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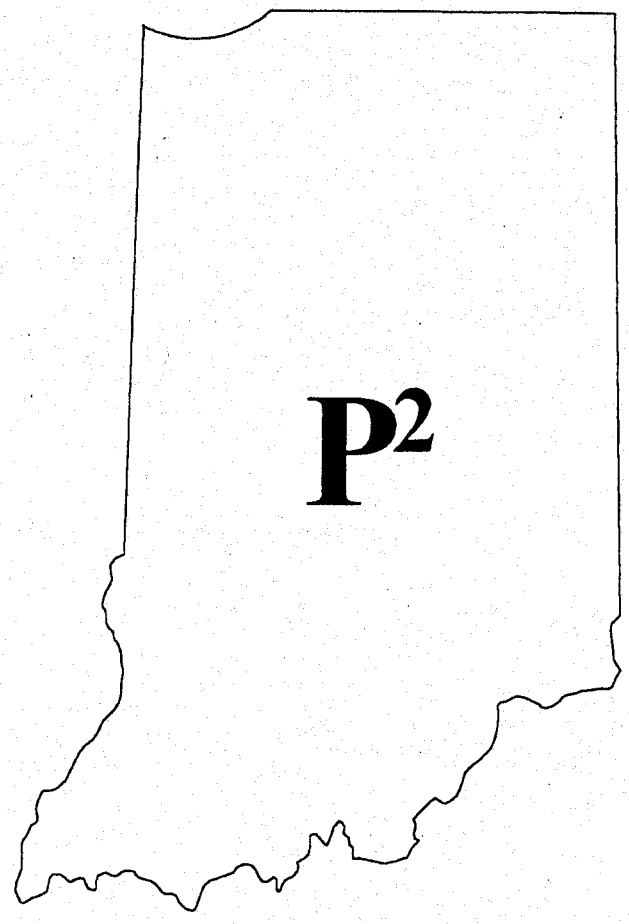
IDEM

1994 Annual Report on Pollution Prevention in Indiana



A Period of Progress and Change
July 1, 1990 - July 1, 1994

Report to the Governor and the Indiana General Assembly
submitted by Kathy Prosser

Prepared by the Office of Pollution Prevention and Technical Assistance
Indiana Department of Environmental Management

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First Annual Report

on

Pollution Prevention Progress

for the

Indiana Department of Environmental

Management

For July 1, 1990 to July 1, 1994

Released August 15, 1994

Prepared by the

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APPENDICES

I. INTRODUCTION

■ Legislative Context

In 1990, the Industrial Pollution Prevention and Safe Materials Act, (IC 13-9, HEA No. 1106, P.L. 105-1990) was passed and signed into law. The act is designed to shift Indiana's environmental protection effort from an emphasis on pollution control to one that focuses on the more environmentally and economically sound approach of pollution prevention.

A copy of the act is included as Appendix A and can be referenced by citations given throughout the report. The act was amended by the general assembly in 1993 by Sections 22 and 23 of HEA 1412, P.L. 13-1993. The amendment includes the Environmental Protection Hierarchy (IC 13-1-10.1) which is listed as Appendix B. The act was again amended in 1994 by HEA 1182 which expanded the duties of the Office of Pollution Prevention and Technical Assistance. The amendment is listed as Appendix C.

The original act established three entities for Indiana's overall effort in pollution prevention: the Pollution Prevention Board, the Pollution Prevention and Safe Materials Institute, and the Office of Pollution Prevention and Technical Assistance (OPPTA), which is housed within the Indiana Department of Environmental Management (IDEM).

The Board is mandated to oversee the Institute and provide a forum for discussion on pollution prevention issues. The names of Board members are listed in Appendix D. The Institute, selected by the Board to be housed at Purdue University in West Lafayette, is charged with promoting pollution prevention to Indiana businesses through training, research and development, on-site technical assistance, and policy studies.

IDEM is responsible for integrating pollution prevention as a voluntary option into the regulatory process, providing technical assistance, maintaining a technical resource center, and conducting broad-based education programs.

The legislation mandates that all three entities cooperate to promote pollution prevention within the State of Indiana. Please refer to Figure 1-1 on the next page for a diagram of the relationship and responsibilities of each entity.

Indiana Pollution Prevention and Safe Materials Act

(IC 13-9, HEA 1106, P.L. 105-1990)

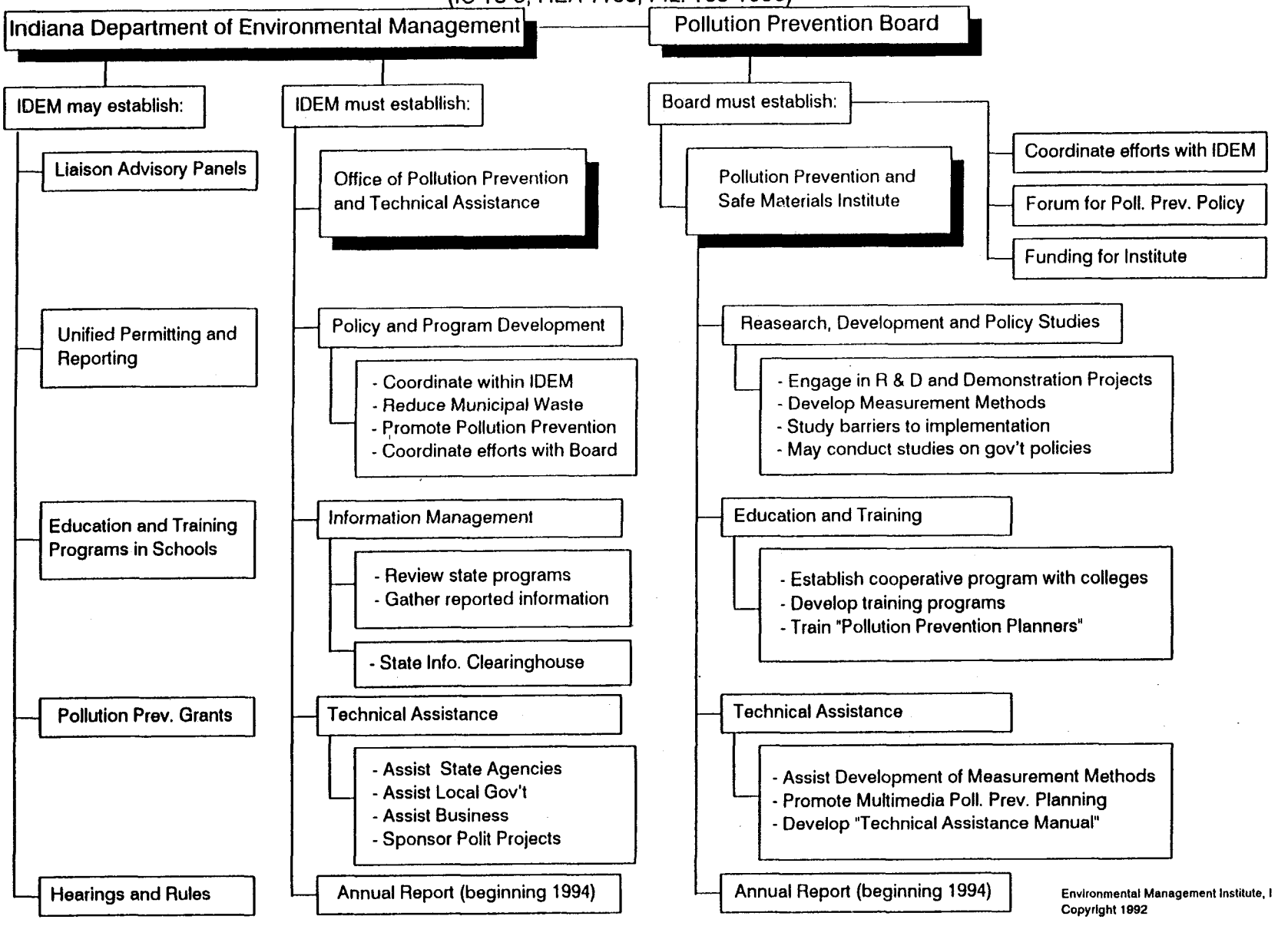


Figure 1-1

■ Chapter and Report Overview

This chapter provides the legislative history and purpose of IDEM's role in the state's Pollution Prevention Program, referred to and promoted as IDEM's P^2 Program. Indiana's unique definition of pollution prevention is explained, along with a supportive section on the state's environmental protection hierarchy. The requirements of the commissioner's annual report to the governor are cited from the statute.

The report chapters, other than Chapters I & II, are presented in a consistent format throughout the report. The basic format to be used is:

X. CHAPTER TITLE
Chapter Overview
A. HEADING(S)
Legislative Mandate
IDEM Strategic Plan Mandate
B. General Approach
C. Progress Report
1. Section Report(s)
Recommendations (in summary of each Section or Progress Report)
Implementation Schedule (if necessary)

A Chapter Title is given for each of the six chapters in the report, followed by a brief chapter overview. Chapters are then divided into parts named by headings, and are referenced by uppercase letters. Under each heading, both the relevant legislative mandate citation and the appropriate quotation from IDEM's Strategic Course of Action (Strategic Plan) are given *in italic font* as a premise for the heading's content.

A general approach section is then given under each heading to provide the reader some background and direction for the contents, and IDEM's responses to the mandates. The work accomplished by IDEM under each heading is then presented in the progress report section(s) of the heading. Most chapters have a series of short progress report sections, and are numbered under each heading. Any recommendations will be included in this section, as will any time tables or schedules.

An Appendix is attached and support documents are referred to it throughout the report. Attachments are included at the end of some Chapters, and are referenced in the text of that Chapter. The Attachments may be useful in understanding the full context of the section being discussed in the report.

Legislative Mandate

Each year the commissioner shall prepare and submit to the governor and the general assembly a report regarding the pollution prevention information gathered, including a description of the operations and activities of the programs and recommendations the commissioner may have for legislative action.

The report must include at least the following:

a. A quantitative assessment of statewide pollution prevention progress among all types of industries.

b. An identification of regulations and government policies that are inhibiting pollution prevention and opportunities in existing regulatory programs to promote and assist in pollution prevention, including reductions in the use of toxins in production and commerce.

c. An assessment of how pollution prevention programs have promoted and assisted pollution prevention and the costs and benefits to government and industry of those programs.

d. A statement concerning the identification of opportunities and development of priorities for research and development in pollution prevention techniques, economic analyses, and management techniques useful in supporting pollution prevention. The report may not include information considered by a business to be a trade secret of that business.

e. Recommendations concerning incentives and policies needed to encourage investment in research and development in pollution prevention and in making greater use of programs established under this article.

Before the commissioner submitted this report to the governor and the general assembly, a draft version of the report was available for forty-five (45) days, beginning April 27 through June 10, 1994 for public comment. This final report considers and responds to public comments received during this comment period. A draft version was mailed to interested parties on the Pollution Prevention Board distribution list, attached as Appendix E. The public comment period was announced by an IDEM press release, an advertisement in two (2) local newspapers, and the May 1 Indiana Register, as referenced by Appendices F, G, and H respectively.

This first report by the commissioner of IDEM was to be prepared and submitted to the Governor, General Assembly, and Environmental Policy Commission by July 1, 1994. However, due to the nature of the comments received, and given the implications some of the comments would have on the state's pollution prevention program, more time was needed to adequately address public concerns and prepare this report. A report summary was also prepared during July 1994 to provide the reader a condensed version of the report.

General Approach

This first annual report by the commissioner on pollution prevention as mandated by the Indiana Industrial Pollution Prevention and Safe Materials Act under IC 13-9-6-1, evaluates pollution prevention activities by IDEM and the Office of Pollution Prevention and Technical Assistance (OPPTA) from its inception on July 1, 1990 through June 30, 1994.

The annual report is a major undertaking for the office. It goes beyond a description of activities conducted and includes a detailed assessment of progress made and the challenges ahead. The report identifies key issues mandated by the act in the areas listed previously, and contains information gathered including a description of the operations and activities of the pollution prevention programs and recommendations the commissioner may have for legislative action.

Progress Report

Indiana relies on the three entities described previously to implement the state's P^2 Program together in cooperation with each other. Each entity serves its own role in contributing to the state's program. The Board members and the Institute Director have also been instrumental in making comments on and revisions to the draft version of this report. With their input, significant improvements have been made in this final version. This approach was done partly in response to public comments received that urged IDEM to prepare the report with assistance from its statutory partners.

IDEM's P^2 Program is an agency-wide effort to promote and implement pollution prevention within IDEM and to all Indiana businesses and commercial operations. The P^2 Program has three components which include:

- Internal programs within the agency
- External programs outside the agency
- Statewide measurement and progress assessment

The Office of Pollution Prevention and Technical Assistance has developed P^2 Initiatives for an internal effort to integrate pollution prevention within IDEM. This report reviews the activities of IDEM and the OPPTA and their progress.

The OPPTA has examined and determined a solid foundation upon which to develop the P^2 Initiatives. The basis of the program is a clear understanding of the statutory definition upon which the office programs and activities are developed.

■ Defining Pollution Prevention

Pollution Prevention or P^2, means the employment by a business or commercial operation in Indiana of a practice that:

1) reduces the industrial use of toxic materials*, or

**Toxic materials are defined as a CERCLA (Superfund) Hazardous Substance or mixture of CERCLA Hazardous Substances as listed on January 1, 1990.*

2) reduces the environmental and health hazards associated with an environmental waste* without diluting or concentrating the waste before the release, handling, storage, transport, treatment, or disposal of the waste.

**Environmental waste means all environmental pollutants, wastes, discharges, and emissions:*
a. regardless of whether or how they are regulated, and
b. regardless of whether they are released to the general environment or the workplace environment

Pollution prevention in Indiana **includes** the following activities:

- **Input change:** Replacing a toxic material used in a production unit with a nontoxic or less toxic material;

- **Product reformulation:** Changing the design, specification, or composition of an existing end product to reduce the need for toxic materials;

- **Production process redesign:** Developing or using production units of a different design or type, or to upgrading, modernizing, or renovating production unit equipment to reduce the need for toxic materials

- **Operation improvements:** Improved housekeeping practices, system adjustments, product and process inspections, and the use of production unit control equipment or methods;

- **In-process, in-line, or closed-loop recycling:** Recycling reuse, or extended use of toxic materials by using equipment or methods that become an integral part of the production unit of concern, including filtration and other closed loop methods.

Pollution prevention emphasizes a multi-media approach. Multi-media refers to air, water, land, and workplace environmental media into which pollutants and wastes are emitted, released, discharged, or disposed. This holistic view of an operation goes to the source of a problem, examines it, and recommends solutions that do not transfer the problem to a different location or form. The end result is an actual reduction in the quantity of toxic materials used or environmental wastes created in the first place.

The following activities **do not qualify** as pollution prevention in Indiana:

- **Waste burning:** Includes waste burning in industrial furnaces, boilers, smelters or cement kilns for purposes of energy recovery;
- **Waste shifting:** The transfer of an environmental waste from one environmental medium to another environmental medium, the workplace environment, or a product;
- **Off-site recycling or on-site, open-loop waste recycling;**
- **Waste exchange:** Any other method of end-of-pipe management of environmental wastes, including waste exchange and the incorporation or embedding of regulated environmental wastes into products or by-products.

Pollution prevention **does not include** any practice that is applied to an environmental waste after the waste is generated or comes into existence or after the waste exits a production or commercial site.

■ Importance of Definition

Indiana's P^2 Program is designed to shift our focus from pollution control to preventing pollution in the first place. The program seeks a dramatic shift in perspective to the best approach rather than incremental shifts towards the best approach: pollution prevention. To accomplish this shift a clear definition is needed in order to reinforce the significance of the change. In essence, the definition of pollution prevention becomes the core of the program.

Therefore, IDEM has worked to develop a clear understanding of the Indiana definition of pollution prevention to serve as a foundation for P^2 Program development. However, because of ambiguities in the statute, issues surrounding the definition persist because of technical and legal concerns. This issue is discussed in more detail in Chapters V and VI.

■ Benefits of Pollution Prevention

Pollution prevention offers environmental and economic benefits that make it the preferred alternative for environmental protection in Indiana. Businesses and industries across the country and in Indiana have realized the following benefits from successful programs:

- Stimulating Reinvestment & Enhancing Competitiveness
- Reducing Government Regulatory Involvement
- Reducing Liability & Regulatory Costs
- Increasing Environmental Protection
- Maintaining Inventory Control
- Reducing Worker Exposure
- Mitigating Social Conflicts
- Reducing Waste Shifting
- Reducing Costs and Expenses

■ The Environmental Protection Hierarchy

The Indiana environmental protection hierarchy (IC 13-1-10.1, Section 7 of HEA 1412, PL13-1993) reinforces this effort to eliminate pollution at the source, and considers all other pollution control methods to be secondary. The two-tier hierarchy recognizes that there are two (2) approaches to environmental protection:

(1) POLLUTION PREVENTION, or
(2) WASTE MANAGEMENT, which is also known as POLLUTION CONTROL

IDEM's Strategic Plan also reflects this hierarchy by establishing pollution prevention as a priority. A more in-depth discussion of this hierarchy and an apparent conflict with Indiana's three-tier solid waste management hierarchy is presented in Chapter V. The hierarchy taken from the statute is included as Appendix B.

■ Indiana's Approach

The Indiana P^2 Program focus is to eliminate or reduce the use of toxic materials and to reduce the generation of environmental wastes. Indiana's program has three unique characteristics: it is limited to business and commercial operations; it addresses workplace exposure; and it does not recognize off-site reuse as pollution prevention.

Indiana's P^2 Program is a voluntary, non-regulatory effort to work with industry on reducing our most significant toxic pollutants and environmental wastes. All pollution prevention programs are developed to be proactive and participatory, not mandatory. Many P^2 Initiatives are being developed within IDEM's regulatory programs and will be presented to industry by the staff in those programs and are presented in Chapter III Part C. However, pollution prevention is presented by IDEM as an option, not a requirement.

IDEM is helping Indiana move towards pollution prevention with programs and technical services that:

- Provide fact sheets that offer pollution prevention options to businesses;
- Incorporate pollution prevention as a voluntary option within the regulatory programs of the Indiana Department of Environmental Management;
- Administer the Governor's Awards for "Excellence in Pollution Prevention";
- Administer the Pollution Prevention Challenge Grants Program;
- Sponsor and develop pilot projects and case studies by means of pollution prevention planning in Indiana;
- Promote the advantages of pollution prevention through education;
- Provide regulatory compliance assistance through pollution prevention;
- Operate a technical resource center for pollution prevention information.

These and other new services will continue to develop to meet the mandates of the statute and promote pollution prevention activities in the state.

■ The Governor's Toxic Emission Reduction Initiative

On Saturday, June 27, 1992 Governor Bayh announced an effort aimed to work with Indiana businesses to seek ways to reduce Indiana's total toxic chemical releases into the environment by 50 percent by the end of 1995 and to encourage pollution prevention through a voluntary partnership between business and government. A copy of the Governor's announcement is provided at the end of this chapter as Attachment A.

The announcement also outlined a number of initiatives to implement the Industrial Pollution Prevention and Safe Materials Act. The following elements of the announcement are listed and are referenced to a chapter in the report where each is discussed in detail.

- Pollution prevention grants program - Chapter IV B 3
- Pollution prevention pilot projects - Chapter IV C 1-6
- Comprehensive pollution prevention training for IDEM staff - Chapter III A 5
- Strategy for pollution prevention in Northwest Indiana - Chapter IV C 1
- Pollution prevention resource center at IDEM - Chapter IV B 1
- Technical assistance and pollution prevention education program - Chapter IV B & D

The Pollution Prevention Program or P^2 Program developed by IDEM addresses each of these initiatives in addition to many other programs and activities described in this report. Each of these initiatives is an effort to reduce the use of toxic materials and reduce the generation of environmental wastes at their source. Pollution prevention is an integral part of IDEM's goal of meeting the Governor's pledge. IDEM has developed a Strategic Course of Action (Strategic Plan) to both implement the act and meet the Governor's Initiative. The following mission statement outlines IDEM's P^2 Program.

■ Mission Statement and Objectives

Indiana is committed to the prevention of multimedia pollution at its source. To accomplish this initiative, environmentally damaging releases to each media (the air, water and land) resulting from manufacturing processes must be reduced. Programs to systematically educate the industrial sector about preventative maintenance and targeting the unnecessary use of harmful chemicals are a priority. When reductions cannot be achieved by other means, facility redesign or the introduction of pollution prevention methodologies into new or renovated processes will be encouraged. Inprocess, in-line, or closed-loop recycling will be advocated as a final preventative option.

IDEM will develop and implement a comprehensive pollution prevention initiative to fully implement the Industrial Pollution Prevention and Safe Materials Act which ensures that:

- *Manufacturers statewide are familiar with Indiana's definition of pollution prevention and that they have, at a minimum, incorporated its basic concepts into their operations.*

- *Priorities for pollution prevention actions are established by IDEM considering the following factors:*

    - *IDEM's multimedia environmental and human health protection priorities;*
    - *The achievability by Indiana's businesses considering costs, benefits, available resources and regulatory compliance requirements; and,*
    - *The presence of measurable benchmarks for performance.*

- *The highest priority will be given to the substitution of non-toxic or least-toxic raw materials.*

- *Efforts rely on cooperation between all parties and voluntary implementation by business.*

- *Regulatory and programmatic barriers to pollution prevention within IDEM and other state agencies be reduced to the greatest extent practical.*

- *Indiana is recognized as a leader for its innovative approaches to implementing pollution prevention.*

- *The state information clearinghouse provides essential information promptly to IDEM, concerned citizens, and businesses.*

- *Pollution prevention is the primary means that manufacturers use to achieve the State's Toxic Release Inventory release reduction goal of 50% by 1995.*

IDEM's Office of Pollution Prevention and Technical Assistance has primary responsibility for implementing this initiative.

ATTACHMENT A

OFFICE OF THE GOVERNOR

INDIANAPOLIS, INDIANA 46204-2797

EVAN BAYH
GOVERNOR

For immediate release, Saturday, June 27, 1992.

GOVERNOR BAYH PLEDGES EFFORT TO REDUCE STATE'S TOXIC DISCHARGES BY 50 PERCENT BY 1995

Governor Evan Bayh today pledged to work with Indiana's businesses to seek to reduce Indiana's total toxic chemical discharges into the environment by 50 percent by the end of 1995 and to encourage pollution prevention through a voluntary partnership between business and government. The Governor's announcement came at the first annual Governor's Conference on Indiana's Environment, held in Indianapolis.

Governor Bayh also announced a series of steps state government will take to implement the Industrial Pollution Prevention and Safe Materials Act passed by the Indiana General Assembly and to meet the 50 percent reduction goal, including:

-- Creation of a new pollution prevention grants program for businesses and not-for-profit organizations, funded by a $250,000 state appropriation.

-- Development of pilot pollution prevention programs for 15 separate Hoosier industries through a contract with Purdue University.

--A comprehensive pollution prevention training program for staff at the Indiana Department of Environmental Management conducted by Indiana University.

--Development of a Northwest Indiana pollution prevention strategy in cooperation with IU Northwest.

--Establishment of a state-of-the-art pollution prevention resource center for the use of businesses at IDEM.

--IDEM is working with the Indiana Institute on Recycling to provide technical assistance and pollution prevention education to Indiana's industry and citizens.

In a related development, Governor Bayh appointed the 10 members of the Indiana Pollution Prevention Board which is charged with overseeing the state's efforts in the area. (Membership is detailed in a separate news release.)

To reach the 50% reduction in toxic discharges by 1995, Governor Bayh said a new environmental partnership will be necessary between state government and the industrial community.

"I am confident that partnership can be established because many of our fine companies are already taking the lead," the Governor said.

Governor Bayh said he has indicated his desire to work with the Indiana Manufacturers Association, the Indiana State Chamber of Commerce and other business organizations to develop a voluntary toxic emissions reduction program.

"I am happy to report that the response has been positive, and, working together with representatives of citizens groups, I believe this ambitious goal can be reached," Governor Bayh said.

"Pollution prevention is a new frontier," the Governor said. "It presents new challenges, holds new possibilities and represents a new way of dealing with environmental issues. It is what this conference is all about - Working together for Indiana's future."

For more information: Fred J. Nation 317-232-4578
David Dawson 317-232-1012

II. QUANTITATIVE ASSESSMENT OF PROGRESS

Chapter Overview

IDEM must perform a quantitative assessment of statewide pollution prevention progress among all types of industries. This chapter identifies IDEM's selection of a quantitative measurement method for monitoring pollution prevention and its analysis of the information.

IDEM has chosen the Toxic Chemical Source Reduction and Recycling Report (TCSRRR) data. The report is submitted by manufacturers pursuant to federal regulations as part of EPA's Form R. The report was first submitted in 1992 for calendar year 1991. It provides information on 1990 through 1993.

Overall, the state is expected to realize 34% reductions in releases to the environment between 1990 and 1993 despite an 8% increase in the production rate in 1991. However, the majority of these reductions will be through pollution control. Reductions in generation of toxic chemicals in environmental waste should remain constant after an 8% reduction in 1991.

The Northwest Indiana region is expected to realize 49% reductions in releases to the environment between 1990 and 1993 despite no net change in production rate in 1991. In contrast to the rest of the state, most of these reductions will be achieved through pollution prevention. The region is expecting a 12% reduction in environmental waste generation.

For 17 chemicals targeted by EPA as significant, the state is expected to realize a 35% reduction in releases to the environment between 1990 and 1993 despite a 28% increase in the production rate in 1991. Virtually all of this reduction was achieved through pollution control. The state is expected to increase the generation of toxic chemicals in environmental waste for the 17 chemicals by 2%.

Five operations contribute to 55% of the total generation of toxic chemicals in environmental waste and 35% of the releases to the environment.

The chapter is divided into two parts:

A. ESTABLISHING A QUANTITATIVE MEASURE OF PROGRESS
B. SUMMARY OF QUANTITATIVE MEASURE OF PROGRESS

A. ESTABLISHING A QUANTITATIVE MEASURE OF PROGRESS [IC 13-9-6-2(1)]

Legislative Mandates

The OPPTA shall periodically review state environmental programs and projects for their ability and progress in promoting multimedia industrial pollution prevention. (IC 13-9-2-5(1))

The OPPTA shall also work with existing environmental regulatory programs to make use of existing information gathering systems that may assist OPPTA in assessing the progress of pollution prevention statewide. (IC 13-9-2-5(7))

IDEM Strategic Plan Mandate

The culture within IDEM should be one that values and promotes . . . fact-based decision making.

General Approach

The legislature's mandate to IDEM to measure pollution prevention progress among all industries is a challenging assignment. Based on a preliminary review, no other state has a similar mandate. Therefore, it is appropriate that Indiana take the lead in developing innovative pollution prevention tools, such as a quantitative assessment of statewide pollution prevention progress.

The statewide quantitative assessment will be an objective measure of progress in Indiana. It should provide essential information the Governor, the General Assembly, IDEM, the Pollution Prevention and Safe Materials Institute (PPSMI), the Pollution Prevention Board (PPB), Indiana's businesses, and Indiana's citizens who need to make strategic planning decisions with regard to pollution prevention. It will fulfill the fact-based decision-making mandate of IDEM's strategic plan. The information in the assessment will help target the state's allocation of resources and refine its program as needed. The assessment is a key element in the success of Indiana's pollution prevention program.

IDEM took the following approach to fulfilling the mandate.

1. Determined that the purpose of the mandate is to measure the state's progress on pollution prevention rather than to measure the effectiveness of the state's pollution prevention program.
2. Identified the databases that are available.
3. Established six selection criteria to evaluate the available databases.
4. Compared the databases against the selection criteria.
5. Selected the Toxic Chemical Source Reduction and Recycling Report as the most appropriate database.

6. Created the calculated value "total generation of toxic chemicals in environmental wastes" from the reported data as the most appropriate variable in the database to measure progress.
7. Created the calculated value "weighted activity index" to allow IDEM to distinguish between changes in production rate and changes in the production process.
8. Modified the database to correct anomalies in the data provided by the Environmental Protection Agency (EPA).
9. Summarized the limitations of the database to ensure its appropriate use.

Progress Report

1. Determined Purpose of Mandate

IDEM had two basic approaches that it could have used to fulfill the mandate to develop a statewide quantitative assessment of pollution prevention progress:

A) IDEM could identify those reductions which it could directly link to the industry's pollution prevention efforts; or

B) IDEM could perform an assessment of statewide information among all Indiana industries of trends that are likely to be related to pollution prevention progress.

The first approach is attractive since it only measures known pollution prevention successes. Industry activities that are not clearly related to pollution prevention are not counted. This approach makes two significant assumptions.

First, it assumes that all pollution prevention successes will be known by IDEM or the PPSMI. But based on IDEM's experience in this area, this assumption is not correct. Generally, industry has an economic incentive to implement pollution prevention. It may undertake the pollution prevention effort without contacting IDEM or the PPSMI. Many businesses make pollution prevention progress without ever calling it pollution prevention - they call it good business.

In addition, since 1990, IDEM's pollution prevention education program has directly reached over 3000 people through seminars, training sessions, one-on-one consultations, and occasionally site visits. This education effort has directly resulted in businesses implementing pollution prevention activities. Yet, there is no way to directly track the magnitude of this impact.

Finally, federal regulatory programs, such as the phase-out of methyl chloroform, may drive industries to implement pollution prevention. While this effort is not a part of Indiana's pollution prevention program, it is still pollution prevention progress that must be measured.

The second assumption inherent in this approach is that industry will only make progress towards implementing pollution prevention and it will not regress. While IDEM strives to prevent this regression, it may still occur. A quantitative assessment must track this potential problem in order to provide IDEM and the state with the opportunity to refine or enhance its efforts. Likewise, the assessment must also put any successes in perspective. As significant as the successes have been, they must be compared to the overall opportunities that exist.

The second approach is also attractive because it attempts to only measures known pollution prevention progress through industrial changes. Again, industrial activities that are not clearly related to pollution prevention would not be counted.

The EPA, other state pollution prevention programs, industries, institutes, and special interest groups across the country are in search of a quantitative measurement method that will accurately monitor pollution prevention progress at the source. Such a measurement system would be based on tracking changes in the use of toxic materials in production processes. To date, no single measurement method or data base has been successful or widely recognized as capable of providing this type of analysis.

Most available databases monitor releases, discharges, or disposals to the environment. None require a manufacturer to report the actual amount of toxic materials purchased or used as inputs in the production process. However, IDEM still reviewed all possible data bases, since this is more specifically what the statute mandates.

IDEM believes that the information gathered by measuring reductions directly related to its or the PPSMI's efforts **will be** an effective measure of the impact of Indiana's pollution prevention program, but it **will not be** an effective measure of statewide pollution prevention progress. Both assessments, of overall progress and of the program's effectiveness, are necessary and appropriate. (Chapter V of this report assesses program effectiveness). An assessment of successes will not fulfill the letter of the law nor the purpose and intent of the mandate. Therefore, IDEM adopted an analysis based on the second approach, and performed an assessment of statewide progress using the best available information.

2. Identified Available Databases

OPPTA reviewed the data submitted to IDEM as part of the agency's regulatory programs. Several databases were identified as potential measurements of pollution prevention progress and opportunities. OPPTA identified the following databases:

- Toxic Release Inventory - required by the Emergency Planning and Community Right to Know Act (EPCRA) of 1986;
- Toxic Chemical Source Reduction and Recycling Report - Required by the Pollution Prevention Act (PPA) of 1990;
- Resource Conservation and Recovery Act of 1980 (RCRA) Biennial Report by large quantity generators of hazardous waste;
- RCRA Manifest Tracking Database;
- Air Emission Inventory;
- Indiana Industrial Directory published by Harris Publishing.

OPPTA actively worked on the first three databases during the past year. Other databases including regional clearinghouses and EPA publications were also frequently used. In the coming year, OPPTA plans to actively work with the National Pollutants Discharge Elimination System (NPDES) permitting database, the RCRA Manifest Tracking data, and the Air Permits Emission Inventory.

