5%
Department of Interior	0	22,957	1,583	9,362	8,025	0.2%
National Aeronautics and Space Administration	0	4,672	6,158	4,061	4,930	0.1%
Department of Transportation	0	0	27,718	0	669	0.0%
Department of Justice	0	0	477	249	495	0.0%
Department of Treasury	0	0	297	122	288	0.0%
Tennessee Valley Authority	0	988	2,019	746	127	0.0%
Department of State	0	0	0	200	100	0.0%
Department of Agriculture	0	1,237	1,514	2,408	0	0.0%
Department of Health and Human Services	0	0	30	0	0	0.0%
Environmental Protection Agency	325	318	153	0	0	0.0%
Total	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**	**96%**

In 2004, federal facilities in only the DOD and DOE reported more than one PC. Exhibit 5.12 shows that of the eight PCs that federal facilities reported in 2004, DOD and DOE facilities accounted for:

- 100 percent of the 1,2,4 trichlorobenzene, hexachlorobenzene, hexachloroethane, mercury and mercury compounds, naphthalene, PCBs, and PACs.
- 96 percent of lead and lead compounds.

Exhibit 5.12. Quantity of Priority Chemicals Reported by Federal Department or Agency, 2000–2004

Chemical Name	Agency	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)
1,2,4-Trichlorobenzene	Department of Defense	0	0	272,827	45,552	123,783
Benzo(g,h,i)perylene	Department of Defense	0	0	0	5	0
	Department of Homeland Security	1	0	0	0	0
Dioxin and dioxin-like compounds	Department of Defense	0	0	0	0	0
	Department of Energy	0	0	0	0	0
	Environmental Protection Agency	11	1	0	0	0
Hexachlorobenzene	Department of Defense	0	28	0	0	54
Hexachloroethane	Department of Defense	0	0	84,900	91,255	17,867
Lead and lead compounds	Department of Agriculture	0	1,237	1,514	2,408	0
	Department of Defense	170,467	2,027,077	2,456,994	2,630,413	2,358,393
	Department of Energy	12,070	300,826	411,649	584,143	745,333
	Department of Homeland Security	83,279	109,323	155,257	119,335	120,650
	Department of Interior	0	22,957	1,583	9,362	8,025
	Department of Justice	0	0	477	249	495
	Department of State	0	0	0	200	100
	Department of Transportation	0	0	27,718	0	669
	Department of Treasury	0	0	297	122	288
	Environmental Protection Agency	0	0	16	0	0
	National Aeronautics and Space Administration	0	4,672	6,158	3,984	4,930
	Tennessee Valley Authority	0	988	2,019	746	127
Mercury and mercury compounds	Department of Defense	66	47,582	5,186	606	12,748
	Department of Energy	358	891	535	744	3,212
	Environmental Protection Agency	32	63	0	0	0
Naphthalene	Department of Defense	2,641	2,764	20,875	7,483	18,210
	Department of Energy	34	0	0	9	35
	Department of Health and Human Services	0	0	30	0	0
	National Aeronautics and Space Administration	0	0	0	78	0
Polychlorinated biphenyls (PCBs)	Department of Defense	0	234	0	0	0
	Department of Energy	3,316	252	25	6	2
	Environmental Protection Agency	282	254	137	0	0
Polycyclic aromatic compounds (PACs)	Department of Defense	0	0	0	690	10,544
	Department of Energy	0	0	16	238	121
	Department of Homeland Security	54	0	0	0	0
	Total Quantity for Federal Facilities	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**

Exhibit 5.13 shows how facilities in each federal agency managed their PCs in 2004. Approximately 95 percent of the PCs were land disposed, reflecting the fact that lead and mercury comprised approximately 96 percent of the total PC quantity. Facilities in the DOD and DOE reported approximately 94 percent of total recycled quantity in 2004.

Exhibit 5.13. Management of Priority Chemicals by Federal Department or Agency, 2004

Agency	Total Quantity of PCs (2004)	Disposal (pounds)	Treatment (pounds)	Energy Recovery (pounds)	Recycling (pounds)
Department of Defense	2,541,598	2,371,808	144,393	25,398	147,581
Department of Energy	748,702	748,613	0	89	1,030,671
Department of Homeland Security	120,650	120,650	0	0	68,319
Department of Interior	8,025	8,025	0	0	0
Department of Justice	495	495	0	0	0
Department of State	100	100	0	0	3,940
Department of Transportation	669	669	0	0	0
Department of Treasury	288	288	0	0	1,656
National Aeronautics and Space Administration	4,930	4,930	0	0	473
Tennessee Valley Authority	127	127	0	0	750
Total	**3,425,586**	**3,255,705**	**144,393**	**25,487**	**1,253,389**

Analysis of Priority Chemicals Within Federal Agencies, by EPA Region and State

In 2004, DOD facilities in New Jersey (Region 2), North Carolina and South Carolina (Region 4), Texas (Region 6), California (Region 9) and Oregon (Region 10) and a DOE facility in Idaho (Region 10) reported approximately 52 percent of the total national quantity of PCs reported by federal facilities. (Exhibit 5.14)

Regional and State Insights:

- Significant increases (2003-2004) reported by federal facilities included:
  - Region 2, New Jersey – DOD (+103,664 pounds)
  - Region 4, North Carolina – DOD (+69,547 pounds)
  - Region 6, Texas – DOD (+42,640 pounds)
  - Region 10, Idaho – DOE (+391,831 pounds)
- Significant decreases (2003-2004) reported by federal facilities included:
  - Region 2, New York – DOE (-163,116 pounds)
  - Region 4, Georgia – DOD (-150,545 pounds)
  - Region 4, Kentucky – DOD (-132,126 pounds)
  - Region 5, Illinois – DOE (-156,131 pounds)
  - Region 7, Missouri – DOD (-187,301 pounds)
  - Region 9, Nevada – DOD (-130,325 pounds)

Exhibit 5.14. Regional and State Quantities of Priority Chemical Reported by Federal Department or Agency, 2000-2004

EPA Region	State	Federal Agency	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of PCs Reported by Federal Facilities (2004)
1	CT	Department of Homeland Security	54	27	206	27	104	0.0%
	MA	Department of Defense	0	463	9,285	0	300	0.0%
	ME	Department of Defense	0	68	51	47	31	0.0%
		Department of Interior	0	603	607	797	630	0.0%
	VT	Department of Defense	0	0	27	21	36	0.0%
2	NJ	Department of Defense	0	22,740	40,710	41,907	145,572	4.2%
		Department of Homeland Security	0	0	2,074	3,469	285	0.0%
		Department of Transportation	0	0	27,718	0	669	0.0%
	NY	Department of Defense	0	52,333	58,956	60,562	67,227	2.0%
		Department of Energy	1,023	41,031	161,193	165,613	2,497	0.1%
	PR	Department of Defense	0	8,133	9,836	2,820	0	0.0%
	VI	Department of Interior	0	0	0	214	287	0.0%
3	DC	Department of Defense	0	0	0	0	39	0.0%
		Department of Justice	0	0	477	249	127	0.0%
		Department of Treasury	0	0	279	41	276	0.0%
	DE	Department of Defense	0	2,958	0	0	0	0.0%
	MD	Department of Agriculture	0	1,237	1,514	2,408	0	0.0%
		Department of Defense	0	2,919	3,936	13,634	16,730	0.5%
		Department of Health and Human Services	0	0	30	0	0	0.0%
		Department of Homeland Security	0	0	0	0	1,619	0.0%
		Department of Interior	0	20,024	0	0	200	0.0%
	PA	Department of Defense	0	12,114	0	3	17	0.0%
		Department of Interior	0	148	161	199	277	0.0%
		Department of Treasury	0	0	11	77	7	0.0%
	VA	Department of Defense	2,424	31,921	86,487	116,833	96,199	2.8%
		Department of Homeland Security	0	932	0	1,504	250	0.0%
		Department of Interior	0	0	0	0	278	0.0%
		Department of State	0	0	0	200	100	0.0%
		National Aeronautics and Space Administration	0	0	5	93	1	0.0%
	WV	Department of Defense	0	0	416	251	47	0.0%
		Department of Justice	0	0	0	0	368	0.0%
4	AL	Department of Defense	42,613	6,041	337,473	8,963	8,743	0.3%
		Tennessee Valley Authority	0	988	2,019	746	127	0.0%
	FL	Department of Defense	2,641	38,999	64,018	20,653	14,430	0.4%
		National Aeronautics and Space Administration	0	4,582	5,451	3,538	4,256	0.1%
	GA	Department of Defense	0	190,191	169,153	281,189	130,644	3.8%
		Department of Homeland Security	72,299	90,624	38,900	72,572	50,758	1.5%
	KY	Department of Defense	0	162,571	148,467	281,114	148,987	4.3%
	MS	Department of Defense	0	0	17,560	11,608	37,994	1.1%

Exhibit 5.14. Regional and State Quantities of Priority Chemical Reported by Federal Department or Agency, 2000-2004

EPA Region	State	Federal Agency	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of PCs Reported by Federal Facilities (2004)
		Department of Interior	0	0	0	154	0	0.0%
	NC	Department of Defense	0	157,011	219,472	286,574	356,121	10.4%
		Department of Interior	0	0	0	124	787	0.0%
		Environmental Protection Agency	325	318	153	0	0	0.0%
	SC	Department of Defense	0	152,341	214,076	139,972	140,500	4.1%
		Department of Energy	6,424	12,400	10,957	33,660	59,947	1.7%
	TN	Department of Defense	0	1,119	5,413	4,466	0	0.0%
		Department of Energy	8,057	9,977	12,463	8,727	10,259	0.3%
		Department of Interior	0	0	0	1,182	1,046	0.0%
5	IL	Department of Defense	4	1,077	251	304	12,287	0.4%
		Department of Energy	0	135,012	110,262	172,963	16,832	0.5%
	IN	Department of Defense	28,023	5,568	30,288	43,111	46,624	1.4%
	MI	Department of Defense	0	0	0	588	563	0.0%
	MN	Department of Defense	0	248	90	76	16	0.0%
	OH	Department of Defense	0	0	1,587	1,310	1,126	0.0%
		Department of Energy	13	816	799	420	310	0.0%
	WI	Department of Defense	0	19,604	11,123	30,758	60,422	1.8%
6	AR	Department of Defense	0	1,317	1,098	885	435	0.0%
		Department of Interior	0	0	0	133	141	0.0%
	LA	Department of Defense	0	27,015	35,122	27,946	39,037	1.1%
		National Aeronautics and Space Administration	0	0	0	0	224	0.0%
	NM	Department of Defense	0	3,741	2,290	2,830	31,982	0.9%
		Department of Energy	11	26,893	35,529	14,124	41,287	1.2%
		Department of Homeland Security	10,980	15,904	111,808	35,089	60,865	1.8%
		National Aeronautics and Space Administration	0	0	612	431	449	0.0%
	OK	Department of Defense	0	46,709	51,904	41,074	62,455	1.8%
	TX	Department of Defense	0	266,594	161,469	183,897	226,537	6.6%
		Department of Energy	199	4,316	4,730	2,216	7,244	0.2%
		Department of Interior	0	199	0	1,147	764	0.0%
		Department of Treasury	0	0	5	0	0	0.0%
7	IA	Department of Defense	31	0	0	0	0	0.0%
	KS	Department of Defense	0	31,743	154	30,178	11,485	0.3%
	MO	Department of Defense	7,748	91,816	174,996	297,459	110,158	3.2%
		Department of Energy	0	9	26	7	11	0.0%
		Department of Interior	0	0	0	0	111	0.0%
	NE	Department of Defense	0	4,908	0	3,239	0	0.0%

Exhibit 5.14. Regional and State Quantities of Priority Chemical Reported by Federal Department or Agency, 2000-2004

EPA Region	State	Federal Agency	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total Quantity of PCs Reported by Federal Facilities (2004)
8	CO	Department of Defense	0	50,583	45,768	66,745	93,291	2.7%
		Department of Energy	0	3,108	29,376	93,473	120,798	3.5%
		Department of Treasury	0	0	2	5	5	0.0%
	SD	Department of Defense	0	0	1	2	3	0.0%
		Department of Interior	0	122	0	0	204	0.0%
	UT	Department of Defense	3,844	4,413	9,475	14,461	10,461	0.3%
		Department of Interior	0	0	0	152	0	0.0%
	WY	Department of Defense	0	0	4,028	7,162	1,833	0.1%
		Department of Interior	0	0	0	1,365	1,377	0.0%
9	AZ	Department of Defense	0	10,289	23,694	6,572	5,578	0.2%
		Department of Interior	0	0	0	2,923	1,096	0.0%
	CA	Department of Defense	40,466	415,672	347,286	153,763	144,197	4.2%
		Department of Energy	10	4,673	5,193	2,006	2,310	0.1%
		Department of Homeland Security	0	20	0	0	0	0.0%
		Department of Interior	0	401	430	256	302	0.0%
		National Aeronautics and Space Administration	0	90	90	0	0	0.0%
	GU	Department of Defense	0	5,419	0	0	0	0.0%
	HI	Department of Defense	0	121,052	84,872	97,600	127,645	3.7%
		Department of Interior	0	0	0	0	140	0.0%
	NV	Department of Defense	3,909	8,005	219,098	219,692	89,368	2.6%
		Department of Energy	0	710	4,616	6,730	10,252	0.3%
		Department of Interior	0	1,460	385	385	385	0.0%
10	AK	Department of Defense	985	21,870	27,426	20,241	39,778	1.2%
		Department of Homeland Security	0	1,813	2,266	2,522	2,048	0.1%
	ID	Department of Energy	43	63,025	37,080	85,125	476,957	13.9%
	OR	Department of Defense	0	0	112,838	140,459	142,787	4.2%
		Department of Energy	0	0	0	78	0	0.0%
	WA	Department of Defense	40,485	98,121	110,589	115,034	119,914	3.5%
		Department of Homeland Security	0	3	2	4,153	4,721	0.1%
		Department of Interior	0	0	0	331	0	0.0%
		Total	**272,611**	**2,519,149**	**3,448,214**	**3,497,629**	**3,425,586**	**99.5%**

Management of Primary Chemicals by Federal Agencies (2000–2004)

How Did Federal Agencies Manage PCs?

In 2004, federal facilities land disposed most of their PCs – of which approximately 95 percent were lead and lead compounds. Exhibits 5.15 and 5.16 show how federal facilities managed their PCs within federal agencies, by EPA region and state.

Management Methods Insights:

Disposal: Federal facilities used land disposal for approximately 54 percent of the total PC quantity land disposed (3,255,705 pounds), including:

- Region 2, New Jersey – DOD (145,572 pounds)
- Region 4, Georgia – DOD (130,632 pounds)
- Region 4, Kentucky – DOD (130,632 pounds)
- Region 4, North Carolina – DOD (346,478 pounds)
- Region 4, South Carolina – DOD (140,500 pounds)
- Region 6, Texas – DOD (224,829 pounds)
- Region 9, California – DOD (141,520 pounds)
- Region 10, Idaho – DOE (476,867 pounds)

Treatment: A DOD facility in Region 10 (Oregon) reported approximately 98 percent of the total PC quantity treated (144,393 pounds) by federal facilities.

Energy Recovery: Approximately 79 percent of the total PC quantity managed by federal facilities, using energy recovery, was reported by facilities in:

- Region 4, North Carolina – DOD (9,643 pounds) and
- Region 5, Illinois – DOD (10,595 pounds)

Recycling: Approximately 77 percent of the quantity of PCs recycled in 2004 by federal facilities was reported by facilities in:

- Region 4, South Carolina – DOE (750,639 pounds)
- Region 4, Tennessee – DOE (106,850 pounds)
- Region 9, Nevada – DOE (107,512 pounds)

Exhibit 5.15. Regional Management Methods of Priority Chemical Quantities, 2004

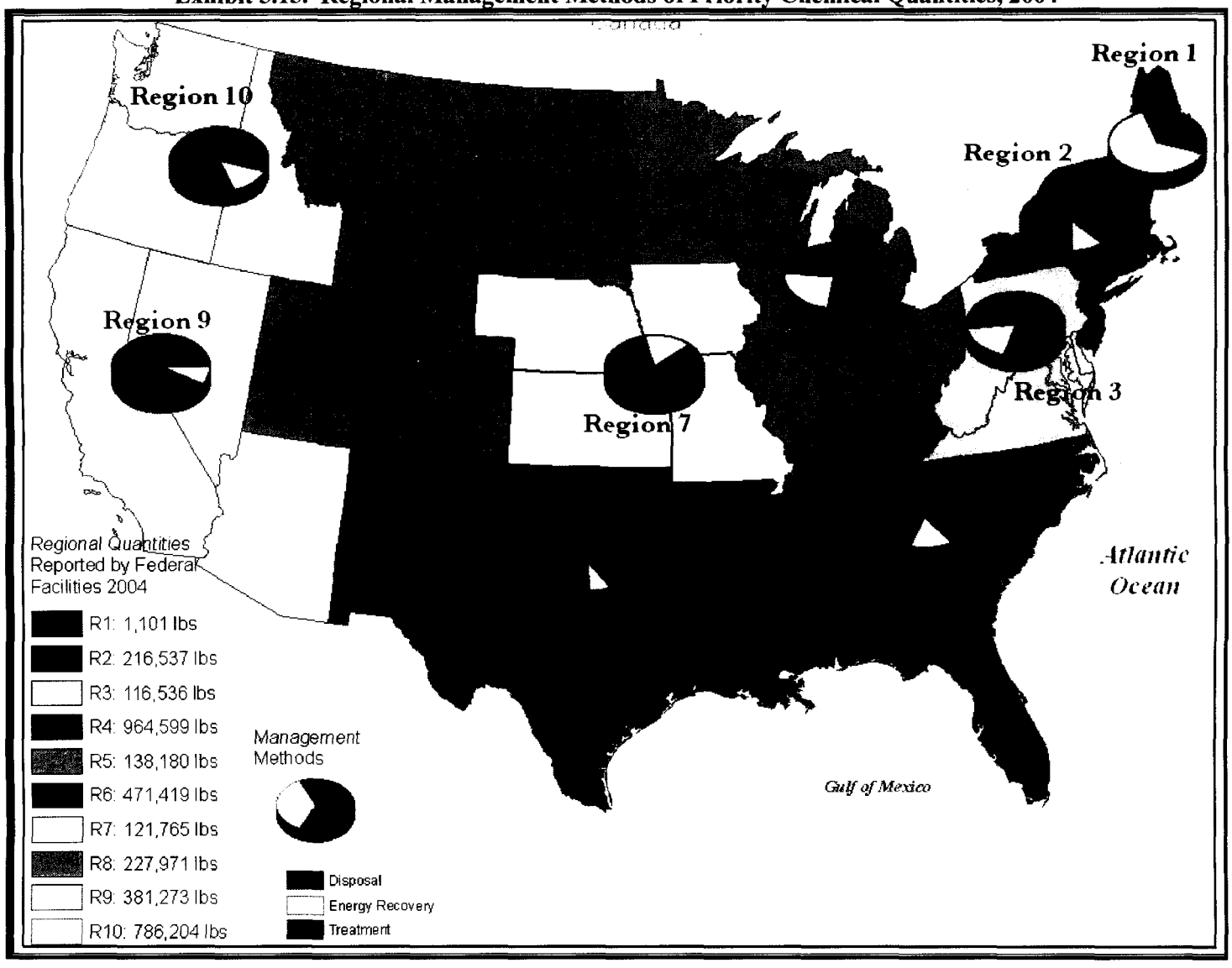


Exhibit 5.16. Regional and State Management Methods of Priority Chemicals by Federal Department or Agency, 2004