3. Established Six Selection Criteria

The statute does not specify what database should be used to perform this assessment. Therefore, IDEM established six criteria to evaluate the available databases:

A. Focus on the manufacturing sector
While the scope of the program applies to all businesses and commercial operations in Indiana, the focus of the program is on industrial pollution prevention. The phrase "industrial" typically refers to the manufacturing sector (Standard Industrial Codes 20 - 39). A broader list of SIC codes could be used that includes the utilities and mining sectors among others.

B. Focus on toxic materials
There are two parts to the definition of pollution prevention. One part addresses the use of toxic materials, while the other addresses the hazards of environmental wastes. The term "toxic materials" refers to chemicals on the CERCLA (Superfund) Hazardous Substance list as it appeared on January 1, 1990 (prior to addition of 37 substances by the Clean Air Act Amendments of 1990). The second part refers to all environmental wastes without a direct reference to a particular list. An activity only needs to address one part to qualify as pollution prevention. A quantitative assessment of pollution prevention should address the list of toxic materials to ensure that both parts of the definition are tracked and the state's resources are focused on the greater health hazard.

C. Be available on database
Indiana has over 9,773 facilities in the manufacturing sector. A quantitative assessment inherently requires that the information be available on a database in order to evaluate the information and make a realistic assessment.

D. Be submitted by law at least annually
IDEM must perform this quantitative assessment annually. Therefore the information needs to be updated annually. In addition, facilities should be required by law to submit the information in order to assure its accuracy.

E. Predict future performance
IDEM's goal is to promote pollution prevention changes in activities. Therefore, the information must not only describe past activities but must also indicate future trends and activities. How well Indiana's facilities actually meet these expectations provides a measure to quantitatively assess pollution prevention progress as well as the effectiveness of Indiana's pollution prevention program.

F. Considers all environmental media and workplace exposures
Multi-media impact is the central focus of pollution prevention. The assessment must consider all environmental media including employee health and safety.

4. Compared Database Against Selection Criteria

After evaluating the available databases, only the Toxic Chemical Source Reduction and Recycling Report (TCSRRR) database deserved serious evaluation. The air pollution, wastewater, and hazardous waste management databases did not provide the multi-media focus needed to fulfill the mandate. In addition, these databases had fundamentally different approaches and purposes that made them virtually impossible to integrate into a composite database. The Toxic Release Inventory (TRI) was inadequate because it did not provide information on the environmental waste management activities that occurred within the reporting facilities. This information is essential because many of these activities are not pollution prevention.

The chosen database goes beyond release information that had been available under the preexisting Toxics Release Inventory program. It provides a quantitative description of manufacturer's toxic chemical-containing environmental waste management activities for two years in the past and two years in the future. The annual report was first submitted for calendar year 1991 pursuant to the federal Pollution Prevention Act of 1990. The reported information first became available from EPA on a database in mid-1993. To reduce the reporting burden on manufacturers, EPA combined the report with an existing report called the "Form R" that has been submitted annually since calendar year 1987 pursuant to the TRI program. The reporting requirements apply only to manufacturers who have 10 or more employees and use more than 10,000 pounds of a listed toxic chemical a year or; make, import, or process more than 25,000 pounds per year of a listed toxic chemical. More than 300 chemicals are currently on the list. EPA has proposed to almost double that number.

Data for calendar year 1992 will not be available until June 1994. (See Attachment A on page 2-48 for a copy of page 9 of the 1991 Form R).

Although it is not a complete listing of toxic materials referenced by the act, this database is a good starting point for development of a more accurate measurement system. The following is a comparison of the TCSRRR database against the selection criteria.

A. Focus on the manufacturing sector
The TCSRRR addresses only manufacturing facilities (although EPA is considering expanding it to selected non-manufacturing sector). However, only facilities using significant quantities of a toxic chemical must report. Of the 9,773 manufacturing facilities in Indiana in 1991, only 1,000 facilities submitted a report. This limited scope is not a problem though. Using a worst case analysis, if all nonreporting manufacturing facilities used one toxic chemical at just below the reporting threshold and this entire quantity of chemical was converted to an environmental waste, the cumulative totals would only be increased by 10%. This increase is within the error of the reported values.

B. Focus on toxic materials
The database provides a quantitative summary of a facility's use of over 300 listed toxic chemicals. EPA has proposed significantly expanding the list for future reporting. This list is different from the list of CERCLA Hazardous Substances that is the focus of pollution prevention. The CERCLA list is a broader list that focuses on over 600 chemicals (many of which should be included if EPA expands the list of toxic chemicals as expected). However, several important chemicals are not on the CERCLA Hazardous Substance list such as glycol ethers, cobalt compounds, and ethylene glycol. These materials and 37 others were added to the list after the January 1, 1990 cutoff date for the definition of pollution prevention.

IDEM believes that this narrower focus will be more appropriate. The difference between the two lists is the toxic chemical list addresses primarily chronic hazards while the CERCLA Hazardous Substance list addresses acute and chronic hazards. Since the Indiana pollution prevention program primarily addresses ongoing operations and not accidents, the best list for measuring reduced generation of toxic chemicals in environmental wastes is the toxic chemical list.

C. Be available on database
The information is available on electronic media from EPA about one year after it is submitted.

D. Be submitted by law at least annually
Pursuant to the federal Pollution Prevention Act of 1990, manufacturing facilities are required by law to complete the report if they exceed a reporting threshold (25,000 pounds used in a calendar year for toxic chemicals manufactured or processed and 10,000 pounds per calendar year for toxic chemicals otherwise used.). Companies that fail to report face a $10,000 per day fine to EPA.

Manufacturers are also mandated to use best available information. While this is not as good as actual measurements, it is the only report that provides a quantitative summary of the particular chemical. They are also required to reduce the likelihood of double counting. Others such as the RCRA Biennial Report quantify the pounds of waste. This measure includes other chemicals including water.

E. Predict future performance
The report provides information of four years: including the past two and the next two. For instance, the 1991 report, submitted on July 1, 1992, covered 1990, 1991, 1992, and 1993.

F. Considers all environmental media and workplace exposures
The report considers all environmental media. However, it does not consider impacts within the workplace.

5. Selected the Toxic Chemical Source Reduction and Recycling Report Database

IDEM has concluded that the Toxic Chemical Source Reduction and Recycling Report (TCSRRR) database is an excellent database from which to develop a quantitative measure of pollution prevention progress. Its greatest drawback is that it **does not measure the use** of a toxic chemical. It only **measures the total generation of toxic chemicals in environmental waste** containing a listed toxic chemical. However, the generation of toxic chemicals in environmental waste is usually directly related to this use. The statute does not require the quantitative assessment of toxic chemical use.

The measurement of toxic chemical use is important because it tracks those toxic chemicals that are either incorporated into products, reused in other processes, or consumed in the manufacturing process. In addition, it also provides a general assessment of potential workplace exposures. Despite the fact that use does not have to be measured to fulfill the legislative mandate, IDEM is continuing to seek an appropriate measure for this aspect of pollution prevention.

6. Created the Calculated Value "Total Generation of Toxic Chemicals in Environmental Wastes"

The Toxic Chemical Source Reduction and Recycling Report requires manufacturers to report their activities according to the following categories:

- Releases to the environment (including on-site and off-site disposal)
- Burned for energy recovery on-site
- Burned for energy recovery off-site
- Recycled on-site
- Recycled off-site
- Treated on-site
- Treated off-site.

All of these activities, except for recycling on-site, are clearly not pollution prevention. Recycling on-site may or may not be pollution prevention depending on how it is conducted. Therefore, one approach to quantitatively assess statewide pollution prevention progress in reducing environmental waste generation is to add all of the reported numbers and track the change in this sum over the years. This sum is referred to by IDEM as **"total generation."** Total generation of toxic chemicals in environmental wastes should be decreasing over the years as we make progress on pollution prevention. Another approach is to add all of the reported numbers except on-site recycling because some of on-site recycling may be pollution prevention. This sum is referred to by IDEM as **"total generation less on-site recycling."**

By using the Pollution Prevention and Safe Material Institute's definition of closed-loop recycling, IDEM believes that virtually all of the on-site recycling reported in the TCSRRR will not meet the definition of closed-loop recycling and, therefore, Indiana's definition of pollution prevention. IDEM will use the data defined above as "total generation." This approach will avoid non-pollution prevention activities being counted towards pollution prevention progress. In order to recognize that some on-site recycling activities may be pollution prevention, IDEM will also report "total generation less on-site recycling."

7. Created a Value to Track Changes in Production Rate

Shutting down a manufacturing process that uses a toxic material is pollution prevention in Indiana. While only needing to meet one part of the definition, the shutdown meets both parts - it reduces the industrial use of toxic materials, and it reduces the generation of toxic chemicals in environmental wastes. In a similar manner, decreases in production rate qualify as pollution prevention, and increases in production rate indicate a lack of pollution prevention progress.

IDEM believes that the goal of Indiana's pollution prevention program is not to achieve pollution prevention through reduced production. It should be achieved through:

- Product reformulation
- Input substitution
- Equipment redesign
- Improved operations and procedures
- In-process, in-line, or closed-loop recycling

These activities should result in greater efficiency and enhanced productivity - not necessarily reduced production. Therefore, a quantitative assessment of pollution prevention progress must address changes in production rates. IDEM will supplement its assessment of pollution prevention progress with an adjustment for changes in production rate.

The TCSRRR requires manufacturers to provide for each reported toxic chemical the change in production from 1990 to 1991 for the product that most directly relates to the use of the toxic chemical. OPPTA has developed a "weighted activity index" that reflects this change in production rate. It was weighted by multiplying the reported production rate by the 1990 value for the toxic chemical. This value is summed, and this sum is divided by the sum of

the unadjusted values. OPPTA has confirmed with several large quantity generators that the adjustment factor accurately reflects facility operations.

The most significant drawbacks with this approach are:

- that the production rate data is only available for the calendar year reported. It is not available for all four years. This drawback means that comparison among reports submitted in different years is complicated. It also limits the assessment of production rate to only one year.

- new production operations are not included in the calculation because the result would be to add infinity to the sum. Therefore, the reported weighted activity indexes are underestimated. But this error is likely to be offset by facilities that did not need to report because production was reduced to a point at which the toxic chemical was used at levels less than the reporting threshold.

IDEM will calculate the weighted activity index and then adjust its measure of the generation of toxic chemicals in environmental wastes (its measure of pollution prevention progress) to reflect a constant production rate. For instance, a weighted activity index of 0.90 means that there has been a 10% decrease in production of those products directly related to the use of the reported toxic chemical. Therefore, IDEM, in addition to reporting the unadjusted measure of progress, will divide the unadjusted measure by 0.90 - effectively increasing the measure by 10%. In other words, if production had remained steady instead of decreasing 10%, it is estimated that there would have been a 10% increase in the reported use of the toxic chemical and concurrent generation of toxic chemicals in environmental wastes. This adjustment is strictly hypothetical but does allow the state to assess pollution prevention progress that is directly related to the state's goals of efficiency and productivity.

8. Modified Database to Correct Anomalies

The database provided by EPA required modification because of anomalies in the database that would create errors in conclusions based on the data as reported.

A. Classification of Chemicals
To help analyze the data, OPPTA assigned the over 300 listed toxic chemicals to one of three categories: metals (produced or used); solvents (produced or used); other toxic chemicals (corrosives, reactants, and other chemical products). This breakdown reflects the basic the categories of pollution prevention and control opportunities that are available. A complete listing of toxic chemicals is provided as Attachment B at the end of this Chapter.

B. Total Generation of Toxic Chemicals in Environmental Wastes
The reported values for releases to the environment, energy recovery, recycling and treatment, whether on-site or off-site, were combined into values designated "total generation." These values provides the best measure of source reduction progress. They exclude accidental releases or remedial actions.

C. New Production in 1991
When a production operation began in 1991 that used a toxic chemical, the activity index for that operation is infinity. The manufacturing facilities reported this value as "N/A". The EPA database reported them as "0". Zero implies that the process was shutdown - the exact opposite of what really happened. The original "N/A" was reinserted into the database.

D. 1990 Data that was "Not Available"
Manufacturers were permitted to note "N/A" for 1990 data in the report if they chose not to provide an estimate. Many Indiana manufacturers took advantage of this opportunity. When EPA input the data, the "N/A" was converted to a "0". This conversion results in significantly lower (and misleading) data for 1990. The four-year trends are distorted. After consulting with several manufacturers in the state, the OPPTA chose to back-calculate the reported values from the 1991 data and the activity index whenever a "0" was reported for 1991 activities in the EPA database.

9. Summarized Limitations to Database

IDEM identified the following limitation of the Toxic Chemical Source Reduction and Recycling Report database.

A. Manufacturer's Estimates for 1990 and 1991
The data provided for 1990 and 1991 is based on the best information available to the manufacturers. Some are guesses at best. However, manufacturers were told to use a similar basis for their estimates to assure that year-to-year comparisons can be drawn. Therefore trends in the data are likely to be more accurate than the actual data itself. Production rates (activity indexes) are provided to account for changes in production.

B. Optimistic Predictions for 1992 and 1993
The estimates provided for 1992 and 1993 are predictions. They are not binding commitments. Based on follow-up phone calls with several of the submitters, they tend to be optimistic. One facility reported a 2,000,000 pound/year reduction in releases of volatile toxic chemicals from its coating operations. When contacted, the company did not have any specific plans to achieve this reduction.

C. Only 16% of Manufacturers Reported Exceeding the Reporting Threshold
Only manufacturers who manufactured, processed, or used a listed toxic chemical in excess of a reporting threshold (10,000 to 25,000 pounds annually) needed to report. Emissions for non-manufacturers or small users may be significant. For Indiana, an estimated 84% of manufacturers either determined that they did not have to submit a Form R in 1991, or were unaware of the reporting requirement, or ignored it,.

D. Toxicity of Listed Toxic Chemicals Varies Dramatically
The toxicity of the listed toxic chemicals varies widely. While quantities may be added, the potential health effects from the chemicals cannot. In addition, not all toxic materials appear on EPA's toxic chemical list. However, EPA has spent several years refining the list based on petitions by environmental organizations and manufacturers. EPA has also developed a list of 17 targeted chemicals to focus on those the may be posing significant hazards because of the quantity releases and their toxicity.

E. More Recent Information Available on Hard Copy
If more information is needed on particular manufacturers, the information is available. OPPTA can update the information with the report submitted by July 1, 1993. The hard copy report will not be available on a database until June 1994.

F. 1990 Data Adjusted
Facilities did not have to provide data for 1990 in this 1991 report if necessary information was not available. Where these facilities did not provide data but did generate wastes for the toxic chemicals in 1990, an estimate was calculated from the production rate for these facilities to provide the missing data. The error in the 1990 data is likely to be much greater than for 1991.

G. Toxic Chemical Use Not Reflected in Data
The data does not provide insight into toxic chemical use since toxic chemicals are consumed in the manufacturing process or are incorporated into products or reused as an ingredient in another process.

H. Only Two-Digits of Accuracy are Available
All values are accurate to two digits at best. The overall accuracy of the data is plus or minus 10% at best. Therefore, reviewers should emphasize trends rather than the absolute numbers.

B. SUMMARY OF QUANTITATIVE MEASURE OF PROGRESS

Legislative Mandate

The annual report by IDEM must include a quantitative assessment of statewide pollution prevention progress among all types of industries. (IC 13-9-6-2(1))

IDEM Strategic Plan Mandate

Each year, the USEPA issues a toxic release inventory that surveys more than 300 chemicals released by U.S. industries into the air, water, and land. Although this inventory is not a comprehensive indicator of toxic emissions, it is the only available database through which we can measure real improvements in pollution prevention and source reduction.

General Approach to Data Presentation

The Toxic Chemical Source Reduction and Recycling Report (TCSRRR) data is an extensive summary of important information. Therefore, IDEM has analyzed and presented the information in a summarized format consisting of tables and figures. The information is presented in four basic groups:

1. Statewide Information

2. Northwest Indiana Information
   IDEM selected Northwest Indiana because the agency has identified the region as its geographical priority. 472 Form Rs were filed for the Northwest Region. The region contributed about 30% of state's total generation of toxic chemicals in environmental waste and releases to the environment.

3. Information on 17 toxic chemicals targeted by EPA for reduction
   These 17 toxic chemicals targeted by EPA were selected because of their toxicity and the quantity released in the United States by manufacturers. Manufacturers submitted 1326 Form Rs in 1991 for these chemicals. These chemicals (and compounds) are:

   - Metals - cadmium, chromium, lead, mercury, and nickel
   - Organics - benzene, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylene, carbon tetrachloride, chloroform, dichloromethane (methylene chloride), tetrachloroethylene (perchloroethylene), 1,1,1-trichloroethane (methyl chloroform), trichloroethylene
   - Other - cyanide compounds.

4. Five largest operations in Indiana
   The five largest operations in Indiana represent over 50% of total environmental wastes containing toxic chemicals and over 35% of releases to the environment in 1991. Because these facilities represent such a significant portion of the environmental wastes, IDEM identifies their contribution separately.

The opportunities and approaches to pollution prevention at these facilities is substantially different than for the remaining 990 facilities.

In each basic group of information, the toxic chemicals are assigned to three categories:

- metals produced or used;
- solvents produced or used;
- other toxic chemicals such as corrosives, reactants, and other chemical products.

This breakdown reflects the pollution prevention opportunities that are generally available.

For each type of chemical and for the composite information, the individual environmental waste management activities are described. These activities are as follows:

- Releases to the environment (including on-site and off-site disposal)
- Burned for energy recovery on-site
- Burned for energy recovery off-site
- Recycled on-site
- Recycled off-site
- Treated on-site
- Treated off-site
- Total generation (sum of preceding values)
- Total generation less on-site recycling

This information provides insight into the relative contribution of each activity to the total generation of toxic chemicals in environmental waste.

At the beginning on each of the four groups (statewide, Northwest Indiana, EPA targeted chemicals, and 5 largest operations) there is a table of data. Values for each of the reported environmental waste categories (recycling on-site, treatment off-site, etc.) are provided in each of the four years covered by the report. The total generation of toxic chemicals in environmental waste and total generation less on-site recycling is reported at the bottom of each table. The heading for 1990 data reflects the calculation that was necessary to account for values that were reported as "N/A" instead of estimated.

To the right of each table, a 1991/1990 weighted activity index is provided for each of the tables. The index does not include new production operations since the index is infinity. An index of over one indicates increased production of a product in 1991 that is directly associated with the quantity of the toxic chemical used. An adjusted 1991 value is calculated in the column labeled "'91 Adjusted". This approach theoretically removes the impact of changes in production rate.

The predicted reduction from 1990 to 1993 is reported as a percentage change in the last column in each table. Indiana is making progress in environmental protection when this value is a large positive percentage. Likewise, a negative value denotes a lack of progress.

For the tables on Northwest Indiana, EPA's targeted 17 chemicals, and the five largest operations, a column was added to the general statewide information to indicate the proportion of the state represented by that particular value.

Table 2-1

1991 TRI Toxic Chemical Source Reduction and Recycling Report Summary

Developed by IDEM's OPPTA on April 19, 1994

All units are pounds/calendar year

Metals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	63,000,000	48,000,000	43,000,000	37,000,000	42,000,000	42%	1.16
Energy Recovery On-Site	0	0	0	0	0	N/A	
Energy Recovery Off-Site	67,000	75,000	76,000	75,000	75,000	-12%	
Recycling On-Site	29,000,000	32,000,000	38,000,000	38,000,000	28,000,000	-32%	
Recycling Off-Site	105,000,000	110,000,000	114,000,000	114,000,000	95,000,000	-9%	
Treatment On-Site	13,000,000	14,000,000	16,000,000	18,000,000	13,000,000	-35%	
Treatment Off-Site	2,500,000	1,800,000	1,700,000	1,500,000	1,600,000	39%	
Total Generation	212,000,000	206,000,000	213,000,000	208,000,000	179,000,000	2%	
Total Gen. Less On-Site Recycling	183,000,000	174,000,000	175,000,000	170,000,000	151,000,000	7%	

Solvents	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	'90-'93 Drop	
Releases to Environment	89,000,000	77,000,000	68,000,000	58,000,000	64,000,000	34%	1.20
Energy Recovery On-Site	70,000,000	64,000,000	68,000,000	71,000,000	54,000,000	-1%	
Energy Recovery Off-Site	25,000,000	20,000,000	8,700,000	7,900,000	16,000,000	69%	
Recycling On-Site	269,000,000	268,000,000	280,000,000	280,000,000	223,000,000	-4%	
Recycling Off-Site	14,000,000	15,000,000	13,000,000	13,000,000	12,000,000	5%	
Treatment On-Site	74,000,000	76,000,000	78,000,000	67,000,000	63,000,000	9%	
Treatment Off-Site	13,000,000	9,200,000	9,300,000	7,700,000	7,700,000	40%	
Total Generation	554,000,000	530,000,000	525,000,000	506,000,000	440,000,000	9%	
Total Gen. Less On-Site Recycling	285,000,000	261,000,000	245,000,000	225,000,000	217,000,000	21%	

Other Chemicals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	'90-'93 Drop	
Releases to Environment	22,000,000	22,000,000	20,000,000	19,000,000	23,000,000	14%	0.94
Energy Recovery On-Site	10,000,000	9,900,000	7,700,000	6,800,000	9,400,000	32%	
Energy Recovery Off-Site	230,000	250,000	330,000	340,000	270,000	-49%	
Recycling On-Site	255,000,000	162,000,000	180,000,000	180,000,000	172,000,000	30%	
Recycling Off-Site	208,000,000	208,000,000	209,000,000	209,000,000	221,000,000	-1%	
Treatment On-Site	181,000,000	184,000,000	183,000,000	189,000,000	196,000,000	-4%	
Treatment Off-Site	2200000	1900000	1700000	1700000	2000000	24%	
Total Generation	698,000,000	604,000,000	617,000,000	620,000,000	642,000,000	11%	
Total Gen. Less On-Site Recycling	443,000,000	442,000,000	437,000,000	441,000,000	470,000,000	1%	

Composite	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	'90-'93 Drop	
Releases to Environment	174,000,000	147,000,000	131,000,000	114,000,000	130,000,000	34%	1.08
Energy Recovery On-Site	80,000,000	74,000,000	76,000,000	78,000,000	63,000,000	3%	
Energy Recovery Off-Site	26,000,000	20,000,000	9,100,000	8,400,000	17,000,000	67%	
Recycling On-Site	553,000,000	462,000,000	498,000,000	498,000,000	417,000,000	10%	
Recycling Off-Site	326,000,000	332,000,000	336,000,000	336,000,000	325,000,000	-3%	
Treatment On-Site	268,000,000	275,000,000	277,000,000	274,000,000	269,000,000	-2%	
Treatment Off-Site	37,000,000	30,000,000	28,000,000	26,000,000	29,000,000	31%	
Total Generation	1,460,000,000	1,340,000,000	1,350,000,000	1,330,000,000	1,250,000,000	9%	
Total Gen. Less On-Site Recycling	911,000,000	880,000,000	876,000,000	857,000,000	836,000,000	8%	

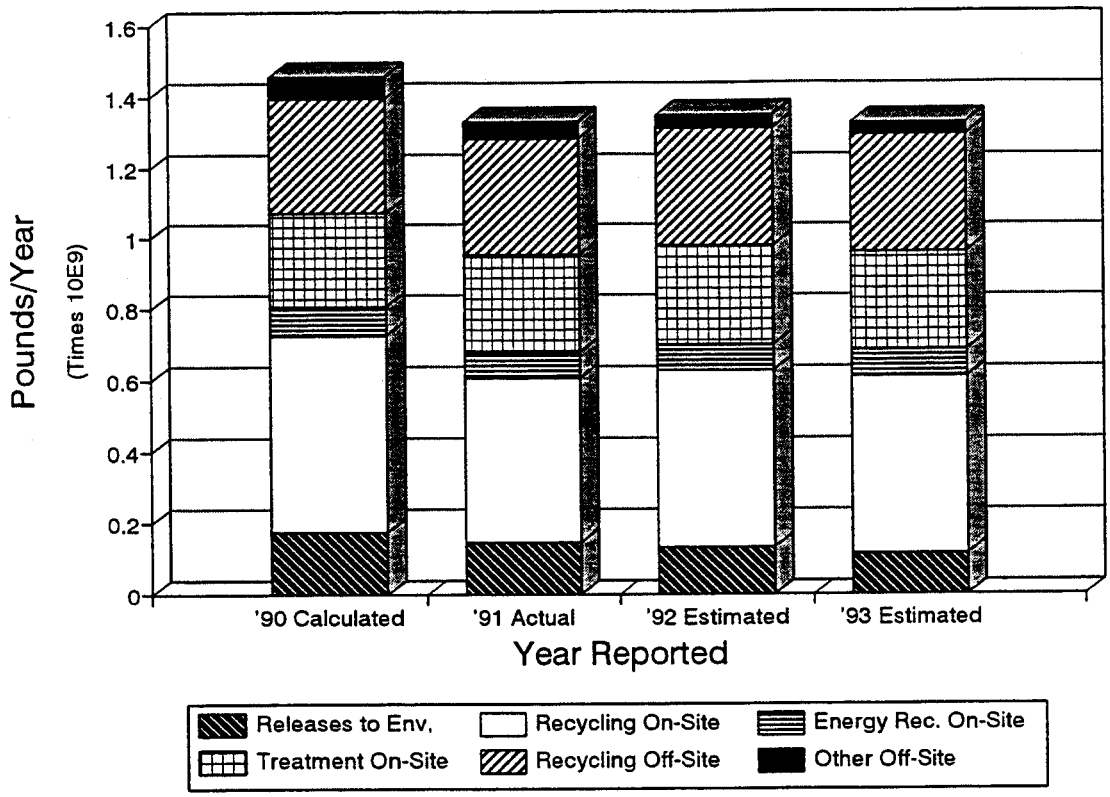


Figure 2-1

Figure 2-1 shows the total reported toxic chemical-containing environmental waste generated in Indiana from manufacturing facilities that submitted a Form R. The six basic types of environmental activities are shown as parts of each bar with off-site treatment and off-site energy recovery listed as one item. Features to note are as follows:

- **8% increase in production rate from 1990 to 1991**

- 8.5% drop (120,000,000 lbs/year) in the total generation from 1990 to 1991 despite the 8% increase in production rate.

    - 67% of this reduction is through reduced on-site recycling

      The reduced on-site recycling was largely due to a 55,000,000 lbs/year drop in the generation of sulfuric acid waste at Eli Lilly and Company's facility. This reduction was directly the result of reduced production rates.

    - The remainder is from reduced releases to the environment (including disposal)

    - Negligible reductions from 1991 to 1993.

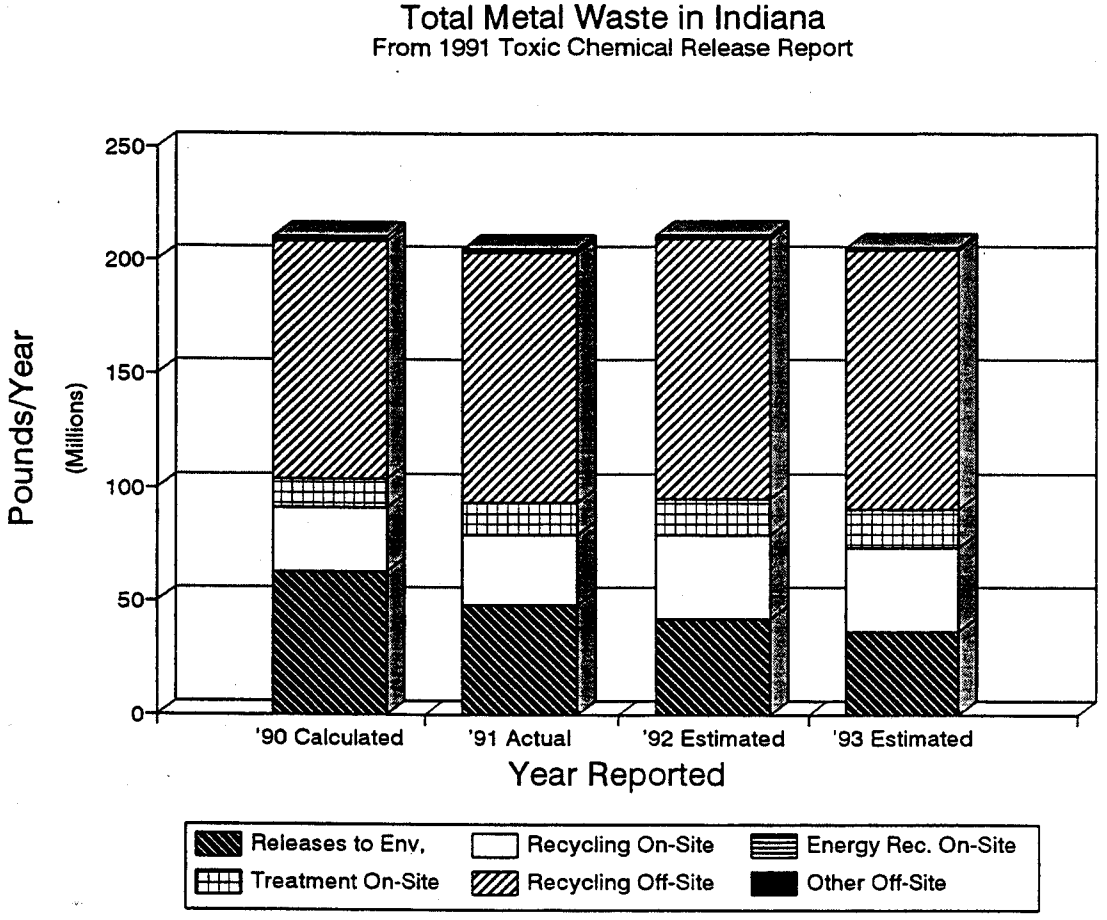


Figure 2-2

Figure 2-2 indicates the total reported toxic metal environmental wastes generated in Indiana by manufacturers.

- **16% increase in production rate from 1990 to 1991**
- Negligible change in the environmental waste generation between 1990 and 1993 despite the 16% increase in production rate. Theoretically, if production had not increased, the generation of metal waste would have decreased by 16%.
- 42% reduction in releases to the environment (including disposal). This reduction in releases was offset by an increase in on-site and off-site recycling.

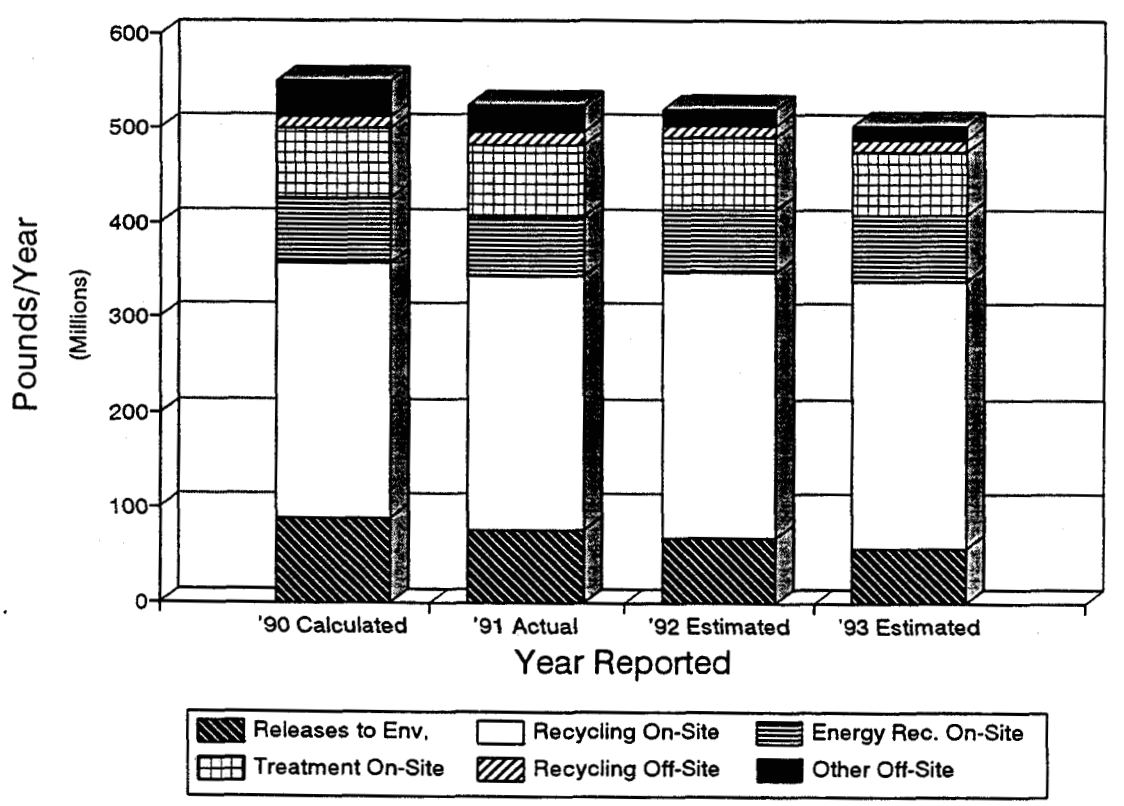


Figure 2-3

Figure 2-3 indicates the total reported toxic solvent environmental wastes generated in Indiana from manufacturers.