EPA Region	State	Agency	Total PC Quantity (pounds)	Disposal Quantity (pounds)	Treatment Quantity (pounds)	Energy Recovery Quantity (pounds)	Recycling Quantity (pounds)
1	CT	Department of Homeland Security	104	104	0	0	2,436
	MA	Department of Defense	300	0	4	296	0
	ME	Department of Defense	31	31	0	0	520
		Department of Interior	630	630	0	0	0
	VT	Department of Defense	36	0	2	34	0
2	NJ	Department of Defense	145,572	145,572	0	0	0
		Department of Homeland Security	285	285	0	0	1,870
		Department of Transportation	669	669	0	0	0
	NY	Department of Defense	67,227	67,227	0	0	0
		Department of Energy	2,497	2,497	0	0	0
	VI	Department of Interior	287	287	0	0	0
3	DC	Department of Defense	39	39	0	0	0
		Department of Justice	127	127	0	0	0
		Department of Treasury	276	276	0	0	38
	MD	Department of Defense	16,730	16,730	0	0	0
		Department of Homeland Security	1,619	1,619	0	0	2,716
		Department of Interior	200	200	0	0	0
	PA	Department of Defense	17	17	0	0	1,773
		Department of Interior	277	277	0	0	0
		Department of Treasury	7	7	0	0	1,383
	VA	Department of Defense	96,199	96,156	0	43	98
		Department of Homeland Security	250	250	0	0	7,856
		Department of Interior	278	278	0	0	0
		Department of State	100	100	0	0	3,940
		National Aeronautics and Space Administration	1	1	0	0	24
	WV	Department of Defense	47	47	0	0	0
		Department of Justice	368	368	0	0	0
4	AL	Department of Defense	8,743	8,743	0	0	0
		Tennessee Valley Authority	127	127	0	0	750
	FL	Department of Defense	14,430	13,437	20	973	0
		National Aeronautics and Space Administration	4,256	4,256	0	0	0
	GA	Department of Defense	130,644	130,632	0	12	14
		Department of Homeland Security	50,758	50,758	0	0	34,849
	KY	Department of Defense	148,987	148,987	0	0	0
	MS	Department of Defense	37,994	37,994	0	0	0
	NC	Department of Defense	356,121	346,478	0	9,643	90
		Department of Interior	787	787	0	0	0
	SC	Department of Defense	140,500	140,500	0	0	0
		Department of Energy	59,947	59,947	0	0	750,639
	TN	Department of Energy	10,259	10,259	0	0	106,850
		Department of Interior	1,046	1,046	0	0	0

Exhibit 5.16. Regional and State Management Methods of Priority Chemicals by Federal Department or Agency, 2004

EPA Region	State	Agency	Total PC Quantity (pounds)	Disposal Quantity (pounds)	Treatment Quantity (pounds)	Energy Recovery Quantity (pounds)	Recycling Quantity (pounds)
5	IL	Department of Defense	12,287	1,692	0	10,595	5
		Department of Energy	16,832	16,832	0	0	4,032
	IN	Department of Defense	46,624	46,624	0	0	0
	MI	Department of Defense	563	520	0	43	0
	MN	Department of Defense	16	2	0	14	0
	OH	Department of Defense	1,126	53	0	1,073	0
		Department of Energy	310	310	0	0	0
	WI	Department of Defense	60,422	60,422	0	0	0
6	AR	Department of Defense	435	435	0	0	0
		Department of Interior	141	141	0	0	0
	LA	Department of Defense	39,037	38,584	3	450	0
		National Aeronautics and Space Administration	224	224	0	0	0
	NM	Department of Defense	31,982	31,982	0	0	0
		Department of Energy	41,287	41,287	0	0	2
		Department of Homeland Security	60,865	60,865	0	0	18,576
		National Aeronautics and Space Administration	449	449	0	0	449
	OK	Department of Defense	62,455	62,171	4	280	21,200
	TX	Department of Defense	226,537	224,829	0	1,708	335
		Department of Energy	7,244	7,244	0	0	303
		Department of Interior	764	764	0	0	0
7	KS	Department of Defense	11,485	11,485	0	0	0
	MO	Department of Defense	110,158	110,158	0	0	0
		Department of Energy	11	11	0	0	1,891
		Department of Interior	111	111	0	0	0
8	CO	Department of Defense	93,291	93,291	0	0	0
		Department of Energy	120,798	120,798	0	0	24,464
		Department of Treasury	5	5	0	0	235
	SD	Department of Defense	3	2	1	0	0
		Department of Interior	204	204	0	0	0
	UT	Department of Defense	10,461	10,335	105	21	59,202
	WY	Department of Defense	1,833	1,833	0	0	0
		Department of Interior	1,377	1,377	0	0	0
9	AZ	Department of Defense	5,578	5,578	0	0	3,490
		Department of Interior	1,096	1,096	0	0	0
	CA	Department of Defense	144,197	141,520	2,601	77	5,528
		Department of Energy	2,310	2,310	0	0	870
		Department of Interior	302	302	0	0	0
	HI	Department of Defense	127,645	127,637	8	0	55,325
		Department of Interior	140	140	0	0	0
	NV	Department of Defense	89,368	89,368	0	0	0
		Department of Energy	10,252	10,252	0	0	107,512
		Department of Interior	385	385	0	0	0

Exhibit 5.16. Regional and State Management Methods of Priority Chemicals by Federal Department or Agency, 2004

EPA Region	State	Agency	Total PC Quantity (pounds)	Disposal Quantity (pounds)	Treatment Quantity (pounds)	Energy Recovery Quantity (pounds)	Recycling Quantity (pounds)
10	AK	Department of Defense	39,778	39,642	0	136	0
		Department of Homeland Security	2,048	2,048	0	0	16
	ID	Department of Energy	476,957	476,867	0	89	34,108
	OR	Department of Defense	142,787	1,141	141,646	0	0
	WA	Department of Defense	119,914	119,914	0	0	0
		Department of Homeland Security	4,721	4,721	0	0	0
		Totals	**3,425,586**	**3,255,705**	**144,393**	**25,487**	**1,253,389**

Section 6
Trends Analyses for Specific Industry Sectors

Introduction

This is the first time we have included in this Report a section looking at the generation and management of PCs by facilities within a specific Standard Industrial Classification (SIC) code, or industry sector. In addition to showing national, Regional, and state generation trends, we also present basic information regarding the industry sector.

The sector which we have analyzed is SIC 3312 (Blast furnaces (including coke ovens) and steel mills). We chose this sector because it accounted for a significant portion of the total quantity of PCs in 2004 and offers potential waste minimization opportunities.

Future Sector Analyses

We plan to analyze additional sectors in subsequent editions of this Report. Ultimately, we would like to include the sectors that account for at least 80 percent of the total quantity of PCs that are generated. We also plan to discuss potential waste minimization opportunities for PCs within each of the sectors.

Beginning with the 2006 TRI reporting year, facilities must report NAICS code rather than the SIC code that TRI has used since reporting began in 1987.

Exhibit 6.1 shows the relationship between the NAICS and SIC categories associated with the transformation of raw materials into iron and steel value added products. For the purposes of this Report, we focus on the steel works involving blast furnaces and EAFs as reported under NAICS code 331111 (SIC 3312) and comprise operational activities known collectively as the iron and steel industry.

We also are working to develop a methodology to extract Hazardous Waste Biennial Report (BR) data applicable to PCs in hazardous waste streams. We plan to include this information in future sector analyses.

Exhibit 6.1 Typical NAICS and SIC Associated with the Iron and Steel Industry:

NAICS	SIC	Description
331111	3312	Steel works, blast furnaces (including coke ovens), rolling mills
331112	3313	Electrometallurgical products, except steel
331222	3315	Steel wiredrawing and steel nails and spikes
331221	3316	Cold-rolled steel sheet, strip, and bars
331210	3317	Steel pipe and tubes

Source: For an expansive list see: www.cnesus.gov/epcd/naics02/ def/ NDEF331.HTM

Industry Sector Information for SIC 3312 (Blast furnaces and steel mills)

Industry Overview[12]

The SIC 3312 sector encompasses facilities that manufacture steel and form it into basic shapes and forms that can be used to create steel products. This sector is divided into two basic types, with each type representing approximately half of domestic production:

- Integrated steel mills which use a three-step process to produce steel from iron ore, coke (made from coal by cokemaking), and limestone; ironmaking (using a blast furnace), and Basic Oxygen Furnace (BOF) technology.
- "Mini-mills" which produce steel from scrap metal using Electric Arc Furnace (EAF) technology, without operations for coking or ironmaking.

A fully integrated steel mill involves cokemaking, ironmaking, steelmaking, and the subsequent steel forming and finishing operations. Coke serves as a fuel and carbon source and is produced by heating coal in the absence of oxygen at high temperatures in coke ovens. Pig iron is then produced by heating the coke, iron ore, and limestone in a blast furnace. In the BOF, high-purity oxygen is injected along with molten pig iron from the blast furnace and flux. Approximately 20 to 35 percent of the "charge" to the furnace is scrap steel.[13]

Alternatively, in mini-mills using EAFs, the input material is scrap steel, both purchased scrap and home scrap from the facility; in many cases is 100 percent of the charge[14], which is melted by passing an electric current from electrodes through the scrap.

Exhibit 6.2 shows the process flows for both integrated- and mini-mills. For a more detailed discussion of these industry processes, operations, and environmental impacts, see the list of suggested references in the Waste Minimization Opportunities discussion in this Section.

Industry Demographics

According to DOE,[15] there has been considerable consolidation in the industry over the last few decades. As of 2002, 90 companies were producing raw steel at almost 140 locations. The absolute number of integrated mills producing steel in BOFs has always been relatively small and is currently at around 20. Most (approximately 80%) of U.S. steelmaking capacity is located at mills concentrated in the Great Lakes region, primarily in Indiana, Illinois, Ohio, Pennsylvania, Michigan, and New York.

---

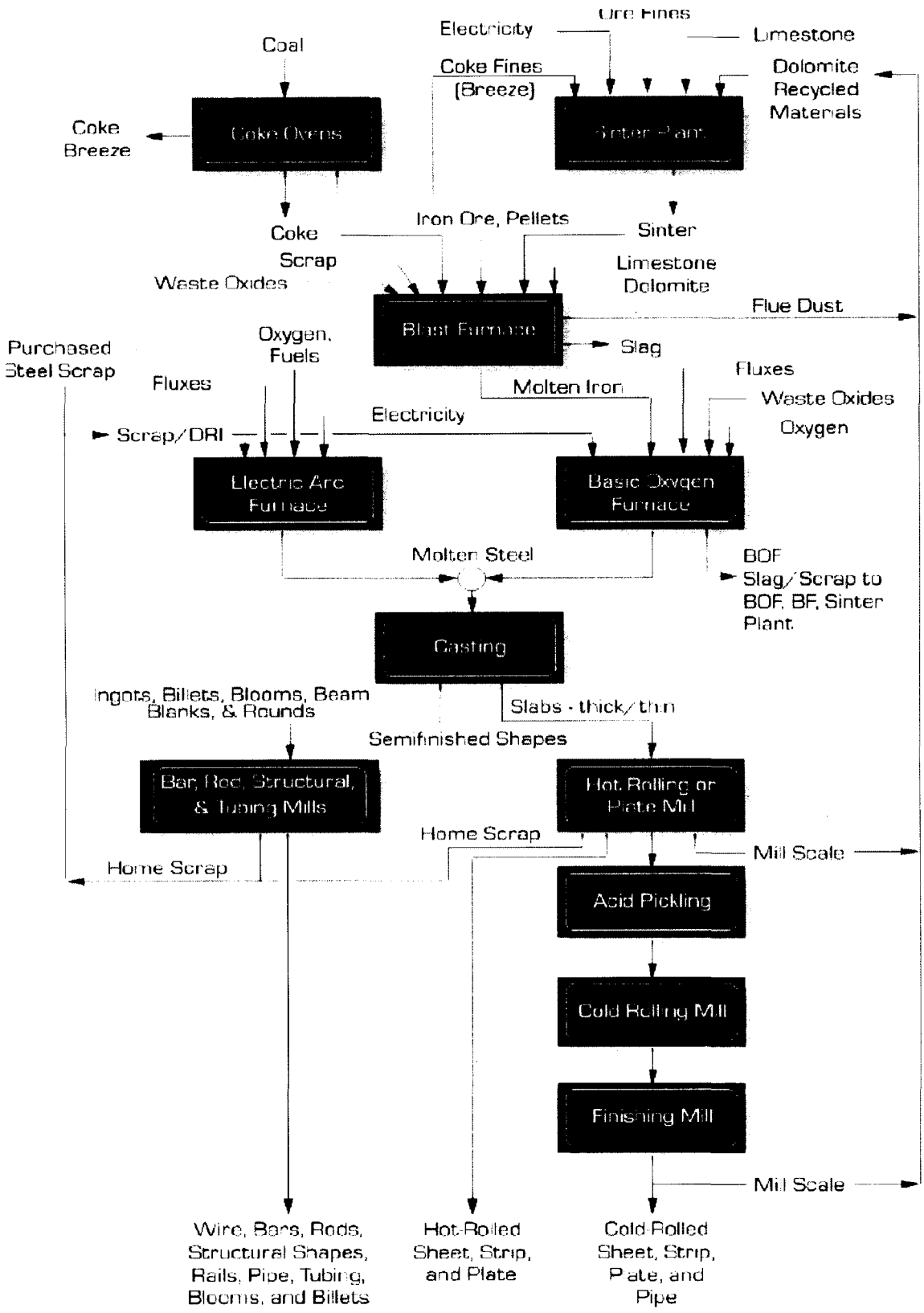
[12] For more information, see: See US EPA Sector Strategies Performance Report, 2006, www.epa.gov/sectors/performance.html; see also Profile of the Iron and Steel Industry, US EPA, 1995, www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/iron.html; see also US DOE, Steel Industry Technology Roadmap, 2001, www.eere.energy.gov/industry/steel/roadmap.html; see also US DOE, Steel Industry Profile, www.eere.energy.gov/industry/steel/profile.html.

[13] US DOE, *Energy and Environment Profile of the US Iron and Steel Industry*, August 2000, and *Integrated Pollution Prevention and Control (IPPC), Best Available Techniques Reference Document on the Production of Iron and Steel*, European Commission, December 2001.

[14] *Integrated Pollution Prevention and Control (IPPC), Best Available Techniques Reference Document on the Production of Iron and Steel*, European Commission, December 2001.

[15] See U.S. DOE's : (1) Steel industry profile: http://www.eere.energy.gov/industry/steel/profile.html, and (2) *Steel Industry of The Future, FY 2004 Annual Report*, February 2005.

Exhibit 6.2. Iron and Steel Process Flow[16]



[16] American Iron and Steel Institute, *Steel Industry Technology Road Map*, December 2001 http://www.steel.org/AM/Template.cfm?Section=PDFs6&TEMPLATE=/CM/ ContentDisplay.cfm&CONTENTID=4800.

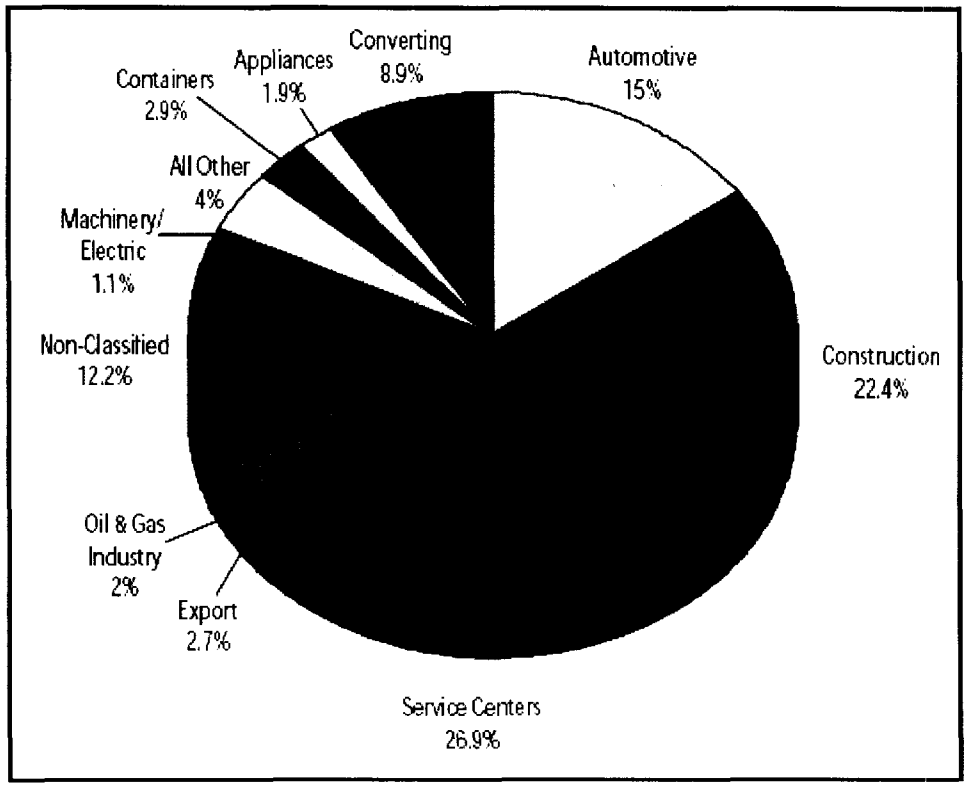
Industry Products Characterization

Steel is an alloy of iron that contains varying amounts of carbon, as well as other elements, such as nickel and chromium. The iron and steel industry produces semi-finished steel shapes, such as bars, sheets, and strips, as well as finished products such as wires, rods, and pipes.

The U.S. steel industry is vital to both economic competitiveness and national security. Steel is the backbone of bridges, skyscrapers, railroads, automobiles, and appliances. More than 3,000 catalogue grades of steel are available, not including custom grades for specific users. Most grades of steel in use today, particularly high-strength steels that are light and versatile, were not available ten years ago.

The U.S. steel industry is a $50 + billion enterprise and additional downstream processing pushes the value of steel shipments closer to $75 billion. The U.S. produced 103 million net tons of raw steel in 2003, nearly 10 percent of the total world steel production of 1.06 billion net tons. Exhibit 6.3 shows the steel industry's market distribution.

Exhibit 6.3. Steel Shipments by Market Classification (2003)[17]



[17] Note: The term "Converting" refers to the processing of steel into a more finished state, such as pipe, tubing, and cold-rolled strip – before selling it to end users. The term "Service Centers" refers to an operation that buys steel, often processes it in some way and then sells it in a slightly different form.

Source: U.S. DOE, *Steel Industry of The Future, FY 2004 Annual Report*, February 2005.

Industry Environmental Effects [18]

The iron and steel sector affects several environmental media, including air emissions, wastewater contaminants, hazardous and solid wastes. The most significant environmental effects from integrated steel mills result from coking and ironmaking activities which generate pollutants, including PACs, benzene, and "toxic" metals. These organic and metal pollutants are associated with a number of RCRA listed and some characteristic wastes. U.S. steelmakers are researching, both independently and with various federal and international programs, new technologies to reduce the environmental impacts of steelmaking, such as to decrease their reliance on coke or to make steel using far less energy.[19]

As an industry, mini-mills are the largest U.S. consumers of recycled steel scrap, but they also face issues related to contaminants in scrap products such as lead, cadmium, mercury, polychlorinated biphenyls (PCBs) and other "toxics." We provide below the quantities of PCs in wastes that facilities in the SIC 3312 industry sector reported to TRI.

Facilities in SIC 3312 Generating Priority Chemicals

In 2004, 95 facilities in SIC 3312 reported to TRI about 9.9 million pounds of PCs (Exhibit 6.4). This was about 12 percent of the total quantity of PCs reported by all industry sectors. In 2001, the number of facilities increased. In part, this increase may have been due to the decrease in the TRI reporting threshold for lead and lead compounds that became effective for the 2001 TRI reporting year. Since 2001, the number of facilities has remained relatively stable.

Since the quantity of PCs generated is to a large extent influenced by production levels, the decreased quantity of PCs in 2001-2003 may have been due to increased steel imports and the recession of 2001. Facilities reporting increased quantities of PCs in 2003-2004 likely reflect an economic recovery.

Exhibit 6.4. National-Level Information for SIC 3312 (2000-2004)

	2000	2001	2002	2003	2004	Change in Quantity (2000-2004)	Percent Change (2000-2004)
Number of Facilities	79	91	89	92	95	-	20.3%
Priority Chemical Quantity* (pounds)	9,628,162	7,944,838	7,195,567	8,226,018	9,915,357	287,194	3.0%

* Priority Chemical quantity refers to the quantity of PCs that were managed via disposal, energy recovery, or treatment. Quantities of PCs recycled are presented separately.

Facilities in this industry sector reported 11 PCs from 2000-2004 (Exhibit 6.5). Lead and lead compounds accounted for the overwhelming quantity of PCs, including about 94 percent of the total quantity of PCs reported by facilities in this industry sector in 2004.

[18] U.S. EPA, *Profile of the Iron and Steel Industry*, September 1995 and U.S. DOE, *Energy and Environmental Profile of the U.S. Iron and Steel Industry*, August 2000 (DOE/EE-0229).For more information, see: 1)US EPA Sector Strategies Performance Report, 2006, www.epa.gov/sectors/performance.html; 2)Profile of the Iron and Steel Industry, US EPA, 1995, www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/iron.html; 3)US DOE, Steel Industry Technology Roadmap, 2001, www.eere.energy.gov/industry/steel/roadmap.html; 4)US DOE, Steel Industry Profile, www.eere.energy.gov/industry/steel/profile.html.

[19] See [DOE OIT page on research projects], and www.steel.org/AM/Template.cfm?Section=R_and_D&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=35&ContentID=8210.

Exhibit 6.5. Priority Chemicals reported by facilities in SIC 3312 (2004)

Priority Chemical	2000 (pounds)	2001 (pounds)	2002 (pounds)	2003 (pounds)	2004 (pounds)	Percent of Total PC Quantity (2004)
Anthracene	339	117	354	7,866	5,128	0.05%
Benzo(g,h,i)perylene	506	444	118	33,711	17,229	0.17%
Cadmium and cadmium compounds	93,398	62,922	38,355	58,469	31,212	0.31%
Dibenzofuran	158	32	212	2,834	2,624	0.03%
Dioxins	<1	<1	<1	<1	<1	0.00%
Lead and Lead compounds	9,428,975	7,766,719	7,098,315	7,726,717	9,361,873	94.42%
Mercury and mercury compounds	22,720	4,216	3,279	8,020	11,273	0.11%
Naphthalene	53,243	81,765	33,554	73,997	273,506	2.76%
Phenanthrene	3,452	3,165	2,023	29,682	19,418	0.20%
Polychlorinated Biphenyls	4,443	3,495	4,773	5,497	3,121	0.03%
Polycyclic aromatic compounds	20,928	21,963	14,585	279,226	189,972	1.92%
Total	**9,628,162**	**7,944,838**	**7,195,567**	**8,226,018**	**9,915,357**	**100.0%**

Of the 95 facilities in SIC 3312 that reported PCs in 2004, 28 reported 92 percent of the total quantity of PCs for this industry sector (Exhibit 6.6).

Exhibit 6.6. Distribution of Facilities in SIC 3312 that Reported Priority Chemicals (2004)

Breakdown of total PC quantity (9,915,357 pounds) reported by SIC 3312 facilities		
Quantity Reported	**Number of Facilities Reporting this quantity (2004)**	**Percent of Total Quantity of PCs (2004)**
up to 10 pounds	12	less than 0.1%
between 11 - 100 pounds	11	less than 0.1%
between 101 -1,000 pounds	7	less than 0.1%
between 1,001 - 10,000 pounds	22	1.0%
between 10,001 - 100,000 pounds	15	6.5%
between 100,001 - 1 million pounds	28	92.4%
> 1 million pounds	0	0.0%

Eighty-four facilities in SIC 3312 reported about 9.4 million pounds of lead and lead compounds in 2004. Twenty-six reported more than 100,000 pounds of this PC and accounted for about 93 percent of its total quantity. (Exhibit 6.7).

Exhibit 6.7. Distribution of Facilities in SIC 3312 for each Priority Chemical (2004)

Breakdown of each PC quantity reported by SIC 3312 facilities			
Priority Chemical (pounds and number of reporting facilities in 2004)	**Quantity Reported in 2004**	**Number of Facilities Reporting this quantity (2004)**	**Percent of Total Quantity of this PC (2004)**
Anthracene (5,128 pounds from 3 facilities)	up to 10 pounds	1	0.1%
	between 11 - 100 pounds	0	0.0%
	between 101 -1,000 pounds	1	7.4%
	between 1,001 - 10,000 pounds	1	92.4%
Benzo(g,h,i)perylene (17,229 pounds from 4 facilities)	up to 10 pounds	1	less than 0.1%
	between 11 - 100 pounds	2	0.7%
	between 101 -1,000 pounds	1	99.3%

Exhibit 6.7. Distribution of Facilities in SIC 3312 for each Priority Chemical (2004)

Breakdown of each PC quantity reported by SIC 3312 facilities			
Priority Chemical (pounds and number of reporting facilities in 2004)	**Quantity Reported in 2004**	**Number of Facilities Reporting this quantity (2004)**	**Percent of Total Quantity of this PC (2004)**
Cadmium and cadmium compounds (31,212 pounds from 7 facilities)	up to 10 pounds	1	less than 0.1%
	between 11 - 100 pounds	0	0.0%
	between 101 -1,000 pounds	1	1.5%
	between 1,001 - 10,000 pounds	4	53.6%
	between 10,001 - 100,000 pounds	1	44.9%
Dibenzofuran (2,624 pounds from 2 facilities)	up to 10 pounds	0	0.0%
	between 11 - 100 pounds	0	0.0%
	between 101 -1,000 pounds	1	8.7%
	between 1,001 - 10,000 pounds	1	91.3%
Dioxins (<0.1 pounds from 5 facilities)	up to 10 pounds	5	100.0%
Lead and Lead compounds (9,361,873 pounds from 84 facilities)	up to 10 pounds	11	less than 0.1%
	between 11 - 100 pounds	12	less than 0.1%
	between 101 -1,000 pounds	4	less than 0.1%
	between 1,001 - 10,000 pounds	16	0.7%
	between 10,001 - 100,000 pounds	15	6.6%
	between 100,001 - 1 million pounds	26	92.6%
Mercury and mercury compounds (11,273 pounds from 52 facilities)	up to 10 pounds	25	0.6%
	between 11 - 100 pounds	18	6.0%
	between 101 -1,000 pounds	6	15.1%
	between 1,001 - 10,000 pounds	3	78.3%
Naphthalene (273,506 pounds from 11 facilities)	up to 10 pounds	0	0.0%
	between 11 - 100 pounds	1	less than 0.1%
	between 101 -1,000 pounds	3	0.7%
	between 1,001 - 10,000 pounds	5	7.9%
	between 10,001 - 100,000 pounds	1	12.7%
	between 100,001 - 1 million pounds	1	78.7%
Phenanthrene (19,418 pounds from 4 facilities)	up to 10 pounds	0	0.0%
	between 11 - 100 pounds	1	0.1%
	between 101 -1,000 pounds	2	6.2%
	between 1,001 - 10,000 pounds	1	93.7%
Polychlorinated Biphenyls (3,121 pounds from 3 facilities)	up to 10 pounds	0	0.0%
	between 11 - 100 pounds	1	0.3%
	between 101 -1,000 pounds	0	0.0%
	between 1,001 - 10,000 pounds	2	99.7%
Polycyclic aromatic compounds (189,972 pounds from 6 facilities)	up to 10 pounds	0	0.0%
	between 11 - 100 pounds	1	less than 0.1%
	between 101 -1,000 pounds	1	0.4%
	between 1,001 - 10,000 pounds	2	1.7%
	between 10,001 - 100,000 pounds	1	25.8%
	between 100,001 - 1 million pounds	1	72.1%

In 2004, SIC 3312 facilities that reported PCs were located in 27 states within nine EPA Regions. Facilities in EPA Regions 4 and 5 accounted for about 53 percent of the total quantity of PCs for this industry sector. In Indiana and Alabama, facilities reported more than one million pounds of PCs (Exhibit 6.8).

Exhibit 6.8. Priority Chemicals Quantities reported by SIC 3312 facilities, by EPA Region and State (2004)

EPA Region	State	Number of Facilities	Total Priority Chemical Quantity	Percent of Total PC Qty for SIC 3312
2	New York	5	11,942	0.1%
	Region 2 Totals	**5**	**11,942**	**0.1%**
3	Pennsylvania	19	545,955	5.5%
	Virginia	2	346,971	3.5%
	Delaware	1	110	0.0%
	West Virginia	1	89	0.0%
	Region 3 Totals	**23**	**893,125**	**9.0%**
4	Alabama	9	1,308,284	13.2%
	Florida	1	<1	0.0%
	Georgia	1	<1	0.0%
	North Carolina	2	514,965	5.2%
	South Carolina	3	172,859	1.7%
	Tennessee	3	91,043	0.9%
	Kentucky	3	47,125	0.5%
	Mississippi	1	39,826	0.4%
	Region 4 Totals	**23**	**2,174,102**	**21.9%**
5	Indiana	5	1,405,081	14.2%
	Illinois	3	658,375	6.6%
	Ohio	11	584,174	5.9%
	Michigan	4	338,128	3.4%
	Wisconsin	1	47,843	0.5%
	Minnesota	1	8	0.0%
	Region 5 Totals	**25**	**3,033,609**	**30.6%**
6	Texas	4	517,793	5.2%
	Arkansas	4	405,776	4.1%
	Louisiana	1	194,352	2.0%
	Region 6 Totals	**9**	**1,117,922**	**11.3%**
7	Iowa	2	835,536	8.4%
	Nebraska	1	629,570	6.3%
	Region 7 Totals	**3**	**1,465,106**	**14.8%**
8	Utah	1	691,506	7.0%
	Colorado	1	159,144	1.6%
	Wyoming	1	12	0.0%
	Region 8 Totals	**3**	**850,661**	**8.6%**
9	California	2	20,144	0.2%
	Region 9 Totals	**2**	**20,144**	**0.2%**
10	Oregon	2	348,744	3.5%
	Region 10 Totals	**2**	**348,744**	**3.5%**
	Grand Totals	**95**	**9,915,357**	**100.0%**

Management of Priority Chemicals by facilities in SIC 3312

Lead was the primary PC reported by SIC 3312 facilities and accounted for most of the approximately 97 percent of the PC quantity that was land disposed. The 310,000 pounds of naphthalene that two Pennsylvania facilities sent to treatment accounted for the most significant non-disposed PC quantity.

From 2000-2004, the recycled quantity of PCs was approximately 60 percent more than the PC quantity, i.e., the quantity that was managed via land disposal, energy recovery, or treatment (Exhibit 6.9). SIC 3312 facilities in most of the states reported significant recycling of PCs in 2004 (Exhibit 6.10).

Exhibit 6.9. Method of Priority Chemicals Management by SIC 3312 facilities (2004)

	2000	2001	2002	2003	2004	Percent Change (2000-2004)	Management Method -- Percent of Total PC Quantity in 2004
Priority Chemical Quantity (pounds)*	9,628,162	7,944,838	7,195,567	8,226,018	9,915,357	3.0%	-
Disposal Quantity (pounds)	9,350,187	7,802,451	7,151,385	8,145,596	9,582,481	2.5%	96.6%
Energy Recovery Quantity (pounds)	25,557	25,310	25,280	25,348	16,904	-33.9%	0.2%
Treatment Quantity (pounds)	252,418	117,077	18,902	55,074	315,972	25.2%	3.2%
Recycling Quantity (pounds)**	11,828,005	11,696,956	10,689,216	13,352,779	15,567,708	31.6%	-

*Priority Chemical quantity refers to the quantity of PCs that were managed via disposal, energy recovery, or treatment. Quantities of PCs recycled are presented separately.

** Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Since recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented for the purpose of providing some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization

Exhibit 6.10. SIC 3312 Facilities' Management of Priority Chemicals, by EPA Region and State 2004

EPA Region	State	Quantity of Priority Chemicals (2004)	Percent of Total Quantity of Priority Chemicals (2004)	Disposal (pounds)		Energy Recovery (pounds)		Treatment (pounds)		Recycling (pounds)	
				Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2	New York	11,942	0.1%	0	5,740	6,202	0	0	0	13,752	412,807
Region 2 Totals		**11,942**	**0.1%**	**0**	**5,740**	**6,202**	**0**	**0**	**0**	**13,752**	**412,807**
3	Pennsylvania	545,955	5.5%	3,697	221,972	9,342	0	264,840	46,105	960,851	1,380,008
	Virginia	346,971	3.5%	0	346,971	0	0	0	0	0	560,800
	Delaware	110	0.0%	33	77	0	0	0	0	0	354,091
	West Virginia	89	0.0%	0	89	0	0	0	0	0	95,105
Region 3 Totals		**893,125**	**9.0%**	**3,730**	**569,109**	**9,342**	**0**	**264,840**	**46,105**	**960,851**	**2,390,004**
4	Alabama	1,308,284	13.2%	66,569	1,235,328	1,360	0	5,027	0	176,494	1,350,152
	North Carolina	514,965	5.2%	0	514,965	0	0	0	0	0	518,160
	South Carolina	172,859	1.7%	0	172,859	0	0	0	0	0	1,727,842
	Tennessee	91,043	0.9%	66,172	24,871	0	0	0	0	0	700,897
	Kentucky	47,125	0.5%	592	46,533	0	0	0	0	0	302,538
	Mississippi	39,826	0.4%	0	39,826	0	0	0	0	42,974	293,759
	Florida	<1	0.0%	0	0	0	0	0	<1	0	0
	Georgia	<1	0.0%	0	0	0	0	0	<1	0	0
Region 4 Totals		**2,174,102**	**21.9%**	**133,333**	**2,034,382**	**1,360**	**0**	**5,027**	**0**	**219,467**	**4,893,348**
5	Indiana	1,405,081	14.2%	0	1,405,081	0	0	0	0	0	19,182
	Illinois	658,375	6.6%	46,050	612,325	0	0	0	0	0	0
	Ohio	584,174	5.9%	0	584,174	0	0	0	0	50,589	1,008,608
	Michigan	338,128	3.4%	0	338,128	0	0	0	0	53,424	179,004
	Wisconsin	47,843	0.5%	0	47,843	0	0	0	0	0	0
	Minnesota	8	0.0%	0	8	0	0	0	0	129	304,758
Region 5 Totals		**3,033,609**	**30.6%**	**46,050**	**2,987,559**	**0**	**0**	**0**	**0**	**104,142**	**1,511,552**
6	Texas	517,793	5.2%	3	517,790	0	0	0	0	0	1,815,735
	Arkansas	405,776	4.1%	0	405,776	0	0	0	0	44,123	1,771,754
	Louisiana	194,352	2.0%	0	194,352	0	0	0	0	0	291,905
Region 6 Totals		**1,117,922**	**11.3%**	**3**	**1,117,919**	**0**	**0**	**0**	**0**	**44,123**	**3,879,394**
7	Iowa	835,536	8.4%	0	835,536	0	0	0	0	209	158,919
	Nebraska	629,570	6.3%	0	629,570	0	0	0	0	0	0
Region 7 Totals		**1,465,106**	**14.8%**	**0**	**1,465,106**	**0**	**0**	**0**	**0**	**209**	**158,919**
8	Utah	691,506	7.0%	1	691,505	0	0	0	0	0	1
	Colorado	159,144	1.6%	240	158,904	0	0	0	0	0	480,032
	Wyoming	12	0.0%	0	12	0	0	0	0	0	0
Region 8 Totals		**850,661**	**8.6%**	**241**	**850,421**	**0**	**0**	**0**	**0**	**0**	**480,033**
9	California	20,144	0.2%	0	20,144	0	0	0	0	0	499,108
Region 9 Totals		**20,144**	**0.2%**	**0**	**20,144**	**0**	**0**	**0**	**0**	**0**	**499,108**
10	Oregon	348,744	3.5%	0	348,744	0	0	0	0	0	0
Region 10 Totals		**348,744**	**3.5%**	**0**	**348,744**	**0**	**0**	**0**	**0**	**0**	**0**

Approximately 97 percent of the non-recycled PCs that SIC 3312 facilities reported was land disposed in 2004, mostly offsite. SIC 3312 facilities used land disposal for all or some of eight of the PC quantity of 11 PCs (Exhibit 6.11). SIC 3312 facilities treated the majority of the dibenzofuran, dioxins, and PACs. Most of the recycling reported by facilities in this industry was for lead.

Exhibit 6.11. Management of Priority Chemicals by SIC 3312 facilities, By Priority Chemical (2004)

Priority Chemical	Total Quantity *(pounds) in 2004	Percent of Total PC Quantity for SIC 3312 (2004)	Number of SIC 3312 Facilities that reported this PC (2004)	Onsite Disposal (pounds)	Offsite Disposal (pounds)	Onsite Energy Recovery (pounds)	Offsite Energy Recovery (pounds)	Onsite Treatment (pounds)	Offsite Treatment (pounds)	Onsite Recycling (pounds)	Offsite Recycling (pounds)
Anthracene	5,128	0.05%	3	0	3,323	0	0	1	1,804	170	9,700
Benzo(g,h,i)perylene	17,229	0.17%	4	0	17,227	0	0	0	2	6,676	7,700
Cadmium and cadmium compounds	31,212	0.31%	7	13,659	17,553	0	0	0	0	672	72,083
Dibenzofuran	2,624	0.03%	2	0	469	0	0	55	2,100	120	0
Dioxins	<1	0.00%	5	0	<1	0	0	<1	<1	0	0
Lead and lead compounds	9,361,873	94.42%	84	167,698	9,194,176	0	0	0	0	312,584	13,993,144
Mercury and mercury compounds	11,273	0.11%	52	78	11,195	0	0	0	0	75	1,537
Naphthalene	273,506	2.76%	11	0	4,580	16,904	0	218,672	33,350	806,305	50,000
Phenanthrene	19,418	0.20%	4	0	10,585	0	0	21	8,812	25,540	33,000
Polychlorinated Biphenyls (PCBs)	3,121	0.03%	3	1,922	1,199	0	0	0	0	0	0
Polycyclic aromatic compounds (PACs)	189,972	1.92%	6	0	138,817	0	0	51,118	37	190,403	58,000
Totals	**9,915,357**	**100.00%**	**181**	**183,356**	**9,399,124**	**16,904**	**0**	**269,867**	**46,105**	**1,342,544**	**14,225,164**

*Total quantity refers to the quantity of PCs that were managed via disposal, energy recovery, or treatment. Quantities of PCs recycled are presented separately.
We primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Since recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented for the purpose of providing some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.