- **20% increase in production rate from 1990 to 1991**
- 9% reduction of environmental wastes generation between 1990 and 1993.
  - Half of this reduction occurred between 1990 and 1991.
  - Reduction occurred despite a 20% increase in production rate.
  - Reduction mostly from reduced releases to the environment (34% reduction) and reduced on-site energy recovery (69%).
  - Majority of the release reduction was offset by an increase in on-site recycling.

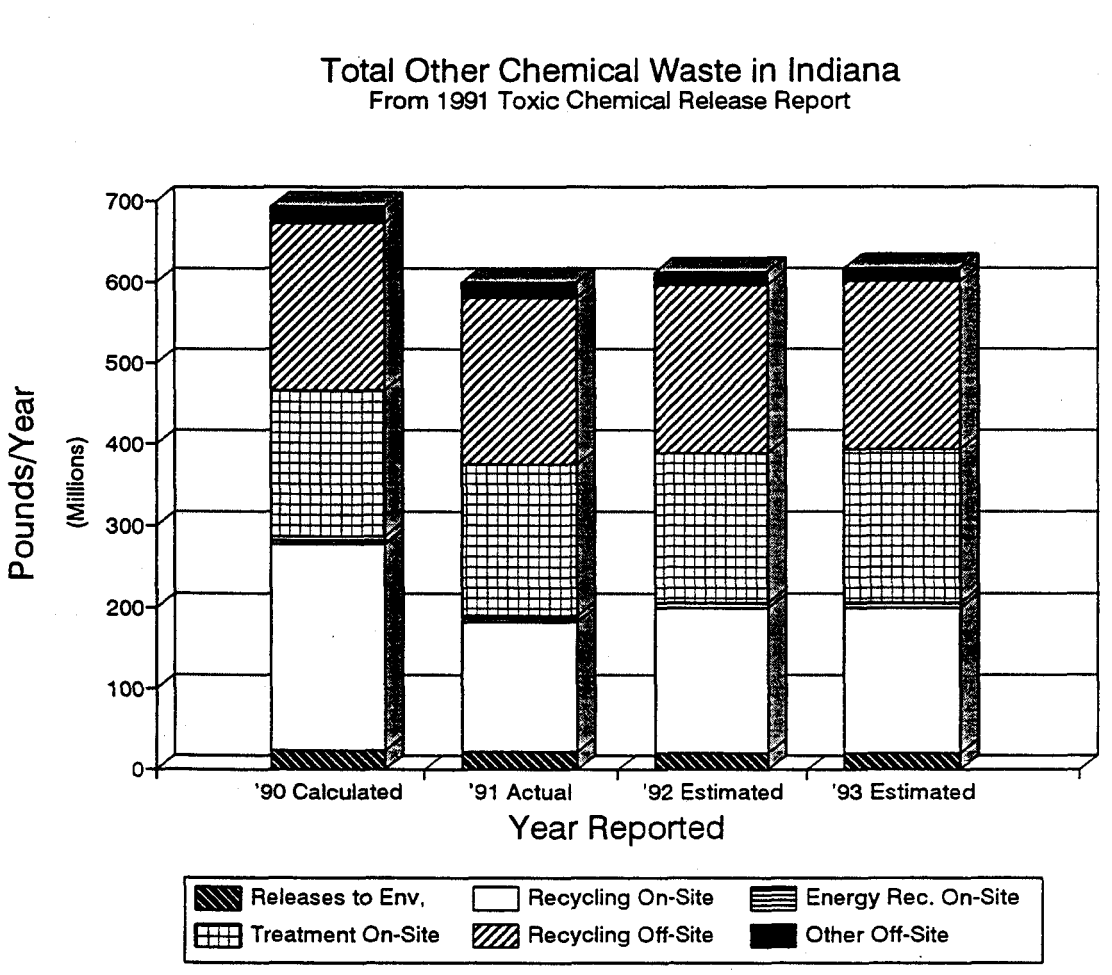


Figure 2-4

Figure 2-4 indicates the total reported other toxic chemical environmental wastes generated in Indiana from manufacturers.

- **6% decrease in production rate from 1990 to 1991**
  - 11% reduction in environmental waste generation between 1990 and 1993.
  - Entire reduction was realized between 1990 and 1991.
  - Negligible increase after between 1991 and 1993.
  - Over half of the reduction was due to reduced production at Eli Lilly and Company's facility in Tippecanoe County.

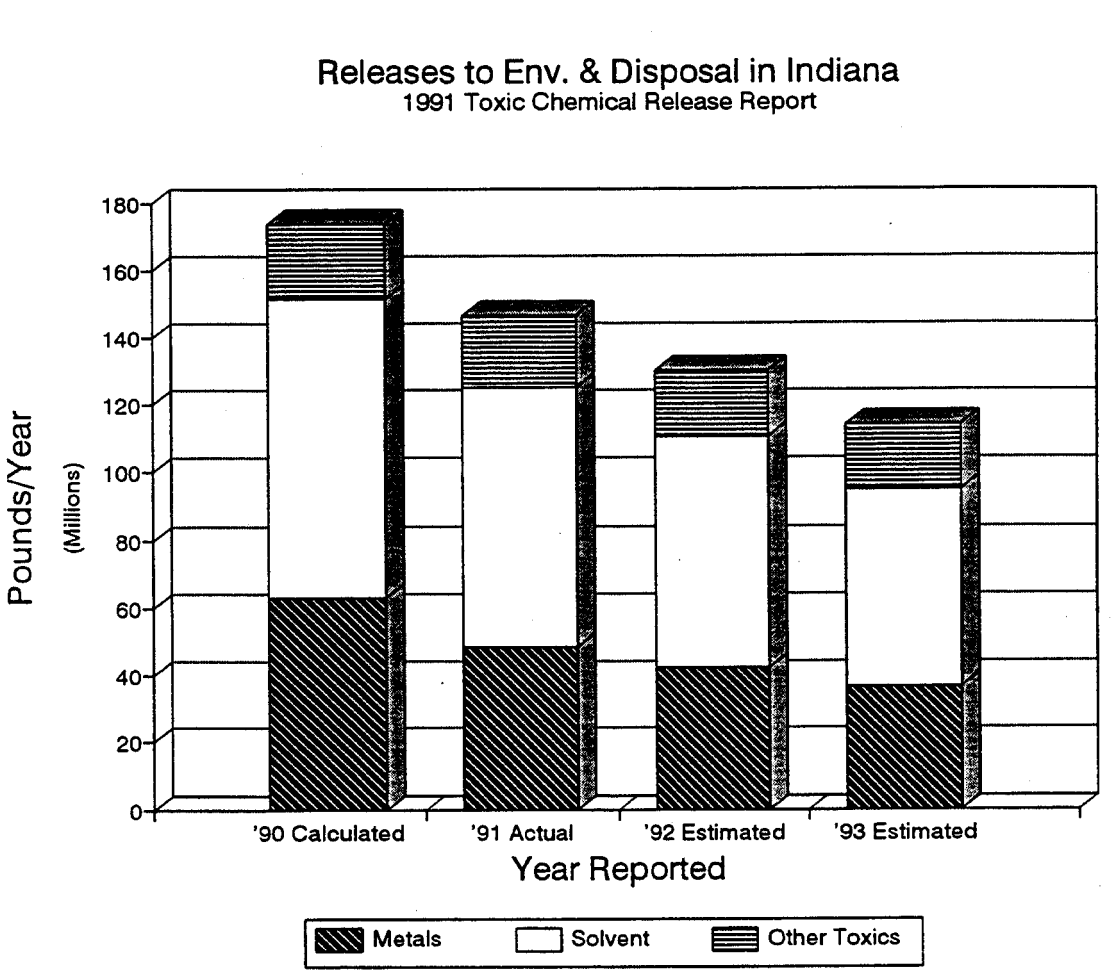


Figure 2-5

Figure 2-5 indicates the total reported disposal and releases to the environment of toxic chemicals in Indiana by manufacturers.

- **8% increase in production rate from 1990 to 1991**
  - 16% **increase** for metals
  - 20% **increase** for solvents
  - 6% **decrease** for other toxic chemicals
  - 34% reduction in releases to the environment between 1990 and 1993
  - Almost half of this reduction was between 1990 and 1991
  - Reduction was shared almost equally by solvents and metals.

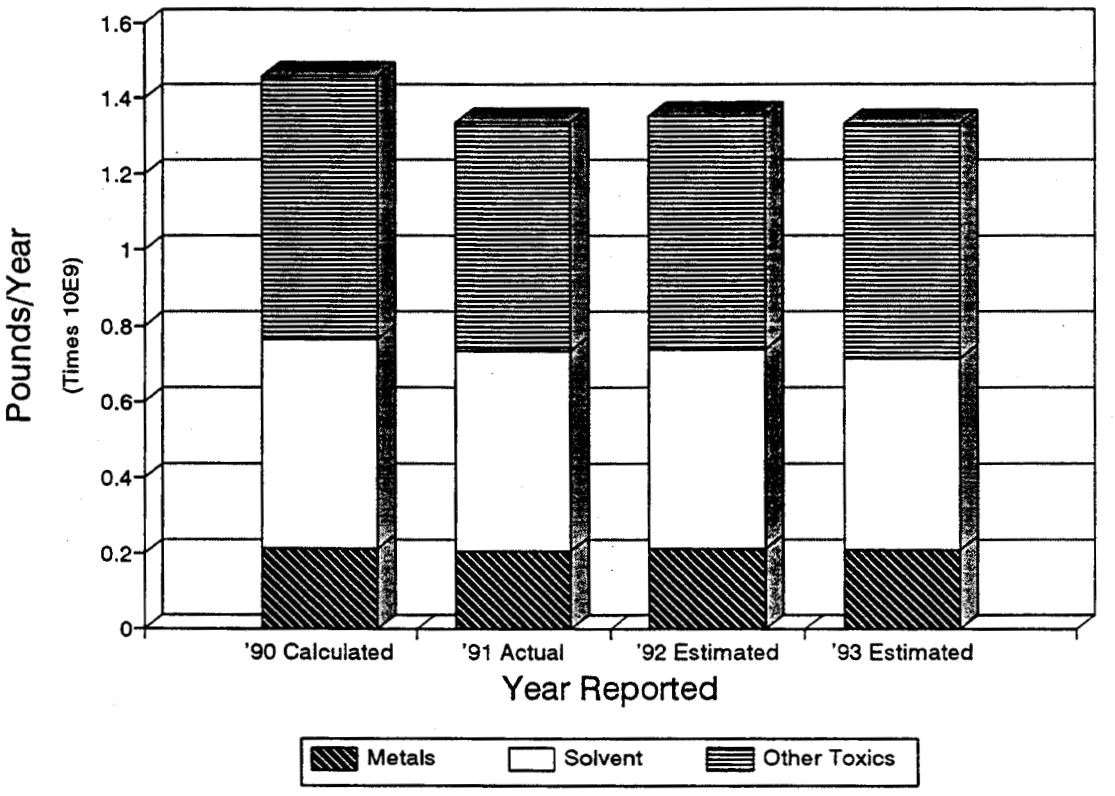


Figure 2-6

Figure 2-6 indicates the total reported generation of toxic chemical-containing environmental wastes in Indiana by manufacturers. The sum is the same as figure 2-1 but the bars describe the relative contribution of each of the three types of toxic chemicals rather than the environmental activities.

- **8% increase in production rate from 1990 to 1991**
  - 16% **increase** for metals
  - 20% **increase** for solvents
  - 6% **decrease** for other toxic chemicals
- Reduced generation of toxic chemicals in environmental wastes between 1990 and 1991 is largely due to reduced generation of other toxic chemical wastes.

1991 Toxic Chemical Source Reduction and Recycling Report for Indiana

Prepared by IDEM's OPPTA on January 5, 1994

Facility Name	County	SIC Code	Chemical Name	1990 Releases	1991 Releases	1992 Releases	1993 Releases	Production Ratio	1990 Total Generation	1991 Total Generation	1992 Total Generation	1993 Total Generation
Six Largest Releases of Toxic Chemicals that are Metals to the Environment in 1991												
INLAND STEEL CO.	LAKE	3312	MANGANESE COMPOUNDS	40000000	28200000	23000000	18000000	0.86	40000000	28470000	23300000	18300000
GE CO.	ALLEN	3621	COPPER	2247000	2335000	2330000	2330000	0.86	4494038	4670032	4660032	4660030
INDIANAPOLIS CASTING CORP	MARION	3321	MANGANESE	2487600	2149400	2140000	2140000	0.92	2487600	2149400	2140000	2140000
INLAND STEEL CO.	LAKE	3312	ZINC COMPOUNDS	3500000	2000000	1500000	1000000	0.86	3500000	2260000	1800000	1300000
BETHLEHEM STEEL CORP.	PORTER	3312	MANGANESE COMPOUNDS	1363636	1200000	1200000	1200000	0.88	2028295	1784900	1784900	1784900
INLAND STEEL CO.	LAKE	3312	CHROMIUM COMPOUNDS	1380000	1100000	900000	700000	0.86	1380000	1109100	910000	710000
Six Largest Releases of Toxic Chemicals that are Solvents to the Environment in 1991												
R. R. DONNELLEY & SONS CO	KOSCIUSKO	2754	TOLUENE	3100000	2400000	2400000	2400000	0.99	3501000	2710000	2700000	2700000
GE CO. PLASTICS	POSEY	2821	DICHLOROMETHANE	2586873	2328186	1300000	1000000	0 90	2607960	2347165	1317081	1015372
ELI LILLY & CO.	VERMILLION	2833	DICHLOROMETHANE	2400000	1600000	1600000	1600000	0 93	33660000	32111000	48040000	71840000
3M	BLACKFORD	3861	ACETONE	1800000	1500000	1400000	510000	0 83	1930000	1614000	1510000	1168000
GE CO. PLASTICS	POSEY	2821	ACETONE	1681066	1418820	1197483	1010676	0 84	6146960	5188035	4378700	3695623
3M	BLACKFORD	3861	TOLUENE	1300000	1300000	1300000	460000	1 05	1470000	1541000	1550000	1210000
Six Largest Releases of Other Toxic Chemicals to the Environment in 1991												
FLEXEL INDIANA INC.	WARREN	3089	CARBON DISULFIDE	1800000	1900000	2400000	2600000	1 03	3800000	4000170	5200000	5700000
BETHLEHEM STEEL CORP.	PORTER	3312	AMMONIA	1224490	1200000	1200000	1200000	0 98	1224490	1200000	1200000	1200000
ALCOA	WARRICK	3334	HYDROGEN FLUORIDE	918540	918544	918000	910000	1 01	16892640	17052384	16674880	17546450
KEIL CHEMICAL DIV.	LAKE	2869	1,2-DICHLOROETHANE	1800000	890000	700000	360000	1 40	26800500	26890500	27200500	27360500
USS GARY WORKS	LAKE	3312	AMMONIA	1100000	710000	510000	500000	0 98	1100000	710000	510000	500000
REA MAGNET WIRE CO. INC.	TIPPECANOE	3357	CRESOL (MIXED ISOMERS)	101623	699786	664797	631557	1 39	503618	1334105	1310992	1290256

Table 2-2

Largest Environmental Waste Generators in Indiana

Table 2-2 identifies those facilities that reported generating the largest amount of a single toxic chemical environmental waste in 1991. The six largest facilities in each of the three chemical categories are listed by the amount generated. The table includes four years of release and total generation data to identify changes in the releases. This information is only for individual chemicals from individual facilities. Facilities generally handle several toxic chemicals. Refer to part 4 of this chapter to get an overview on the five largest generators in Indiana. In that section, all toxic chemicals from the facility are added together.

1991 Toxic Chemical Source Reduction and Recycling Report for Indiana

Prepared by IDEM's OPPTA on January 5, 1994

Facility Name	County	SIC Code	Chemical Name	1990 Releases	1991 Releases	1992 Releases	1993 Releases	Production Ratio	1990 Total Generation	1991 Total Generation	1992 Total Generation	1993 Total Generation
Six Largest Generators of Environmental Wastes in 1991 Containing Toxic Chemicals that are Metals												
INLAND STEEL CO.	LAKE	3312	MANGANESE COMPOUNDS	40000000	28200000	23000000	18000000	0.86	40000000	28470000	23300000	18300000
EXIDE CORP.	CLINTON	3691	ANTIMONY COMPOUNDS	265	298	331	364	1.12	11328676	12757518	14175111	15592522
EXIDE CORP.	CLINTON	3691	LEAD COMPOUNDS	2751	3098	3442	3786	1.12	10877546	12237244	13766834	13861737
DELTA FAUCET CO.	DECATUR	3432	COPPER COMPOUNDS	34	62	60	0	1.00	11559034	11561112	11632060	11632000
GENERAL BATTERY CORP.	DELAWARE	3341	LEAD COMPOUNDS	43000	260000	270000	280000	1.71	45310	8682940	11373150	11983360
ZOLLNER PISTONS	ALLEN	3592	CHROMIUM	960	960	980	1000	1.00	8600960	8600960	8800980	8801000
Six Largest Generators of Environmental Wastes in 1991 Containing Toxic Chemicals that are Solvents												
REILLY INDUSTRIES INC.	MARION	2865	BENZENE	15133	9250	5654	3456	1.00	113421157	116301807	121973019	125014183
ELI LILLY & CO.	VERMILLION	2833	DICHLOROMETHANE	2400000	1600000	1600000	1600000	0.93	33660000	32111000	48040000	71840000
ELI LILLY & CO.	VERMILLION	2833	TOLUENE	710000	550000	420000	70000	1.02	22310100	23050260	15420180	2730180
UNITED TECHNOLOGIES AUTOM	LAWRENCE	3714	TRICHLOROETHYLENE	44803	40717	41000	42000	0.67	22424603	22413017	22413300	22415800
ELI LILLY & CO.	VERMILLION	2833	METHANOL	230000	90000	160000	100000	1.02	21245000	22103000	23174000	14114000
LONE STAR INDUSTRIES INC.	PUTNAM	3241	XYLENE (MIXED ISOMERS)	12000	16000	17000	19000	0.83	16012160	14017530	15018670	16020820
Six Largest Generators of Environmental Wastes in 1991 Containing Other Toxic Chemicals												
AMOCO OIL CO.	LAKE	2911	SULFURIC ACID	120	1300	1300	1300	1.00	120	200001300	200001300	200001300
ELI LILLY & CO.	TIPPECANOE	2834	SULFURIC ACID	22000	15000	17000	16000	0.35	164022017	58815000	65417000	61016000
REILLY INDUSTRIES INC.	MARION	2865	AMMONIA	422250	506734	608122	729796	1.00	41734487	45390316	57403262	58422256
KEIL CHEMICAL DIV.	LAKE	2869	1,2-DICHLOROETHANE	1800000	890000	700000	360000	1.40	26800500	26890500	27200500	27360500
NATIONAL PROCESSING CO.	LAKE	3316	HYDROCHLORIC ACID	500	5500	500	500	0.71	30000500	26005500	25000500	25000500
GENERAL BATTERY CORP.	DELAWARE	3341	SULFURIC ACID	20	20	20	20	1.71	20	25000020	26000020	27000020

Table 2-3

Facilities Reporting Largest Releases to the Environment in Indiana

Table 2-3 identifies those facilities that reported releasing to the environment the largest amount of a single toxic chemical environmental waste in 1991. The six largest facilities in each of the three chemical categories are listed by the amount released. The table includes four years of release and total generation data to identify changes in the releases.

1991 Toxic Chemical Source Reduction and Recycling Report for Indiana

Prepared by IDEM's OPPTA on January 5, 1994

Facility Name	County	SIC Code	Chemical Name	1990 Releases	1991 Releases	1992 Releases	1993 Releases	1990 Total Generation	1991 Total Generation	1992 Total Generation	1993 Total Generation
Twenty Most Significant Apparent Planned Toxic Chemical Substitutions in 1991											
ALLEGHENY LUDLUM CORP.	HENRY	3312	NITRIC ACID	21900	21100	0	0	4350100	4184900	0	0
ALLEGHENY LUDLUM CORP.	HENRY	3312	SULFURIC ACID	550	550	0	0	2787950	2563250	0	0
ALLEGHENY LUDLUM CORP.	HENRY	3312	HYDROGEN FLUORIDE	17000	17200	0	0	1631200	1649100	0	0
SUBARU-ISUZU AUTOMOTIVE I	TIPPECANOE	3711	XYLENE (MIXED ISOMERS)	205100	260000	296000	0	694900	800700	640800	0
NAVAL SURFACE WARFARE CEN	MARTIN	3489	PHOSPHORUS (YELLOW O	0	0	0	0	0	790000	25000	0
UNION CARBIDE INDUSTRIAL	LAKE	2813	DICHLORODIFLUOROMET	210	608	10	0	210210	608608	1010	0
HOOSIER MAGNETICS INC.	DAVIESS	2899	HYDROCHLORIC ACID	0	0	0	0	0	599138	0	0
MAGNODE CORP.	MARION	3499	PHOSPHORIC ACID	187500	281203	0	0	375000	562406	0	0
SUBARU-ISUZU AUTOMOTIVE I	TIPPECANOE	3711	ACETONE	17800	82600	89200	0	446300	555700	391000	0
BABCOCK INDUSTRIES INC.	VANDERBUR	3429	SULFURIC ACID	520	1190	0	0	22919	424850	0	0
SUBARU-ISUZU AUTOMOTIVE I	TIPPECANOE	3711	METHYL ISOBUTYL KETON	25800	70800	76400	0	332700	408700	291900	0
LICHTER RUBBER PRODUCTS	JACKSON	3086	1,1,1-TRICHLOROETHANE	447255	407980	400000	0	447255	407980	400000	0
GREAT DANE TRAILERS INC.	CLAY	3715	STYRENE	489028	380000	270000	0	489028	380000	270000	0
KNAUF FIBER GLASS	SHELBY	3296	1,1,1-TRICHLOROETHANE	343093	341858	0	0	346819	343106	0	0
CTS CORP.	ADAMS	3676	1,1,1-TRICHLOROETHANE	300433	192526	75000	0	782021	339294	215750	0
HERMASEAL CO.	ELKHART	3679	TETRACHLOROETHYLENE	5984	9435	0	0	387614	301614	0	0
UNION CITY BODY CO. INC.	RANDOLPH	3713	1,1,1-TRICHLOROETHANE	195862	260888	0	0	201862	280705	0	0
MAGNODE CORP.	MARION	3499	NITRIC ACID	19800	125040	0	0	39600	250080	0	0
ARCHITECTURAL ANODIZING C	ELKHART	3471	SULFURIC ACID	0	0	0	0	960000	250000	0	0
MAGNODE CORP.	MARION	3499	SULFURIC ACID	53905	107659	0	0	107810	215318	0	0

Table 2-4

Most Significant Apparent Planned Substitutions in Indiana

One goal of the State's pollution prevention effort is to encourage elimination of toxic materials. Table 2-4 provides a list of the facilities that may be planning to eliminate the use of a listed toxic chemical. These facilities reported a large generation of toxic chemicals in environmental wastes in 1991 but no generation of toxic chemicals in environmental waste in 1993 sorted by their 1991 generation rates. Almost 10% of the reported toxic chemical uses (the number of forms submitted) are expected to be eliminated by 1993. However, a quick audit of the top four listings and six of the top eleven indicates that the plans were overly optimistic. Based on a review of the hard copy reports submitted for 1992, the anticipated reductions at Allegheny Lundlum and Subaru-Isuzu did not occur.

Table 2-5

1991 TRI Toxic Chemical Source Reduction and Recycling Report Summary For Northwest Indiana

Developed by IDEM's OPPTA on April 1, 1994

All units are pounds/calendar year

Metals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	51263224	36429934	30464950	24696986	40534084	75%	52%	0.90
Energy Recovery On-Site	0	0	0	0	0	N/A	N/A	
Energy Recovery Off-Site	31429	44000	44000	44000	48957	58%	-40%	
Recycling On-Site	993871	917016	705235	715235	1020326	3%	28%	
Recycling Off-Site	3399207	3774415	3797896	3852578	4199636	3%	-13%	
Treatment On-Site	282348	284411	289411	294411	316452	2%	-4%	
Treatment Off-Site	588863	499591	532162	472600	555874	28%	20%	
Total Generation	56558942	41949367	35833654	30075810	46675329	20%	47%	
Total Gen. Less On-Site Recycling	55565070	41032351	35128419	29360575	45655004	24%	47%	

Solvents	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	10644681	6789684	6288576	5939339	5974005	9%	44%	1.14
Energy Recovery On-Site	6370630	5538400	5843500	5913100	4873044	9%	7%	
Energy Recovery Off-Site	16259618	10557842	1554421	1432317	9289475	53%	91%	
Recycling On-Site	2195723	2613978	2305905	412796	2299948	1%	81%	
Recycling Off-Site	1181383	2466826	2403159	2381398	2170474	17%	-102%	
Treatment On-Site	8417501	7689136	7527820	7425820	6765401	10%	12%	
Treatment Off-Site	2401418	1144974	746981	595615	1007422	12%	75%	
Total Generation	47470955	36800840	26670362	24100385	32379768	7%	49%	
Total Gen. Less On-Site Recycling	45275231	34186862	24364457	23687589	30079820	13%	48%	

Other Chemicals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	7422451	5520857	4876490	4399884	5397030	26%	41%	1.02
Energy Recovery On-Site	161965	187048	180650	183650	182853	2%	-13%	
Energy Recovery Off-Site	3595	20810	23501	21826	20343	8%	-507%	
Recycling On-Site	36712469	37572011	38148100	38652624	36729311	23%	-5%	
Recycling Off-Site	4898941	5079189	6204100	6162700	4965268	2%	-26%	
Treatment On-Site	32839014	34849829	36241398	37797772	34068185	19%	-15%	
Treatment Off-Site	19134720	15256408	14276948	14246268	14914223	80%	26%	
Total Generation	101173155	98486152	99951187	101464724	96277213	16%	-0%	
Total Gen. Less On-Site Recycling	64460686	60914141	61803087	62812100	59547902	14%	3%	

Composite	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	69330476	48741775	41631316	35037509	51528683	33%	49%	1.00
Energy Recovery On-Site	6532596	5725448	6024150	6096750	5054124	8%	7%	
Energy Recovery Off-Site	16294641	10622652	1621922	1498143	9356439	53%	91%	
Recycling On-Site	39902064	41103005	41159240	39780655	40006941	9%	0%	
Recycling Off-Site	209479531	211320430	212405155	212396676	3920105150	64%	-1%	
Treatment On-Site	41538863	42823376	44058629	45518003	41076983	16%	-10%	
Treatment Off-Site	22125002	16900973	15556091	15314483	16457158	56%	31%	
Total Generation	405203172	377237659	362456503	355642219	4083585477	28%	12%	
Total Gen. Less On-Site Recycling	365301108	336134654	321297263	315861564	4043578536	38%	14%	

**% of State = Percentage of state total in 1991

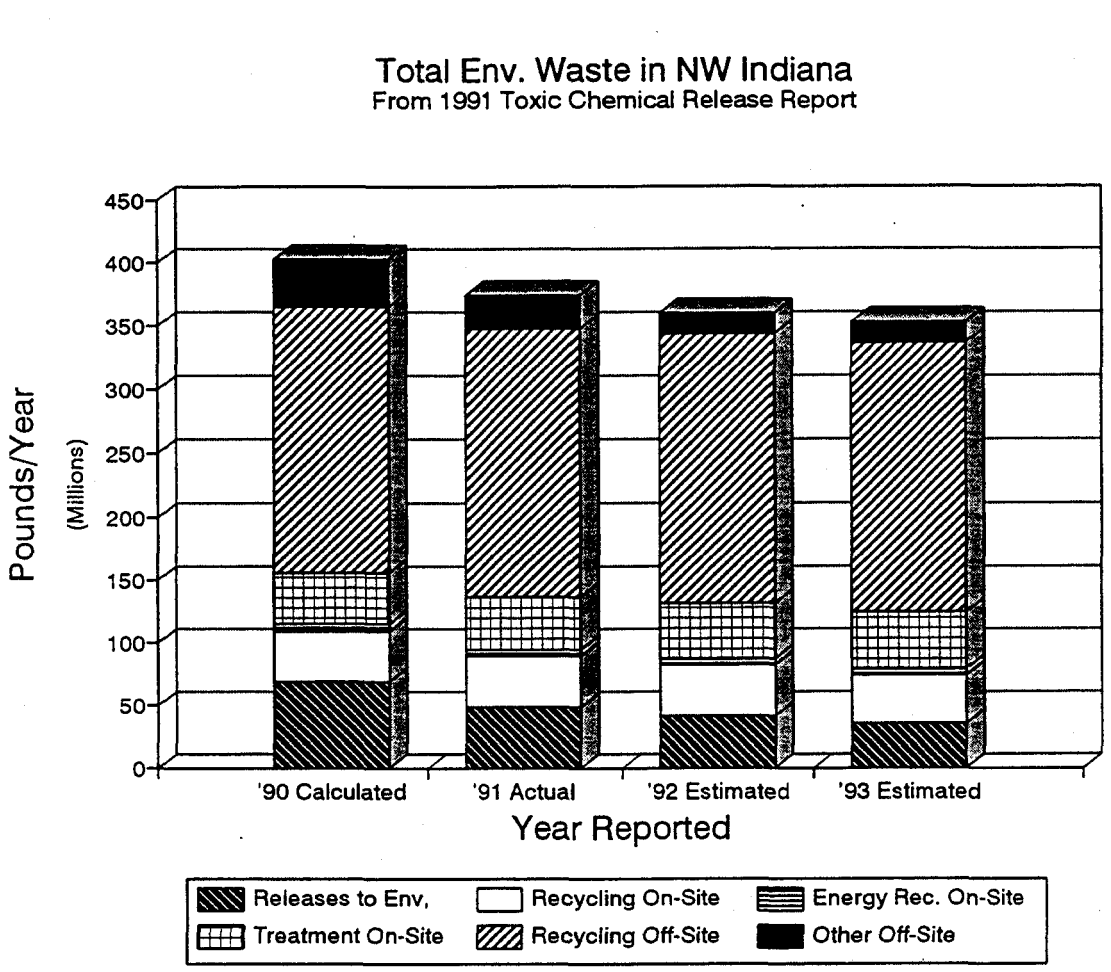


Figure 2-7

Figure 2-7 indicates the total reported toxic chemical-containing environmental waste generated in Northwest Indiana (Lake, Porter, and LaPorte Counties) from manufacturing facilities that submitted a Form R. The six basic types of environmental activities are shown as parts of each bar with off-site treatment and off-site energy recovery listed as one item.