[Page intentionally left blank.]

Trends Report – Appendices

[Page intentionally left blank.]

Appendix A
List of States (Including Territories) Within Each EPA Region

EPA Region 1
- Connecticut (CT)
- Maine (ME)
- Massachusetts (MA)
- New Hampshire (NH)
- Rhode Island (RI)
- Vermont (VT)

EPA Region 2
- New Jersey (NJ)
- New York (NY)
- Puerto Rico (PR)
- Virgin Islands (VI)

EPA Region 3
- Delaware (DE)
- District of Columbia (DC)
- Maryland (MD)
- Pennsylvania (PA)
- Virginia (VA)
- West Virginia (WV)

EPA Region 4
- Alabama (AL)
- Florida (FL)
- Georgia (GA)
- Kentucky (KY)
- Mississippi (MS)
- North Carolina (NC)
- South Carolina (SC)
- Tennessee (TN)

EPA Region 5
- Illinois (IL)
- Indiana (IN)
- Michigan (MI)
- Minnesota (MN)
- Ohio (OH)
- Wisconsin (WI)

EPA Region 6
- Arkansas (AR)
- Louisiana (LA)
- New Mexico (NM)
- Oklahoma (OK)
- Texas (TX)

EPA Region 7
- Iowa (IA)
- Kansas (KS)
- Missouri (MO)
- Nebraska (NE)

EPA Region 8
- Colorado (CO)
- Montana (MT)
- North Dakota (ND)
- South Dakota (SD)
- Utah (UT)
- Wyoming (WY)

EPA Region 9
- Arizona (AZ)
- California (CA)
- Hawaii (HI)
- Nevada (NV)
- American Samoa (AS)
- Guam (GU)
- Northern Mariana Islands (MP)

EPA Region 10
- Alaska (AK)
- Idaho (ID)
- Oregon (OR)
- Washington (WA)

[Page intentionally left blank.]

Appendix B
SIC Codes vs. NAICS Codes

In this Report, the industry sector analyses are keyed only to the Standard Industrial Classification (SIC) codes, as currently reported on the TRI Form R. Facilities with the following SIC code designations (that meet all other applicable threshold criteria for TRI reporting) must report toxic chemical releases and other waste management quantities of toxic chemicals each year:

- SIC major group codes 10 (except 1011, 1081, and 1094)
- SIC major group codes 12 (except 1241)
- SIC major group codes 20 through 39
- SIC codes 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce); or 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C), or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis).

Although facilities in the above SIC codes are required to report to TRI, facilities in additional industry sectors also choose to report to TRI even though they are not necessarily required to do so. The database developed for use in this Report includes all facilities, regardless of SIC code (except as noted in the methodology [see Appendix C]), that reported a PC quantity to TRI for reporting years 2000-2004. The following table shows the 379 SIC codes and SIC descriptions for which one or more facilities reported a PC quantity to TRI from 2000 to 2004. A PC quantity was not necessarily reported by facilities in each of these SIC codes for each of the five years from 2000 to 2004. For example, in 2004, facilities in only 325 of these SIC codes reported a PC quantity.

For the 2006 TRI reporting year, facilities must begin reporting the North American Industry Classification System (NAICS) codes rather than the SIC codes (see 71 FR 32464, published on June 6, 2006). The NAICS codes were developed such that establishments are grouped into industries according to similarities in the processes used to produce goods or services. For a comprehensive list of NAICS codes and the corresponding SIC codes, please refer to www.census.gov/epcd/www/naics.html. This Report will use the NAICS codes when they are incorporated into the TRI dataset, which is expected to be made available to the public in the Public Data Release (PDR) in early 2008.

Exhibit B-1. SIC Codes and Descriptions
(for Facilities That Reported a Primary Chemical Quantity in 2000–2004)

Primary SIC	SIC Description	Primary SIC	SIC Description
1241	Coal mining services	3421	Cutlery
1422	Crushed and broken limestone	3423	Hand and edge tools, nec
1429	Crushed and broken stone, nec	3425	Saw blades and handsaws
1442	Construction sand and gravel	3429	Hardware, nec
2011	Meat packing plants	3431	Metal sanitary ware
2013	Sausages and other prepared meats	3432	Plumbing fixture fittings and trim
2015	Poultry slaughtering and processing	3433	Heating equipment, except electric
2021	Creamery butter	3441	Fabricated structural metal
2022	Cheese, natural and processed	3442	Metal doors, sash, and trim
2023	Dry, condensed, evaporated products	3443	Fabricated plate work (boiler shops)
2026	Fluid milk	3444	Sheet metal work
2032	Canned specialties	3446	Architectural metal work
2033	Canned fruits and vegetables	3448	Prefabricated metal buildings
2034	Dehydrated fruits, vegetables, soups	3449	Miscellaneous metal work
2037	Frozen fruits and vegetables	3451	Screw machine products
2038	Frozen specialties, nec	3452	Bolts, nuts, rivets, and washers
2046	Wet corn milling	3462	Iron and steel forgings
2047	Dog and cat food	3463	Nonferrous forgings
2048	Prepared feeds, nec	3465	Automotive stampings
2061	Raw cane sugar	3466	Crowns and closures
2062	Cane sugar refining	3469	Metal stampings, nec
2063	Beet sugar	3471	Plating and polishing
2064	Candy and other confectionery products	3479	Metal coating and allied services
2066	Chocolate and cocoa products	3482	Small arms ammunition
2075	Soybean oil mills	3483	Ammunition, except for small arms, nec
2076	Vegetable oil mills, nec	3484	Small arms
2079	Edible fats and oils, nec	3489	Ordnance and accessories, nec
2082	Malt beverages	3491	Industrial valves
2085	Distilled and blended liquors	3492	Fluid power valves and hose fittings
2086	Bottled and canned soft drinks	3494	Valves and pipe fittings, nec
2087	Flavoring extracts and syrups, nec	3495	Wire springs
2091	Canned and cured fish and seafood	3496	Miscellaneous fabricated wire products
2099	Food preparations, nec	3497	Metal foil and leaf
2111	Cigarettes	3498	Fabricated pipe and fittings
2141	Tobacco stemming and redrying	3499	Fabricated metal products, nec
2211	Broadwoven fabric mills, cotton	3511	Turbines and turbine generator sets
2221	Broadwoven fabric mills, man-made	3519	Internal combustion engines, nec
2231	Broadwoven fabric mills, wool	3523	Farm machinery and equipment
2241	Narrow fabric mills	3524	Lawn and garden equipment
2253	Knit outerwear mills	3531	Construction machinery
2259	Knitting mills, nec	3533	Oil and gas field machinery
2261	Finishing plants, cotton	3535	Conveyors and conveying equipment
2262	Finishing plants, man-made	3536	Hoists, cranes, and monorails
2269	Finishing plants, nec	3537	Industrial trucks and tractors

Exhibit B-1. SIC Codes and Descriptions
(for Facilities That Reported a Primary Chemical Quantity in 2000–2004)

Primary SIC	SIC Description	Primary SIC	SIC Description
2273	Carpets and rugs	3541	Machine tools, metal cutting types
2295	Coated fabrics, not rubberized	3542	Machine tools, metal forming types
2296	Tire cord and fabrics	3544	Special dies, tools, jigs, and fixture
2299	Textile goods, nec	3545	Machine tool accessories
2322	Men's and boys' underwear and nightwear	3546	Power driven hand tools
2381	Fabric dress and work gloves	3547	Rolling mill machinery
2399	Fabricated textile products, nec	3548	Welding apparatus
2411	Logging	3549	Metalworking machinery, nec
2421	Sawmills and planing mills, general	3554	Paper industries machinery
2426	Hardwood dimension and flooring mills	3556	Food products machinery
2429	Special product sawmills, nec	3559	Special industry machinery, nec
2431	Millwork	3561	Pumps and pumping equipment
2434	Wood kitchen cabinets	3562	Ball and roller bearings
2435	Hardwood veneer and plywood	3563	Air and gas compressors
2436	Softwood veneer and plywood	3564	Blowers and fans
2439	Structural wood members, nec	3565	Packaging machinery
2448	Wood pallets and skids	3566	Speed changers, drives, and gears
2449	Wood containers, nec	3568	Power transmission equipment, nec
2451	Mobile homes	3569	General industrial machinery, nec
2491	Wood preserving	3571	Electronic computers
2493	Reconstituted wood products	3572	Computer storage devices
2499	Wood products, nec	3577	Computer peripheral equipment, nec
2511	Wood household furniture	3579	Office machines, nec
2512	Upholstered household furniture	3582	Commercial laundry equipment
2514	Metal household furniture	3585	Refrigeration and heating equipment
2519	Household furniture, nec	3586	Measuring and dispensing pumps
2522	Office furniture, except wood	3589	Service industry machinery, nec
2531	Public building and related furniture	3592	Carburetors, pistons, rings, valves
2541	Wood partitions and fixtures	3593	Fluid power cylinders and actuators
2542	Partitions and fixtures, except wood	3594	Fluid power pumps and motors
2591	Drapery hardware and blinds and shades	3596	Scales and balances, except laboratory
2599	Furniture and fixtures, nec	3599	Industrial machinery, nec
2611	Pulp mills	3612	Transformers, except electronic
2621	Paper mills	3613	Switchgear and switchboard apparatus
2631	Paperboard mills	3621	Motors and generators
2652	Set-up paperboard boxes	3624	Carbon and graphite products
2653	Corrugated and solid fiber boxes	3625	Relays and industrial controls
2657	Folding paperboard boxes	3629	Electrical industrial apparatus, nec
2671	Paper coated and laminated, packaging	3631	Household cooking equipment
2672	Paper coated and laminated, nec	3632	Household refrigerators and freezers
2673	Bags - plastics, laminated and coated	3633	Household laundry equipment
2676	Sanitary paper products	3634	Electric housewares and fans
2679	Converted paper products, nec	3639	Household appliances, nec
2752	Commercial printing, lithographic	3641	Electric lamps

Exhibit B-1. SIC Codes and Descriptions
(for Facilities That Reported a Primary Chemical Quantity in 2000–2004)

Primary SIC	SIC Description	Primary SIC	SIC Description
2754	Commercial printing, gravure	3643	Current-carrying wiring devices
2759	Commercial printing, nec	3644	Noncurrent-carrying wiring devices
2796	Plate making services	3645	Residential lighting fixtures
2812	Alkalies and chlorine	3646	Commercial lighting fixtures
2813	Industrial gases	3647	Vehicular lighting equipment
2816	Inorganic pigments	3648	Lighting equipment, nec
2819	Industrial inorganic chemicals, nec	3651	Household audio and video equipment
2821	Plastics materials and resins	3661	Telephone and telegraph apparatus
2822	Synthetic rubber	3663	Radio and TV communication equipment
2823	Cellulosic man-made fibers	3669	Communications equipment, nec
2824	Organic fibers, noncellulosic	3671	Electron tubes
2833	Medicinals and botanicals	3672	Printed circuit boards
2834	Pharmaceutical preparations	3674	Semiconductors and related devices
2835	Diagnostic substances	3675	Electronic capacitors
2836	Biological products, except diagnostic	3676	Electronic resistors
2841	Soap and other detergents	3677	Electronic coils and transformers
2842	Polishes and sanitation goods	3678	Electronic connectors
2843	Surface active agents	3679	Electronic components, nec
2844	Toilet preparations	3691	Storage batteries
2851	Paints and allied products	3692	Primary batteries, dry and wet
2861	Gum and wood chemicals	3694	Engine electrical equipment
2865	Cyclic crudes and intermediates	3699	Electrical equipment and supplies, nec
2869	Industrial organic chemicals, nec	3711	Motor vehicles and car bodies
2873	Nitrogenous fertilizers	3713	Truck and bus bodies
2874	Phosphatic fertilizers	3714	Motor vehicle parts and accessories
2875	Fertilizers, mixing only	3715	Truck trailers
2879	Pesticides and agricultural chemicals, nec	3716	Motor homes
2891	Adhesives and sealants	3721	Aircraft
2892	Explosives	3724	Aircraft engines and engine parts
2893	Printing ink	3728	Aircraft parts and equipment, nec
2895	Carbon black	3731	Ship building and repairing
2899	Chemical preparations, nec	3732	Boat building and repairing
2911	Petroleum refining	3743	Railroad equipment
2951	Asphalt paving mixtures and blocks	3751	Motorcycles, bicycles, and parts
2952	Asphalt felts and coatings	3761	Guided missiles and space vehicles
2992	Lubricating oils and greases	3764	Space propulsion units and parts
2999	Petroleum and coal products, nec	3769	Space vehicle equipment, nec
3011	Tires and inner tubes	3792	Travel trailers and campers
3021	Rubber and plastics footwear	3795	Tanks and tank components
3052	Rubber and plastics hose and belting	3799	Transportation equipment, nec
3053	Gaskets, packing and sealing devices	3812	Search and navigation equipment
3061	Mechanical rubber goods	3821	Laboratory apparatus and furniture
3069	Fabricated rubber products, nec	3822	Environmental controls
3081	Unsupported plastics, film and sheet	3823	Process control instruments

Exhibit B-1. SIC Codes and Descriptions
(for Facilities That Reported a Primary Chemical Quantity in 2000–2004)

Primary SIC	SIC Description	Primary SIC	SIC Description
3082	Unsupported plastics, profile shapes	3824	Fluid meters and counting devices
3083	Laminated plastics, plate and sheet	3825	Instruments to measure electricity
3084	Plastics, pipe	3826	Analytical instruments
3086	Plastics, foam products	3827	Optical instruments and lenses
3087	Custom compound purchased resins	3829	Measuring and controlling devices, nec
3088	Plastics, plumbing fixtures	3841	Surgical and medical instruments
3089	Plastics products, nec	3842	Surgical appliances and supplies
3111	Leather tanning and finishing	3843	Dental equipment and supplies
3211	Flat glass	3844	X-ray apparatus and tubes
3221	Glass containers	3845	Electromedical equipment
3229	Pressed and blown glass, nec	3851	Ophthalmic goods
3231	Products of purchased glass	3861	Photographic equipment and supplies
3251	Brick and structural clay tile	3911	Jewelry, precious metal
3253	Ceramic wall and floor tile	3914	Silverware and plated ware
3255	Clay refractories	3915	Jewelers' materials and lapidary work
3261	Vitreous plumbing fixtures	3931	Musical instruments
3262	Vitreous china table and kitchenware	3949	Sporting and athletic goods, nec
3263	Semivitreous table and kitchenware	3951	Pens and mechanical pencils
3264	Porcelain electrical supplies	3952	Lead pencils and art goods
3269	Pottery products, nec	3961	Costume jewelry
3271	Concrete block and brick	3965	Fasteners, buttons, needles, and pins
3272	Concrete products, nec	3993	Signs and advertising specialties
3273	Ready-mixed concrete	3995	Burial caskets
3274	Lime	3996	Hard surface floor coverings, nec
3275	Gypsum products	3999	Manufacturing industries, nec
3281	Cut stone and stone products	4213	Trucking, except local
3291	Abrasive products	4226	Special warehousing and storage, nec
3295	Minerals, ground or treated	4491	Marine cargo handling
3296	Mineral wool	4512	Air transportation, scheduled
3297	Nonclay refractories	4581	Airports, flying fields, and services
3299	Nonmetallic mineral products, nec	4925	Gas production and/or distribution
3312	Blast furnaces and steel mills	4961	Steam and air conditioning supply
3313	Electrometallurgical products	5013	Motor vehicle supplies and new parts
3315	Steel wire and related products	5032	Brick, stone, and related materials
3316	Cold finishing of steel shapes	5033	Roofing, siding, and insulation
3317	Steel pipe and tubes	5093	Scrap and waste materials
3321	Gray and ductile iron foundries	5162	Plastics materials and basic shapes
3322	Malleable iron foundries	5169	Chemicals and allied products, nec
3324	Steel investment foundries	5171	Petroleum bulk stations and terminals
3325	Steel foundries, nec	7211	Power laundries, family and commercial
3334	Primary aluminum	7999	Amusement and recreation, nec
3341	Secondary nonferrous metals	8221	Colleges and universities
3351	Copper rolling and drawing	8731	Commercial physical research
3353	Aluminum sheet, plate, and foil	8733	Noncommercial research organizations

Exhibit B-1. SIC Codes and Descriptions
(for Facilities That Reported a Primary Chemical Quantity in 2000–2004)

Primary SIC	SIC Description	Primary SIC	SIC Description
3354	Aluminum extruded products	8734	Testing laboratories
3355	Aluminum rolling and drawing, nec	8744	Facilities support services
3356	Nonferrous rolling and drawing, nec	8999	Services, nec
3357	Nonferrous wire drawing and insulating	9199	General government, nec
3363	Aluminum die-castings	9221	Police protection
3364	Nonferrous die-castings, except aluminum	9229	Public order and safety, nec
3365	Aluminum foundries	9411	Administration of educational programs
3366	Copper foundries	9512	Land, mineral, wildlife conservation
3369	Nonferrous foundries, nec	9621	Regulation, admin. of transportation
3398	Metal heat treating	9661	Space research and technology
3399	Primary metal products, nec	9711	National security
3411	Metal cans	9721	International affairs
3412	Metal barrels, drums, and pails	9999	Nonclassifiable establishment

Appendix C
Methodology for Calculating Quantities of Priority Chemicals and Measuring Trends

The Priority Chemical Measurement Methodology

To identify and collect data on Priority Chemicals (PCs) reported to the TRI from 2000 through 2004, EPA undertook the following steps:

1. Extract data regarding PCs reported to TRI.
2. Exclude selected TRI data.
3. Identify relevant releases and waste management quantities to calculate PC quantities.
4. Analyze data and measure progress made toward the 2008 GPRA goal

These steps are described below.

Step 1: Extract Data Regarding Priority Chemicals (PCs) Reported to TRI

Twenty-four of the 31 PCs identified by OSW are reported to TRI. Using the Chemical Abstract System (CAS) numbers of these 24 PCs (Exhibit C-1), data on these chemicals were extracted from the TRI for reporting years 2000 through 2004. It should be noted that if a facility reported multiple SIC codes, the designated primary SIC code was used. In developing this report, the TRI data (for 2000 through 2004), frozen as of January 17, 2006, were used. This is the same data set used for the *2003 TRI Public Data Release* (April 12, 2006). However, we subsequently made some revisions to the data based on quality assurance activities. The extracted data were used to create a PC database. Exhibit C-1 lists the PCs included in this methodology.

Exhibit C-1. List of Priority Chemicals

Priority Chemicals (PCs) Reported to TRI (Used in Methodology)	
1,2,4 - Trichlorobenzene	Lindane
2,4,5 - Trichlorophenol	Mercury and mercury compounds
Anthracene	Methoxychlor
Benzo(g,h,i)perylene	Naphthalene
Cadmium and cadmium compounds	Pendimethalin
Dibenzofuran	Pentachlorobenzene
Dioxins and dioxin-like compounds	Pentachlorophenol
Heptachlor	Phenanthrene
Hexachloro-1,3-butadiene	Polychlorinated biphenyls (PCBs)
Hexachlorobenzene	Polycyclic aromatic compounds (PACs)
Hexachloroethane	Quintozene
Lead and lead compounds	Trifluralin
Priority Chemicals (PCs) Not Reported to TRI (Not Used in Methodology)	
1,2,4,5-Tetrachlorobenzene	Endosulfan, alpha, beta-
4-Bromophenyl phenyl ether	Fluorene
Acenaphthene	Heptachlor epoxide
Acenaphthylene	Pyrene
For the purposes of developing this list of 31PCs, endosulfan alpha and endosulfan beta were counted together and heptachlor and heptachlor epoxide were counted together. Also, each of the three metals (lead, cadmium, and mercury) is combined with its associated metal compounds and addressed as a single PC in this Report. For example, Lead and lead compounds are addressed as a single PC. Only the weight of the metal portion of metal compounds is reported to TRI.	

Step 2: Exclude Selected TRI Data

The following TRI data were excluded from the analysis:

Data Associated With Bevill Exempt Materials. The PC measurement methodology is intended to identify facilities with PCs and to calculate the quantity of these PCs that are amenable to waste minimization. Under legislation, referred to as the Bevill Amendment, certain wastes from mining and beneficiation activities are excluded from regulation as RCRA hazardous wastes. EPA also assumes that these wastes offer little, if any, waste minimization opportunities at this time. Facilities that reported the following SIC codes as their primary SIC code were excluded from the analysis (see Exhibit C-2); we believe that PCs reported by these facilities were associated with Bevill exempt materials:

Exhibit C-2. Primary SIC Codes Excluded Due to Associated Bevill Exempt Materials

Primary SIC	Description
1021	Copper ores
1031	Lead and zinc ores
1041	Gold ores
1044	Silver ores
1061	Ferroalloy ores, except vanadium
1099	Metal ores, nec
1221	Bituminous and lignite coal mining, surface, and bituminous coal preparation plants
1222	Bituminous coal – underground
3331	Primary copper
3339	Primary nonferrous metals, nec
4911	Electric services
4931	Electric and other services combined
4939	Combination utilities, nec

In addition, all data reported by the following facilities (primary SIC code 2816 or 2819) were excluded, as they are associated with the Bevill exempt titanium dioxide (TiO_2) process:

- DuPont Edge Moor, DE (DED000800284)
- Kerr-McGee Pigments, GA (GAD003282803)
- Louisiana Pigment, LP, LA (LAD985185149)
- Millennium Inorganic Chemicals, Hawkins Point Plant, MD (MDD003093515)
- Kerr-McGee Chemical LLC Electrolytic Plant, MS (MSD007025117)
- DuPont Delisle Plant, MS (MSD096046792)
- DuPont Johnsonville Plant, TN (TND004044491)
- U.S. Borax, Inc., CA (CAD000630020)
- IMC Chemicals, Inc., CA (CAD048456941)
- Kaiser Aluminum and Chemical Corp Gramercy, LA (LAD008182289)
- Sherwin Alumina LP, TX (TXD008129983)
- Alcoa World Alumina LLC Point Comfort Operations, TX (TXD008123168)
- Ormet Primary Aluminum Corp, LA (LAD093536522)

Finally, all data reported by the following facilities (primary SIC code 3312) were excluded, as they are associated with blast furnace and basic oxygen furnace wastes, including dust/sludge and slag:

- Granite City Steel, IL (ILD008873937)
- ACME Steel Co. Riverdale Plant, IL (ILD020952362)
- Bethlehem Steel Corp. Burns Harbor Div., IN (IND003913423)
- Ispat Inland Inc., IN (IND005159199)
- USS Gary Works, IN (IND005444062)
- LTV Steel, Co., IN (IND005462601)
- AK Steel Corp., KY (KYD005013032)
- Bethlehem Steel, MD (MDD053945432)
- National Steel Corp. Great Lakes Ops., MI (MID004320479)
- Wheeling-Pittsburgh Steel Corp. Steubenville North, OH (OHD000810382)
- LTV Steel Co., Inc. Cleveland Works, OH (OHD004218673)
- AK Steel Corp. OH (OHD004234480)
- WCI Steel, Inc., OH (OHD060409521)
- Wheeling-Pittsburgh Steel Corp., Mingo Junction, OH (OHD980618177)
- Republic Tech. Intl. Lorain Plant, OH (OHR000037713)
- Allegheny Ludlum Corp., PA (PAD004335154)
- USS Mon Valley Works Edgar Thomson Plant, PA (PAD060682606)
- Geneva Steel, L.L.C., UT (UTD009086133)
- Weirton Steel Corp., WV (WVD000068908)
- Wheeling-Pittsburgh Steel Corp. Steubenville East, WV (WVD004319539)

Data Reported by Offsite Treatment, Storage, and Disposal (TSD) Facilities. Facilities that reported the following SIC codes as their primary SIC code were excluded from the analysis in order to avoid double-counting of wastes reported by both generating and offsite waste management facilities:

Exhibit C-3. Primary SIC Codes Excluded to Avoid Double-Counting

Primary SIC	Description
3241	Cement, hydraulic
4953	Refuse systems
7389	Business services, nec

In addition, all data reported by the Rineco facility in Arkansas (ARD981057870) were assigned to SIC code 4953 for the five years (2000 through 2004) analyzed, instead of SIC code 9511, as may have been reported in TRI. As such, it was excluded from the analysis.

Data Reported for Facilities Using SIC Code 9511. Facilities that reported the SIC code 9511 as their primary SIC code were excluded from the analysis because such facilities do not offer waste minimization opportunities. The focus of this measurement methodology is to identify PC quantities associated with primary generation activities. As such, facilities in SIC 9511 and facilities undertaking RCRA corrective action or Superfund actions were excluded because these facilities do not offer limited, if any, waste minimization opportunities at the primary generation level.

The description of SIC 9511 (Air and Water Resource and Solid Waste Management) is: government establishments primarily engaged in regulation, planning, protection and conservation of air and water resources; solid waste management; water and air pollution control and prevention; flood control; drainage development, and consumption of water resources; coordination of these activities at intergovernmental levels; research necessary for air pollution abatement and control and conservation of water resources.

Data for these facilities were included in a separate table in the database. In addition, the quantities reported by the U.S. DOE Hanford site (TRI ID 99352-SPDRT-POBOX), U.S. EPA fund-led Superfund site/Bunker Hill CTP (TRI ID 83837-SPFND-1005M), and U.S. Navy AFWTF Live Impact Area (TRI ID 00765-SNVYF-CERRO) sites were also excluded from the analysis and included in the same table as the SIC 9511 facilities.

Step 3: Identify Relevant Releases and Waste Management Quantities to Calculate Priority Chemical Quantities

TRI collects information on quantities of chemicals in wastes that are reported under the categories of releases or waste management. However, not all of these quantities are associated with hazardous waste. Therefore, it is necessary to determine which quantities are most likely relevant to the measurement of PC quantities in wastes (see Exhibit C-4). Since the purpose of this methodology is to identify those quantities of the PCs that are amenable to waste minimization, it is necessary to identify the relevant sections of TRI Form R – those quantities of PCs that are land disposed, treated, or sent to energy recovery. The methodology also allows distinctions to be made between PCs contained in RCRA Subtitle C hazardous wastes versus non-Subtitle C (non-hazardous) wastes. The non-Subtitle C wastes are not hazardous wastes and for the purposes of this methodology and the resulting database, are termed Subtitle D industrial wastes (excluding the Bevill exempt materials described previously). In order to make the distinction between Subtitle C and Subtitle D wastes containing PCs, the methodology identifies which sections of the TRI generally apply to Subtitle C wastes and which sections generally apply to Subtitle D wastes. Please note that, for the purposes of this Report, no distinction is shown between Subtitle C and Subtitle D wastes containing the PCs. Quantities presented in this Report are the total of these two categories. However, the facility specific data in the database do contain a breakout of quantities according to onsite and offsite disposal, treatment, and energy recovery for both the Subtitle C and Subtitle D categories.

In calculating PC quantities associated with onsite management methods, it is generally assumed that:

- If the generating facility has a valid RCRA identification number (ID), the wastes are regulated under Subtitle C.
- If the generating facility does not have a valid RCRA ID number, the wastes are regulated under Subtitle D.

In calculating PC quantities associated with offsite management methods, it is generally assumed that:

- If the generating facility and the offsite facility have valid RCRA ID numbers, the wastes are regulated under Subtitle C.
- If the generating facility has a valid RCRA ID number, but the offsite facility does not have a valid RCRA ID number, the wastes are regulated under Subtitle D.
- If the generating facility does not have a valid RCRA ID number, the wastes are regulated under Subtitle D.

Based on the above information, generating facilities with valid RCRA ID numbers may have reported wastes regulated under Subtitle C and Subtitle D, while generating facilities without valid RCRA ID numbers will have reported wastes regulated under Subtitle D.

The equations used to calculate the PC quantities associated with Subtitle C activities are presented in Exhibit C-5. The equations used to calculate the PC quantities associated with Subtitle D activities are presented in Exhibit C-6.

As shown in Exhibits C-5 and C-6, the PC quantities are calculated using data reported in Sections 5 and 6 of TRI Form R. Please note that a number of changes were made to the TRI Form R in 2002 and 2003 concerning offsite management codes (see Exhibit C-7).

Note, however, that data reported in these sections include all releases and transfers, regardless of whether they arise from catastrophic, remedial, one-time, or routine process operations. Because the purpose of this methodology is to identify those quantities that are amenable to waste minimization, it is necessary to minimize the effect that releases arising from catastrophic, remedial, or one-time events (i.e., quantities reported in Section 8.8 of TRI Form R) may have on the PC quantities. The criteria used to account for these releases are presented in Exhibit C-8.

Exhibit C-9 shows the TRI data files and data elements used to develop the databases that implement the measurement methodology. Exhibit C-10 shows the adjustments that OSW staff made to the TRI data extracted for the PCs database based on follow-up quality assurance activities. Although we ideally strive to determine the quantities of Priority Chemicals that are contained in wastes amenable to waste minimization, often an increase or decrease at a facility is not necessarily related to production but rather is influenced by other factors such as process or plant shutdowns, periodic cleanout of tanks, piping systems, etc. that are part of routine maintenance, improved measurement and detection equipment, and compliance with new regulations. We often cannot readily discern that an increase or decrease of quantities of Priority Chemicals was associated with such an event and may only learn about it as a result of conducting quality assurance of the data by, for example, contacting the facility to verify a significant change from one year to another.

Step 4: Analyze Data to Measure Progress Made Towards the 2008 GPRA Goal and Perform Trends Analyses

Data derived from the revised methodology, for TRI reporting years 2000-2004, applicable to the 24 PCs, are used to:

- Measure progress toward the 2008 GPRA goal of a 10 percent reduction of the total aggregated quantity of the 23 PCs[20], using 2001 as the baseline year and
- Evaluate trends for the 24 PCs, using aggregated and non-aggregated quantities, at the national, EPA Region, state, industry sector, and federal agency (for federal facilities) levels, for the most recent five years of available TRI data (2000-2004). While there may be several different ways to calculate changes between years, EPA uses an absolute-quantity-change approach for this report. The absolute-quantity-change approach is used to evaluate the difference in the total PC quantity (land disposal quantity + treatment quantity + energy recovery quantity) reported for the 24 PCs, either individually or aggregated, between any two years.

[20] Although 24 of the 31 PCs are reported to TRI, only 23 of the PCs are tracked for the 2008 GPRA goal. Polychlorinated biphenyls (PCBs) were not on the list of PCs at the time the 2008 GPRA goal was developed.

Exhibit C-4. Description of TRI Form R Sections

Section of Form R	Data Element Description	Associated with Subtitle C	Associated with Industrial Subtitle D
5.1	Fugitive air	No--Not relevant to waste minimization	No--Not relevant to waste minimization
5.2	Point-source air	No--Not relevant to waste minimization	No--Not relevant to waste minimization
5.3	Surface-water discharge	No--Not relevant to waste minimization	No--Not relevant to waste minimization
5.4.1	Underground injection on-site to Class I wells	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does not have a valid RCRA ID number
5.4.2	Underground injection on-site to Class II-V wells	No	Yes
5.5.1A	Disposal in RCRA Subtitle C landfills	Yes	No
5.5.1B	Other landfills	No	Yes
5.5.2	Onsite land treatment	No	Yes
5.5.3	Onsite surface impoundment	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does **not** have a valid RCRA ID number
5.5.3A	Subtitle C surface impoundment	Yes	No
5.5.3B	Other surface impoundment	No	Yes
5.5.4	Other on-site disposal	No	Yes
6.1	Discharges to Publicly Owned Treatment Works (POTWs)	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does **not** have a valid RCRA ID number
6.2	Transfers to Other OffSite Locations	Yes, as specified in the equations presented in Exhibit 3	Yes, as specified in the equations presented in Exhibit 4
8.1	Total releases	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does **not** have a valid RCRA ID number
8.2	Onsite energy recovery	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does **not** have a valid RCRA ID number
8.3	Offsite energy recovery	Yes, as specified in the equations presented in Exhibit 3	Yes, as specified in the equations presented in Exhibit 4
8.4	Onsite recycle	Valid waste minimization method	Valid waste minimization method
8.5	Offsite recycle	Valid waste minimization method	Valid waste minimization method
8.6	Onsite treatment	Yes, if generating facility has a valid RCRA ID number	Yes, if generating facility does **not** have a valid RCRA ID number
8.7	Offsite treatment	Yes, as specified in the equations presented in Exhibit 3	Yes, as specified in the equations presented in Exhibit 4
8.8	Remedial actions, catastrophic events, or one-time events	Not amenable to minimization	Not amenable to minimization

Exhibit C-5 Equations Used to Calculate Priority Chemical Quantities Associated with RCRA Subtitle C Activities

Equation	Comments
OnSite Disposal	
[5.4.1] + [5.5.1A] + [5.5.3] + [5.5.3A]	▪ The quantities reported in Sections 5.5.1A and 5.5.3A are by definition Subtitle C quantities; thus, it is not necessary to determine whether the generating facility has a valid RCRA ID number. ▪ Only Section 5.4.1 and 5.5.3 quantities reported by generating facilities with a valid RCRA ID number are included in the calculation. ▪ Section 5.5.3A was added to Form R for reporting year 2003.
OffSite Disposal	
[6.1(metals and metal compounds)] + [*Subtitle C Disposal OffSite Transfers*]	▪ Only Section 6.1 quantities reported by generating facilities with a valid RCRA ID number are included in the calculation. ▪ *Subtitle C Disposal Off-Site Transfers* consist of the following two components: – Quantities associated with disposal codes M41, M62, M63, M71, M72, M81, M90, M94, and M99 sent to offsite facilities with a valid RCRA ID number. – Quantities associated with disposal codes M65 and M66. The quantities associated with these disposal codes are by definition Subtitle C quantities; thus, it is not necessary to determine whether the off-site facility has a valid RCRA ID number. The above quantities are reported in Section 6.2 of TRI Form R. ▪ Facilities began to report M63 and M65 quantities in reporting year 2002. ▪ Facilities began to report M66 and M81 quantities in reporting year 2003.
OnSite Energy Recovery	
[8.2]	▪ Only Section 8.2 quantities reported by generating facilities with a valid RCRA ID number are included in the calculation.
OffSite Energy Recovery	
[8.3] – [*Subtitle D Energy Recovery OffSite Transfers*]	▪ Equation applies to generating facilities with a valid RCRA ID number only *Subtitle D Energy Recovery OffSite Transfers* consist of quantities associated with energy recovery codes M56 and M92 sent to off-site facilities without a valid RCRA ID number. These quantities are reported in Section 6.2 of TRI Form R.
OnSite Treatment	
[8.6]	▪ Only Section 8.6 quantities reported by generating facilities with a valid RCRA ID number are included in the calculation.
OffSite Treatment	
[8.7] – [*Subtitle D Treatment OffSite Transfers*]	▪ Equation applies to generating facilities with a valid RCRA ID number only ▪ *Subtitle D Treatment OffSite Transfers* consist of quantities associated with treatment codes M40, M50, M54, M61, M69, and M95 sent to off-site facilities without a valid RCRA ID number. These quantities are reported in Section 6.2 of TRI Form R

Exhibit C-6. Equations Used to Calculate Priority Chemical Quantities Associated with RCRA Subtitle D Activities

Equation	Comments
OnSite Disposal	
[5.4.1] + [5.4.2] + [5.5.1B] + [5.5.2] + [5.5.3] + [5.5.3B] + [5.5.4]	▪ The quantities reported in Sections 5.4.2, 5.5.1B, and 5.5.3B are by definition Subtitle D quantities; thus, it is not necessary to determine whether the generating facility has a valid RCRA ID number. ▪ The quantities reported in Sections 5.5.2 and 5.5.4 are assumed to be Subtitle D quantities. ▪ Only Section 5.4.1 and 5.5.3 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation. ▪ Section 5.5.3B was added to Form R for reporting year 2003.
OffSite Disposal	
[6.1(metals and metal compounds)] + [*Subtitle D Disposal OffSite Transfers*]	▪ Only Section 6.1 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation. ▪ *Subtitle D Disposal OffSite Transfers* consist of the following two components: – Quantities associated with disposal codes M64, M67, and M82. The quantities associated with these disposal codes are by definition Subtitle D quantities; thus, it is not necessary to determine whether the off-site facility has a valid RCRA ID number. – Quantities associated with disposal codes M73 and M79 are assumed to be Subtitle D quantities. – Quantities associated with disposal codes M41, M62, M63, M71, M72, M81, M90, M94, and M99 sent to off-site facilities without a valid RCRA ID number. The above quantities are reported in Section 6.2 of TRI Form R. ▪ Facilities began to report quantities to disposal codes M63 and M64 in reporting year 2002. ▪ Facilities began to report quantities to disposal codes M67, M81, and M82 in reporting year 2003.
OnSite Energy Recovery	
[8.2]	▪ Only Section 8.2 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation.
OffSite Energy Recovery	
[8.3] + [*Subtitle D Energy Recovery OffSite Transfers*]	▪ Only Section 8.3 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation. ▪ *Subtitle D Energy Recovery OffSite Transfers* consist of quantities associated with energy recovery codes M56 and M92 sent to off-site facilities without a valid RCRA ID number. These quantities are reported in Section 6.2 of TRI Form R.
OnSite Treatment	
[8.6]	▪ Only Section 8.6 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation.
OffSite Treatment	
[8.7] + [*Subtitle D Treatment OffSite Transfers*]	▪ Only Section 8.7 quantities reported by generating facilities without a valid RCRA ID number are included in the calculation. ▪ *Subtitle D Treatment OffSite Transfers* consist of quantities associated with treatment codes M40, M50, M54, M61, M69, and M95 sent to offsite facilities without a valid RCRA ID number. These quantities are reported in Section 6.2 of TRI Form R.

Exhibit C-7. Changes to Offsite Management Method Codes on TRI Form R

A Note About Management Method Code Changes in the TRI for Reporting Years 2002 and 2003

For reporting year 2002, disposal code M72 (Landfills/Disposal Surface Impoundment) was retired and replaced with M63 (Surface Impoundment), M64 (Other Landfills), and M65 (RCRA Subtitle C Landfills).

For reporting year 2003, disposal code M63 (Surface Impoundment) was retired and replaced with M66 (RCRA Subtitle C Surface Impoundment) and M67 (Other Surface Impoundment). In addition, M71 was retired and replaced with M81 (Underground Injection Class I Wells) and M82 (Underground Injection Class II-V Wells).