- **No net increase in production rate from 1990 to 1991**
- 12% drop (50,000,000 lbs/year) in the total generation of toxic chemicals in environmental wastes from 1990 to 1993 despite no net increase in production rate.
    - Much of the reduction is through reduced on-site energy recovery (15,000,000 lbs/year) and reduced releases to the environment (35,000,000 lbs/year).
    - Over half of the reduction occurred between 1990 and 1991.

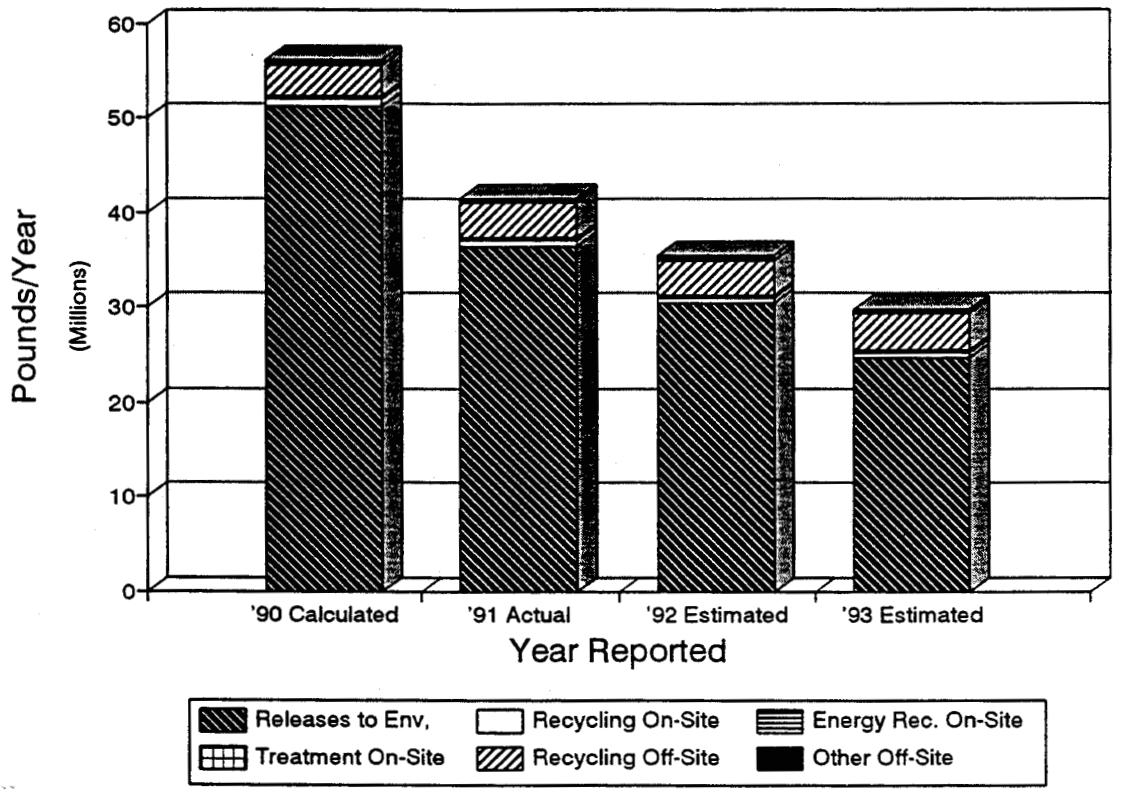


Figure 2-8

Figure 2-8 indicates the total reported toxic metal environmental wastes generated in Northwest Indiana by manufacturers.

- **10% decrease in production rate from 1990 to 1991**
- Dramatic 47% reduction in the total generation of toxic chemicals in environmental wastes between 1990 and 1993.
  - Two-thirds of the reduction occurred between 1990 and 1991 despite the 10% increase in production rate. Theoretically, if production had not increased, the generation of metal waste would have decreased by only 10%.
  - Almost all of these reductions were in releases to the environment (including disposal).
  - The reduction in releases was partially offset by an increase in on-site and off-site recycling.

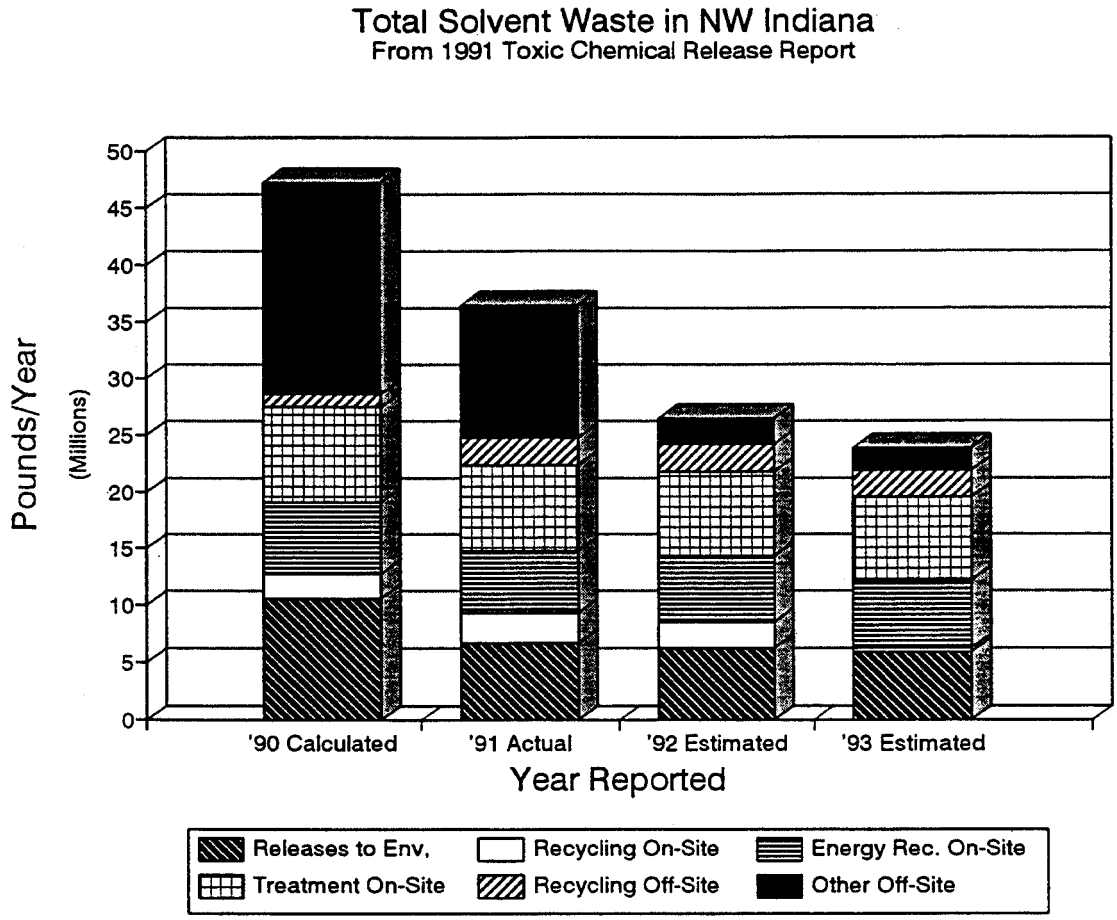


Figure 2-9

Figure 2-9 indicates the total reported toxic solvent environmental wastes generated in Northwest Indiana by manufacturers.

- **14% increase in production rate from 1990 to 1991**

- Dramatic 49% reduction in generation of toxic chemicals in environmental wastes between 1990 and 1993 despite 14% increase in production rate.

    - Almost half of this reduction occurred between 1990 and 1991.

    - The majority of the reduction (23,000,000 lbs/year) was from:
        - On-site energy recovery (15,000,000 lbs/year, 44% reduction)
        - Releases to the environment (3,700,000 lbs/year, 91% reduction), and
        - On-site recycling (1,900,000 lbs/year, 81%).

    - However, off-site recycled was expected to double between 1990 and 1993 (1,200,000 lbs/year, 102% increase).

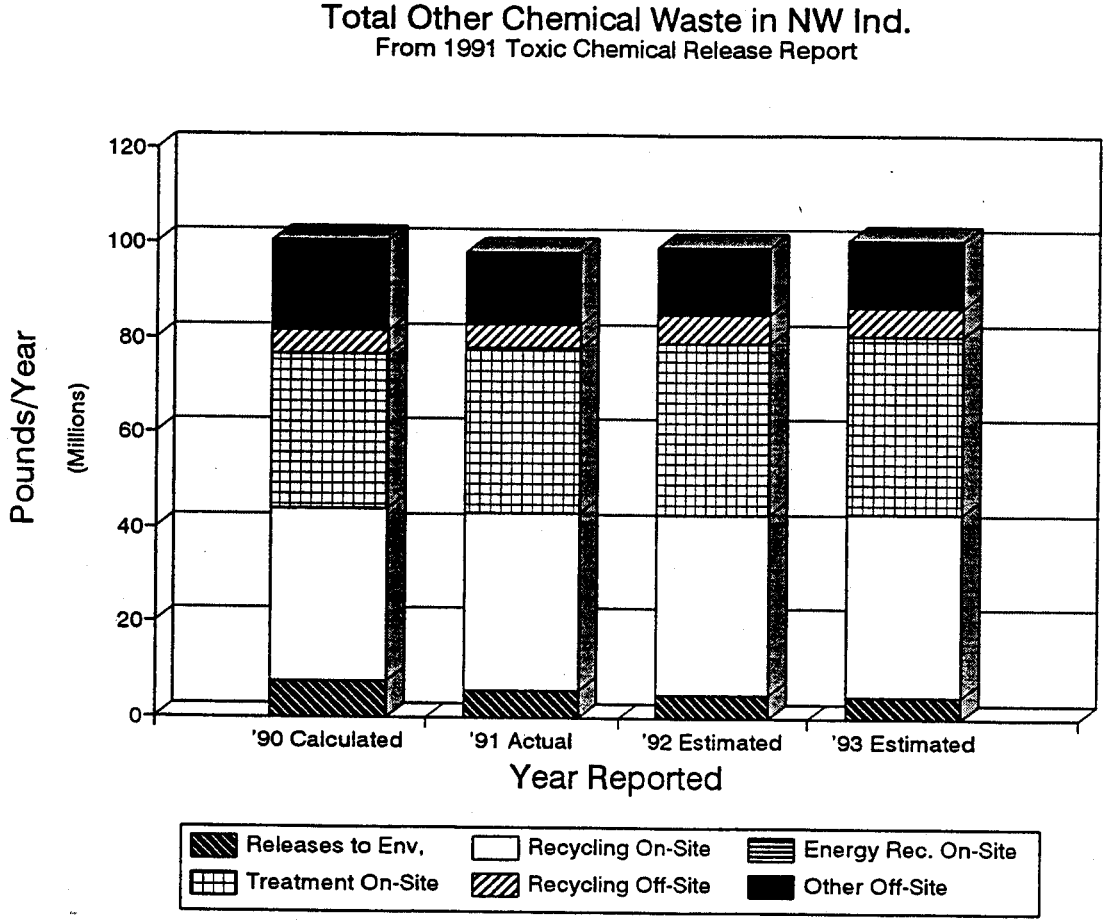


Figure 2-10

Figure 2-10 indicates the total reported other toxic chemical environmental wastes generated in Northwest Indiana from manufacturers.

- **2% increase in production rate from 1990 to 1991**
- No reduction in generation of toxic chemicals in environmental wastes between 1990 and 1993.
    - 2.7% reduction between 1990 and 1991 was realized despite a 2% increase in production.
- 41% reduction in releases to the environment (3,000,000 lbs/year) was offset by increases in recycling, energy recovery, and on-site treatment.

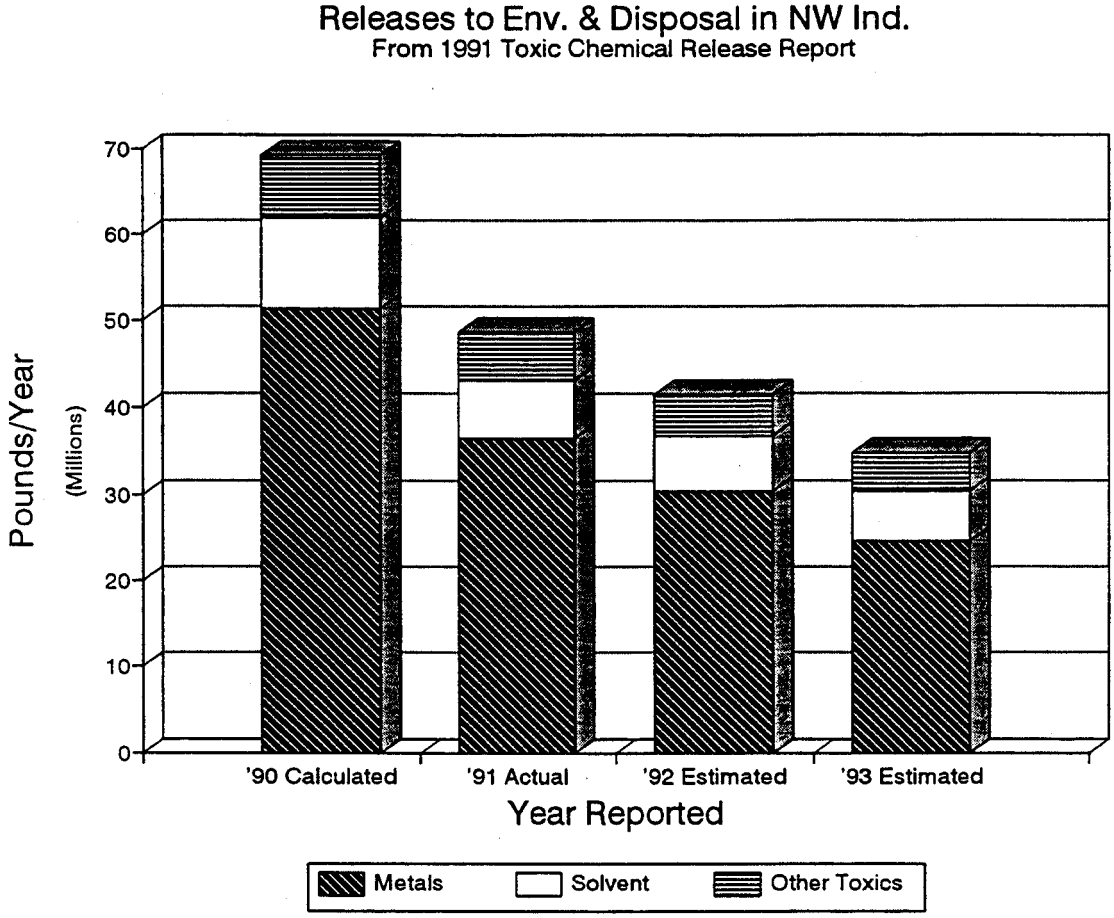


Figure 2-11

Figure 2-11 indicates the total reported disposal and releases to the environment of toxic chemicals in Northwest Indiana by manufacturers.

- **No change in overall production rate from 1990 to 1991**
  - 10% **decrease** for metals
  - 14% **increase** for solvents
  - 2% **increase** for other toxic chemicals
  - 49% reduction in releases to the environment between 1990 and 1993.
  - About 66% of the reduction was due to metals. Metals still makes up over 2/3 of the total releases.
  - Remainder was due to reduced releases of solvents

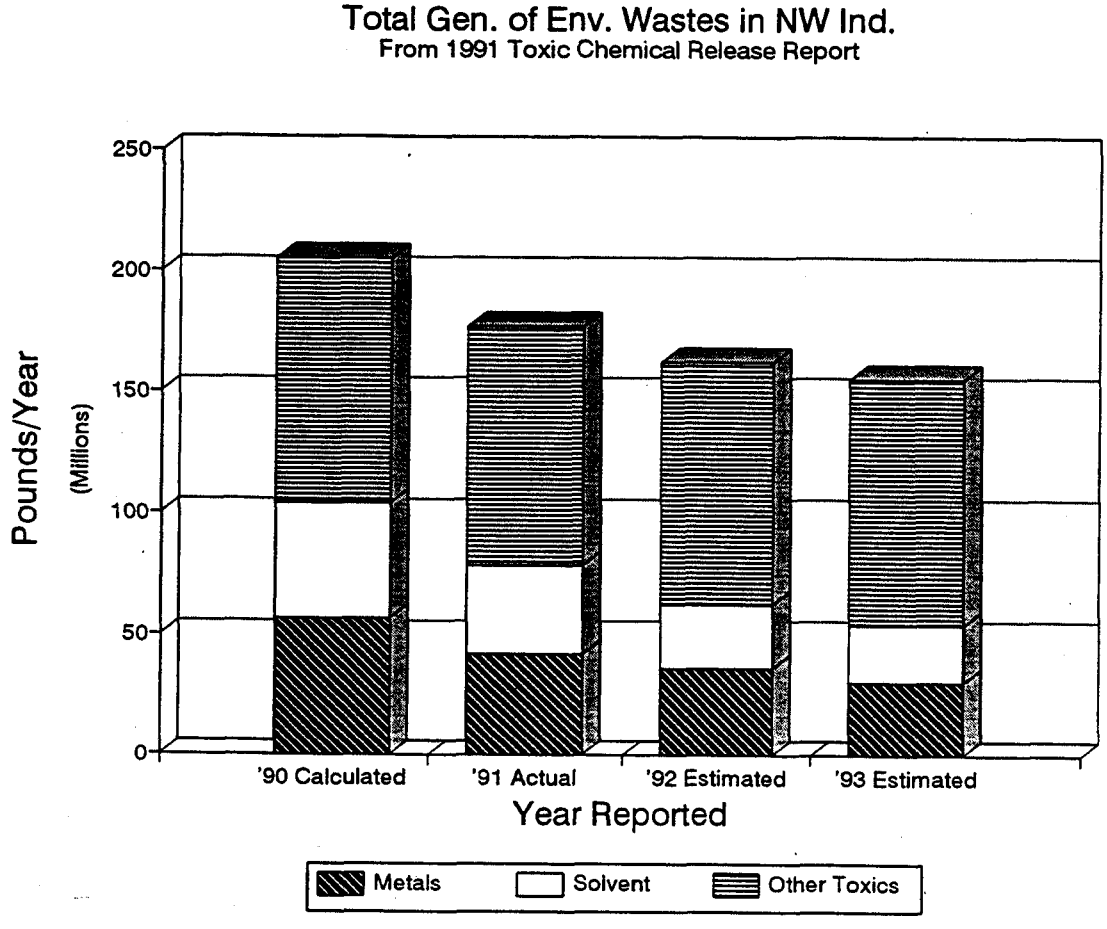


Figure 2-12

Figure 2-12 indicates the total reported generation of toxic chemical-containing environmental wastes in Northwest Indiana by manufacturers. The sum is the same as figure 2-7 but the bars describe the relative contribution of each of the three types of toxic chemicals rather than the environmental activities.

- **No change in overall production rate from 1990 to 1991**
  - 10% **decrease** for metals
  - 14% **increase** for solvents
  - 2% **increase** for other toxic chemicals
- 12% decrease (50,000,000 lbs/year) in total generation of toxic chemicals in environmental wastes between 1990 and 1993.
- In contrast to the releases where metals dominate, other toxic chemicals dominate the total environmental waste generation. This result is because of AMOCO Oil Company's 200,000,000 lbs/year off-site recycling of sulfuric acid. After it is regenerated, the sulfuric acid is returned to AMOCO.

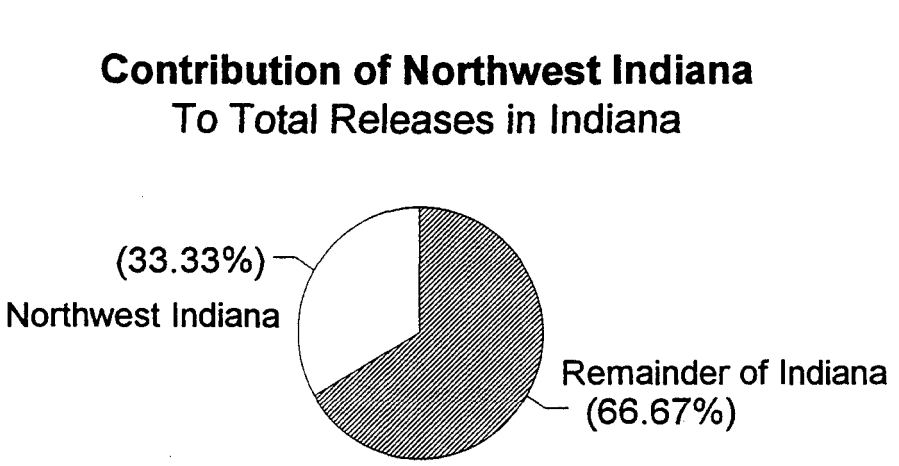


Figure 2-13

Figure 2-13 indicates Northwest Indiana's contribution to Indiana's total releases to the environment (including disposal) of toxic chemicals by manufacturers. In 1991, Northwest Indiana provided 33% of Indiana's total releases to the environment. It contributed 75% of the state's total metal releases, 9% of the state's solvent releases, and 26% of the state's total other toxic chemical releases.

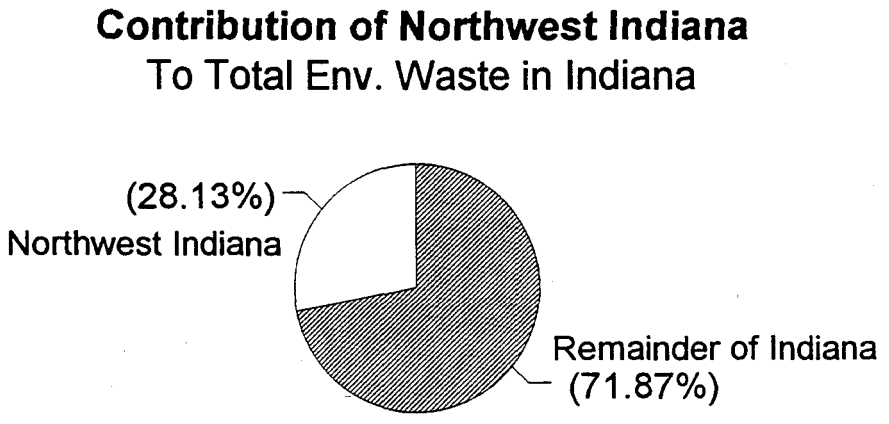


Figure 2-14

Figure 2-14 indicates Northwest Indiana's eontribution to Indiana's total environmental waste generation of toxic chemicals by manufacturers. In 1991, Northwest Indiana provided 28% of Indiana's total generation of toxic chemicals in environmental wastes. It contributed 20% of the state's total metal waste, 7% of the state's solvent wastes, and 16% of the state's total other toxic chemical wastes.

Table 2-6

1991 TRI Toxic Chemical Source Reduction and Recycling Report Summary For 17 Toxic Chemicals Targeted by EPA for Reduction

Developed by IDEM's OPPTA on April 19, 1994

All units are pounds/calendar year

Metals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	7123578	4816899	4432677	4196449	3657626	10%	41%	1.32
Energy Recovery On-Site	0	0	0	0	0	N/A	N/A	
Energy Recovery Off-Site	22666	17654	17952	17352	13405	23%	23%	
Recycling On-Site	18945497	22151943	27146635	27034706	16820683	69%	-43%	
Recycling Off-Site	34372520	35074774	38330024	39583381	26633405	32%	-15%	
Treatment On-Site	1001528	1063884	1131688	1327507	807841	7%	-33%	
Treatment Off-Site	672559	577650	546009	470970	438628	32%	30%	
Total Generation	62138348	63702804	71604985	72630365	48371589	31%	-17%	
Total Gen. Less On-Site Recycling	43192851	41550861	44458350	45595659	31550906	24%	-6%	

Solvents	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	61629686	54143334	47744051	40446981	42364669	70%	34%	1.28
Energy Recovery On-Site	49411552	44236163	48368944	52552035	34612764	68%	-6%	
Energy Recovery Off-Site	8672828	7835914	5292242	4759035	6131242	40%	45%	
Recycling On-Site	214740786	215594807	228497848	230826907	168693024	80%	-7%	
Recycling Off-Site	6903578	6714853	5245346	4750795	5254064	46%	31%	
Treatment On-Site	21162673	22396636	25221664	27410017	17524338	29%	-30%	
Treatment Off-Site	3089315	1906100	2371662	2292945	1491436	21%	26%	
Total Generation	365610418	352827807	362741757	363038715	276071537	67%	1%	
Total Gen. Less On-Site Recycling	150869632	137233000	134243909	132211808	107378513	53%	12%	

Other Chemicals	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	246531	214568	196368	193762	229599	1%	21%	0.93
Energy Recovery On-Site	0	0	0	0	0	0%	N/A	
Energy Recovery Off-Site	0	0	0	0	0	0%	N/A	
Recycling On-Site	9548	10400	12700	14800	11129	0%	-55%	
Recycling Off-Site	231	169	150	100	181	0%	57%	
Treatment On-Site	179526	90640	96897	92639	96989	0%	48%	
Treatment Off-Site	187	198	247	289	212	0%	-55%	
Total Generation	436023	315975	306362	301590	338110	0%	31%	
Total Gen. Less On-Site Recycling	426475	305575	293662	286790	326981	0%	33%	

Composite	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	68999794	59174801	52373096	44837192	46232022	40%	35%	1.28
Energy Recovery On-Site	49411552	44236163	48368944	52552035	34612764	60%	-6%	
Energy Recovery Off-Site	8695494	7853568	5310194	4776387	6144635	39%	45%	
Recycling On-Site	233695832	237757150	255657183	257876413	185509916	51%	-10%	
Recycling Off-Site	41276329	41789796	43575520	44334276	31883765	13%	-7%	
Treatment On-Site	22343728	23551160	26450249	28830163	18421416	9%	-29%	
Treatment Off-Site	3762061	2483948	2917918	2764204	1929950	8%	27%	
Total Generation	428184789	416846586	434653104	435970670	324734468	31%	-2%	
Total Gen. Less On-Site Recycling	194488958	179089436	178995921	178094257	139224552	20%	8%	

* % of State = Percentage of state total in 1991

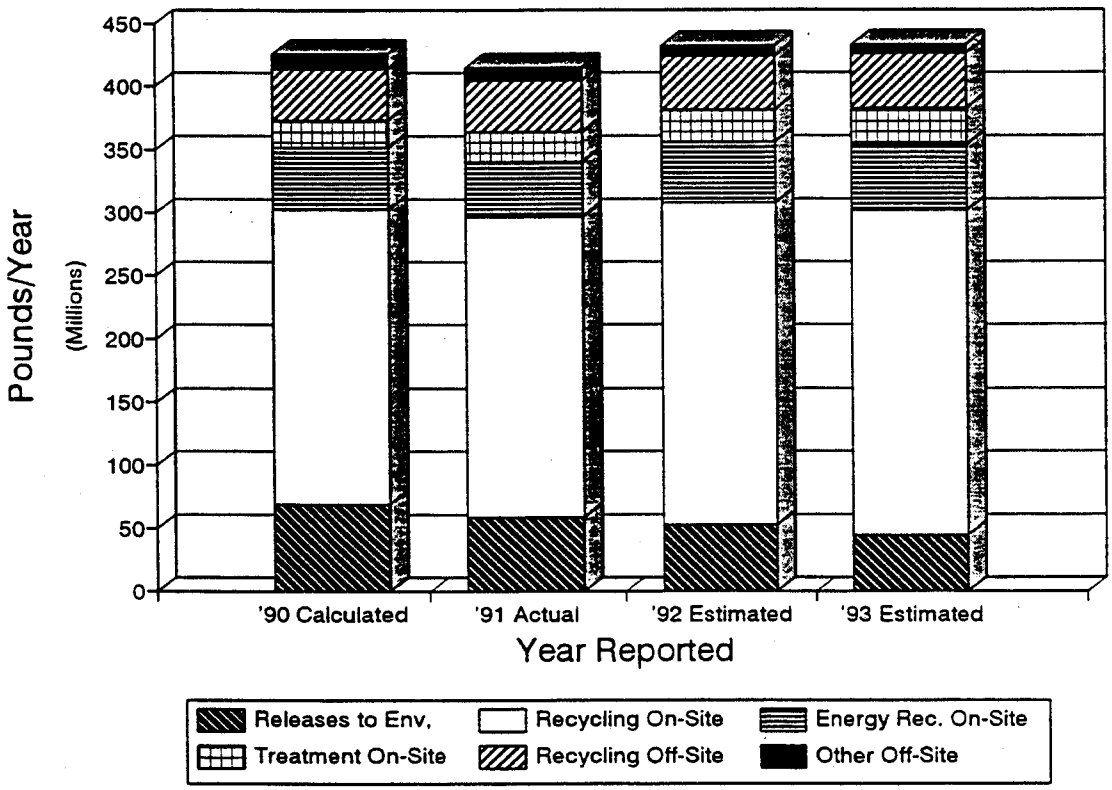


Figure 2-15

Figure 2-15 indicates the total reported environmental waste containing EPA's 17 targeted toxic chemicals from manufacturing facilities. The six basic types of environmental activities are shown as parts of each bar with off-site treatment and off-site energy recovery listed as one item.

- **28% increase in production rate from 1990 to 1991**
- 2% increase in the total generation of toxic chemicals in environmental wastes from 1990 to 1993 despite a substantial increase on 28% in production rate.
- 35% drop in releases to the environment (24,000,000 lbs/year) was offset an equal increase in on-site recycling.

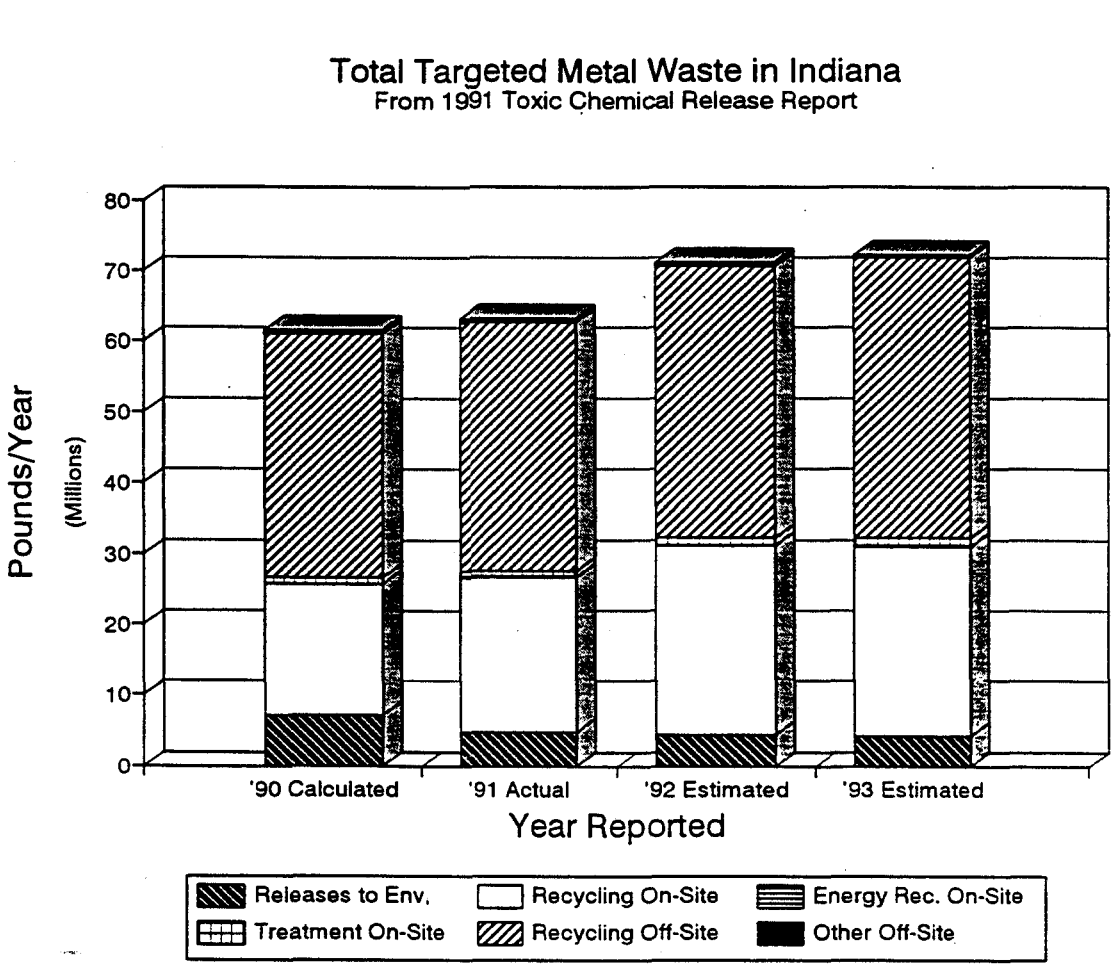


Figure 2-16

Figure 2-16 indicates the total reported environmental wastes from EPA's targeted toxic metals generated in Indiana by manufacturers. The metals are cadmium, chromium, lead, mercury, and nickel.