A review of the TRI data for reporting years 2002 and 2003 showed that some facilities reported quantities for M72 in 2002 and 2003, despite the fact that it was retired. Likewise, some facilities reported quantities for M63 and M71 in 2003, despite the fact that they were retired. Note, however, that facilities either reported to a retired management method code or to the new management method codes (e.g., M72 or M63/M64/M65).

Exhibit C-8. Criteria Used to Account for TRI Form R Section 8.8 Quantities When Calculating Priority Chemical Quantities Associated with RCRA Subtitle C and D Activities

Criteria		Revision to PC Quantities
For [8.8] = 0		None
For [8.8] > 0	[8.8] = [Subtitle C and D Total]	All PC quantities calculated using the equations in Exhibits 6 and 7 were updated to zero
	[8.8] > [Subtitle C and D Total]	None
	[8.8] < [Subtitle C and D Total] AND [8.8] = [5.1] + [5.2]	None
	[8.8] < [Subtitle C and D Total] AND [8.8] = [5.3]	None
	[8.8] < [Subtitle C and D Total] AND [8.8] = [5.1] + [5.2] + [5.3]	None
	[8.8] < [Subtitle C and D Total] AND [8.8] = [8.4]	None
	[8.8] < [Subtitle C and D Total] AND [8.8] = [8.5]	None

[a] Equations refer to TRI Form R section numbers described in Exhibit C-4.
[b] *Subtitle C and D Total* refers to the sum of all PC quantities calculated using the equations in Exhibits C-5 and C-6.

All remaining records: PC quantities calculated using the equations in Exhibits 5 and 6 (i.e., original PC quantities) were updated by undertaking the following steps:

1. Estimate percentage of Subtitle C and D total for each original PC quantity.
2. Assign portion of Section 8.8 quantity to each PC quantity category (e.g., Subtitle C on-site disposal, Subtitle D onsite disposal) based on percentages estimated under Step 1.
3. Update PC quantities by subtracting estimated Section 8.8 quantity (i.e., quantity estimated under Step 2) from original PC quantities.

Exhibit C-9. TRI Data Files and Data Elements Used in the Development of the Databases That Implement the PC Measurement Methodology [a, b]

US_1_XXXX
FORM TYPE
REPORTING YEAR
TRIFID
FACILITY NAME
FACILITY STATE
PRIMARY SIC CODE
RCRA NR A
FEDERAL FACILITY IND
GOCO FACILITY IND
DOCUMENT CONTROL NUMBER
CAS NUMBER
CHEMICAL NAME
UNIT OF MEASURE
TOTAL AIR EMISSIONS
TOTAL SURFACE WATER DISCHARGE
TOTAL UGRND INJ ONSITE TO CL I WELLS - POUNDS
TOTAL UGRND INJ ONSITE TO CL II-V WELLS - POUNDS
TOTAL RCRA SUBTITLE C LANDFILLS
TOTAL OTHER ON-SITE LAND RELEASES
TOTAL LAND TREATMENT
TOTAL SURFACE IMPOUNDMENTS
TOTAL RCRA C SURFACE IMPOUNDMENTS
TOTAL OTHER SURFACE IMPOUNDMENTS
TOTAL OTHER DISPOSAL
TRANSFERS TO POTWS (METALS AND METAL COMPOUNDS)

Exhibit C-9. TRI Data Files and Data Elements Used in the Development of the Databases That Implement the PC Measurement Methodology [a, b]

US_2a_XXXX
DOCUMENT CONTROL NUMBER
UNIT OF MEASURE
ENERGY RECOVERY ONSITE CURRENT YEAR
ENERGY RECOVERY OFFSITE CURRENT YEAR
QUANTITY TREATED ONSITE CURRENT YEAR
QUANTITY TREATED OFFSITE CURRENT YEAR
CATASTROPHIC RELEASES OR OTHER ONE-TIME EVENTS
US_3a_XXXX
DOCUMENT CONTROL NUMBER
UNIT OF MEASURE
OFF-SITE RCRA ID NR
TOTAL XFERS OFF-SITE AMOUNT - SOLIDIFICATION/STABILIZATION (METALS) M41
TOTAL XFERS OFF-SITE AMOUNT - WASTEWATER TRTMT (METALS) M62
TOTAL UNDERGROUND INJECTION AMOUNT M71
TOTAL LANDFILLS/DISPOSAL SURFACE IMPOUNDMENT AMOUNT M72
SURFACE IMPOUNDMENT TOTAL AMOUNT M63
OTHER LANDFILLS TOTAL AMOUNT M64
RCRA SUBTITLE C LANDFILLS TOTAL AMOUNT M65
TOTAL LAND TREATMENT TOTAL AMOUNT M73
TOTAL OTHER LAND DISPOSAL AMOUNT M79
TOTAL OTHER OFF-SITE MANAGEMENT AMOUNT M90
TOTAL TRANSFER TO WASTE BROKER-DISPOSAL AMOUNT M94
TOTAL UNKNOWN AMOUNT M99
TOTAL XFERS OFF-SITE AMOUNT - SOLIDIFICATION/STABILIZATION M40
TOTAL XFERS OFF-SITE AMOUNT - INCINERATION/THERMAL TREATMENT M50
TOTAL XFERS OFF-SITE AMOUNT - INCINERATION/INSIGNIFICANT FUEL VALUE M54
TOTAL XFERS OFF-SITE AMOUNT - WASTEWATER TREATMENT M61
TOTAL XFERS OFF-SITE AMOUNT - OTHER WASTE TREATMENT M69
TOTAL XFERS OFF-SITE AMOUNT - TRANSFER TO WASTE BROKER-WASTE TREATMENT M95
TOTAL XFERS OFF-SITE AMOUNT - ENERGY RECOVERY M56
TOTAL XFERS OFF-SITE AMOUNT - TRANSFER TO WASTE-BROKERENERGY RECOVERY M92
RCRA SUBTITLE C SURFACE IMPOUNDMENTS TOTAL AMOUNT M66
OTHER SURFACE IMPOUNDMENT TOTAL AMOUNT M67
UNDERGROUND INJ. CLASS I WELLS TOTAL AMOUNT M81
UNDERGROUND INJ. CLASS II-V WELLS TOTAL AMOUNT M82

[a] In each of the TRI data file names, "XXXX" stands for the reporting year (e.g., 2004).
[b] Data elements in italics are primary keys for the data file.

Exhibit C-10. Revisions to TRI Data Based on EPA's Quality Assurance Activities

Database Table	Facility Name	TRIFID	RCRA ID	Chemical Name	Data Element	Revised Data / Updated in New TRI Release (Y/N)	
Methodology_Part 1_2000							
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	HEXACHLORO-1,3-BUTADIENE	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	878	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	HEXACHLORO-1,3-BUTADIENE	ENERGY_RECOVERY_OFFSITE_CURRENT_YEAR	2,273,336	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	HEXACHLORO-1,3-BUTADIENE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	2,274,214	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	HEXACHLOROETHANE	ENERGY_RECOVERY_OFFSITE_CURRENT_YEAR	783,824	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	HEXACHLOROETHANE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	817,179	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	NAPHTHALENE	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	46,697	Y
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	NAPHTHALENE	ENERGY_RECOVERY_OFFSITE_CURRENT_YEAR	16,934	N
File Type 2a	DOW CHEMICAL LOUISIANA DIV	70765-THDWC-HIGHW	LAD008178080	NAPHTHALENE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	63,631	N
File Type 1	RINECO	72015-RNC00-1007V	ARD981057870	ALL REPORTED CHEMICALS	PRIMARY SIC CODE	4953	N
Methodology_Part 2_2001							
File Type 1	U.S. MARINE CORPS BASE HAWAII KANEOHE BAY TRAINING FACILITY	96863-SMRNC-MAGAZ	HI6170022762	ALL REPORTED CHEMICALS	RCRA NR A	HI6170022762	Y
File Type 1	U.S. MARINE CORPS AIR GROUND COMBAT CENTER	92278-SMRNC-BLDG1	CA0170090013	ALL REPORTED CHEMICALS	RCRA NR A	CA0170090013	N
File Type 3a	STRUCTURAL METALS INC	78156-STRCT-POBOX	TXD008119414	LEAD	TOTAL_LANDFILLS/DISPOSAL_SURFACE_IMPOUNDMENT_M72	245,015	Y
File Type 3a	OLD BRIDGE CHEMICALS INC	08857-LDBRD-OLDWA	NJD052204864	LEAD	TOTAL_LANDFILLS/DISPOSAL_SURFACE_IMPOUNDMENT_M72	240,391	N
File Type 3a	OLD BRIDGE CHEMICALS INC	08857-LDBRD-OLDWA	NJD052204864	LEAD	TOTAL_LANDFILLS/DISPOSAL_SURFACE_IMPOUNDMENT_M72	121,069	N
File Type 1	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	ALL REPORTED CHEMICALS	RCRA NR A	KSD984990903	Y
File Type 1	RINECO	72015-RNC00-1007V	ARD981057870	ALL REPORTED CHEMICALS	PRIMARY SIC CODE	4953	N

Exhibit C-10. Revisions to TRI Data Based on EPA's Quality Assurance Activities

Database Table	Facility Name	TRIFID	RCRA ID	Chemical Name	Data Element	Revised Data / Updated in New TRI Release (Y/N)	
Methodology_Part 3_2002							
File Type 1	U.S. MARINE CORPS BASE HAWAII KANEOHE BAY TRAINING FACILITY	96863-SMRNC-MAGAZ	HI6170022762	ALL REPORTED CHEMICALS	RCRA NR A	HI6170022762	Y
File Type 1	U.S. MARINE CORPS AIR GROUND COMBAT CENTER	92278-SMRNC-BLDG1	CA0170090013	ALL REPORTED CHEMICALS	RCRA NR A	CA0170090013	Y
File Type 2a	VULCAN MATERIALS CO CHEMICALS DIV	70734-VLCNM-ASHLA	LAD092681824	HEXACHLORO-1,3-BUTADIENE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	714,480	N
File Type 3a	P KAY METAL INC	90058-PKYMT-2448E	CAL000024110	LEAD	RCRA_SUBTITLE C_LANDFILLS_TOTAL_AMOUNT_M65	116,000	N
File Type 1	RINECO	72015-RNC00-1007V	ARD981057870	ALL REPORTED CHEMICALS	PRIMARY SIC CODE	4953	N
File Type 1	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	ALL REPORTED CHEMICALS	RCRA NR A	KSD984990903	Y
File Type 2a	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	LEAD	QUANTITY_RECYCLED_ONSITE_CURRENT_YEAR	0.12	Y
File Type 3a	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	LEAD	RCRA_SUBTITLE C_LANDFILLS_TOTAL_AMOUNT_M65	1.26	Y
File Type 3a	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	LEAD	TOTAL_TRANSFER_BROKER_DISPOSAL_M94	3.23	Y
Methodology_Part 4_2003							
File Type 1	RINECO	72015-RNC00-1007V	ARD981057870	ALL REPORTED CHEMICALS	PRIMARY SIC CODE	4953	N
File Type 1	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	ALL REPORTED CHEMICALS	RCRA NR A	KSD984990903	Y
File Type 2a	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	LEAD	QUANTITY_RECYCLED_ONSITE_CURRENT_YEAR	0.15	Y
File Type 3a	NATIONAL PLASTICS COLOR INC	67147-NTNLP-2600W	KSD984990903	LEAD	RCRA_SUBTITLE C_LANDFILLS_TOTAL_AMOUNT_M65	1.63	Y
Methodology Part 5_2004							
File Type 1	RINECO	72015-RNC00-1007V	ARD981057870	ALL REPORTED CHEMICALS	PRIMARY SIC CODE	4953	N
File Type 3a	V&M Star	44510-NRTHS-2669W	OHD016077802	LEAD	TOTAL_OTHER_LANDFILLS_M64	2,228	N
File Type 3a	V&M Star	44510-NRTHS-2669W	OHD016077802	CADMIUM	TOTAL_OTHER_LANDFILLS_M64	326	N

Exhibit C-10. Revisions to TRI Data Based on EPA's Quality Assurance Activities

Database Table	Facility Name	TRIFID	RCRA ID	Chemical Name	Data Element	Revised Data / Updated in New TRI Release (Y/N)	
File Type 2a	DOMTAR A.W. CORP PORT EDWARDS MILL	54469-PRTDW-100WI	WID006137202	POLYCYCLIC AROMATIC COMPOUNDS	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	0	N
File Type 3a	TRW AUTOMOTIVE	43420-KLSYH-4600O	OHD051631182	LEAD	TOTAL_XFERS_OFFSITE_WASTEWATER TRMT_M62	2	N
File Type 3a	TRW AUTOMOTIVE	43420-KLSYH-4600O	OHD051631182	LEAD	RCRA_SUBTITLE C_LANDFILLS_TOTAL_AMOUNT_M65	9	N
File Type 2a	DOW CHEMICAL CO FREEPORT FACILITY	77541-THDWC-BUILD	TXD008092793	HEXACHLOROETHANE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	165857	N
File Type 2a	BLUE SEAL FEEDS INC	05476-BLSLF-ELEVA	N/A	BENZO(G,H,I)PERYLENE	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	0	N
File Type 2a	BLUE SEAL FEEDS INC	05476-BLSLF-ELEVA	N/A	POLYCYCLIC AROMATIC COMPOUNDS	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	0	N
File Type 2a	BLUE SEAL FEEDS INC	14009-BLSLF-50WIL	N/A	BENZO(G,H,I)PERYLENE	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	0	N
File Type 2a	BLUE SEAL FEEDS INC	14009-BLSLF-50WIL	N/A	POLYCYCLIC AROMATIC COMPOUNDS	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	0	N
File Type 2a	PREMCOR REFINING GROUP INC PORT ARTHUR REFINERY	77640-CLRKR-1801S	TXD008090409	NAPHTHALENE	QUANTITY_TREATED_ONSITE_CURRENT_YEAR	1670000	N
File Type 1	DUPONT CHAMBERS WORKS	08023-DPNTC-RT130	NJD002385730	2,4,5-TRICHLOROPHENOL	PRIMARY SIC CODE	2869	N
File Type 1	CHEMTRON CORP	44011-CHMTR-35850	OHD066060609	METHOXYCHLOR	PRIMARY SIC CODE	7389	N
File Type 1	SGL CARBON LLC	42050-SGLCR-2320M	KY0001462027	POLYCYCLIC AROMATIC COMPOUNDS	TOTAL_STACK_AIR_EMISSIONS	87	N
File Type 1	SGL CARBON LLC	42050-SGLCR-2320M	KY0001462027	POLYCYCLIC AROMATIC COMPOUNDS	TOTAL _AIR_EMISSIONS	87	N
File Type 2	SGL CARBON LLC	42050-SGLCR-2320M	KY0001462027	POLYCYCLIC AROMATIC COMPOUNDS	ENERGY_RECOVERY_ONSITE_CURRENT_YEAR	299136	N
File Type 2	SGL CARBON LLC	42050-SGLCR-2320M	KY0001462027	POLYCYCLIC AROMATIC COMPOUNDS	QUANTITY_RECYCLED_OFFSITE_CURRENT_YEAR	498	N
File Type 1	U.S. DOE HANFORD SITE	99352-SDPRT-POBOX	WA7890008967	LEAD	PRIMARY SIC CODE	9511	N

Appendix D
List of Exhibits

SECTION 1

Exhibit 1.1. List of the Priority Chemicals (PCs) 1-3

SECTION 2

Exhibit 2.1. National Progress toward the 2001–2004 Goal to Reduce Priority Chemicals by 10 Percent 2-1
Exhibit 2.2. National Progress Towards the 2003–2008 Goal to Reduce Priority Chemicals by 10 Percent 2-2
Exhibit 2.3. National Quantities of Priority Chemicals, 2001–2004 2-2
Exhibit 2.4. Top 5 Priority Chemicals with the Largest Quantity Decreases, 2001–2004 2-3
Exhibit 2.5. Top 4 Priority Chemicals with the Largest Percentage Decreases, 2001–2004 2-4
Exhibit 2.6. Top 4 Priority Chemicals with the Largest Quantity Increases, 2001–2004 2-4
Exhibit 2.7. Top 4 Priority Chemicals with the Largest Percentage Increases, 2001–2004 2-5
Exhibit 2.8. Industry Sectors that Accounted for 75 Percent of the Total Quantity of Priority Chemicals in 2004 2-5
Exhibit 2.9. Priority Chemical Reductions Committed Under NPEP (Fiscal Years 2006–2013) 2-7
Exhibit 2.10. Priority Chemical Quantities Committed for Reduction, FYs 2006–2013 2-8
Exhibit 2.11. Priority Chemical Reductions Achieved Under NPEP 2-8
Exhibit 2.12. Priority Chemical Quantities Achieved, FYs 2004–2006 2-9

SECTION 3

Exhibit 3.1. Total Quantity and Number of Facilities for the Priority Chemicals, 2000–2004 3-1
Exhibit 3.2. Total Quantity (pounds) and Number of Facilities Reporting Priority Chemicals, 2000–2004 3-1
Exhibit 3.3. Total Quantity by Priority Chemical, 2000–2004 3-2
Exhibit 3.4. Number of Facilities That Reported Each Priority Chemical by Quantity Range in 2004 3-3
Exhibit 3.5. Trends in Management Methods for Priority Chemicals, 2000–2004 3-9
Exhibit 3.6. Disposal of Priority Chemicals, 2000–2004 3-9
Exhibit 3.7. Trends in Disposal Quantities of Lead and Lead Compounds, 2000–2004 3-10
Exhibit 3.8. Trends in Disposal Quantities of PACs, Cadmium and Cadmium Compounds, Naphthalene, and Pendimethalin, 2000–2004 3-10
Exhibit 3.9. Energy Recovery of Priority Chemicals, 2000–2004 3-11
Exhibit 3.10. Trends in Energy Recovery Quantities of PACs and Naphthalene, 2000–2004 3-11
Exhibit 3.11. Trends in Energy Recovery Quantities of Phenanthrene, Hexachlorobenzene, and Benzo(g,h,i) perylene, 2000–2004 3-12
Exhibit 3.12. Treatment of the Priority Chemicals, 2000–2004 3-12
Exhibit 3.13. Trends in Treatment Quantities of Hexachloro-1,3-butadiene, Naphthalene, and Hexachlorobenzene, 2000–2004 3-13
Exhibit 3.14. Trends in Treatment Quantities of PACs, Hexachloroethane, 1,2,4-Tricholorobenzene, and Phenanthrene, 2000–2004 3-13
Exhibit 3.15. Recycling of Priority Chemicals, 2000–2004 3-14
Exhibit 3.16. Trends in Recycling Quantities of Lead and Lead Compounds, 2000–2004 3-14
Exhibit 3.17. Trends in Recycling Quantities of Naphthalene, Hexachloroethane, PACs, and Hexachlorobenzene, 2000–2004 3-15
Exhibit 3.18. Priority Chemical Quantities, by EPA Region, 2000–2004 3-15
Exhibit 3.19. 2004 Priority Chemical Quantity by EPA Region 3-16