- **32% increase in production rate from 1990 to 1991**
- 17% increase in the generation of toxic chemicals in environmental wastes between 1990 and 1993.
    - Increase was slightly more than half of the theoretical increases that could have occurred based on a 32% increase in production rate for products associated with the targeted metals.
    - Reductions in releases to the environment (2,900,000 lbs/year, 41% reduction) were offset by increased on-site and off-site recycling.

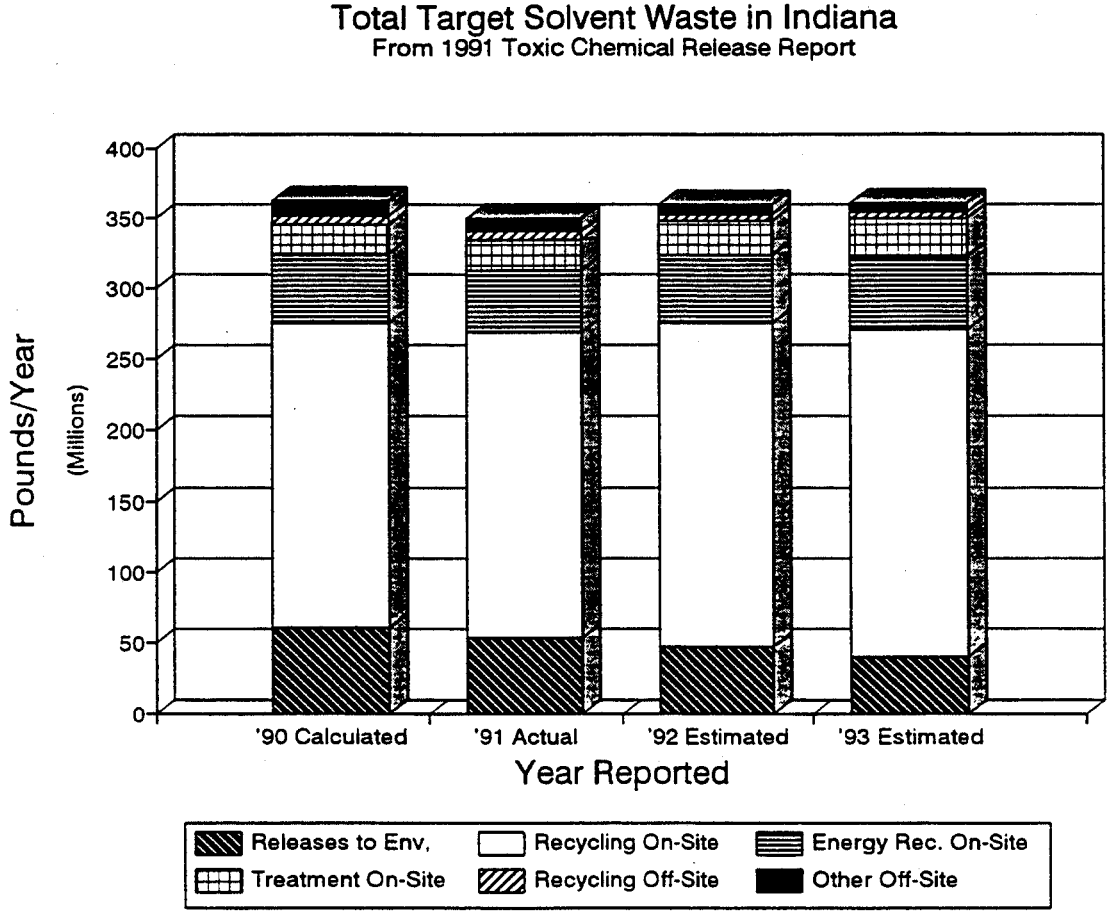


Figure 2-17

Figure 2-17 indicates the total reported environmental wastes from targeted toxic solvents generated in Indiana from manufacturers. The solvents are benzene, toluene, xylene, methyl ethyl ketone, methyl isobutyl ketone, carbon tetrachloride, chloroform, dichloromethane (methylene chloride), tetrachloroethylene (perchloroethylene), 1,1,1-trichloroethane (methyl chloroform), and trichloroethylene.

- **28% increase in production rate from 1990 to 1991**
- Slight decrease in the generation of toxic chemicals in environmental wastes from 1990 to 1993 despite a 28% increase in production rate.
- Reduction in releases of (21,000,000 lbs/year, 34%) was largely offset by an increase in on-site recycling (16,000,000 lbs/year, 7%).

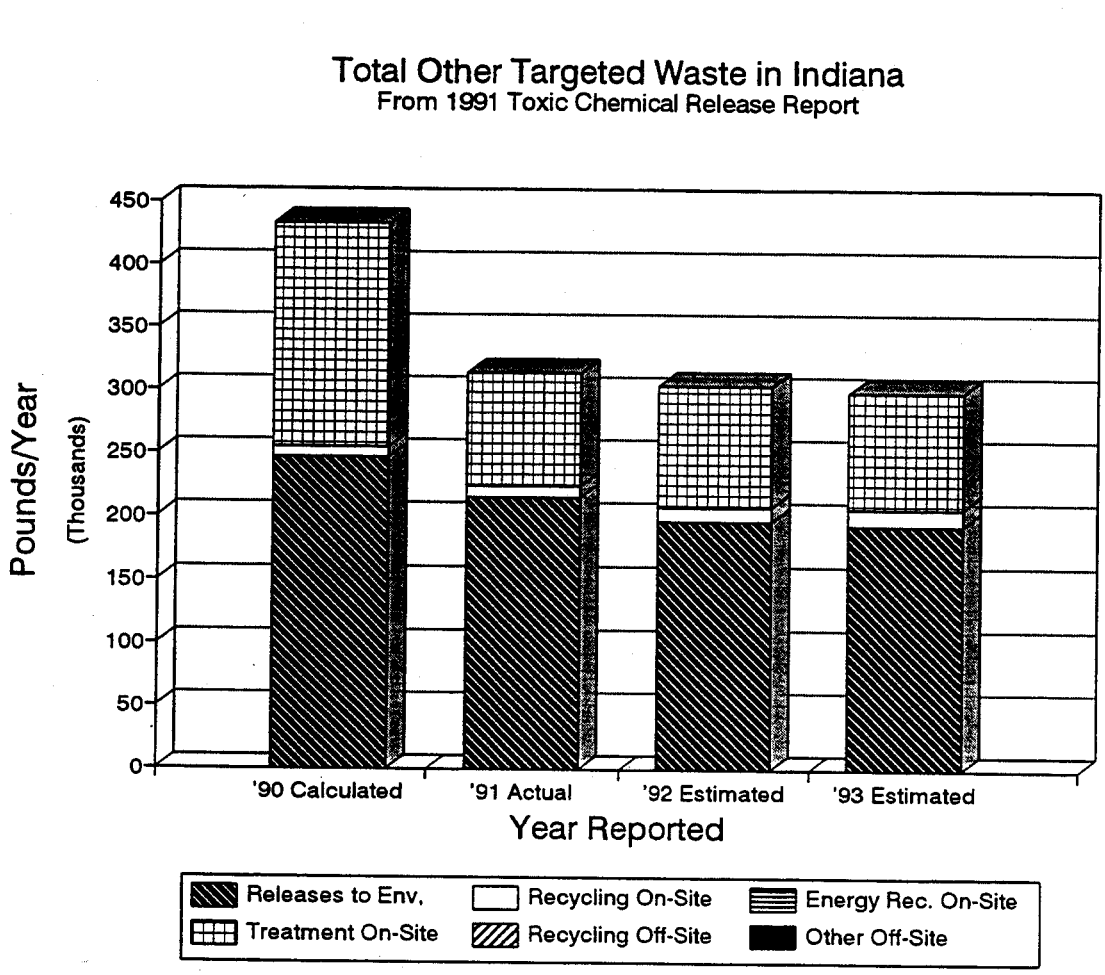


Figure 2-18

Figure 2-18 indicates the total reported environmental wastes from cyanide compounds generated in Indiana from manufacturers.

- **7% decrease in production rate from 1990 to 1991**
- 21% decrease in generation of toxic chemicals in environmental wastes from 1990 to 1993 despite 7% drop in production rate.
- Decrease in environmental wastes was almost entirely due to a decrease in releases to the environment (53,000 lbs/year).

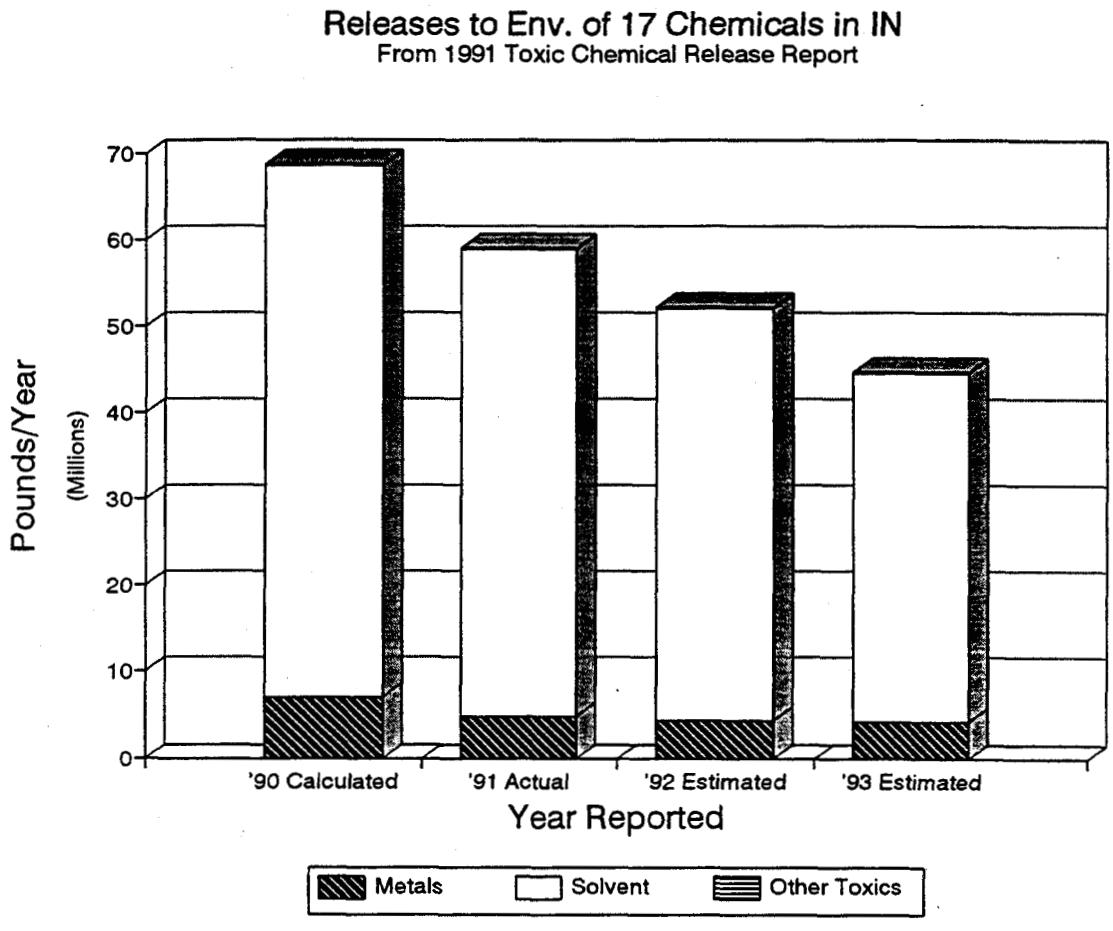


Figure 2-19

Figure 2-19 indicates the total reported disposal and releases to the environment of targeted toxic chemicals in Indiana by manufacturers.

- **28% increase in overall production rate from 1990 to 1991**
  - 32% **increase** for metals
  - 28% **increase** for solvents
  - 7% **decrease** for other toxic chemicals
  - 35% reduction in releases to the environment between 1990 and 1993
  - 14% of the reduction was realized between 1990 and 1991.
  - Solvents dominate this category contributing 85% of the total.
  - Metals provide the almost all of the remaining 15%.

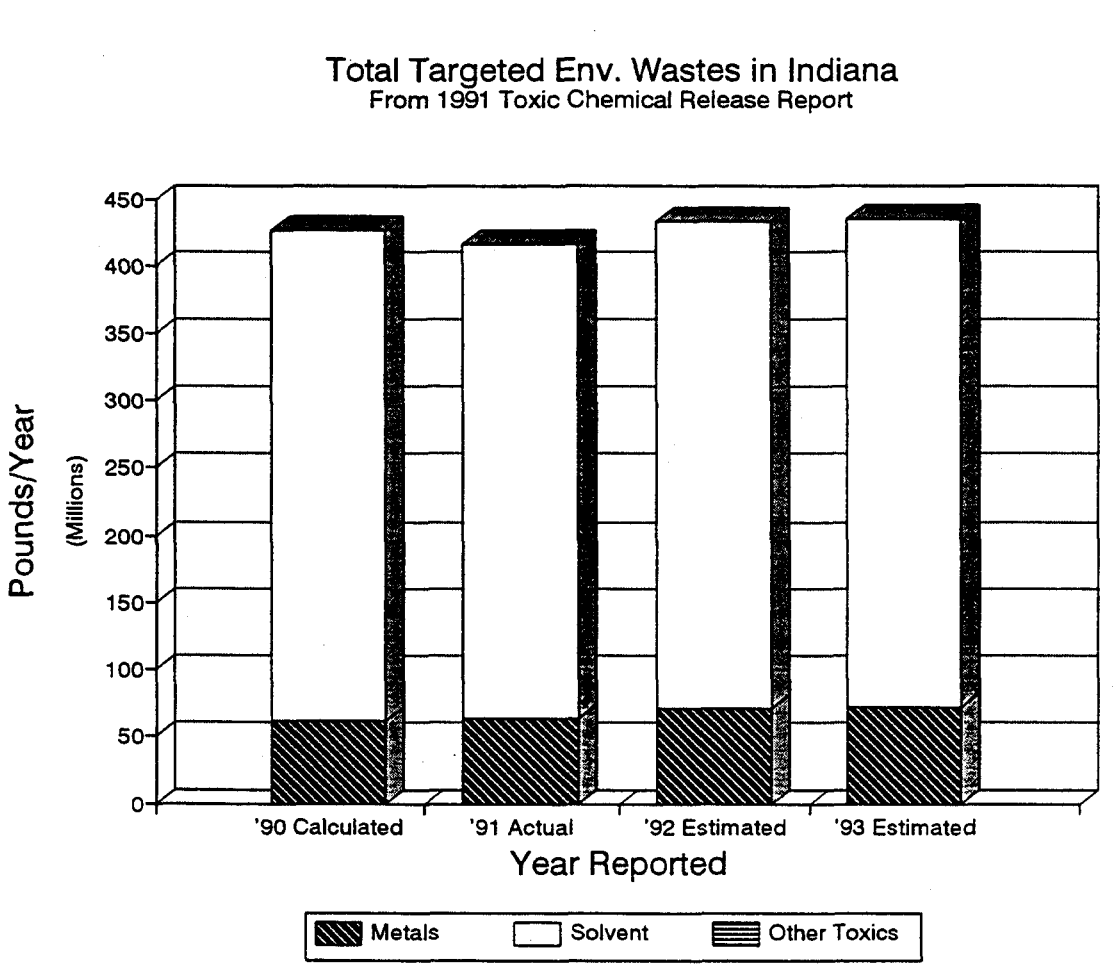


Figure 2-20

Figure 2-20 indicates the total reported generation of the 17 targeted toxic chemical-containing environmental wastes in Indiana by manufacturers. The sum is the same as figure 2-15 but the bars describe the relative contribution of each of the three types of toxic chemicals rather than the environmental activities.

- **28% increase in overall production rate from 1990 to 1991**
  - 32% **increase** for metals
  - 28% **increase** for solvents
  - 7% **decrease** for other toxic chemicals
  - 2% increase in the total generation of toxic chemicals in environmental wastes from 1990 to 1993 despite a substantial increase on 28% in production rate.
  - Solvents dominate this category contributing 85% of the total.
  - Metals provide the almost all of the remaining 15%.

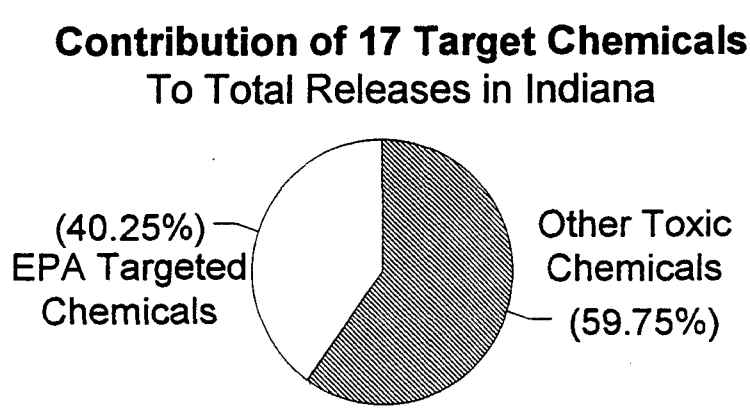


Figure 2-21

Figure 2-21 indicates the 17 targeted toxic chemicals contribution to Indiana's total releases to the environment (including disposal) of toxic chemicals by manufacturers. In 1991, the 17 chemicals represent 40% of total releases. The chemicals contributed 70% of the state's total solvent releases, 10% of the state's metal releases, and 1% of the state's total other toxic chemical releases.

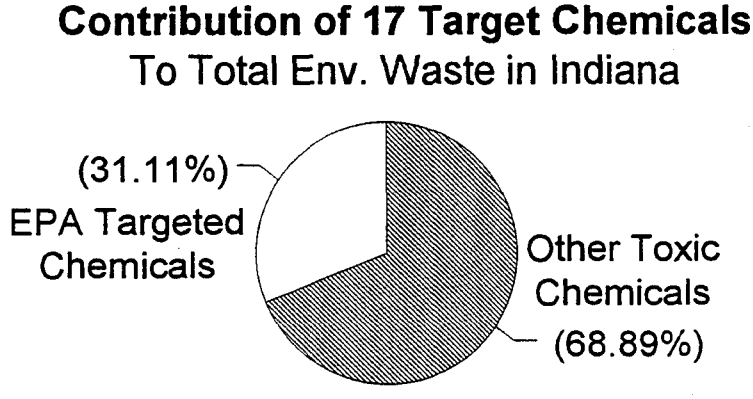


Figure 2-22

Figure 2-22 indicates the 17 targeted toxic chemicals contribution to Indiana's total environmental waste generation of toxic chemicals by manufacturers. In 1991, the 17 chemicals provided 31% of Indiana's total generation of toxic chemicals in environmental waste. It contributed 32% of the state's total metal waste, 67% of the state's solvent wastes, and 1% of the state's total other toxic chemical wastes.

4. Analysis for 5 Largest Operations in Indiana

Five operations generate almost 55% of the environmental wastes and 35% of the releases to the environment in Indiana in 1991. Three of these facilities, Eli Lilly and Company's Indiana operations, AMOCO Oil Company in Whiting, Indiana, and Reilly Industries in Indianapolis, generate about 45% of the total environmental waste. These five operations represent large businesses that have generally already adopted aggressive pollution prevention programs.

Because of the significant quantities generated by these facilities, IDEM has developed a two prong approach to promoting pollution prevention. For the five largest operations, IDEM will work with each of them on a one-on-one basis. For the remaining 990 facilities, IDEM will focus on a broad education and awareness program. This broad program is ineffective for the five largest operations. Only a one-on-one program will be effective.

Because IDEM is taking this two-prong approach, it will report pollution prevention progress for facilities covered by each of these approaches separately. This approach will allow better monitoring of progress. A single change at one of the facilities could result in a 15% reduction in the generation of toxic chemicals in environmental wastes. This change needs to be distinguished from a broader adoption of pollution prevention by the smaller facilities that could result in a similar overall reduction.

The five operations were selected because they generated more than 40,000,000 pounds of environmental waste in 1991. The five facilities are:

- Eli Lilly and Company in Tippecanoe, Vermillion, Hancock, and Marion County
- AMOCO Oil Company in Lake County
- General Electric - Plastics in Posey County
- Reilly Industries in Marion County
- Inland Steel Company in Lake County

Table 2-6 provides a summary of the environmental waste management activities at the 990 facilities. The table excludes the contribution of the five largest operations.

Table 2-6

1991 TRI Toxic Chemical Source Reduction and Recycling Report Summary
Excluding Five Largest Operations in Indiana

Developed by IDEM's OPPTA on April 19, 1994

All units are pounds/calendar year

Metals	'90 Calculated	'91 Actual	'92 Estimate	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	17,000,000	16,000,000	17,000,000	17,000,000	14,000,000	33%	0%	1.22
Energy Recovery On-Site	0	0	0	0	0	N/A	N/A	
Energy Recovery Off-Site	67,000	75,000	76,000	75,000	55,000	100%	-12%	
Recycling On-Site	29,000,000	32,000,000	38,000,000	38,000,000	24,000,000	100%	-31%	
Recycling Off-Site	105,000,000	110,000,000	114,000,000	114,000,000	86,000,000	100%	-9%	
Treatment On-Site	13,000,000	14,000,000	16,000,000	18,000,000	11,000,000	98%	-38%	
Treatment Off-Site	1,800,000	1,200,000	1,000,000	960,000	1,500,000	65%	47%	
Total Generation	165,000,000	173,000,000	186,000,000	186,000,000	136,000,000	84%	-13%	
Total Gen. Less On-Site Recycling	136,000,000	141,000,000	148,000,000	149,000,000	112,000,000	81%	-10%	

Solvents	'90 Calculated	'91 Actual	'92 Estimate	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	71,000,000	64,000,000	57,000,000	48,700,000	47,000,000	83%	31%	1.50
Energy Recovery On-Site	55,000,000	51,000,000	56,000,000	61,000,000	36,000,000	79%	-11%	
Energy Recovery Off-Site	25,000,000	20,000,000	8,600,000	7,800,000	16,000,000	99%	69%	
Recycling On-Site	57,000,000	56,000,000	56,000,000	41,000,000	37,000,000	21%	28%	
Recycling Off-Site	10,000,000	10,000,000	8,700,000	8,200,000	6,600,000	69%	19%	
Treatment On-Site	15,000,000	15,000,000	16,000,000	16,000,000	9,900,000	20%	-7%	
Treatment Off-Site	5,100,000	3,100,000	2,900,000	2,600,000	3,400,000	33%	49%	
Total Generation	239,000,000	220,000,000	204,000,000	187,000,000	157,000,000	42%	22%	
Total Gen. Less On-Site Recycling	182,000,000	163,000,000	149,000,000	146,000,000	120,000,000	63%	20%	

Other Chemicals	'90 Calculated	'91 Actual	'92 Estimate	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	19,000,000	19,000,000	17,000,000	16,000,000	16,000,000	87%	16%	0.90
Energy Recovery On-Site	500,000	1,600,000	500,000	500,000	420,000	17%	0%	
Energy Recovery Off-Site	218,000	250,000	330,000	340,000	180,000	100%	-56%	
Recycling On-Site	60,000,000	59,000,000	59,000,000	62,000,000	50,000,000	37%	-3%	
Recycling Off-Site	8,000,000	8,000,000	9,000,000	9,000,000	6,700,000	4%	-13%	
Treatment On-Site	134,000,000	153,000,000	151,000,000	159,000,000	112,000,000	83%	-19%	
Treatment Off-Site	1,740,000	1,390,000	1,210,000	1,250,000	1,500,000	27%	28%	
Total Generation	243,000,000	258,000,000	254,000,000	262,000,000	203,000,000	57%	-8%	
Total Gen. Less On-Site Recycling	183,000,000	199,000,000	195,000,000	201,000,000	153,000,000	55%	-10%	

Composite	'90 Calculated	'91 Actual	'92 Estimate	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	
Releases to Environment	108,000,000	99,000,000	91,000,000	82,000,000	81,000,000	68%	24%	1.32
Energy Recovery On-Site	56,000,000	52,000,000	57,000,000	62,000,000	42,000,000	71%	-11%	
Energy Recovery Off-Site	25,800,000	19,830,000	8,950,000	8,270,000	19,000,000	99%	68%	
Recycling On-Site	146,000,000	148,000,000	153,000,000	140,000,000	110,000,000	32%	4%	
Recycling Off-Site	122,000,000	127,000,000	131,000,000	131,000,000	92,000,000	38%	-7%	
Treatment On-Site	163,000,000	182,000,000	182,000,000	194,000,000	122,000,000	66%	-19%	
Treatment Off-Site	27,900,000	22,700,000	20,400,000	19,900,000	21,000,000	76%	29%	
Total Generation	643,000,000	651,000,000	639,000,000	632,000,000	483,000,000	49%	2%	
Total Gen. Less On-Site Recycling	501,000,000	506,000,000	510,000,000	517,000,000	376,000,000	58%	-3%	

- **Eli Lilly and Company**

The company operates seven pharmaceutical and agricultural chemical manufacturing facilities in Indiana. The facilities generate almost 220,000,000 pounds of environmental waste in 1991. Its largest facilities are in Vermillion and Tippecanoe Counties. One facility is in Hancock County. The remaining facilities are in Marion County. The operations at these facilities are closely coordinated. Therefore, they will be reported as a single operation in this report. However, it is important to note that some double counting may also occur for Eli Lilly operations due to the way information is reported. This double counting may lead to a 10% overstatement of the generation of toxic chemical-containing environmental wastes.

The facilities manage a variety of toxic chemicals. Most of the toxic chemicals are solvents. Much of the solvents are recycled on- and off-site. It also generates significant quantities of sulfuric acid waste at its Tippecanoe County facility that is recycled on-site.

Table 2-7

All units are pounds/calendar year

Eli Lilly & Company	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	9,625,750	6,945,044	6,138,570	4,293,737	10,469,411	14%	55%	0.66
Energy Recovery On-Site	0	0	0	0	0	0%	N/A	
Energy Recovery Off-Site	0	0	0	0	0	0%	N/A	
Recycling On-Site	229,588,423	128,644,100	141,154,200	149,508,900	193,926,481	402%	35%	
Recycling Off-Site	3,811,000	4,531,500	4,296,000	4,747,000	6,831,078	4%	-25%	
Treatment On-Site	79,751,080	69,726,765	73,494,700	60,800,140	105,110,659	498%	24%	
Treatment Off-Site	8,447,145	6,728,063	7,045,877	5,547,832	10,142,320	374%	34%	
Total Generation	331,223,398	216,575,472	232,129,347	224,897,609	326,479,948	105%	32%	
Total Gen. Less On-Site Recycling	101,634,975	87,931,372	90,975,147	75,388,709	132,553,467	51%	26%	

- **AMOCO Oil Company**

The company operates the third largest refinery in the United States and the largest inland refinery in the world in Lake County. The facility generates over 200,000,000 pounds of environmental waste in 1991. The vast majority of its waste is a sulfuric acid wastestream that is recycled at a nearby facility and returned to AMOCO for reuse.

Table 2-8

All units are pounds/calendar year

AMOCO Oil Company	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	1,843,046	1,531,462	1,518,275	1,518,275	1,531,453	2%	18%	1.00
Energy Recovery On-Site	0	0	0	0	0	0%	N/A	
Energy Recovery Off-Site	0	0	0	0	0	0%	N/A	
Recycling On-Site	22,300	22,300	22,300	22,300	22,300	0%	0%	
Recycling Off-Site	200,022,450	200,022,450	200,026,450	200,026,450	200,021,337	1333%	-0%	
Treatment On-Site	2,072,800	2,080,810	2,080,250	2,080,250	2,080,798	3%	-0%	
Treatment Off-Site	0	0	0	0	0	0%	N/A	
Total Generation	203,960,596	203,657,022	203,647,275	203,647,275	203,655,889	38%	0%	
Total Gen. Less On-Site Recycling	203,938,296	203,634,722	203,624,975	203,624,975	203,633,589	78%	0%	

- **Reilly Industries**

The company manufactures chemicals derived from tars and other similar materials at its Indianapolis facility. The facility generates about 187,000,000 pounds of environmental wastes in 1991. The majority of its environmental wastes are losses of its products and intermediates that are recycled or treated on-site.

Table 2-9

All units are pounds/calendar year

Reilly Industries	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	743,831	972,393	1,353,899	1,956,759	972,393	1%	-163%	1.00
Energy Recovery On-Site	858,633	1,037,686	1,254,106	1,515,606	1,037,686	1%	-77%	
Energy Recovery Off-Site	14,121	0	0	0	0	0%	100%	
Recycling On-Site	177,370,265	185,760,763	204,249,737	208,725,523	185,760,763	40%	-18%	
Recycling Off-Site	0	0	0	0	0	0%	N/A	
Treatment On-Site	2,178	3,928	7,509	14,597	3,928	0%	-570%	
Treatment Off-Site	14,121	0	0	0	0	0%	100%	
Total Generation	179,003,149	187,774,770	206,865,251	212,212,485	187,774,770	14%	-19%	
Total Gen. Less On-Site Recycling	1,632,884	2,014,007	2,615,514	3,486,962	2,014,007	0%	-114%	

- **General Electric - Plastics**

The company operates a large plastics manufacturing facility in Posey County in southwest Indiana. The facility generates over 40,000,000 pounds of environmental waste in 1991. The majority of its wastes are solvents that are recycled or treated onsite.

Table 2-10

All units are pounds/calendar year

General Electric - Appliances	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	5,801,671	5,136,163	3,780,519	3,225,399	5,904,968	4%	44%	0.87
Energy Recovery On-Site	23,403,642	20,499,297	17,626,609	14,569,927	23,567,729	28%	38%	
Energy Recovery Off-Site	186,572	165,531	148,092	132,524	190,308	1%	29%	
Recycling On-Site	0	0	0	0	0	0%	N/A	
Recycling Off-Site	145,321	89,667	71,307	57,159	103,089	0%	61%	
Treatment On-Site	17,838,658	16,005,783	14,670,895	13,817,306	18,401,605	6%	23%	
Treatment Off-Site	102,159	81,898	70,761	61,259	94,157	0%	40%	
Total Generation	47,478,024	41,978,339	36,368,183	31,863,574	48,261,856	3%	33%	
Total Gen. Less On-Site Recycling	47,478,024	41,978,339	36,368,183	31,863,574	48,261,856	5%	33%	

- **Inland Steel Company**

The company operates an integrated steel mill in East Chicago. The facility generates almost 40,000,000 pounds of environmental waste in 1991. Most of its environmental wastes are metals released to the environment, primarily through a lakefill in Lake Michigan. The company has made substantial reductions in releases during the past several years.

Table 2-11

All units are pounds/calendar year

Inland Steel Company	'90 Calculated	'91 Actual	'92 Estimated	'93 Estimated	'91 Adjusted	% of State	'90-'93 Drop	1990 / 1991 Weighted Activity Index
Releases to Environment	48,450,210	33,101,654	27,239,199	21,219,924	38,644,378	150%	56%	0.86
Energy Recovery On-Site	0	0	0	0	0	0%	N/A	
Energy Recovery Off-Site	3,824	2,600	2,600	1,300	3,035	1%	66%	
Recycling On-Site	0	0	0	0	0	0%	N/A	
Recycling Off-Site	302,326	260,000	300,000	300,000	303,536	0%	1%	
Treatment On-Site	5,779,816	4,906,000	4,301,000	3,697,000	5,727,488	3%	36%	
Treatment Off-Site	491,535	456,200	486,000	456,000	532,589	24%	7%	
Total Generation	55,027,710	38,726,454	32,328,799	25,674,224	45,211,026	6%	53%	
Total Gen. Less On-Site Recycling	55,027,710	38,726,454	32,328,799	25,674,224	45,211,026	9%	53%	

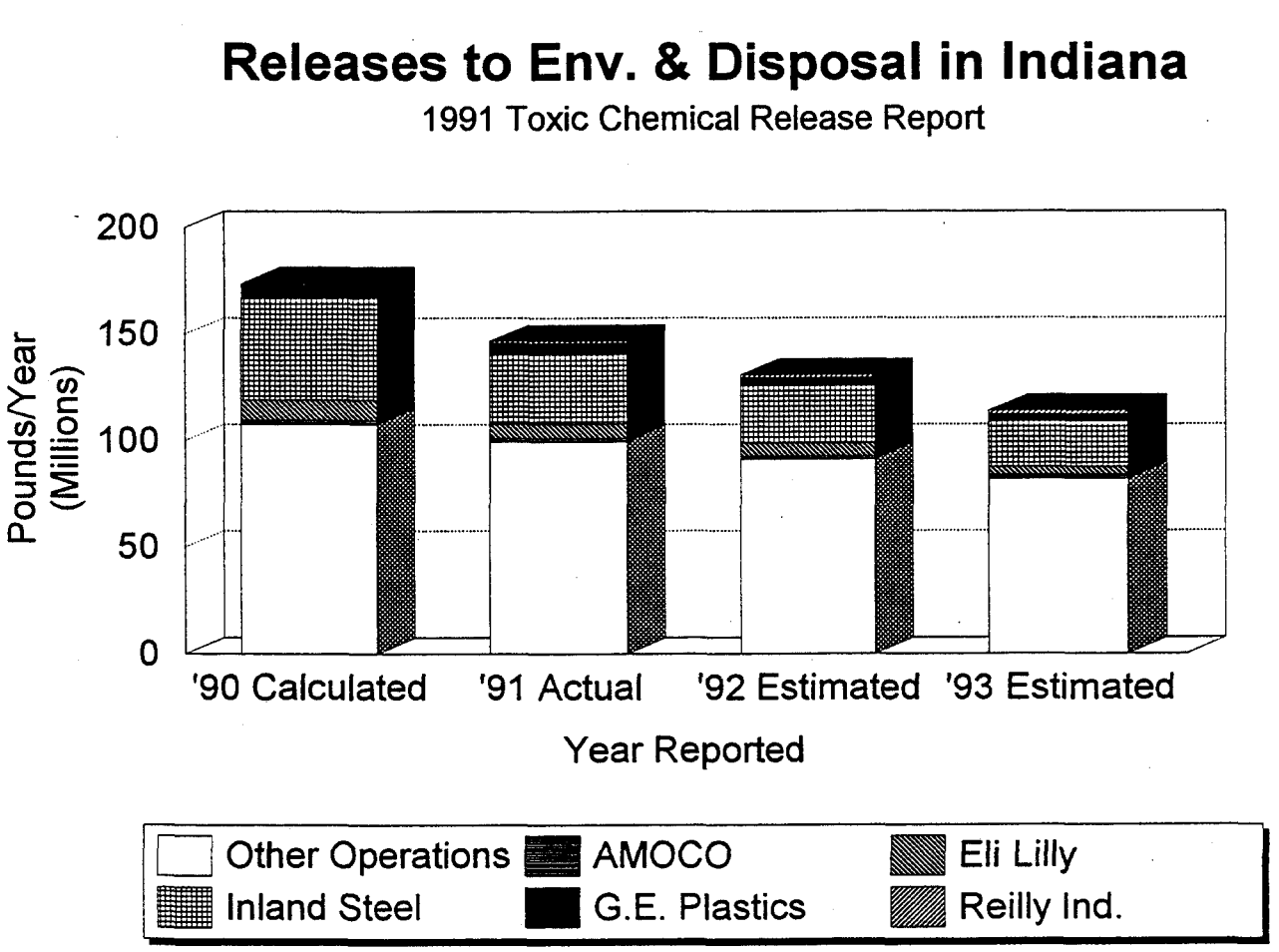


Figure 2-23

Figure 2-23 indicates the total reported disposal and releases to the environment in Indiana by manufacturers. Each bar includes the contributions of each of the five operations with the remaining 990 facilities representing the lowest part of the bar.

- **8% increase in production rate from 1990 to 1991**
    - 16% **increase** for metals
    - 20% **increase** for solvents
    - 6% **decrease** for other toxic chemicals
- Reduced generation of toxic chemicals in environmental wastes between 1990 and 1991 is largely due to reduced generation of other toxic chemical wastes.
- Each of the five operations and the remaining 990 facilities reduced their releases. Inland Steel Company achieved the largest reductions.

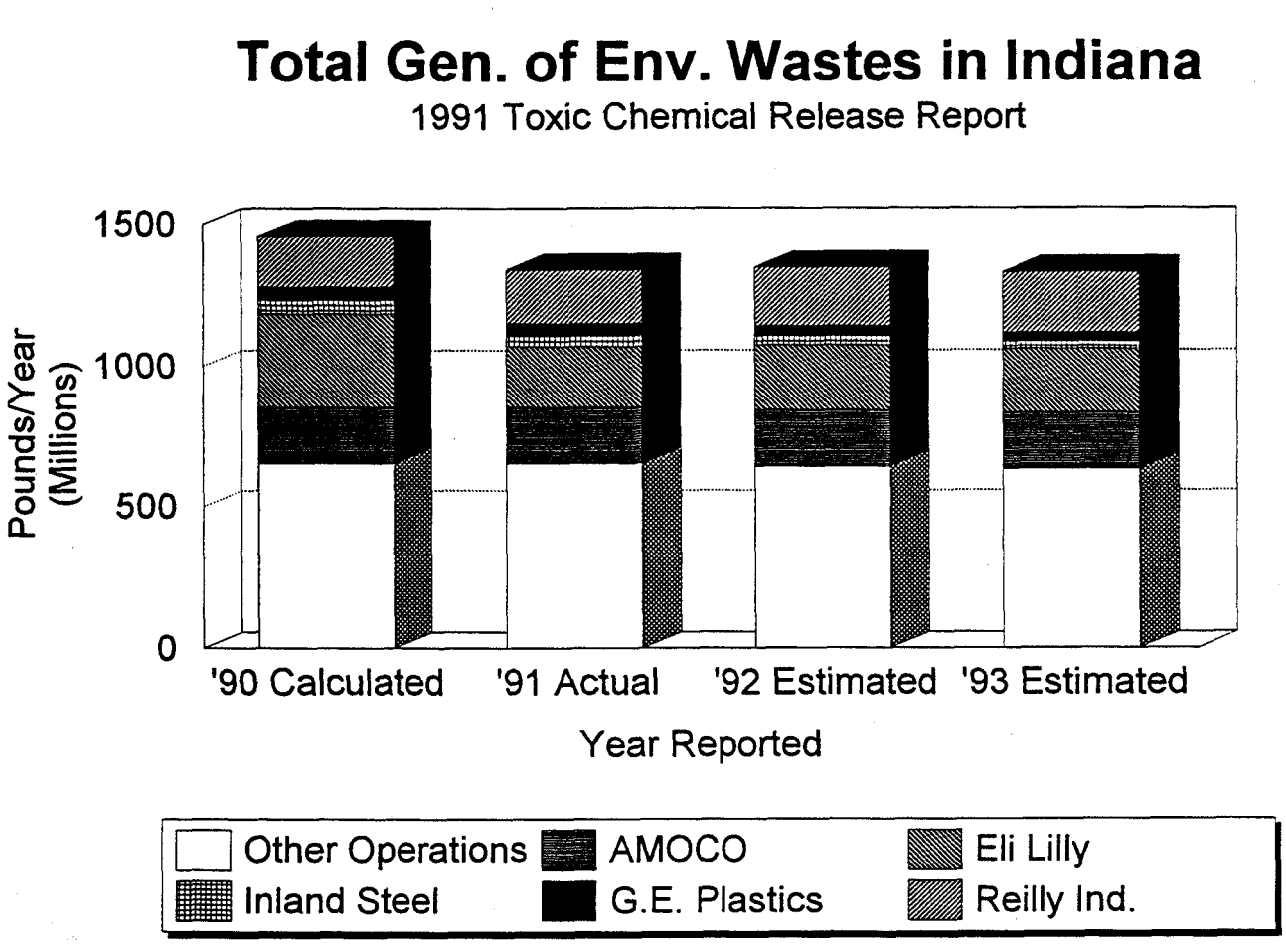


Figure 2-24

Figure 2-24 indicates the total generation of toxic chemicals in environmental wastes in Indiana by manufacturers. Each bar includes the contributions of each of the five operations with the remaining 990 facilities representing the lowest part of the bar.

- **8% increase in production rate from 1990 to 1991**
  - 16% **increase** for metals
  - 20% **increase** for solvents
  - 6% **decrease** for other toxic chemicals
- Little net reduction in environmental waste generation. Most of the reduction was from Eli Lilly and Company. This reduction was largely due to reduced production rates.

EPA
United States Environmental Protection Agency

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Chemical, Category, or Generic Name

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

	All quantity estimates can be reported using up to two significant figures.	Column A 1990 (pounds/year)	Column B 1991 (pounds/year)	Column C 1992 (pounds/year)	Column D 1993 (pounds/year)
8.1	Quantity released *				
8.2	Quantity used for energy recovery on-site				
8.3	Quantity used for energy recovery off-site				
8.4	Quantity recycled on-site				
8.5	Quantity recycled off-site				
8.6	Quantity treated on-site				
8.7	Quantity treated off-site				
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)				
8.9	Production ratio or activity index				

8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.			
	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1		a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11	Is additional optional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)	YES ☐	NO ☐

* Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated on-site or off-site.

EPA Form 9350 - 1 (Rev. 5/14/92) - Previous editions are obsolete.

SOLVENTS

CHEMICAL NAME	TRI CHEMICAL ID
1,1,1-TRICHLOROETHANE	000071556
1,2,4-TRIMETHYLBENZENE	000095636
1,2-DICHLOROBENZENE	000095501
ACETONE	000067641
ACETONITRILE	000075058
BENZENE	000071432
CARBON TETRACHLORIDE	000056235
CHLOROBENZENE	000108907
CHLOROFORM	000067663
CYCLOHEXANE	000110827
DICHLORODIFLUOROMETHANE	000075718
DICHLOROMETHANE	000075092
ETHYLBENZENE	000100414
ETHYLENE GLYCOL	000107211
FREON 113	000076131
GLYCOL ETHERS	000020100
ISOPROPYL ALCOHOL (MANUFACTURING)	000067630
M-XYLENE	000108383
METHANOL	000067561
METHYL ETHYL KETONE	000078933
METHYL ISOBUTYL KETONE	000108101
METHYL TERT-BUTYL ETHER	001634044
N-BUTYL ALCOHOL	000071363
O-XYLENE	000095476
PHENOL	000108952
SEC-BUTYL ALCOHOL	000078922
TERT-BUTYL ALCOHOL	000075650
TETRACHLOROETHYLENE	000127184
TOLUENE	000108883
TRICHLOROETHYLENE	000079016
TRICHLOROFLUOROMETHANE (CFC-11)	000075694
VINYL ACETATE	000108054
XYLENE (MIXED ISOMERS)	001330207

METALS

CHEMICAL NAME	TRI CHEMICAL ID
ALUMINUM (FUME OR DUST)	007429905
ALUMINUM OXIDE (FIBROUS FORMS)	001344281
ANTIMONY	007440360
ANTIMONY COMPOUNDS	000020008
ARSENIC	007440382
ARSENIC COMPOUNDS	000020019
BARIUM	007440393
BARIUM COMPOUNDS	000020020
CADMIUM COMPOUNDS	000020042
CHROMIUM	007440473
CHROMIUM COMPOUNDS	000020064
COBALT	007440484
COBALT COMPOUNDS	000020075
COPPER	007440508
COPPER COMPOUNDS	000020086
LEAD	007439921
LEAD COMPOUNDS	000020111
MANGANESE	007439965
MANGANESE COMPOUNDS	000020122
MERCURY	007439976
MOLYBDENUM TRIOXIDE	001313275
NICKEL	007440020
NICKEL COMPOUNDS	000020144
SELENIUM COMPOUNDS	000020166
SILVER	007440224
ZINC (FUME OR DUST)	007440666
ZINC COMPOUNDS	000020199

OTHER TOXIC CHEMICALS

CHEMICAL NAME	TRI CHEMICAL ID
1,2-BUTYLENE OXIDE	000106887
1,2-DICHLOROETHANE	000107062
1,3-BUTADIENE	000106990
1,4-DICHLOROBENZENE	000106467
1,4-DIOXANE	000123911
2,4-D	000094757
2,4-DIMETHYLPHENOL	000105679
2,4-DINITROTOLUENE	000121142
2-ETHOXYETHANOL	000110805
2-METHOXYETHANOL	000109864
2-PHENYLPHENOL	000090437
4,4'-ISOPROPYLIDENEDIPHE	000080057
4,4'-METHYLENEBIS	000101144
ACETALDEHYDE	000075070
ACRYLIC ACID	000079107
ACRYLONITRILE	000107131
ALLYL ALCOHOL	000107186
AMMONIA	007664417
AMMONIUM NITRATE (SOLUTION)	006484522
AMMONIUM SULFATE (SOLUTION)	007783202
ANTHRACENE	000120127
ASBESTOS (FRIABLE)	001332214
BENZOYL PEROXIDE	000094360
BENZYL CHLORIDE	000100447
BIPHENYL	000092524
BIS(2-ETHYLHEXYL) ADIPATE	000103231
BUTYL ACRYLATE	000141322
BUTYL BENZYL PHTHALATE	000085687
CALCIUM CYANAMIDE	000156627
CARBON DISULFIDE	000075150
CARBONYL SULFIDE	000463581
CHLORINE	007782505
CHLORINE DIOXIDE	010049044
CHLOROMETHANE	000074873
CREOSOTE	008001589
CRESOL (MIXED ISOMERS)	001319773
CUMENE	000098828
CUMENE HYDROPEROXIDE	000080159
CYANIDE COMPOUNDS	000020097
DECABROMODIPHENYL OXIDE	001163195
DI(2-ETHYLHEXYL) PHTHALATE	000117817
DIBENZOFURAN	000132649
DIBUTYL PHTHALATE	000084742
DIETHANOLAMINE	000111422
DIETHYL PHTHALATE	000084662
DIMETHYL PHTHALATE	000131113

OTHER TOXIC CHEMICALS

CHEMICAL NAME	TRI CHEMICAL ID
ETHYL ACRYLATE	000140885
ETHYL CHLOROFORMATE	000541413
ETHYLENE	000074851
ETHYLENE OXIDE	000075218
FORMALDEHYDE	000050000
HYDROCHLORIC ACID	007647010
HYDROGEN FLUORIDE	007664393
M-CRESOL	000108394
MALEIC ANHYDRIDE	000108316
METHYL METHACRYLATE	000080626
METHYLENEBIS(PHENYLISOCYANATE)	000101688
N,N-DIMETHYLANILINE	000121697
NAPHTHALENE	000091203
NITRIC ACID	007697372
NITROGLYCERIN	000055630
O-CRESOL	000095487
P-CRESOL	000106445
P-PHENYLENEDIAMINE	000106503
PERACETIC ACID	000079210
PHOSGENE	000075445
PHOSPHORIC ACID	007664382
PHOSPHORUS (YELLOW OR WHITE)	007723140
PHTHALIC ANHYDRIDE	000085449
PROPIONALDEHYDE	000123386
PROPYLENE	000115071
PROPYLENE OXIDE	000075569
PYRIDINE	000110861
QUINOLINE	000091225
STYRENE	000100425
SULFURIC ACID	007664939
THIOACETAMIDE	000062555
TOLUENE-2,4-DIISOCYANATE	000584849
TOLUENE-2,6-DIISOCYANATE	000091087
TOLUENEDIISOCYANATE (MIXED ISOMERS)	026471625
TRIFLURALIN	001582098
URETHANE	000051796

III. INTERNAL POLICY AND PROGRAM DEVELOPMENT

Chapter Overview

This chapter summarizes IDEM's past, present, and future objectives for the development of a P^2 Program in Indiana and is presented in three parts:

A. ORGANIZATIONAL STRUCTURE
B. INTEGRATING POLLUTION PREVENTION INTO REGULATORY PROGRAMS
C. POLLUTION PREVENTION INITIATIVES

The first heading, Organizational Structure, describes the development and growth of the Office of Pollution Prevention and Technical Assistance since its origin in 1991 up to the present staffing level. The organizational structure of the office and relationship to the rest of IDEM's programs are also explained. Significant efforts to promote and incorporate pollution prevention within IDEM's regulatory programs are presented next as status reports under part B of the chapter. The third heading, part C identifies specific initiatives lead by the OPPTA in the incorporation of pollution prevention into IDEM's regulatory programs.

A. ORGANIZATIONAL STRUCTURE [IC 13-9-1.3]

Legislative Mandates

- *An office of pollution prevention is established within the department of environmental management. The office of pollution prevention must become a division after June 30, 1993.*
- *The commissioner shall appoint an assistant commissioner to head the division.*
- *The commissioner shall hire employees of the division.*

IDEM Strategic Plan Mandates

Preventing pollution is the best form of environmental protection. Therefore we will:

- *Continue to increase coordination between the divisions of IDEM and between IDEM and other government regulatory programs with responsibilities and duties related to toxic materials and environmental wastes.*
- *To achieve success and provide effective public service, our agency must be guided by principles that reflect respect and commitment not only for our environment and public being served, but also for each person on the IDEM team.*

General Approach

The Office of Pollution Prevention and Technical Assistance has an overall mission to initiate and support voluntary action by Indiana's citizens and businesses. This mission combines similar skills and activities to provide a cohesive program that maximizes available resources. The Office of Pollution Prevention and Technical Assistance has four branches: pollution prevention; source reduction and recycling; environmental education; and operations. The pollution prevention branch has primary responsibility for coordinating IDEM's implementation of its responsibilities under the Indiana Industrial Pollution Prevention and Safe Materials Act. The operations branch supports the pollution prevention branch and operates the pollution prevention clearinghouse. The education and outreach branch also supports the pollution prevention branch and provides essential outreach tasks. Overall, 14 of the 32 positions on the OPPTA staffing table are committed to pollution prevention activities. The original OPPTA staffing table prior to May 1994 is provided as Figure 3-1 on page 3-3. IDEM's organizational chart is shown as Figure 3-2 on page 3-4.

The OPPTA's proactive pollution prevention initiatives are put into practice through its own staff and the integrated, multi-disciplinary IDEM P^2 Workgroup. The workgroup provides an essential bridge into the regulatory programs, as shown in Figure 3-5 on page 3-9.

Progress Report

1. Management Support [IC 13-9-7-1:3]

Pollution prevention ranks as a priority for the agency in IDEM's strategic plan. The vision statement for the pollution prevention priority is that "*All Indiana industries use pollution prevention techniques as the preferred method for protecting the environment.*" In accordance with the act though, IDEM does not discourage the use of recycling or treatment techniques determined to be acceptable for pollution that has not been prevented.

IDEM management is committed to the development of a proactive, voluntary P^2 Initiative. This approach is a deliberate attempt to involve all parties concerned in the formulation of the P^2 Programs, and to get their comments or concerns early in the process.

IDEM's management support of the P^2 Program is evident in the commitment to the comprehensive pollution prevention training program in progress. Every employee in the agency must attend a course to introduce them to pollution prevention. The Total Quality Management program described in the next section of this chapter also shows management commitment to continual improvement and employee empowerment. IDEM's Strategic plan further states that "*...our agency will use TQM-based processes to continuously improve the effectiveness and efficiency of our services.*" Both programs are actively being implemented for more than 700 staff in the agency. The commitment of time, resources, and staff dedicated to the success of both these complimentary programs sends a clear message that IDEM is serious about developing a "Total Quality Pollution Prevention Program".

OFFICE OF POLLUTION PREVENTION AND TECHNICAL ASSISTANCE

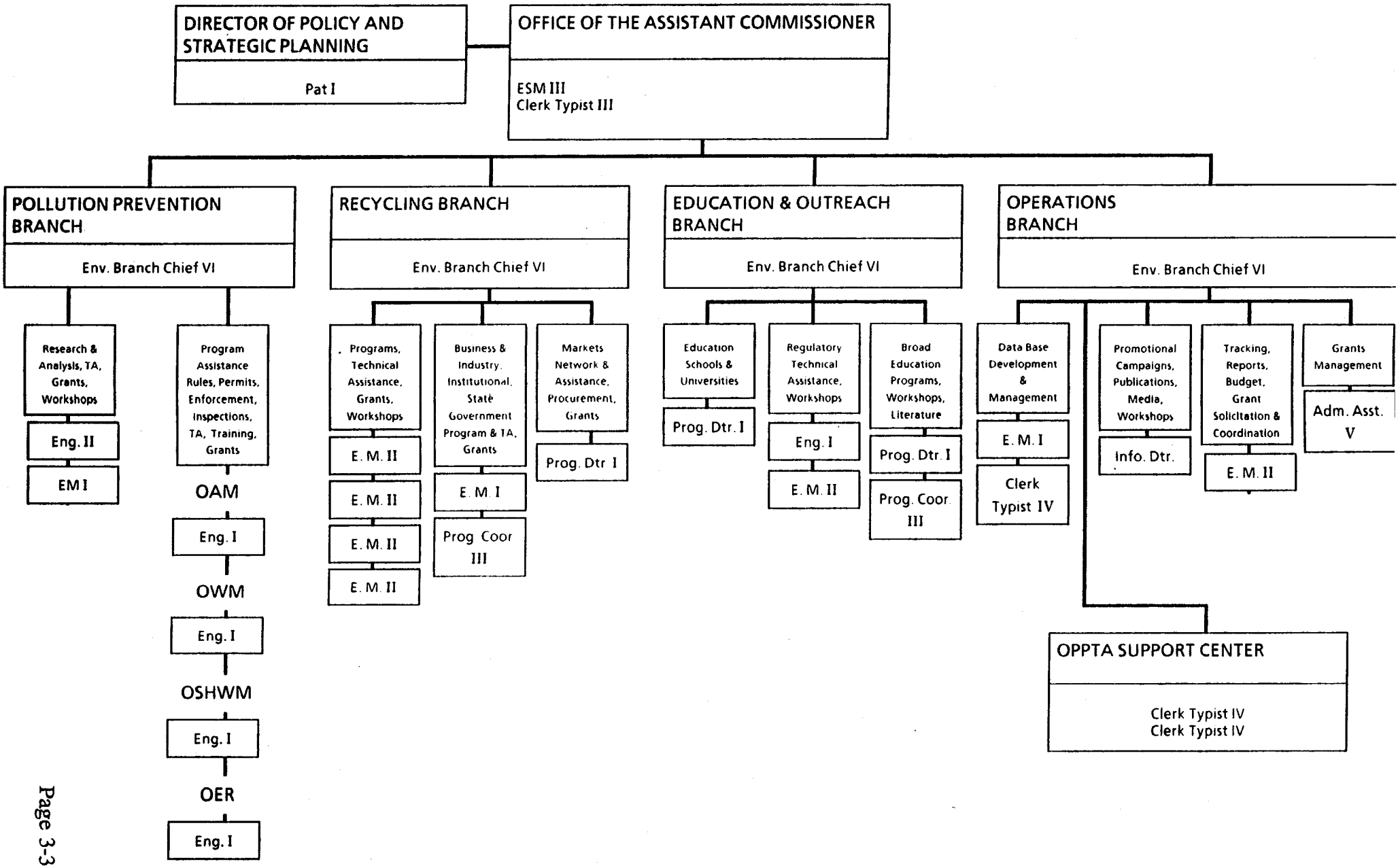
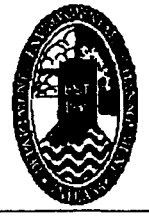


Figure 3-1

Figure 3-2

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT



OFFICE OF THE COMMISSIONER
Commissioner - Kathy Prosser
Exec. Assistant - JauNae Hanger 232-8162

OFFICE OF SPECIAL PROJECTS
Director - Jodi Perras 232-8162

NORTHWEST REGIONAL OFFICE
Director - David Dabertin 219/881-6712

DEPUTY COMMISSIONER FOR PUBLIC POLICY AND PLANNING
Deputy Comm. - Mike O'Connor 232-8162

- **OFFICE OF BUSINESS RELATIONS**
  Director - (Vacant)
- **OFFICE OF LEGISLATIVE AFFAIRS**
  Director - (Vacant)
- **OFFICE OF COMMUNITY RELATIONS**
  Director - (Vacant)
- **OFFICE OF EXTERNAL AFFAIRS**
  Director - Will Fay 232-8560
- **OFFICE OF POLLUTION PREVENTION AND TECHNICAL ASSISTANCE**
  Asst. Comm. - Tom Neltner 232-8172
- **OFFICE OF VOLUNTARY COMPLIANCE**
  Director - (Vacant)

DEPUTY COMMISSIONER FOR ENVIRONMENTAL AND REGULATORY AFFAIRS
Deputy Comm. - Tim Method 232-8162

- **OFFICE OF AIR MANAGEMENT**
  Asst. Comm. - (Vacant) 232-5586
- **OFFICE OF WATER MANAGEMENT**
  Asst. Comm. - Chip Landman 232-8476
- **OFFICE OF SOLID & HAZARDOUS WASTE MANAGEMENT**
  Asst. Comm. - David Wersan 232-3210
- **OFFICE OF ENVIRONMENTAL RESPONSE**
  Asst. Comm. - Greta Hawvermale 233-6350

DEPUTY COMMISSIONER FOR LEGAL AFFAIRS
Deputy Comm. - Rosemary Spalding 233-3706

- **OFFICE LEGAL COUNSEL**
  Director - Felicia George 233-8493
- **OFFICE OF HEARINGS**
  Chief Law Judge - Wayne Penrod 232-8591
- **OFFICE OF ENFORCEMENT**
  Director - Kathryn Watson 233-5523
- **OFFICE OF INVESTIGATIONS**
  Director - Leon Griffith 232-8128

DEPUTY COMMISSIONER FOR MANAGEMENT, BUDGET AND ADMINISTRATION
Deputy Comm. - Becky Schenk 232-8160

- **FISCAL MANAGEMENT DIVISION**
  Controller - Jerry Higdon 232-8182
- **ADMINISTRATION DIVISION**
  Prog. Dir. - Mary Pat Poskon 232-8122
- **HUMAN RESOURCES DIVISION**
  Director - Brenda Simpson 232-8144
- **MANAGEMENT INFORMATION SERVICES**
  Director - Fred Alvarez 233-3408

7/94

2. Total Quality Management [IC 13-9-7-1:3]

IDEM's Strategic Plan states that *"the culture of IDEM should be one that values and promotes employee empowerment, teamwork, public service, fact-based decision-making, innovation, and continuous improvement."*

Total Quality Management is still in the early stages within IDEM, but implementation began in 1993, and staff training is presently in full progress and will continue over the next three years. IDEM started TQM because it endorses the basic principles of:

- Employee empowerment
- Customer focus
- Fact-based decision-making
- Continuous improvement

IDEM believes that TQM will help the agency improve environmental protection by continuously improving the service provided to its customers. By changing the culture within the agency, IDEM will be better able to meet the environmental protection challenges of the 1990's and implement pollution prevention into all agency efforts.

TQM also offers many analytical and statistical tools that help achieve fact-based decision-making. Using this approach, an entire process is carefully analyzed to identify the causes of a problem and arrive at the best solution. This process, involving Quality Action Teams of empowered employees, uses a four step process known as FADE:

- **F**ocus - on the problem in a specific work process
- **A**nalyze - the problem
- **D**evelop - action plans to improve the process
- **E**xecute - the solution and measure its success

Because Total Quality Management offers opportunities for innovations and improvements, it is an ideal concept suited for pollution prevention activities. Pollution prevention requires a broad, holistic, multi-media view of a process or operation to identify solutions that do not just shift the problem to other media. The marriage of Total Quality Management with pollution prevention is a practice recognized by pollution prevention consulting firms, and is fundamental to the success of most pollution prevention case studies. By learning TQM principles, IDEM staff will be better able to help businesses implement pollution prevention.

A graphic analogy of the two concepts is shown on the next two pages with Figures 3-3 and 3-4 on the following pages.

Figure 3-3

MANAGEMENT COMPONENTS OF A P2 PROGRAM

Establish Management Commitment

Create Employee Awareness

Form P2 Program and PPA Teams

Ensure that P2 Options are Identified, Evaluated, and Implemented

Train Employees

Provide Recognition for Environmental Quality Improvements

PROCESS ASSESSMENT COMPONENTS OF A P2 PROGRAM

Quantify the True Cost of Pollution

Establish Measurement Systems

Focus on the Manufacturing Process

Set Goals and Track Progress

Figure 3-4

COMPLEMENTARY TQM AND P2 PRINCIPLES

TQM PRINCIPLE	P2 PRINCIPLE
Motivation from competition because of increased customer demand for quality: Manufacturers are driven to exceed customer expectations and find ways to "thrill" the customer to maintain economic and market share advantages.	**Motivation of company survival because of increasing waste management requirements and costs:** Manufacturers are driven to set goals beyond minimum compliance and find ways to reduce and eliminate waste to maintain economic, regulatory, and public relations advantages over competitors.
Management commitment at the highest level and decentralization of responsibilities required: Manufacturing operations must have clear message from management that quality is everyone's responsibility, and all employees must have full authority and responsibility to implement process improvements and improve product quality.	**Management commitment at the highest level and decentralization of responsibilities required:** Manufacturing operations must have clear message from management that P2 is everyone's responsibility, and all employees must have full authority and responsibility to identify and implement P2 opportunities.
Policy focus on continuous quality improvement through improved efficiency instead of one-time innovative leaps: Manufacturers rely on continuous and incremental improvement, and not on technological breakthroughs, to correct ineffective manufacturing processes; focus is often on the human element associated with manufacturing and improved quality.	**Policy focus on reduced waste generation through improved process efficiency instead of on standard end-of-pipe technologies:** Manufacturers rely on closed-loop modifications and improved operating practices to achieve increased efficiency, reduced waste generation, and decreased reliance on treatment technologies; focus is often on the human element associated with process efficiency and waste generation.
Process operations are designed, implemented, and evaluated based on facts, data, and analysis: Manufacturers use process controls and checks to improve process efficiency, reduce errors, and improve quality.	**Process operating parameters are defined and implemented based on facts, data, and analysis:** Manufacturers use process controls and checks to improve process efficiency and reduce material use and waste generation.
Sets an absolute goal of zero defects and attempts to achieve it through improvement of the production process instead of through final quality control of the product: Improved quality is achieved by control within the production process to prevent the generation of defective products.	**Sets an absolute goal of zero pollution discharge and attempts to achieve it through closed-loop changes instead of end-of-pipe controls:** P2 is achieved through modifications within the manufacturing process to improve efficiency and reduce waste.

3. OPPTA Staffing [IC 13-9-2-2&3]

The first assistant commissioner for the office was Ms. Joanne Joyce, who was appointed to the position in September 1990. Ms. Joyce organized the original staff and coordinated all projects the office embarked on until March 1993. During her tenure, two full time employees were the only staff in the pollution prevention branch.