Exhibit 3.20. National Map of 2004 Priority Chemical Quantities, by EPA Region 3-16
Exhibit 3.21. Number of Facilities Reporting Priority Chemicals, by EPA Region, 2000–2004 3-17
Exhibit 3.22. Trends in the Number of Facilities Reporting Priority Chemicals, by EPA Region, 2000–2004 3-17
Exhibit 3.23. Number of Facilities Reporting a Priority Chemical Quantity in 2004 by Chemical and EPA Region ..3-18
Exhibit 3.24. Quantity of Priority Chemicals Reported by Facilities in EPA Regions in 2004 3-19
Exhibit 3.25. Disposal of Priority Chemicals in 2004 by EPA Region 3-20
Exhibit 3.26. Energy Recovery of Priority Chemicals in 2004 by EPA Region 3-20
Exhibit 3.27. Treatment of Priority Chemicals in 2004 by EPA Region 3-20
Exhibit 3.28. Recycling of Priority Chemicals in 2004 by EPA Region 3-21
Exhibit 3.29. Priority Chemical Quantity, by State, 2000–2004 3-21
Exhibit 3.30. States Containing Facilities That Reported 55 Percent of Priority Chemicals in 2004 3-23
Exhibit 3.31. Number of Facilities Reporting Priority Chemicals, by State/Territory, 2000–2004 3-24
Exhibit 3.32. Management Methods for Priority Chemicals by State with Facilities Reporting 80% of the Total PC Quantity in 2004 3-26
Exhibit 3.33. Map of Management Methods for Priority Chemicals by State for Facilities Reporting 80% of the Total PC Quantity in 2004 3-27
Exhibit 3.34. Disposal of Priority Chemicals in 2004 by State 3-28
Exhibit 3.35. Energy Recovery of Priority Chemicals in 2004 by State 3-28
Exhibit 3.36. Treatment of Priority Chemicals in 2004 by State 3-29
Exhibit 3.37. Recycling of Priority Chemicals in 2004 by State 3-29
Exhibit 3.38. Industry Sector Quantity of Priority Chemicals Reported in 2004 (90% of Total) 3-30
Exhibit 3.39. Number of Facilities Reporting Priority Chemicals, by SIC Code, 2000–2004 3-31
Exhibit 3.40. Management Methods for Priority Chemicals, by SIC Code for Facilities Reporting 90% of the Total PC Quantity in 2004 3-32
Exhibit 3.41. Disposal of Priority Chemicals in 2004 by SIC Code 3-34
Exhibit 3.42. Energy Recovery of Priority Chemicals in 2004 by SIC Code 3-34
Exhibit 3.43. Treatment of Priority Chemicals in 2004 by SIC Code 3-35
Exhibit 3.44. Recycling of the Priority Chemicals 2004 by SIC Code 3-35

SECTION 4

Exhibit 4.1. National Management Methods for 1,2,4 – Trichlorobenzene, 2000–2004 4-4
Exhibit 4.2. Distribution of Quantities by Facilities Reporting 1,2,4–Trichlorobenzene, 2004 4-4
Exhibit 4.3. Quantity of 1,2,4–Trichlorobenzene Reported, by EPA Regions, 2000–2004 4-5
Exhibit 4.4. Distribution of Facilities Reporting 1,2,4–Trichlorobenzene in 2004 and the Quantities of 1,2,4–Trichlorobenzene Reported in 2004, by EPA Region 4-5
Exhibit 4.5. Regional Management Methods for 1,2,4–Trichlorobenzene, 2004 4-6
Exhibit 4.6. State Quantity Trends for 1,2,4–Trichlorobenzene, Based on Largest 2004 Quantity, 2000–2004 4-7
Exhibit 4.7. Louisiana and Texas Trends for 1,2,4–Trichlorobenzene, 2000–2004 4-8
Exhibit 4.8. Oregon and California Trends for 1,2,4 – Trichlorobenzene, 2000–2004 4-8
Exhibit 4.9. Kentucky and Illinois Trends for 1,2,4 – Trichlorobenzene, 2000–2004 4-9
Exhibit 4.10. State Management Methods for 1,2,4–Trichlorobenzene, Based on Largest State Quantity, 2004 4-9
Exhibit 4.11. Distribution of Management Methods of 1,2,4 – Trichlorobenzene in States, 2004 4-10
Exhibit 4.12. Industry Sectors Quantities of 1,2,4–Trichlorobenzene, 2000–2004 4-11
Exhibit 4.13. Management Methods for 1,2,4–Trichlorobenzene in Industry Sectors, 2004 4-12
Exhibit 4.14. National Management Methods for 2,4,5–Trichlorophenol, 2000–2004 4-13

Exhibit 4.15. The 2004 Facility Reporting 2,4,5–Trichlorophenol and the Quantities of 2,4,5–Trichlorophenol Reported in 2004, by EPA Region 4-14
Exhibit 4.16. Management of 2,4,5 – Trichlorophenol, 2004 4-14
Exhibit 4.17. Quantity of 2,4,5–Trichlorophenol Reported by EPA Region, 2000–2004 4-14
Exhibit 4.18. State–Level Information for 2,4,5–Trichlorophenol, 2000–2004 4-15
Exhibit 4.19. New Jersey Trends for 2,4,5–Trichlorophenol, 2000–2004 4-15
Exhibit 4.20. Industry Sector –Level Information for 2,4,5–Trichlorophenol, 2000–2004 4-15
Exhibit 4.21. National Management Methods for Anthracene 4-17
Exhibit 4.22. Distribution of Facilities Reporting Anthracene in 2004 and the Quantities of Anthracene Reported in 2004, by EPA Region 4-17
Exhibit 4.23. Distribution of Quantities by Facilities Reporting Anthracene, 2004 4-18
Exhibit 4.24. Quantity of Anthracene Reported by EPA Region, 2000–2004 4-18
Exhibit 4.25. Regional Management Methods for Anthracene, 2004 4-19
Exhibit 4.26. State Quantity Trends for Anthracene, Based on Largest 2004 Quantity, 2000–2004 4-20
Exhibit 4.27. Trends in Anthracene Quantities Reported in Michigan, Illinois, and Kentucky, 2000–2004 4-21
Exhibit 4.28. Trends in Anthracene Quantities Reported in Alabama, 2000–2004 4-22
Exhibit 4.29. Trends in Anthracene Quantities Reported in Texas, 2000–2004 4-22
Exhibit 4.30. Management Methods for Anthracene, Facilities in States With 96 Percent of Total Quantity, 2004 4-23
Exhibit 4.31. State Management of Anthracene, 2004 4-24
Exhibit 4.32. Industry Sectors Reporting Anthracene, 2000–2004 4-25
Exhibit 4.33. Management Methods for Anthracene in Industry Sectors With 99 Percent of Total Quantity, 2004 4-25
Exhibit 4.34. National Management Methods for Benzo(g,h,i)perylene, 2000–2004 4-27
Exhibit 4.35. Distribution of Quantities by Facilities Reporting Benzo(g,h,i)perylene, 2004 4-27
Exhibit 4.36. Quantity of Benzo(g,h,i)perylene Reported by EPA Region, 2000–2004 4-28
Exhibit 4.37. Distribution of Facilities Reporting Benzo(g,h,i)perylene in 2004 and the Quantities of Benzo(g,h,i)perylene Reported in 2004, by EPA Region 4-28
Exhibit 4.38. Management Methods for Benzo(g,h,i)perylene, by EPA Region, 2004 4-29
Exhibit 4.39. State Quantity Trends for Benzo(g,h,i)perylene, Based on Largest 2004 Quantity, 2000–2004 4-30
Exhibit 4.40. Texas, Louisiana, and Tennessee Trends for Benzo(g,h,i)perylene, 2000–2004 4-31
Exhibit 4.41. Pennsylvania and West Virginia Trends for Benzo(g,h,i)perylene, 2000–2004 4-31
Exhibit 4.42. State Management Methods for Benzo(g,h,i)perylene With Facilities Reporting 95 Percent of Total Quantity, 2004 4-32
Exhibit 4.43. State Distribution of Management Methods of Benzo(g,h,i)perylene, 2004 4-33
Exhibit 4.44. Industry Sectors Reporting Benzo(g,h,i)perylene, 2000–2004 4-34
Exhibit 4.45. Management Methods for Benzo(g,h,i)perylene in Industry Sectors With 95 Percent of Total Quantity, 2004 4-34
Exhibit 4.46. National Management Methods for Cadmium and Cadmium Compounds, 2000–2004 4-36
Exhibit 4.47. Distribution of Quantities by Facilities Reporting Cadmium and Cadmium Compounds in 2004 4-36
Exhibit 4.48. Quantity of Cadmium and Cadmium Compounds Reported, by EPA Region, 2000–2004 4-37
Exhibit 4.49. Distribution of Facilities Reporting Cadmium and Cadmium Compounds in 2004 and the Quantities of Cadmium and Cadmium Compounds Reported in 2004, by EPA Region 4-38
Exhibit 4.50. Regional Management Methods for Cadmium and Cadmium Compounds, 2004 4-39
Exhibit 4.51. State Quantity Trends for Cadmium and Cadmium Compounds, Based on Largest 2004 Quantity, 2000–2004 4-40
Exhibit 4.52. Oklahoma and Nebraska Trends for Cadmium and Cadmium Compounds, 2000–2004 4-42
Exhibit 4.53. Idaho Trends for Cadmium and Cadmium Compounds, 2000–2004 4-42

Exhibit 4.54. Maryland and Alabama Trends for Cadmium and Cadmium Compounds, 2000–2004 4-43
Exhibit 4.55. Management Methods for Cadmium and Cadmium Compounds, Facilities in States With 90 Percent of Total Quantity, 2004 4-43
Exhibit 4.56. Distribution of Management Methods of Cadmium and Cadmium Compounds in States, 2004 4-44
Exhibit 4.57. Industry Sectors Reporting Cadmium and Cadmium Compounds, 2000–2004 4-45
Exhibit 4.58. Management Methods for Cadmium and Cadmium Compounds in Industry Sectors With 95 Percent of Total Quantity, 2004 4-46
Exhibit 4.59. National Management Methods for Dibenzofuran, 2000–2004 4-48
Exhibit 4.60. Distribution of Quantities by Facilities Reporting Dibenzofuran, 2004 4-48
Exhibit 4.61. Quantity of Dibenzofuran, by EPA Region, 2000–2004 4-49
Exhibit 4.62. Distribution of Facilities Reporting Dibenzofuran in 2004 and the Quantities of Dibenzofuran Reported in 2004 by Region 4-49
Exhibit 4.63. Regional Management Methods for Dibenzofuran, 2004 4-50
Exhibit 4.64. State Quantity Trends for Dibenzofuran, Based on Largest States 2004 Quantity, 2000–2004 4-51
Exhibit 4.65. Michigan, Illinois, and Indiana Trends for Dibenzofuran, 2000–2004 4-52
Exhibit 4.66. Pennsylvania and West Virginia Trends for Dibenzofuran, 2000–2004 4-52
Exhibit 4.67. Management Methods for Dibenzofuran, Facilities in States With 98 Percent of Total Quantity, 2004 4-53
Exhibit 4.68. Distribution of Management Methods of Dibenzofuran in States, 2004 4-53
Exhibit 4.69. Industry Sectors Containing Dibenzofuran, 2000–2004 4-55
Exhibit 4.70. Management Methods for Dibenzofuran in Industry Sectors With 98 Percent of Total Quantity, 2004 4-55
Exhibit 4.71. National Management Methods for Dioxin and Dioxin-Like Compounds, 2000–2004 4-58
Exhibit 4.72. Size Distribution of Facilities that Reported Quantities for Dioxin and Dioxin-Like Compounds, 2004 4-58
Exhibit 4.73. Regional Quantities (grams) of Dioxin and Dioxin-Like Compounds, 2000–2004 4-59
Exhibit 4.74. Distribution of Facilities Reporting Dioxin and Dioxin-Like Compounds in 2004 and the Quantities of Dioxin and Dioxin-Like Compounds Reported in 2004 by Region 4-60
Exhibit 4.75. Management Methods for Dioxin and Dioxin-Like Compounds, by EPA Region, 2004 4-61
Exhibit 4.76. State–Level Information for Dioxin and Dioxin-Like Compounds, 2000–2004 4-61
Exhibit 4.77. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in Texas, Louisiana, and Mississippi, 2000–2004 4-62
Exhibit 4.78. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in Michigan, 2000–2004 4-62
Exhibit 4.79. Trends in Dioxin and Dioxin-Like Compounds Quantities Reported in South Carolina, 2000–2004 4-63
Exhibit 4.80. State Management Methods for Dioxin and Dioxin-Like Compounds (Facilities Reporting 93 Percent of Total Quantity) Based on Total 2004 Quantity 4-63
Exhibit 4.81. Distribution of State Management Methods for Dioxin and Dioxin-Like Compounds, 2004 4-64
Exhibit 4.82. Industry Sectors Containing Dioxin and Dioxin-Like Compounds, 2000–2004 4-65
Exhibit 4.83. Management Methods for Dioxin and Dioxin-Like Compounds in Industry Sectors with 94 Percent of Total Quantity, 2004 4-65
Exhibit 4.84. National Management Methods for Heptachlor 4-67
Exhibit 4.85. Regional Quantity of Heptachlor, 2002–2004 4-67
Exhibit 4.86. 2004 Distribution of Facilities Reporting Heptachlor and the Quantities of Heptachlor Reported, by EPA Region 4-68
Exhibit 4.87. Regional Management Methods for Heptachlor, 2004 4-68
Exhibit 4.88. State Quantity Trends for Heptachlor, Based on 2004 Quantities, 2000–2004 4-69
Exhibit 4.89. Trends in Heptachlor Quantities Reported in Texas, 2002–2004 4-69

Exhibit 4.90. Trends in Heptachlor Quantities Reported in New Jersey, 2002–2004 4-70
Exhibit 4.91. State Management Methods for Heptachlor, 2004 4-70
Exhibit 4.92. State Management of Heptachlor, 2004 4-71
Exhibit 4.93. Industry Sectors Containing Heptachlor, 2002–2004 4-72
Exhibit 4.94. Management Methods for Heptachlor in Industry Sector, 2004 4-72
Exhibit 4.95. National Management Methods for Hexachloro–1,3–butadiene, 2000–2004 4-74
Exhibit 4.96. Distribution of Quantities by Facilities Reporting Hexachloro–1,3–butadiene, 2004 4-74
Exhibit 4.97. Regional Quantities of Hexachloro–1,3–butadiene, 2000–2004 4-74
Exhibit 4.98. Distribution of Facilities Reporting Hexachloro–1,3–butadiene and Hexachloro–1,3–butadiene in 2004 in EPA Region 6 4-75
Exhibit 4.99. Management Methods for Hexachloro–1,3–butadiene, by EPA Region, 2004 4-75
Exhibit 4.100. State Quantity Trends for Hexachloro–1,3–butadiene, Based on Total 2004 Quantity, 2000–2004 4-76
Exhibit 4.101. Louisiana and Texas Trends for Hexachloro–1,3–butadiene, 2000–2004 4-76
Exhibit 4.102. State Management Methods for Hexachloro–1,3–butadiene, Based on Total 2004 Quantity 2004 4-76
Exhibit 4.103. Distribution of Management Methods for Hexachloro–1,3–butadiene in States, 2004 4-77
Exhibit 4.104. Industry Sectors Containing Hexachloro–1,3–butadiene, 2000–2004 4-78
Exhibit 4.105. Management Methods for Hexachloro–1,3–butadiene in Industry Sectors, 2004 4-78
Exhibit 4.106. National Management Methods for Hexachlorobenzene, 2000–2004 4-80
Exhibit 4.107. Distribution of Quantities by Facilities Reporting Hexachlorobenzene, 2004 4-80
Exhibit 4.108. Regional Quantity of Hexachlorobenzene, 2000–2004 4-81
Exhibit 4.109. Distribution of Facilities Reporting Hexachlorobenzene in 2004 and the Quantities of Hexachlorobenzene Reported in 2004, by EPA Region 4-82
Exhibit 4.110. Regional Management Methods for Facilities Reporting 99 Percent of Hexachlorobenzene, 2004 4-82
Exhibit 4.111. State Quantity Trends for Facilities Reporting 99 Percent of Hexachlorobenzene, 2000–2004 4-83
Exhibit 4.112. Louisiana, Texas, and Tennessee Trends for Hexachlorobenzene, 2000–2004 4-84
Exhibit 4.113. Management Methods for Hexachlorobenzene, Facilities in States With 99 Percent of Total Quantity, 2004 4-84
Exhibit 4.114. Distribution of Management Methods of Hexachlorobenzene in States, 2004 4-85
Exhibit 4.115. Industry Sectors Containing Hexachlorobenzene, 2000–2004 4-86
Exhibit 4.116. Management Methods for Hexachlorobenzene in Industry Sectors With 99 Percent of Total Quantity, 2004 4-86
Exhibit 4.117. National Management Methods for Hexachloroethane, 2000–2004 4-88
Exhibit 4.118. Distribution of Quantities by Facilities Reporting Hexachloroethane, 2004 4-88
Exhibit 4.119. Regional Quantities of Hexachloroethane, 2000–2004 4-89
Exhibit 4.120. Distribution of Facilities Reporting Hexachloroethane in 2004 and the Quantities of Hexachloroethane Reported in 2004, by EPA Region 4-89
Exhibit 4.121. Regional Management Methods for Hexachloroethane, 2004 4-91
Exhibit 4.122. State Quantity Trends for Facilities Reporting Hexachloroethane, 2000–2004 4-91
Exhibit 4.123. Louisiana and Texas Trends for Hexachloroethane, 2000–2004 4-92
Exhibit 4.124. Oregon Trends for Hexachloroethane, 2000–2004 4-93
Exhibit 4.125. Michigan Trends for Hexachloroethane, 2000–2004 4-93
Exhibit 4.126. Kansas Trends for Hexachloroethane, 2000–2004 4-94
Exhibit 4.127. Management Methods for Hexachloroethane, Facilities in States With 99 Percent of the Total Quantity, 2004 4-94
Exhibit 4.128. State Distribution of Management Methods of Hexachloroethane, 2004 4-95
Exhibit 4.129. Industry Sectors in Which Facilities Reported Hexachloroethane, 2000–2004 4-96