Mr. Tom Neltner was appointed to the assistant commissioner role in May 1993 after a brief transition period led by Mr. Gerry Hayes. Mr. Neltner came to the office with extensive knowledge of pollution prevention, regulatory programs, and manufacturing processes.

IDEM has acted as quickly as possible to bring on a diverse staff that has an in-depth understanding of the environmental and occupational safety programs in Indiana from a regulatory compliance and technology perspective. Currently nine full-time equivalent employees are working on pollution prevention issues. Most of these pollution prevention staff have been added since March 1993. Current hiring restrictions prevent fully staffing the office.

The pollution prevention branch chief position has recently been filled and completes the management structure of the pollution prevention branch. Filling this position now allows the assistant commissioner to pursue the development of new pollution prevention programs.

4. IDEM P^2 Workgroup [IC 13-9-2-5(3)]

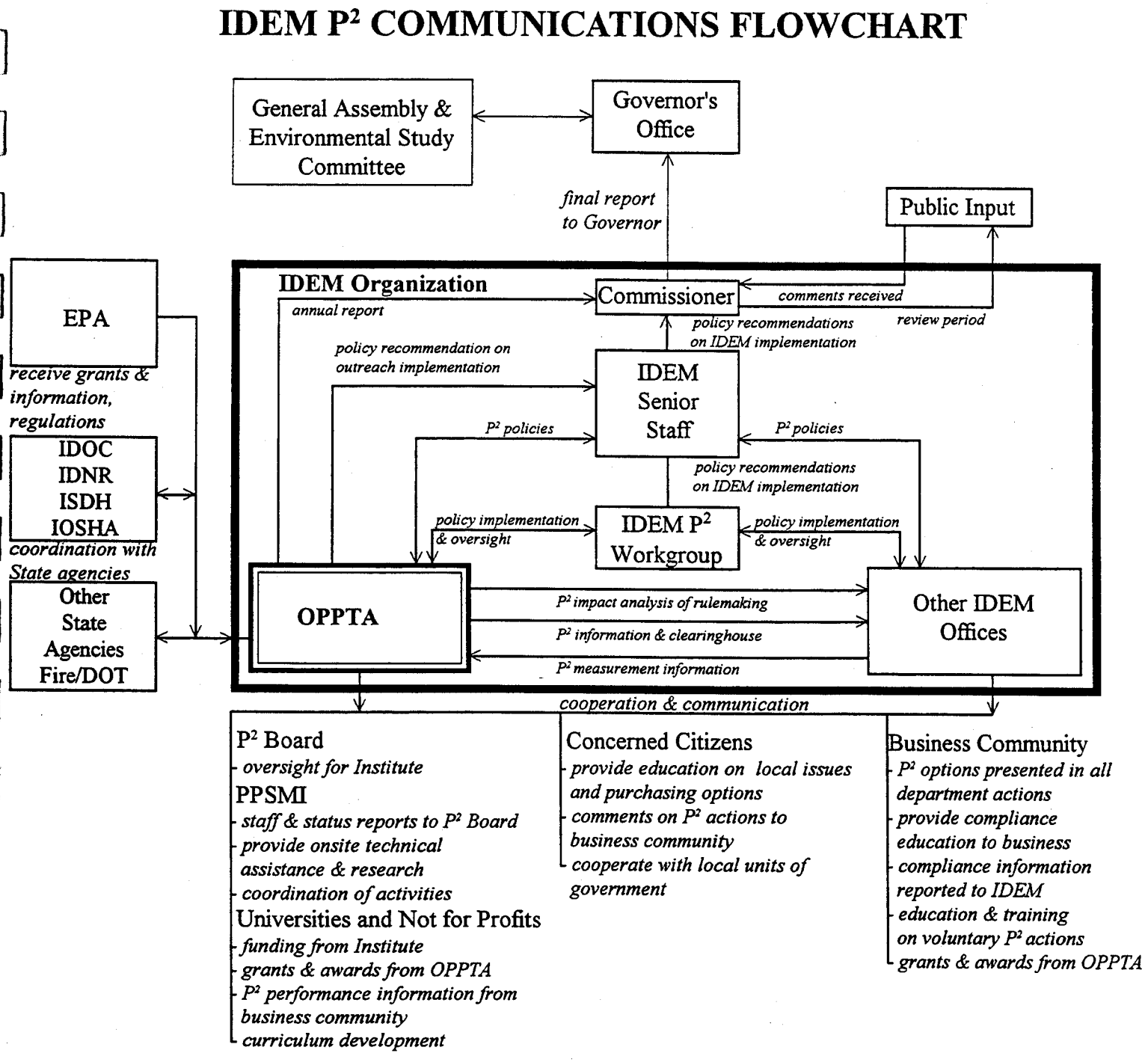
The pollution prevention workgroup is a direct response to the legislative mandate that the *"commissioner and the assistant commissioner through a coordinated effort,.. shall promote increased coordination between the divisions of the department..".*

The IDEM Pollution Prevention Workgroup was established in August of 1992 to oversee the incorporation of pollution prevention concepts into the other programs in the agency. The workgroup meets on a regular basis to formulate and incorporate multi-media pollution prevention options into all departmental actions. The eight member work group meets bi-monthly and as needed to coordinate training and policy development for pollution prevention. The workgroup is made up of managers from the offices of Air Management, Water Management, Solid and Hazardous Waste Management, Environmental Response, Enforcement, and Legal Counsel. Workgroup members are invited to bring any programmatic issues to the discussion table and to contribute freely to the agenda.

The workgroup has been instrumental in planning and leading in-house staff training for pollution prevention. These activities have included regular meetings with the training contractor, evaluating course materials, speaking at the training sessions, and reviewing progress. Other projects include serving in an advisory capacity in developing materials for public distribution, policy development, and reviewing proposals from the OPPTA and other divisions which will promote intra-departmental pollution prevention. The work group will continue to function as an on-going integral part of the IDEM P^2 Program, and all staff are invited to provide individual support and innovations, through it.

Figure 3-5 below shows a detailed flowchart of the P² Workgroup's interactions and communications process.

Figure 3-5



5. IDEM P^2 Staff Training [IC 13-9-2-5(2)]&[IC 13-9-4-7]

The statute mandates that the *"commissioner and assistant commissioner through coordinated effort, shall identify opportunities to promote and assist in pollution prevention"*, and; *"if requested by the commissioner, the Pollution Prevention and Safe Materials Institute (PPSMI) may assist in the training of inspectors and other key personnel employed by the division or the department to assist in the implementation of the P^2 Initiative"*.

In June of 1992, pursuant to Governor Bayh's initiative, the OPPTA began a comprehensive training program on pollution prevention for all IDEM staff. The objective of this training was to provide the staff with the information and tools needed to articulate pollution prevention concepts to all interested parties and to incorporate these concepts into their work products and daily activities.

IDEM's P^2 training program is unique in that it is the first comprehensive pollution prevention training program conducted within a state environmental agency in the country. The comprehensive three-phase strategy was developed and is being implemented to provide agency training in pollution prevention and is described as follows.

Phase I: Conduct one-half day technical sessions for all staff to enable them to provide the regulated community with a clear description of Indiana's definition and approach to pollution prevention and how it differs from the federal program. As well as to identify pollution prevention opportunities within their scope of work with the regulated community, and to alert an OPPTA or IDEM P^2 Work Group representative to identified opportunities.

Phase II: Conduct twelve monthly full-day sessions addressing pollution prevention opportunities in specific industries and operations. Sessions include specific industrial process descriptions, chemistry, waste stream analysis and a discussion of pollution prevention options by a recognized expert in the particular topic.

Phase III: Conduct up to twelve function-specific specialist courses for frontline staff such as permit writers, technical staff, enforcement and compliance inspectors as recommended by IDEM's P^2 Work Group.

A contractor, the Environmental Management Institute (EMI), was selected to develop and implement the training program. The project accomplishments include:

- Compilation of a comprehensive survey and follow-up of similar programs in other states and the federal government;
- Development of the course manual *Pollution Prevention: Indiana's Choice for Environmental Protection;*
- Phase I introductory training provided to almost 700 staff in 35 sessions by July 1, 1994 (including technical, clerical, other professional, and all new employees);
- Continued refinement of the course to meet the needs of IDEM staff and reflect changes in legislation;

- Phase II industry-specific training developed for targeted priority processes and presented approximately once a month to technical staff. The first four courses were:

  Pollution Prevention at Coatings Facilities - January 18, April 25, and May 23, 1994
  Pollution Prevention at Electroplating Facilities - February 8, and April 29, 1994
  Pollution Prevention in Degreasing Operations - March 24, and May 24, 1994
  Pollution Prevention in Printing Operations - June 14, 1994

- Industry-specific resource manuals developed for targeted processes;
- Planning and recommendations for Phase III function-specific training.

The OPPTA's objective is to continue providing technical assistance and training within IDEM. The Phase I training section of the course was turned over by EMI to IDEM to teach as per the contract after the majority of IDEM staff had received Phase I training. IDEM staff now conducts the Phase I training. This program will be continued as planned using the technical manuals developed in Phase II as the foundation to provide businesses with pollution prevention options in all departmental actions as mandated by the legislature. As policy decisions are made, Phase III will be used to implement them.

The Pollution Prevention and Safe Materials Institute Director and staff have also been invited to attend IDEM's training sessions and comment on the programs content and progress. Several individual pollution prevention seminars were also offered and open to staff during the period 1990-93 which were conducted jointly by the OPPTA and the Purdue University Environmental Management and Education Program under a U.S. EPA grant. These efforts are described in a Chapter IV B report under "Workshops, Seminars and Conferences".

6. Remedial Action Plan Training [IC 13-2-5(9)]

Efforts to coordinate remedial action planning for Northwest Indiana created a specific need for pollution prevention training in May of 1992 for IDEM staff and the Citizens Advisory for the Remediation of the Environment (CARE) Committee working on this vital project. The Waste Reduction Institute for Training and Applications was contracted through a supporting grant from U.S. EPA to conduct a two-day training workshop at the Indiana University Northwest Campus, and the sessions were well attended.

A technical resource guide, *Pollution Prevention for Remedial Action Plans,* was developed. The Remedial Action Plan is a document that describe the state's effort to cleanup past problems and prevent future ones. In preparation for these sessions, pollution prevention is an essential aspect of the document's plan for preventing future problems. The focus of the training was to look upstream for the sources of pollution and evaluate what pollution prevention methods could be used to alleviate waste problems in different processes. This training is an example of a special need being satisfied through cooperation with federal, state, local, and institutional resources.

B. INTEGRATING POLLUTION PREVENTION INTO REGULATORY PROGRAMS [IC 13-9-2-5(2)]& [IC 13-1-10.1]

Legislative Mandates

The Office of Pollution Prevention and Technical Assistance shall assist the division of air, the division of water, and the division of solid and hazardous waste management in identifying, within planned and existing regulatory programs of the department, obstacles to pollution prevention and opportunities to promote and assist in pollution prevention, and work to promote increased coordination between the divisions of the department . . . .

Pollution prevention programs are to be implemented based on voluntary participation by businesses. Businesses may not be required to comply with any program developed by IDEM. This limit does not apply to authority granted under federal law to implement pollution prevention as defined under:

1. *Federally delegated air,water, solid waste, and other programs;*
2. *Guidance documents developed to implement those federally delegated programs described above;*
3. *Programs established under the solid waste management planning statute (IC 13-9-7-2)*

Programs implemented by Office of Pollution Prevention and Technical Assistance shall encourage pollution prevention and not discourage the use of recycling or treatment techniques determined to be acceptable for pollution that has not been prevented.

IDEM Strategic Plan Mandates

- *Increase coordination between the divisions of IDEM . . . .*
- *Increase coordination of toxic reduction efforts within IDEM . . . .*
- *Reduce the generation of hazardous waste through education, pollution prevention, waste minimization, and effective enforcement of the Resource Conservation and Recovery Act.*
- *Develop and implement an effective air toxics program that emphasizes pollution prevention and minimizes exposure to those substances.*
- *Address environmental problems along all media, simultaneously protecting the land, air and water. Pollution prevention is a means to achieving that goal and many others.*

General Approach

IDEM staff are directed to provide businesses with pollution prevention options in all department actions, including permit conditions and enforcement actions, and to direct businesses to the Pollution Prevention and Safe Materials Institute for technical assistance. Programs are directed to encourage pollution prevention and not discourage the use of recycling or treatment techniques determined to be acceptable for pollution that has not been prevented. These mandates require IDEM to incorporate pollution prevention concepts and methods into the air, water, solid and hazardous waste, and emergency response programs.

The OPPTA has addressed the challenge of incorporating pollution prevention into all IDEM actions with a multi-faceted approach involving the programs at many levels. However, the core of IDEM's pollution prevention program is training and education. For pollution prevention to succeed, IDEM staff must have a solid understanding of the definition of pollution prevention; the key manufacturing processes in Indiana and their inherent pollution prevention opportunities; and IDEM's policies regarding the incorporation of pollution prevention into the regulatory programs. For these reasons, IDEM has aggressively pursued the staff training program described earlier.

To accomplish these tasks in an effective and efficient manner, a variety of internal outreach programs have been developed and include:

- P^2 Options in Enforcement Actions
- P^2 Options in Permit Conditions
- P^2 Options in Other Departmental Actions
- P^2 Contact Program
- P^2 as Part of EPA-State Work Plans
- P^2 Impact Analysis
- Unified Reporting and Permitting Requirements

Progress Report

1. P^2 Options in Enforcement Actions [IC 13-1-10.1]

The statute as amended by the 1993 General Assembly, stated that IDEM must present pollution prevention options in agency enforcement actions. In response, IDEM formed a workgroup in September of 1993 led by the Office of Enforcement to develop formal guidance for the office on supplemental environmental projects, also known as SEPs. SEPs can be used to offset a portion of the fine in civil enforcement actions. Pollution prevention is a prime candidate for a SEP, with a better offset ratio than pollution control projects. The agency anticipates that pollution prevention will be a SEP in most agency enforcement actions involving businesses. This approach will provide the business with an economic opportunity to go beyond its regulatory requirements in its environmental protection program. Experiences in Indiana and other states have shown that once a company begins to implement pollution prevention, even in the context of an enforcement action, it often results in a long-term proactive commitment.

The SEP workgroup has met frequently since its formation. It has tentatively decided to model its IDEM SEP program based on the format of EPA's SEP program and to establish a review committee that will review SEP proposals by the regulated community. The review committee will ensure consistent application of the policy until the agency gains additional experience with this topic.

While the SEP workgroup efforts have been progressing, the Office of Enforcement has recognized SEPs in a variety of enforcement actions, mostly in the air program. The majority of these SEPs have promoted pollution prevention. These SEPs are evaluated on a case-by-case basis with the support of the OPPTA. SEP's and the companies who have chosen to try this option are discussed again and listed in Part C of this Chapter.

2. P^2 Options in Permit Conditions [IC 13-1-10.1]

In addition to enforcement actions, the statute, as amended by the 1993 General Assembly, states that IDEM must present pollution prevention options in permit conditions. IDEM fully supports this concept. Pollution prevention is most effective when incorporated into the design of a new facility or a major modification at an existing facility. And environmental permits are often needed when this change occurs. By learning of pollution prevention alternatives in the permitting process, a facility may be able to modify their use of materials, their facility and their process design, reduce waste streams, increase operational efficiencies, and design those changes into the new operation. All pollution prevention options should be considered by applicants at this stage.

IDEM has begun to provide pollution prevention information when permit applications are distributed and at other steps in the process. The information provided is general in nature and meets the basic information needs of the company. However, unlike Supplemental Environmental Projects (SEPs) in enforcement actions, pollution prevention options are not written into the conditions of an environmental permit. IDEM has taken this approach for two reasons: the conflicting language of the statute that distinguishes options from requirements and the existing backlog of permit applications that must be processed.

A permit is developed by translating the requirements of the relevant regulations into the situation presented by a specific facility. Permit negotiations generally deal with how this translation is performed. Companies have little interest in voluntarily accepting the additional permit conditions relating to pollution prevention. Unlike the enforcement process where a company can receive an offset to a fine, there is little a company can gain from accepting additional legally enforceable requirements that it must comply with in the future.

The balancing of options usually comes into the negotiations when a company cannot meet the requirements of a permit and needs either a compliance schedule or a variance from the permit conditions. Offering pollution prevention options in this limited area has the potential of crossing the line and leading to requiring company's to implement pollution prevention in their permits. This result is prohibited by the statute. Presenting pollution prevention options as a condition in a permit would be a significant change in the permitting process that would need to be carefully done in order to avoid statutory restrictions.

In addition, due to staff and funding limitations, IDEM has had a significant backlog of permit applications the must be processed. In response to this backlog, the 1994 General Assembly provided the agency with the resources it needed to substantially improve its services and process permit applications promptly. Along with the funding, the legislature imposed strict accountability requirements that require that the agency will be difficult for the agency to meet. As discussed above, incorporating pollution prevention conditions into a permit will probably involve a significant change in permit processing procedures. These changes may impair the ability of the agency to meet the established deadlines. Therefore, the agency decided to delay this change until the backlog has been addressed.

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3. P^2 Options in Other Departmental Actions [IC 13-1-10.1]

In addition to permit conditions and enforcement actions, IDEM is mandated to present pollution prevention options in all other department actions. IDEM has frequent interaction with the regulated community. Each of these interactions is an opportunity to present pollution prevention options to them. This interaction can occur during the rulemaking process, preparation of a permit, billing for permit fees, inspections, and enforcement actions. After evaluating each of these interactions as an opportunity to present pollution prevention options to businesses, IDEM decided that presenting the options during inspections would be the most effective first step. During an inspection, the inspector is able to see the facility in its entirety and, therefore, be better able to offer the most appropriate pollution prevention options. In addition, because of the nature of an inspection, the operator of the facility is particularly attentive to issues raised by the inspector.

This first step in the process began in February 1994. The OPPTA gave each water, air, and waste management compliance inspector a P^2 Packet of information to distribute. The packet contained general pollution prevention information that applies to any business. It also contained manuals on specific operations such as electroplating, degreasing, coating, and printing. As more manuals or fact sheets are identified or developed, they will be added to the packet.

The OPPTA has distributed about 250 packets since January, 1994. In order to avoid potential confusion, inspectors were instructed to provide the information to the business and only discuss pollution prevention options they felt comfortable discussing. If questions came up, the inspector would refer the person to OPPTA. As the staff training program progresses and more formal policies and procedures are developed, the inspectors will be better able to present and describe more options.

This program has met with acceptance by the inspectors and the regulated community in the short time that it has been offered. Therefore, IDEM has begun steps to present pollution prevention options in other interactions with the regulated community. Several programs have begun to distribute the information with billing statements to emphasize the potential cost savings of pollution prevention and through forms and reports that IDEM distributes for the regulated community to complete. OPPTA will continue to monitor this effort. It will revise and expand it when the appropriate opportunities arise.

The OPPTA will continue to develop additional industry and chemical-specific pollution prevention materials. In all cases, materials will be reviewed for their consistency and agreement with the Indiana definition.

4. P^2 Contact Program [IC 13-9-2-5(3)]

The P^2 Contact Program is intended to reach out to other program areas to enhance communications and technical assistance. Members of the pollution prevention branch were selected to serve as a point of contact or liaison between the OPPTA and each of the four regulatory programs. Each OPPTA member was selected based on their previous work experience with or their personal contacts in other program areas. This approach gives the Office of Air, Water, Solid and Hazardous Waste, and Environmental Response a "familiar face" to contact in the OPPTA as questions or calls for pollution prevention assistance arise.

The Office of Environmental Response was selected as a pilot effort to begin this program. The office's activities involve emergency response, monitoring underground storage tanks, and remediating past releases. These activities tend to have limited pollution prevention opportunities so it presented an excellent controlled opportunity. In addition, the office has been a strong supporter of pollution prevention as a method to avoid creating problems they may have to eventually deal with. In cooperation with environmental response staff, the OPPTA staff identified the spill notification response form as an excellent beginning. The form is required to be completed for most spills in Indiana. If a facility had a spill, they would be more likely to consider operational improvements to avoid future spills. The OPPTA developed a Spill Prevention Fact Sheet for distribution by inspectors on spill sites and as a supplement to correspondence to parties who reported a spill.

The Environmental Response contact program will serve as a model for the development of other media program activities. As materials are developed and packaged as described in the previous section, the P^2 Contacts will be responsible for getting this information to the other program areas and help get it distributed through their staff to the industries they service. Distribution may be accomplished during personal inspections of facilities, by mailings, or any other appropriate means. The P^2 Contact is responsible for coordination of the effort and ensuring that information is distributed, and for getting feedback from the programs regarding the P^2 Contact Program's success or need for improvements. Relations will continue to develop as more information is available and other assistance is needed.

5. P^2 as Part of EPA-State Work Plans [IC 13-9-2-5(3)]

Two programs have included pollution prevention as a specific issue in their FY1994 work plans with EPA. These work plans are the basis for the federal grant of funding to operate the program. The hazardous waste program and the underground storage tank programs have each committed to distributing pollution prevention materials during inspections. In addition, the hazardous waste compliance program has developed a targeted inspection program that focuses on degreasing operations, coating operations, and electroplating since those industries have demonstrated pollution prevention options and generate significant quantities of hazardous waste.

6. P^2 Impact Analysis [IC 13-9-2-5(2)(B)]

The statute requires that IDEM perform a pollution prevention impact analysis on all proposed and final environmental rules. This analysis provides the agency with an opportunity to identify specific barriers to pollution prevention that may be present in its rules and to recommend methods to reduce these barrier where appropriate. IDEM will begin this analysis with notices and proposed rules published in the May 1, 1994 Indiana Register. The analysis are available to the public, and are listed as follows:

- Pollution Prevention Regulatory Impact Analysis on LSA #94-5
  Wood Furniture Coating in Clark, Floyd, Lake, and Porter Counties

- Pollution Prevention Regulatory Impact Analysis on LSA #94-6
  Architectural and Industrial Coatings in Clark, Floyd, Lake, and Porter Counties

- Pollution Prevention Regulatory Impact Analysis on LSA #94-7
  Volatile Organic Liquid Storage Tanks in Clark, Floyd, Lake, and Porter Counties

- Pollution Prevention Regulatory Impact Analysis on LSA #94-8
  Shipbuilding and Ship Repair Operations in Clark, Floyd, Lake, and Porter Counties

- Pollution Prevention Regulatory Impact Analysis on LSA #94-9
  Automobile Refinishing Operations in Clark, Floyd, Lake, and Porter Counties

- Pollution Prevention Regulatory Impact Analysis on LSA #93-7
  Automobile Emission Inspection/Maintenance (I/M) Program

- Pollution Prevention Regulatory Impact Analysis on LSA #94-1
  Resource Recovery Facility Certification

7. Unified Reporting and Permitting Requirements [IC 13-9-2-7]

The statute gives IDEM the authority to seek unified reporting and permitting authority from the United States Environmental Protection Agency (U.S. EPA) with respect to federal toxic material, waste management, and pollution control laws and regulations in effect on January 1, 1990. Unified reporting and permitting encourages a multi-media evaluation of a facilities processes. During this multi-media evaluation, pollution prevention options are generally more easily identified and implemented. The barrier of modifying one permit to allow a change initiated by another permit renewal is not present. IDEM has decided not to exercise this authority at this time. Due to limited resources, IDEM has a backlog of permit applications that must be evaluated quickly. This backlog makes it impractical to create additional steps in the permit evaluation process. The benefits of unified permitting and reporting would be lost if the agency does not have the resources to do it properly.

C. P^2 PROGRAM INITIATIVES [IC 13-1-10.1]

Legislative Mandates

Programs developed are to be implemented based on voluntary participation by business. Businesses may not be required to comply with any program developed.

Guidance documents, technical assistance manuals, and policies developed or use in implementing programs are not binding on participating businesses unless rules are adopted by the division.

IDEM Strategic Plan Mandate

Continue to increase coordination between the divisions of IDEM and between IDEM an other government regulatory programs with responsibilities and duties related to toxic materials and environmental wastes.

General Approach

The programs described under the previous heading relate to agency-wide efforts that address multi-media programs and concerns. But to be most effective, the IDEM has developed specific P^2 Initiatives that are designed for and with each of the four regulatory programs. The intent of the P^2 Initiatives is to focus pollution prevention efforts on a particular media need, and to prevent the potential transfer of waste to another media. The sections that follow describe each office's current pollution prevention efforts.

Progress Reports

1. Office of Air Management

The Office of Air Management has long incorporated pollution prevention into their programs as a complement to pollution control. However, they did not draw a distinction between the two. Their focus was on the most efficient methods to releases reductions to the air. In the Office of Air Management, Indiana's pollution prevention program initially meant an increased emphasis on multi-media impacts - an aspect that did not receive much special attention in the past.

Historically, the office has had four specific regulatory approaches to promoting pollution prevention activities. These approaches include:

a. Reducing the presence of potential pollutants in the raw material. This approach was common in the permit limitations on the types of fuel that may be burned in a boiler. By lowering the sulfur in the fuel, less sulfur dioxide was generated.

b. Requiring that all air pollution control equipment be registered with the state. Air pollution control equipment is defined as equipment which is not vital to production of the normal product of the facility. Equipment is vital if the facility could not produce its normal product or operate without it. The burden of registering this equipment creates an incentive for pollution prevention.

c. Determining whether a facility must submit a permit application based on potential emissions rather than actual emissions. Actual emissions are determined after accounting for pollution control equipment. In contrast, potential emissions are determined as if the facility were operated without the use of pollution control equipment. This basis for measurement creates a significant incentive for businesses to use pollution prevention practices and possibly avoid the need for an air pollution permit from IDEM.

d. Establishing thresholds for regulation that a business can go below through pollution prevention. For example, a business in Indiana must submit a permit application if its potential emissions of volatile organic compounds at full capacity exceeds 3 pounds/hour or 15 pounds/day. This approach creates a strong incentive for businesses to go below this threshold. Pollution prevention is the best way for a business to achieve this goal.

In recent years, the office's pollution prevention efforts have focused on multi-media impacts and on implementing air pollution programs mandated by the Clean Air Act Amendments of 1990 in a manner that incorporates pollution prevention concepts. This task has been made easier by EPA because many of the new National Emission Standards for Hazardous Air Pollutants (NESHAPs) incorporate pollution prevention to a great extent. For example, the September 1993 NESHAP for drycleaning operations measures performance based on the quantity of toxic chemicals used not the quantity released. Furthermore, the regulation required a significant inspection and maintenance program to detect problems before they become serious. EPA even extended this inspection and maintenance program to small drycleaners. In addition, EPA's anticipated risk management regulations for chemical accidental release prevention by businesses will encourage pollution prevention.

The Office of Air Management's specific pollution prevention efforts are as follows:

a. Distributing pollution prevention packets to inspectors. The inspectors have been distributing the materials in the packets to businesses since March of 1994.

b. Establishing an air toxics workgroup and including the Office of Pollution Prevention and Technical Assistance in these discussions.

c. Working with the seven local air pollution agencies to provide them with the IDEM introductory course on pollution prevention. OPPTA will offer the introductory training to the staff of the local agencies.

2. Office of Water Management

The water pollution programs at both the state and federal levels primary approach to pollution prevention has been to require businesses to develop and implement plans that address pollution prevention and other issues. These plans include:

a. Spill Prevention Control and Countermeasure (SPCC) Plans.
SPCC plans are required for facilities that store significant quantities of oil that could be potentially discharged to navigable waters. The prevention aspects of the plans require businesses to design and operate facilities so the likelihood of releases of oil from their storage and handling systems is reduced.

b. Best Management Practices (BMP)
BMPs are frequently required by IDEM in National Pollutant Discharge Elimination System (NPDES) permits to prevent releases of toxic pollutants from occurring at facilities that handle these chemicals. Like the SPCC plans, these practices include housekeeping, inspection, maintenance, and training requirements that promote pollution prevention.

c. Slug Control Plans
Slug control plans may be required by IDEM or local pretreatment programs to prevent and control unusual discharges to the sewer system from significant industrial users. Like BMPs and SPCC plans, these slug control plans includes many pollution prevention elements.

d. Storm Water Pollution Prevention Plans
Facilities that discharge storm water associated with industrial activities must either obtain an NPDES permit or provide notice to IDEM that it will be covered by a general permit for these discharges. These plans include several pollution prevention elements designed to keep potential contaminants in their original container.

In addition, under rules adopted by the Water Pollution Control Board, the Office of Water Management was required to consider whether a company had taken advantage of its pollution prevention opportunities before qualifying for a variance from Indiana's water quality standards. However, the legislative revision the Indiana's pollution prevention statute in 1993, prohibited IDEM and the Board from requiring businesses to implement pollution prevention. This action effectively voided the requirement from the variance program.

The office's inspectors have been distributing pollution prevention materials since March 1994.

3. Office of Solid and Hazardous Waste Management

The Office of Solid and Hazardous Waste Management has been actively promoting pollution prevention for many years through four specific approaches, which include:

a. Establishing thresholds that encourage hazardous waste generators to reduce the amount of hazardous waste they generate. As a business consistently falls below a threshold, the compliance burden on the business is reduced.

b. Requiring large quantity generators to have a program in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the generator to be economically practicable. Small quantity generators of hazardous waste must make a good faith effort to minimize their waste generation. These requirements are referred to as the business' waste minimization program. While waste minimization is a broader concept that includes recycling, it still provides encouragement for the business to implement pollution prevention. These programs have been essential to raising business' awareness of the importance of pollution prevention in environmental protection programs.

c. Requiring large quantity generators of hazardous waste to describe their waste reduction activities in a biennial report that is due on March 1 of each even-numbered year. Waste reduction activities are a subset of waste minimization. As defined in Indiana, it is virtually identical to the second part of the Indiana definition of pollution prevention, but with a single media focus. Generators are required to describe their recent waste reduction activities in the past year as well as their plans for the coming year. This requirement is unique to Indiana. This information is supplemented with information that is submitted as part of the biennial report that allows for computer analysis of Indiana's pollution prevention activities and areas for potential reduction.

d. Requiring large quantity generators to develop and implement a contingency plan. This plan is primarily focused on emergency response but has several elements, including training, that increase awareness of the potential benefits of pollution prevention. This awareness emphasizes emergency prevention.

e. Regulating hazardous waste before it is recycled through specific management standards. These standards include detailed requirements for the design and operation of tanks and containment buildings managing hazardous waste.

The Office of Solid and Hazardous Waste Management's specific additional pollution prevention efforts are as follows:

a. Distributing pollution prevention packets to inspectors. The inspectors have been distributing the materials in the packets to businesses since March of 1994.

b. Incorporating pollution prevention into their hazardous waste work plan with EPA. The Office targeted three industries for special attention during 1994 and worked with the Office of Pollution Prevention and Technical Assistance to train its inspectors on these industries and the industry's pollution prevention opportunities.

c. Including pollution prevention materials with all special waste certifications sent out.

4. Office of Environmental Response

The Office of Environmental Response has the primary responsibility of cleaning up past releases of pollution. Their opportunities to promote pollution prevention are limited. Despite this limitation, many of the office staff has been particularly interested in pollution prevention as the best way to avoid future problems that the office may have to remedy. The offices has been involved with the Office of Pollution Prevention and Technical Assistance on four specific projects.

a. Serving as a pilot for OPPTA's P^2 Contact Program.

b. Worked with OPPTA to develop a Spill Prevention Fact Sheet. The fact sheet is designed to make companies aware of the pollution prevention techniques that can be used to prevent releases from occurring. Based on an evaluation of releases that have been reported to the office, the majority of releases could have been prevented.

c. Distributing the Spill Prevention Fact Sheet to facilities that have reported significant spills. While this action is too late for the spill that was reported, businesses that have reported a spill are more sensitive to opportunities to prevent future spills.

d. Incorporated pollution prevention efforts into their work plan with EPA in the underground storage tank program.

5. Office of Enforcement

Since its inception in 1992, the Office of Enforcement has increasingly allowed businesses to use pollution prevention projects as an offset to a civil fine. The office has formed a workgroup to develop a formal guidance manual on this issue and the broader issue of incorporating other supplemental environmental projects into enforcement actions. This guidance should be available to the public during the summer of 1994.