Exhibit 4.130. Management Methods for Hexachloroethane in Industry Sectors, 2004 4-96
Exhibit 4.131. National Management Methods for Lead and Lead Compounds, 2000–2004 4-98
Exhibit 4.132. Distribution of Quantities by Facilities Reporting Lead and Lead Compounds, 2004 4-99
Exhibit 4.133. Regional Quantities of Lead and Lead Compounds, 2000–2004 4-99
Exhibit 4.134. Distribution of Facilities Reporting Lead and Lead Compounds in 2004 and the Quantities of Lead and Lead Compounds Reported in 2004 per Region 4-100
Exhibit 4.135. Regional Management Methods for Lead and Lead Compounds, 2004 4-101
Exhibit 4.136. State Quantity Trends for Lead and Lead Compounds, Facilities Reporting 80 Percent of the Total Quantity, 2004 4-102
Exhibit 4.137. Indiana, Ohio, and Pennsylvania Trends for Lead and Lead Compounds, 2000–2004 4-103
Exhibit 4.138. Alabama Trends for Lead and Lead Compounds, 2000–2004 4-104
Exhibit 4.139. California Trends for Lead and Lead Compounds, 2000–2004 4-104
Exhibit 4.140. State Management Methods for Lead and Lead Compounds, Facilities Reporting at Least 1 Million Pounds, 2004 4-105
Exhibit 4.141. State Distribution of Management Methods of Lead and Lead Compounds, 2004 4-106
Exhibit 4.142. Industry Sectors Containing Lead and Lead Compounds, Facilities Reporting 90 Percent of the Total Quantity, 2004 4-108
Exhibit 4.143. Management Methods for Lead and Lead Compounds in Industry Sectors (Facilities Reporting at Least 1 Million Pounds), 2004 4-108
Exhibit 4.144. National Management Methods for Lindane, 2000–2004 4-110
Exhibit 4.145. Regional Quantity of Lindane Reported, 2000–2004 4-110
Exhibit 4.146. State Quantity Trends for Lindane, Based on Largest Quantity in 2003, 2000–2004 4-110
Exhibit 4.147. Industry Sectors Containing Lindane, 2000–2004 4-111
Exhibit 4.148. National Management Methods for Mercury and Mercury Compounds, 2000–2004 4-113
Exhibit 4.149. Distribution of Quantities by Facilities Reporting Mercury and Mercury Compounds, 2004 4-114
Exhibit 4.150. Regional Quantities of Mercury and Mercury Compounds, 2000–2004 4-114
Exhibit 4.151. Distribution of Facilities Reporting Mercury and Mercury Compounds in 2004 and the Quantities of Mercury and Mercury Compounds Reported in 2004 per EPA Region 4-115
Exhibit 4.152. Regional Management Methods for Mercury and Mercury Compounds, 2004 4-116
Exhibit 4.153. State Quantity Trends for Mercury and Mercury Compounds in Which Facilities Reported 80 Percent of the Total Quantity, 2004 4-117
Exhibit 4.154. California Trends for Mercury and Mercury Compounds, 2000–2004 4-118
Exhibit 4.155. Ohio Trends for Mercury and Mercury Compounds, 2000–2004 4-118
Exhibit 4.156. Texas Trends for Mercury and Mercury Compounds, 2000–2004 4-119
Exhibit 4.157. South Carolina and Florida Trends for Mercury and Mercury Compounds, 2000–2004 4-119
Exhibit 4.158. Management Methods for Mercury and Mercury Compounds, Facilities in States with at Least 1 Million Pounds, 2004 4-120
Exhibit 4.159. Industry Sectors Containing Mercury and Mercury Compounds, Facilities Reporting 80 Percent of the Total Quantity, 2004 4-121
Exhibit 4.160. Management Methods for Mercury and Mercury Compounds in Industry Sectors (Facilities Reporting at Least 1 Million Pounds), 2004 4-121
Exhibit 4.161. National Management Methods for Methoxychlor, 2000–2004 4-126
Exhibit 4.162. Regional Quantity of Methoxychlor, 2000–2004 4-126
Exhibit 4.163. Distribution of Facilities Reporting Methoxychlor in 2004 and the Quantities of Methoxychlor Reported in 2004 in Region 6 4-127
Exhibit 4.164. State Quantity Trends for Methoxychlor, Based on Largest 2004 Quantity, 2000–2004 4-127
Exhibit 4.165. Texas Trends for Methoxychlor, 2000–2004 4-128

Exhibit 4.166. Industry Sectors Containing Methoxychlor, 2000–2004 4-128
Exhibit 4.167. National Management Methods for Naphthalene, 2000–2004 4-130
Exhibit 4.168. Distribution of Quantities by Facilities Reporting Naphthalene, 2004 4-130
Exhibit 4.169. Regional Quantity of Naphthalene, 2000–2004 4-131
Exhibit 4.170. Distribution of Facilities Reporting Naphthalene in 2004 and the Quantities of Naphthalene Reported in 2004, by EPA Region 4-132
Exhibit 4.171. Regional Management Methods for Naphthalene, 2004 4-133
Exhibit 4.172. State Quantity Trends for Naphthalene (Facilities Reporting 85 Percent of the Total Quantity), 2004 4-134
Exhibit 4.173. Texas, Louisiana, and Alabama Trends for Naphthalene, 2000–2004 4-135
Exhibit 4.174. West Virginia and Indiana Trends for Naphthalene, 2000–2004 4-135
Exhibit 4.175. Management Methods for Naphthalene, Facilities in States With 85 Percent of the Total Quantity, 2004 4-136
Exhibit 4.176. State Distribution of Management Methods of Naphthalene, 2004 4-136
Exhibit 4.177. Industry Sectors With Facilities Reporting Naphthalene (Facilities Reporting 80 Percent of the Total Quantity), 2004 4-138
Exhibit 4.178. SIC Management Methods of Naphthalene (Facilities Reporting 80 Percent of the Total Quantity), 2004 4-138
Exhibit 4.179. National Management Methods for Polycyclic Aromatic Compounds, 2000–2004 4-140
Exhibit 4.180. Distribution of Quantities by Facilities Reporting Polycyclic Aromatic Compounds, 2004 4-141
Exhibit 4.181. Regional Quantities of Polycyclic Aromatic Compounds, 2000–2004 4-141
Exhibit 4.182. Distribution of Facilities Reporting Polycyclic Aromatic Compounds in 2004 and the Quantities of Polycyclic Aromatic Compounds Reported in 2004, by EPA Region 4-142
Exhibit 4.183. Regional Management Methods for Polycyclic Aromatic Compounds, 2004 4-143
Exhibit 4.184. State Quantity Trends for Polycyclic Aromatic Compounds, (Facilities Reporting 90 percent), 2004 4-143
Exhibit 4.185. Texas, Louisiana, and Arkansas Trends for Polycyclic Aromatic Compounds,2000–2004 4-144
Exhibit 4.186. Kentucky and Tennessee Trends for Polycyclic Aromatic Compounds, 2000–2004 4-144
Exhibit 4.187. Management Methods for Polycyclic Aromatic Compounds, Facilities in States With 90 Percent of the Total Quantity, 2004 4-145
Exhibit 4.188. State Distribution of Management Methods of Polycyclic Aromatic Compounds, 2004 4-145
Exhibit 4.189. Industry Sectors Containing Polycyclic Aromatic Compounds, (Facilities Reporting 95 Percent of the Total Quantity), 2004 4-147
Exhibit 4.190. Industry Sector Management Methods for Polycyclic Aromatic Compounds, (Facilities Reporting 95 Percent of the Total Quantity), 2004 4-147
Exhibit 4.191. National Management Methods for Polychlorinated Biphenyls, 2000–2004 4-149
Exhibit 4.192. Distribution of Quantities by Facilities Reporting Polychlorinated Biphenyls, 2004 4-149
Exhibit 4.193. Regional Quantities of Polychlorinated Biphenyls, 2000–2004 4-150
Exhibit 4.194. Distribution of Facilities Reporting Polychlorinated Biphenyls, in 2004 and the Quantities of Polychlorinated Biphenyls Reported in 2004, by EPA Region 4-150
Exhibit 4.195. Regional Management Methods for Polychlorinated Biphenyls, 2004 4-151
Exhibit 4.196. State Quantity Trends for Polychlorinated Biphenyls, (Facilities Reporting 98 percent of Quantity Total), 2004 4-151
Exhibit 4.197. Texas, Louisiana, and Tennessee Trends for Polychlorinated Biphenyls, 2000–2004 4-152
Exhibit 4.198. State Management Methods for Polychlorinated Biphenyls, (Facilities Reporting 95 Percent of the Total Quantity), 2004 4-152
Exhibit 4.199. State Distribution of Management Methods of Polychlorinated Biphenyls, 2004 4-153

Exhibit 4.200. Industry Sectors Containing Polychlorinated Biphenyls, (Facilities Reporting 98 Percent of the Total Quantity), 2004 4-154
Exhibit 4.201. Industry Sector Management Methods for Polychlorinated Biphenyls, (Facilities Reporting 98 Percent of the Total Quantity), 2004 4-154
Exhibit 4.202. National Management Methods for Pendimethalin, 2000–2004 4-156
Exhibit 4.203. Distribution of Quantities by Facilities Reporting Pendimethalin, 2004 4-156
Exhibit 4.204. Regional Quantity of Pendimethalin, 2000–2004 4-157
Exhibit 4.205. Distribution of Facilities Reporting Pendimethalin in 2004 and the Quantities of Pendimethalin Reported in 2004, by Region 4-157
Exhibit 4.206. Regional Management Methods for Pendimethalin, 2004 4-158
Exhibit 4.207. State Quantity Trends for Pendimethalin, 2000–2004 4-158
Exhibit 4.208. Iowa and Missouri Trends for Pendimethalin, 2000–2004 4-159
Exhibit 4.209. Georgia and Florida Trends for Pendimethalin, 2000–2004 4-160
Exhibit 4.210. Ohio Trends for Pendimethalin, 2000–2004 4-160
Exhibit 4.211. State Management Methods for Pendimethalin, 2004 4-161
Exhibit 4.212. State Distribution of Management Methods of Pendimethalin, 2004 4-161
Exhibit 4.213. Industry Sectors Containing Pendimethalin, 2000–2004 4-162
Exhibit 4.214. Industry Sector Management Methods for Pendimethalin, 2004 4-162
Exhibit 4.215. National Management Methods for Pentachlorobenzene, 2000–2004 4-164
Exhibit 4.216. Distribution of Quantities by Facilities Reporting Pentachlorobenzene, 2004 4-164
Exhibit 4.217. Regional Quantity Trends for Pentachlorobenzene, 2000–2004 4-164
Exhibit 4.218. Distribution of Facilities Reporting Pentachlorobenzene in 2004 and the Quantities of Pentachlorobenzene Reported in 2004, by EPA Region 4-165
Exhibit 4.219. Regional Management Methods for Pentachlorobenzene, 2004 4-166
Exhibit 4.220. State Quantity Trends for Pentachlorobenzene, 2000–2004 4-166
Exhibit 4.221. Texas, Louisiana, and Alabama Trends for Pentachlorobenzene, 2000–2004 4-167
Exhibit 4.222. State Management Methods for Pentachlorobenzene, 2000–2004 4-167
Exhibit 4.223. State Distribution of Management Methods of Pentachlorobenzene, 2004 4-168
Exhibit 4.224. Industry Sectors Containing Pentachlorobenzene, 2000–2004 4-169
Exhibit 4.225. Industry Sector Management Methods for Pentachlorobenzene, 2004 4-169
Exhibit 4.226. National Management Method Trends for Pentachlorophenol, 2000–2004 4-171
Exhibit 4.227. Distribution of Quantities by Facilities Reporting Pentachlorophenol, 2004 4-171
Exhibit 4.228. Regional Quantity of Pentachlorophenol, 2000–2004 4-172
Exhibit 4.229. Distribution of Facilities Reporting Pentachlorophenol in 2004 and the Quantities of Pentachlorophenol Reported in 2004, by EPA Region 4-172
Exhibit 4.230. Regional Management Methods for Pentachlorophenol, 2004 4-173
Exhibit 4.231. State Quantity Trends for Facilities Reporting Pentachlorophenol, 2000–2004 4-174
Exhibit 4.232. Missouri, Arkansas, and Mississippi Trends for Pentachlorophenol, 2000–2004 4-174
Exhibit 4.233. South Carolina Trends for Pentachlorophenol, 2000–2004 4-175
Exhibit 4.234. Oregon Trends for Pentachlorophenol, 2000–2004 4-175
Exhibit 4.235. State Management Methods for Pentachlorophenol, 2004 4-176
Exhibit 4.236. Industry Sectors Containing Pentachlorophenol, 2000–2004 4-177
Exhibit 4.237. Industry Sector Management Methods for Pentachlorophenol, 2004 4-177
Exhibit 4.238. National Management Method Trends for Phenanthrene, 2000–2004 4-179
Exhibit 4.239. Distribution of Quantities by Facilities Reporting for Phenanthrene, 2004 4-179
Exhibit 4.240. Regional Quantity Trends of Phenanthrene, 2000–2004 4-180

Exhibit 4.241. Regional Management Methods for Phenanthrene, 2004 4-181
Exhibit 4.242. State Quantity Trends for Phenanthrene (Facilities Reporting 96 Percent of the Total Quantity), 2004 4-181
Exhibit 4.243. Management Methods for Phenanthrene, Facilities in States With 94 Percent of the Total Quantity, 2004 4-182
Exhibit 4.244. Industry Sectors Containing Phenanthrene (Facilities Reporting 99 Percent of the Total Quantity), 2004 4-183
Exhibit 4.245. Industry Sector Management Methods for Phenanthrene (Facilities Reporting 99 Percent of the Total Quantity), 2004 4-183
Exhibit 4.246. National Management Method Trends for Quintozene, 2000–2004 4-185
Exhibit 4.247. Distribution of Quantities by Facilities Reporting Quintozene, 2004 4-185
Exhibit 4.248. Regional Quantity of Quintozene, 2000–2004 4-186
Exhibit 4.249. Regional Management Methods for Quintozene, 2004 4-186
Exhibit 4.250. State Quantity Trends for Quintozene, 2004 4-187
Exhibit 4.251. State Management Methods for Quintozene, 2004 4-187
Exhibit 4.252. Industry Sectors Containing Quintozene, 2004 4-188
Exhibit 4.253. SIC Management Methods of Quintozene, 2004 4-188
Exhibit 4.254. National Management Methods for Trifluralin, 2000–2004 4-190
Exhibit 4.255. Distribution of Quantities by Facilities Reporting Trifluralin, 2004 4-190
Exhibit 4.256. Regional Quantity of Trifluralin, 2000–2004 4-191
Exhibit 4.257. Regional Management Methods for Trifluralin, 2004 4-191
Exhibit 4.258. State Quantity Trends for Trifluralin, 2004 4-192
Exhibit 4.259. State Management Methods for Trifluralin, 2004 4-192
Exhibit 4.260. Industry Sectors Containing Trifluralin, 2004 4-193
Exhibit 4.261. SIC Management Methods of Trifluralin, 2004 4-193

SECTION 5

Exhibit 5.1. National Management Methods Trends for Priority Chemicals at Federal Facilities, 2000-2004 5-2
Exhibit 5.2. 2004 National Distribution of 193 Federal Facilities and Regional Priority Chemical Quantities 5-3
Exhibit 5.3. National Trends in Disposal and Recycling for Priority Chemicals at Federal Facilities, 2000-2004 5-4
Exhibit 5.4. National Trends in Treatment and Energy Recovery for Priority Chemicals at Federal Facilities (2000-2004) 5-4
Exhibit 5.5. Priority Chemicals Reported by Federal Facilities Nationwide, 2000–2004 5-5
Exhibit 5.6. Comparison of Priority Chemicals Reported by All TRI Facilities and Only Federal Facilities in 2004 5-5
Exhibit 5.7. Distribution of Primary Chemicals Among Federal Facilities in 2004 5-5
Exhibit 5.8. Number of Federal Facilities That Reported Each Priority Chemical 2000–2004 5-6
Exhibit 5.9. Regional Quantity of Priority Chemicals Reported by Federal Facilities, 2000–2004 5-7
Exhibit 5.10. Regional Quantity of Priority Chemicals Reported by Federal Facilities, 2000–2004 5-7
Exhibit 5.11. Quantity of Priority Chemicals Reported by Federal Department or Agency, 2000–2004 5-8
Exhibit 5.12. Quantity of Priority Chemicals Reported by Federal Department or Agency, 2000–2004 5-9
Exhibit 5.13. Management of Priority Chemicals by Federal Department or Agency, 2004 5-10
Exhibit 5.14. Regional and State Quantities of Priority Chemical Reported by Federal Department or Agency, 2000–2004 5-11
Exhibit 5.15. Regional Management Methods of Priority Chemical Quantities, 2004 5-15

Exhibit 5.16. Regional and State Management Methods of Priority Chemicals by Federal Department or Agency, 2004 5-16

SECTION 6

Exhibit 6.1 Typical NAICS and SIC Associated with the Iron and Steel Industry: 6-1
Exhibit 6.2. Iron and Steel Process Flow 6-3
Exhibit 6.3. Steel Shipments by Market Classification (2003) 6-4
Exhibit 6.4. National-Level Information for SIC 3312 (2000–2004) 6-5
Exhibit 6.5. Priority Chemicals reported by facilities in SIC 3312 (2004) 6-6
Exhibit 6.6. Distribution of Facilities in SIC 3312 that Reported Priority Chemicals (2004) 6-6
Exhibit 6.7. Distribution of Facilities in SIC 3312 for each Priority Chemical (2004) 6-6
Exhibit 6.8. Priority Chemicals Quantities reported by SIC 3312 facilities, by EPA Region and State (2004) 6-8
Exhibit 6.9. Method of Priority Chemicals Management by SIC 3312 facilities (2004) 6-9
Exhibit 6.10. SIC 3312 Facilities' Management of Priority Chemicals, by EPA Region and State 2004 6-10
Exhibit 6.11. Management of Priority Chemicals by SIC 3312 facilities, By Priority Chemical (2004) 6-11

APPENDICES

Exhibit B-1. SIC Codes and Descriptions (for Facilities That Reported a Primary Chemical Quantity in 2000–2004) B-2
Exhibit C-1. List of Priority Chemicals C-1
Exhibit C-2. Primary SIC Codes Excluded Due to Associated Bevill Exempt Materials C-2
Exhibit C-3. Primary SIC Codes Excluded to Avoid Double-Counting C-3
Exhibit C-4. Description of TRI Form R Sections C-6
Exhibit C-5 Equations Used to Calculate Priority Chemical Quantities Associated with RCRA Subtitle C Activities C-7
Exhibit C-6. Equations Used to Calculate Priority Chemical Quantities Associated with RCRA Subtitle D Activities C-8
Exhibit C-7. Changes to Offsite Management Method Codes on TRI Form R C-9
Exhibit C-8. Criteria Used to Account for TRI Form R Section 8.8 Quantities When Calculating Priority Chemical Quantities Associated with RCRA Subtitle C and D Activities C-9
Exhibit C-9. TRI Data Files and Data Elements Used in the Development of the Databases That Implement the PC Measurement Methodology C-10
Exhibit C-10. Revisions to TRI Data Based on EPA's Quality Assurance Activities C-12

Appendix E
CUSTOMER SURVEY

1. Please indicate your level of satisfaction with the following aspects of the National Priority Chemicals Trends Report:

1 = highly dissatisfied / 5 = highly satisfied

- Readability: 1 2 3 4 5
- Usefulness: 1 2 3 4 5
- Charts, Graphs: 1 2 3 4 5

2. Do you have any suggestions for improving the National Priority Chemicals Trends Report?

_____

_____

_____

_____

_____

3. Please share how you use the information from the National Priority Chemicals Trends Report.

_____

_____

_____

_____

_____

Your name and Region, State, Organization

Please return this survey by email to owen.tammie@epa.gov. How to email this survey: 1) Go to File and click on 'Send To', 2) Click on 'Mail recipient (As Attachment), 3) This will automatically paste the document into your email as an attachment.

By postal mail, please forward to:

Tammie Owen
US EPA – Headquarters
OSWER/OSW/HWMMD/AIB
1200 Pennsylvania Avenue, NW (5302P)Washington, DC 20460

[Page intentionally left blank.]

Appendix F
Contact Information

Bill Kline, Senior Data Analyst
Analysis & Information Branch
(540) 341-3631
kline.bill@epa.gov

Tammie Owen, Data Analyst
Analysis & Information Branch
(703) 308-4044
owen.tammie@epa.gov

Ben Lesser, Chief
Analysis & Information Branch
(703) 308-0314
lesser.ben@epa.gov

United States Environmental Protection Agency
Office of Solid Waste (5302P)
EPA530-R-07-001
www.epa.gov/osw
April 2007