The five agreed orders that included SEPs relating to pollution prevention are:

1. Thomson Consumer Electronics in Marion for conversion to water-based degreasing fluids. Potential offset of up to $268,500. Order issued on September 11, 1990

2. ET&T Frames in Elkhart for conversion to water-based paints and cleanup solvents. Potential offset of $24,000. Order issued on February 9, 1994.

3. Doors Plus in Elkhart for conversion to water-based coatings for wood finishing. Potential offset of $15,500. Order issued on February 28, 1994.

4. Brunswick Marine in Nappanee for conversion to water-based adhesives for floatation foam. Potential offset of $61,900. Order issued on March 3, 1994.

5. Vulcraft in Saint Joe for conversion to water-based coatings. Potential offset of $170,000. Order issued on March 8, 1994.

In addition, the agency is in final negotiations on several other SEPs related to pollution prevention. EPA also issued several SEPs in Indiana relating to pollution prevention in the federal FY93. They include:

1. Inland Steel in East Chicago for conversion to non-toxic cleaning agent. Potential offset of $160,000. Project should reduce 200,000 pounds per year of perchloroethylene.

2. Indiana Steel and Wire in Muncie for eliminating ammonia from zinc plating process. Potential offset of $225,000.

Several other of EPA's SEPs meet the federal definition of pollution prevention but not Indiana's definition.

IV. EXTERNAL PROGRAMS AND TECHNICAL ASSISTANCE

Chapter Overview

This chapter describes the programs or projects developed by IDEM to promote pollution prevention concepts and benefits outside of the agency.

The chapter is divided into four headings:

A. ORGANIZATIONAL STRUCTURE
- **STATUTORY PARTNERS**
- **RESOURCES**

B. TECHNICAL ASSISTANCE

C. P^2 PILOT PROJECTS

D. CITIZEN EMPOWERMENT

The general heading of Organizational Structure describes the legislated entities and resources IDEM utilizes to accomplish its outreach effort. An effective communications network of partnerships allows IDEM to reach all segments of the business, government, educational, environmental, and industrial communities.

Under the second heading, a variety of types of technical assistance are described in the progress reports section for each. The reports are objective assessments of the successes and deficiencies noted in meeting the pollution prevention needs of IDEM's customers and in the implementation of the Industrial Pollution Prevention and Safe Materials Act. The third part of this chapter describes site specific pollution projects conducted or in progress by IDEM. The last part discusses the importance of working with citizens and local units of government to promote pollution prevention.

A. ORGANIZATIONAL STRUCTURE [IC 13-9-2-5]

Legislative Mandates

The commissioner and the assistant commissioner, through a coordinated effort, shall... promote increased coordination between the divisions of the department and between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes....

The pollution prevention board is established,.. and the commissioner and the pollution prevention board (PPB) shall coordinate their efforts.

IDEM Strategic Plan Mandates

We will address our environmental priorities through action plans jointly developed by teams of staff and managers (across programs as needed). The action plans will consider the available staff, tools and resources and will be coordinated into an overall IDEM action plan.

We must maximize our resources to the greatest extent possible, and where necessary seek additional resources to meet the growing demands for environmental protection.

By forming coalitions between IDEM, other state agencies, environmental groups, and business, we can work together for the sake of the environment.

■ STATUTORY PARTNERS

General Approach

In 1989, the Indiana Department of Environmental Management (IDEM) launched a Pollution Prevention (P^2) Program aimed at shifting the state's focus from treatment and control of environmental wastes to reducing pollution at the source. Enabling legislation enacted in 1990 -- the Industrial Pollution Prevention and Safe Materials Act -- and subsequent funding appropriated in 1991, have provided the tools to make pollution prevention a long-term solution for Indiana. A description of past and present technical assistance activities is given in the progress reports that follow in part B.

Given the limited resources of IDEM, it is crucial that IDEM maximize the use of all available resources, both within and outside of the agency. This part of the report describes the two main entities created by the legislation and used by IDEM's P^2 Program. They are the:

- Pollution Prevention Board, and
- Pollution Prevention and Safe Materials Institute

Progress Report

1. Pollution Prevention Board [IC 13-9-3-1:10]

The eleven (11) member pollution prevention board selected by Governor Bayh and four legislative advisors selected by legislative leaders were announced on June 27, 1992. Mr. Leland E. Boren of Avis Industrial Corp. was appointed as Chairperson of the Board. Mr. Robert F. Blomquist was later selected by the Board to serve as Vice-Chair at the November 22, 1993 Board meeting. A listing of the Board members is attached in Appendix D. IDEM's Commissioner Kathy Prosser also serves as an ex-officio nonvoting member of the Board.

At present, there are four (4) subcommittees established by the Board and include the;

- Legislative Affairs Committee, Chaired by Mr. Robert Blomquist
- Institute Site Selection Committee, Chaired by Mr. Chuck Deppert
- Public Relations Committee, Chaired by Mr. Leland Boren
- Budget Committee, Chaired by Mrs. Donna McCarty

An IDEM contact person has acted as secretary for the Board since its inception, and is responsible for publishing all legal notices, recording of the minutes, preparation of Board packets, and maintaining all correspondence and filing required for the Board's business. All Board records are kept on file in the Office of Pollution Prevention and Technical Assistance, and are available for public review as required. An active distribution list of interested parties (refered to earlier as Appendix E) is maintained for giving notice of meetings and agendas for Board and subcommittee meetings, and is another service provided by OPPTA.

The Board has held quarterly meetings beginning on October 28, 1992 as required by statute. The Board has determined to hold their quarterly meetings on the last Friday of the last month in each calendar quarter. This meeting date was motioned and approved again by the Board at their January 24, 1994 meeting and will hold true until decided otherwise.

The Board has been responsible for selection of the Pollution Prevention and Safe Materials Institute (PPSMI) at Purdue University in West Lafayette, and selected Dr. Lynn Corson of Purdue to be Director for the Institute at the January 24, 1994 Board meeting. More discussion of the Institute follows in the next section of this report.

The Board has been effective in serving its role as a forum for discussion on a variety of pollution prevention issues. The Board is beginning its role of overseeing the Institute, and will continue to coordinate with IDEM on various pollution prevention and relevant legislative issues.

2. Pollution Prevention and Safe Materials Institute [IC 13-9-4-1]

The Pollution Prevention and Safe Materials Institute site selection process began in January 1993. A Broad Agency Announcement was released in January 1993 requesting applications from interested and qualified institutions. After the close of the response period on February 22, 1993 four proposals were forwarded to IDEM for Board review, and were from:

1) Purdue University (West Lafayette)
2) Environmental Management Institute (Indianapolis)
3) Indiana State University (Terre Haute)
4) Froebel School Restoration Task Force (Gary)

On February 23, the proposals were mailed to the entire Board, who had established a site selection committee. A copy of the selection process summary letter and recommendation is attached in Appendix I. At the March 26, 1993 Board meeting it was decided that the final candidates would make a verbal presentation to the Board. On June 25, 1993 the Board convened to hear the finalists and voted individually on the final selection, using the established agency announcement criteria. Seven of the voting members participated, two were absent and Mr. Boren abstained. The seven score sheets, were tallied and recorded to determine that the Purdue University proposal received the highest score. The Environmental Management Institute received 996 points and Purdue received 1299 points, out of a possible 1400 total. The Board completed its selection process and approved the nomination of Purdue University as the host for the Indiana Pollution Prevention and Safe Materials Institute.

After this process, a memorandum of understanding agreement was drafted between the three parties coordinating the state's pollution prevention program: IDEM; Purdue; and the Board. The Legislative Affairs Committee and the Board Chair worked in conjunction with IDEM and Purdue University's representatives to craft a workable contract that specified the budgeting process for the Institute and defined the tri-lateral relationship. After several months of negotiation and final approval by the state budget agency on the budget request procedure, a contract was approved and signed at the January 24, 1994 Board meeting.

A parallel task was to appoint a Director for the Institute. A process similar to the selection of the Institute ensued for selection of the Director. A copy of the selection process summary letter and recommendation is attached in Appendix J. Dr. Lynn Corson, head of the Environmental Management and Education Program at Purdue was appointed Director of the Institute at the January 24, 1994 Board meeting. Dr. Corson delivered his first report on the Institute's progress at the March 25, 1994 Board meeting. The Institute's functions were described by Dr. Corson as three part:

1) Conduct an industry needs assessment on environmental pollutants and sources.
2) Conduct appropriate literature and available technical information searches on pollution prevention for purposes of technology transfer.
3) Conduct research and development of on-site, specific pollution prevention technologies.

Institute progress reports will be an agenda item on all future Board meetings. The Institute will supply technical assistance to industry to complement IDEM's efforts. The agency will cooperate with the Institute to share information and distribute it to industry and IDEM staff as it becomes available. The Institute may also develop curriculum for higher education on pollution prevention, and assist IDEM in its ongoing training program for employees.

■ RESOURCES

General Approach

In addition to the statutorily-established relationships IDEM has with the Board and the Institute, IDEM has developed other relationships to promote pollution prevention, share resources, and provide technical assistance. The strongest relations to date have been with:

- Other State Agencies or Offices
- Local Units of Government
- Indiana Department of Commerce
- Small Business Development Centers
- Industry Trade Associations
- Colleges and Universities
- Other Organizations

This part of the report describes these partnerships and their past, present, and future relations, and provides a progress report for each.

The OPPTA works with other organizations, in cooperation with the Institute, to bring a pollution prevention perspective into their events and activities. Although the OPPTA has initiated many of these outreach activities, it could not do so without the support and assistance of the rest of the agency. And because it is the intent of the legislation to incorporate pollution within all agency actions, the outreach activities described in this chapter will refer to IDEM as the subject of the efforts.

In the past, IDEM has worked on educating the small business development councils, county health departments, and the municipal wastewater treatment plants. These organizations ensure that IDEM has a mechanism to reach businesses at the local level where it is most effective. Publications, speaking engagements, special conferences, and participation in industry meetings are the primary methods of outreach. IDEM plans to continue work with these organizations, and to expand its efforts to the Solid Waste Management Districts and local units of government when opportunities arise.

Many of IDEM's pollution prevention activities could not succeed without coordinating and sharing resources. IDEM has established strong working relationships with universities, environmental organizations, and educational groups throughout Indiana. A complete listing of other organizations IDEM has worked with to date is given at the end of this chapter, under the Other Organizations section report in part 6.

Progress Reports

1. Environmental Management Institute [IC 13-9-2-9]

The Environmental Management Institute (EMI) is a nonprofit corporation that provides training, information, and compliance assistance for workers, managers, regulators, and concerned citizens. The EMI promotes the understanding and utilization of prudent chemical management practices to protect human health and the environment. The EMI is affiliated with the Indiana University School of Public and Environmental Affairs and is located in Indianapolis, Indiana.

The Environmental Management Institute was selected in May 1992 to survey other state's training efforts and to design, develop, and implement a comprehensive pollution prevention training program for IDEM staff. A $100,000 grant was initially provided through Indiana University to fund the project. The training program has since been expanded to include advanced industry-specific pollution prevention training and to provide pollution prevention policy development for multi-media (air, land, and water) environmental issues. An additional $87,000 contract has been approved for the enhanced pollution prevention training and technical assistance manual development.

These on-going training and technical assistance projects will continue through 1994 and well into 1995. It is the goal of these efforts to establish a firm understanding and working knowledge of pollution prevention applications within IDEM and to provide resources through subject manuals and continued training in-house to prepare IDEM staff to maintain a successful and productive pollution prevention program. The EMI has also served as a technical resource on chemical hazards and their management.

2. Indiana Small Business Development Centers [IC 13-9-2-5(9)]

With its increased staff, IDEM will dramatically expand its ongoing outreach and education program to businesses. IDEM has recently joined in partnership with Indiana's Small Business Development Corporation (SBDC) to offer pollution prevention guidance and information as part of SBDC's small business assistance programs.

In February 1992, IDEM presented pollution prevention technical information to owners of small print shops. IDEM is presently working in cooperation with the SBDC on a Business Environmental Program information network. The effort was initiated in January 1994, and will be developed during the year. IDEM will prepare and package pollution prevention materials, including case study report abstracts, fact sheets, statutory text, and sources for more information for use on an electronic bulletin board operated by the SBDC. Regional terminals at the SBDC offices will provide users with pollution prevention information that can be retrieved via fax, modem, mail, or phone request. The cooperative effort demonstrates how information transfer can be accomplished by sharing state agency resources.

3. Indiana Department of Commerce [IC 3-9-2-5(9)]

IDEM has also recently begun to involve the Indiana Department of Commerce (IDOC) with several P^2 Program activities. A representative from IDOC will serve on the Governor's Awards for Pollution Prevention selection committee and on the P^2 Challenge Grants selection committee. IDOC also invited IDEM to speak at a Small Business Development Center regional directors conference in November 1993 regarding the benefits to small companies of using pollution prevention to improve operations and lower costs. Similar programs or conferences are being considered for meeting with representatives from larger corporations.

This mutual involvement recognizes that a cooperative effort to reach business with the pollution prevention message will be mutually beneficial to both agencies. Most other successful state pollution prevention programs have been directly involved with the department of commerce in that state as a means to promote new programs and technical assistance available from the environmental agency in that state. Likewise, IDOC is frequently contacted for requests on environmental issues or regulations, many of which can be directed to IDEM for pollution prevention technical assistance or regulatory guidance.

The Department of Commerce is also a crucial resource for improving communications and relations between the business community and IDEM. The proactive nature of IDEM's P^2 Program requires a level of trust to be established between IDEM and business. Referrals to IDEM from IDOC and jointly sponsored programs or events can help establish industry's confidence in working with IDEM to provide environmental solutions for their businesses.

4. Indiana Electroplaters Association [IC 13-9-2-5(6)]

In 1989, Indiana's electroplating industry generated approximately 82,000 tons of RCRA hazardous waste. The electroplating industry was selected because, as a result of developing the 1989 Capacity Assurance Plan for Indiana, the industry was identified as the largest generator of hazardous waste that was being land disposed. This Capacity Assurance Plan addresses Indiana's hazardous waste disposal capacity, and identified a potential shortfall in capacity in the year 2009. Rather than focus on increased disposal or treatment capacity as a solution for this shortfall, IDEM selected waste minimization as the preferred means of solving the potential problem. The term waste minimization was used because it was the term used by EPA to describe pollution prevention activities. Waste minimization includes but is much broader than pollution prevention. However, this project also included significant pollution prevention activities that meet the Indiana definition, and the project is therefore discussed in this report.

IDEM's request for assistance with a waste reduction initiative for this waste was given to EPA by IDEM's Office of Solid and Hazardous Waste Management in September, 1991. EPA approved the contractor, PRC Engineering, Inc. of Chicago, Illinois, for the workplan in January 1992. The approval was an amendment to the contractor's ongoing effort in the hazardous waste program. Following the approval, PRC met with IDEM to discuss the scope of work which was included in IDEM's proposal. IDEM had included in the proposal

to EPA an outline of the need for total coordination of preliminary work (networking) by the contractor PRC. The contractor was responsible for doing preliminary work to engage facilities in the project.

IDEM agreed to assist in the effort at a March 4, 1992 meeting with PRC. IDEM was to later be involved in an Electroplaters Conference sponsored by Purdue University on March 31, 1992 at West Lafayette, Indiana. This conference was an opportunity for IDEM to introduce the concept of the study to members of Indiana's electroplating and metal finishing societies. Prior to the conference a meeting was scheduled with an executive of the electroplaters and metal finishers trade association and PRC. This meeting was suggested by IDEM to enlist the help and support of the trade association executives in the project prior to the formal presentation of selection criteria and the project concept at the Electroplaters Conference.

From April to the latter part of May 1992 IDEM was in contact with the executives of the trade association trying to enlist candidates for the project. IDEM made a formal presentation of the projects needs at an Indiana Association of Metal Finishers meeting in Warsaw, Indiana on May, 27, 1992. On May 20, 1992 IDEM made a formal request to: Mr. Robert McDowell, Mr.Jerry Phillips and Mr. Tom Martin (all from the involved trade associations); the American Electroplater and Surface Finisher Society; and the Indiana Association of Metal Finishers; for the prospective facilities to use in the project. IDEM had generated a list of 60 facilities to chose from and contacted the gentlemen named to assist in the choice. Six facilities were chosen by each of the gentlemen and a list of five was given to the contractor for further refinement.

A group of facilities was forwarded to PRC for contact and further refinement to the most likely candidate(s). As a result of this initiative, IDEM and PRC were able to identify two candidates for the study. The facilities indicated they were willing to participate and invest the resources to complete the project. IDEM then contacted PRC to proceed with the project. The interim report that outlines the facilitie's needs for pollution prevention methodologies has been completed and is being distributed. The project was completed in May 1994, with the draft final report to be submitted for OPPTA review later this summer.

5. Relationship to Other Agencies [IC 13-9-2-4,5,&6]

It is clear from the various legislative mandates that IDEM is directed to work with and establish beneficial relationships with other agencies, both state and federal. IDEM also serves on the Great Lakes Pollution Prevention Roundtable Steering Committee.

More specifically, the Office of Pollution Prevention and Technical Assistance is directed to accomplish the following statutory objectives:

- *Promote increased coordination between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes, including, to the fullest extent possible, the following:*

- *Assist other governmental regulatory programs in devising standards, administrative rules, and permits based on goals and principles of pollution prevention.*

- *Provide technical assistance concerning environmental matters to local and state government entities and businesses.*

IDEM's Strategic Plan responds to each of these mandates and actively addresses each. The plan states that the IDEM will:

- *Continue to increase coordination between IDEM and other government regulatory programs with responsibilities and duties related to toxic materials and environmental wastes.*

- *Continue providing technical assistance to other government regulatory programs and local and state governmental entities.*

- *Encourage governments to use non-pollution materials, or alternative practices that reduce the potential threat of groundwater degradation.*

IDEM will aggressively expand its already successful efforts to obtain grants from EPA for this initiative. To complement this effort, IDEM will become a leader in Region V in promoting pollution prevention, especially in the training of agency staff.

IDEM will also establish a pollution prevention educational program for wastewater treatment plant operations, environmental health specialists, and directors of small business development centers. These individuals will provide a network to reach businesses at the local level.

6. Relationship to Other Organizations [IC 13-9-2-4&6]

IDEM is presently working with the Indianapolis chapter of the Indiana Society of Hazardous Materials Managers (ISHMM) as a source of technical assistance to IDEM. Beginning in January 1994, IDEM started to discuss the potential role of the ISHMM in assisting IDEM's Pollution Prevention Program. The ISHMM board has agreed that individual members on a voluntary basis can provide technical assistance and will work with IDEM.

The agency has also developed a cooperative relationship with several peer groups and regularly participates in annual or special interest meetings, seminars, conferences, workshops, or symposiums sponsored by these organizations:

- Midwest Waste and Environmental EXPO
- Indiana Recycling Coalition Conference and Workshops
- Indiana Environmental Health Association Conferences
- Indiana Public Health Association Conferences
- Indiana State Department of Health, Public and Family Health Conferences
- Central Indiana Technical and Environmental Society Symposiums
- Indiana Hazardous Materials Conference and Exhibits
- Environmental Quality Control Workshops
- Earth Day Activities and Exhibits
- Governor's Conferences on the Environment
- Indiana Environmental Institute Seminars and Conferences
- Purdue University Environmental Management and Education Seminars
- Ball State University Environmental Workshops
- Indiana University Environmental Workshops
- Indiana State University Environmental Workshops
- Taylor University Environmental Workshops

IDEM responds to industrial trade associations and business or professional groups that request speakers for pollution prevention technical assistance or advocacy. These events provide a chance to offer information to well targeted audiences, and provide opportunities to develop new partnerships and utilize existing distribution networks for pollution prevention information. In general, and based on comments received on the draft report, pollution prevention is widely recognized as the best way IDEM can work effectively with the business community.

B. TECHNICAL ASSISTANCE

Legislative Mandates **[IC 13-9-2-5(5,6,9)]**

IDEM shall provide technical assistance concerning environmental matters to local government entities and business, and:

- *Provide general information about, and actively publicize the advantages of and developments in, pollution prevention.*
- *Assist businesses that seek information, guidance, planning assistance, or recommendations for pollution prevention by providing technical information to those businesses at production or commercial locations.*
- *Assist other governmental regulatory programs in devising standards, administrative rules, and permits based on goals and principles of pollution prevention.*

IDEM Strategic Plan Mandates

Preventing pollution is the best form of environmental protection. Therefore, we will:

- *Continue to operate and expand a state information clearinghouse for pollution prevention.*
- *Continue providing technical assistance both within IDEM and to other government regulatory programs, local and state government entities and businesses.*
- *Continue providing pollution prevention awards, education and training to businesses, and developing publication on pollution prevention techniques.*

General Approach

The Office of Pollution Prevention and Technical Assistance provides assistance to business and industry at no cost. The office conveys this through in-plant pollution prevention opportunity assessments, conducting workshops and seminars to transfer prevention and reduction technology, and by information and referrals through newsletters and various publications.

The pollution prevention specialists at IDEM provide technical assistance to approximately 40 individuals and public and private businesses each week as a result of phone inquiries. A toll free "hotline" has answered approximately 1,000 inquiries per month since March 1990. Calls about the pollution prevention program vary from inquiries on conferences and teleconferences to information requests and details about on-site visits.

The OPPTA developed a four page brochure that explains the Indiana definition of pollution prevention and outlines IDEM's programs and technical assistance. This brochure has been

well received with almost 5,000 copies distributed since its introduction in the fall of 1994. Of these, about 3,000 have been used as a folder for inserts on basic pollution prevention practices, how to establish a program, and how to access the EPA Clearinghouse for other information. The P^2 brochure is used to package these and other materials to explain the uniqueness of the Indiana definition and how this focus differs from most other state and federal pollution prevention programs.

IDEM is in the process of packaging pollution prevention materials by industry, material type, and general interest categories so that useful information can be sent out quickly in response to requests for information or correspondence received.

As of July 1992, 57 site visits to 34 different companies had been made, and 24 reports were completed. At that time, Waste Reduction Opportunity Assessments were made upon request. They were done by the staff of Purdue's Environmental Management and Education Program (EMEP), pursuant to the Source Reduction and Recycling Program contract with IDEM funded by U.S. EPA. The waste audits determined where pollution prevention could be incorporated into an industry. The most common waste streams targeted then were solvents and oils.

Currently, IDEM is assisting electroplating industries and operations with pollution prevention methods for solvent waste streams. However, the ability to make onsite visits is limited due to the number, variety, and location of facilities. The role of onsite technical assistance will now be assumed by the Institute.

Progress Report

1. Indiana Environmental Resource Center [IC 13-9-2-9]

The statute mandates that IDEM establish a clearinghouse for publications on pollution prevention. The clearinghouse or resource center will be used to implement the P^2 Initiative's overall objectives. Its use needs to and will pervade all activities by IDEM. The challenge is to make the center both an electronic database and a clearinghouse accessible by offices in IDEM, other state agencies, businesses, concerned citizens, and other interested organizations.

As a first step in addressing this mandate, IDEM provided instructions and information on how to access EPA's computerized network known as the Pollution Prevention Information Exchange System (PIES). The PIES is a national clearinghouse of technical, policy, program, legislative, and financial information that anyone with a personal computer and modem can access. National and international information on pollution prevention strategies and technology are available to users on PIES.

Unfortunately, much of the information available does not meet the Indiana definition of pollution prevention. To counter this problem, a copy of the Indiana definition was sent out with all pollution prevention publications from other states or with information on PIES distributed from IDEM. A second problem with using PIES is that it is not "user friendly".

Many people voiced frustration or defeat in attempting to access the system or retrieve information.

For the reasons mentioned above and by the statute, IDEM needs to develop its own information system. The information clearinghouse will be called the Indiana Environmental Resource Center (IERC) to emphasize its use as a research tool rather than a publications distributions center. IDEM has already made significant strides in developing the center. A small library of materials has been collected, and arrangements to access other centers and various databases are being made. IDEM moved to the Indiana Government Center North in August, 1993 where the resource center is now located on the 13th floor, and has permanent shelving and display materials set up.

IDEM gathers materials daily and has begun the process of computerizing the information to increase the accessibility and efficiency of the resource center. The computer data entry and information catalog process was in progress by use of a part time contractor, and will be completed when a permanent staff or other contracted assistance can oversee the project. Eventually, the resource center will offer both a walk-in library and a call-in reference service. Materials will be available on loan, and in some cases to copy, purchase, or obtain without cost.

2. Governor's Awards for Excellence in Pollution Prevention [IC 13-9-2-5(5)]

IC 13-9-2-5 mandates that the *"commissioner and the assistant commissioner, through coordinated effort, shall....provide general information about, and actively publicize the advantages of and developments in, pollution prevention."*

Governor Evan Bayh announced on February 18, 1994 that nominations were open for the Governor's Awards for Excellence in Pollution Prevention. The awards were jointly advocated by the IDEM and the Pollution Prevention Board to recognize those businesses and commercial operations that have implemented pollution prevention. Applications for the Governor's Awards were mailed out to over 3,000 companies, organizations, and interested persons on February 22, 1994. A copy of the press release is listed as Appendix K.

The award recipients were announced on June 24, 1994 and recognized businesses that have voluntarily gone beyond traditional treatment, control and disposal techniques, and focused instead on reducing the use of toxic materials or generation of environmental wastes. The awards were given to United Technologies Carrier Corporation, Indianapolis; Benchmark Products Inc., Indianapolis; and General Electric Appliances, Bloomington. A copy of the press release is listed as Appendix L.

The Governor's Awards were planned for two classifications:

1) Small businesses or commercial operations and supporting organizations with 100 employees or less;
2) Large businesses or commercial operations with more than 100 employees.

Three categories were available for each classification to enter:

1) Implementation of pollution prevention;
2) Integration of pollution prevention into product research and development;
3) Integration of pollution prevention into financial accounting and capital appropriations decision making.

A panel of judges representing industry, academia, government, environmental and public interest organizations evaluated seventeen (17) applications. Many of the applications received were dismissed because they did not fully understand or demonstrate the Indiana definition of pollution prevention. Letters were sent to the applicants not selected, explaining why their project did not qualify for this awards program.

Selections were made based on the individual achievements of a given company or commercial operation. Applications were judged on:

- Description of project, program or technology;
- Environmental benefits;
- Health and safety benefits;
- Management commitment;
- Transferability;
- Economic benefits.

The commissioner requested that the Governor present the P^2 Awards to progressive companies that have implemented innovative pollution prevention efforts. The Office of Pollution Prevention and Technical Assistance coordinated the awards program, which were presented in the Governor's office for an invited group of about 30 persons. The P^2 Awards Program is a direct response to the Governor's Initiative to develop and recognize successful partnerships. The P^2 Awards program should continue annually.

3. Pollution Prevention Challenge Grants Program [IC 13-9-2-10]

The P^2 Challenge Grants Program is another direct response to both the legislative mandate and the Governor's Initiative which specified that a grants program would be developed by IDEM. A grants program is an effective way to generate enthusiasm and interest in pollution prevention. It encourages companies to seriously consider the definition and available options even if the company does not receive a grant. IDEM will primarily use the grant program in two manners:

1) Fund pollution prevention pilot projects to provide tangible successes to Indiana businesses. Businesses, especially small and medium businesses, need to be able to identify with local successes in order to justify the investigation of pollution prevention alternatives to their management and to encourage them to use it to maintain their competitive edge. The pilot projects should be low risk projects with a high probability of success.

2) Fund trade associations and labor organizations to provide industry-specific pollution prevention training and education programs. Each industry is unique. The pollution prevention message needs to be spread and these organizations are generally the best at getting it out in the most effective manner for the particular industry.

The 1994 Pollution Prevention Challenge Grants Program was announced at the Pollution Prevention Board meeting on March 25, 1994. Funding became available unexpectedly in late March 1994, and a grants program schedule was quickly implemented based on previous work on the development of the program. A copy of the press release on March 25 is listed as Appendix M. Applications were due by May 2, with selection completed and all contracts signed by June 30, 1994. The required case studies due at the end of the project period will be made available for information exchange and maintained at the resource center at IDEM.

The grants program must have specific objectives to be successful. A shotgun approach will with limited funding will not provide the necessary benchmarks for performance. Therefore, IDEM used selection criteria that sought the greatest measurable reductions in the industrial use of toxic materials and/or generation of environmental wastes. Because funding for a future grants program is uncertain, IDEM needed to use this opportunity to provide funds for projects that have the greatest statewide applicability or information transfer potential. The OPPTA administers the program.

A diverse review committee consisting of representatives of the Institute, the Board, other state agencies, and other individuals selected eight applications in the competitive process. The recipients and their awards are:

- Allison Engine Company, Inc., Indianapolis, $12,550
- Ball State University and Taylor University, Muncie $27,000
- Executive Furniture, Inc., Huntingburg, $14,000
- James River Corporation, Indianapolis, $25,000
- Monroe County Solid Waste Management District, Bloomington, $23,000
- Purdue University, West Lafayette, $14,500
- University of Notre Dame, South Bend, $26,217
- Wabash National Corporation, Lafayette, $25,000

A copy of the June 20, 1994 press release listing the eight recipients and a description of their projects is given in Appendix N. Businesses will be expected to provide matching funds in accordance with the statutory conditions of the program.

4. University Workshops, Seminars and Conferences [IC 13-9-2-5(6)]

The act mandates that the *"commissioner and the assistant commissioner, through coordinated effort shall .. assist businesses that seek information, guidance, planning assistance, or recommendations for pollution prevention by providing technical assistance information to those businesses."*

IDEM received a grant from EPA under the "Source Reduction and Recycling Technical Assistance Program" (SRRTA). This program was renamed "Pollution Prevention Incentives to States" (PPIS) and provided $300,000 over a three-year period from December, 1989 through November, 1992. The program was established pursuant to a proposal by Purdue University and was administered by contract with Purdue's Environmental Management and Education Program (EMEP).

This program was jointly conducted with IDEM and had many accomplishments in its three-year effort to reach industrial waste generators and advocate pollution prevention practices.

The project accomplishments include:

- Six conferences at Purdue with total attendance of 710;
- Eighteen workshops around Indiana with total attendance of 837;
- Nine statewide teleconferences with total attendance of 906;
- Introductory IDEM staff training with total attendance of 75;
- Seven educational "video tapes" for distribution to industry sectors.

These sessions were open to IDEM staff and participation was frequent and well received.

5. Public Presentations [IC 13-9-2-5(5)]

IDEM constantly seizes opportunities to make presentations and set up exhibits at various conferences, annual meetings, and affairs. The presentations are designed to educate the public on the importance of pollution prevention. Some of the appearances include presentations before the following groups and gatherings:

- Indiana Public Health Association
- Indiana Hazardous Materials Conference
- Indiana Small Business Development Corporation
- Indiana Association of Cities and Towns
- Indiana Environmental Health Association - Educational Conference
- Indiana Public Health Days Conference
- U.S. Environmental Protection Agency
- League of Women Voters
- Governors Conference on the Environment
- Hoosier Environmental Council - Congress and Environmental Fair
- Exhibit at Indiana's 5th Annual Waste and Recycling Conference

Most of these presentations were also done in conjunction with Purdue's Environmental Management and Education Program (EMEP).

6. Past Conferences [IC 13-9-2-5(5)]

IDEM has been active in coordinating conferences on pollution prevention and hazardous waste minimization, especially during the early period of the offices history. Conferences for specific audiences are an effective method to convey information to others who can implement or otherwise benefit from the knowledge gained at a conference. The following pages summarize significant conferences sponsored by IDEM to date, beginning with the most recent. These conferences were conducted with Purdue University's EMEP and were administered and organized by OPPTA.

Hazardous Materials Conference and Exhibits
1990 - 1994

IDEM has been a sponsor of this event since the office was formed. The conference provides an educational forum for industry, regulatory agencies, LEPC/EMA, and emergency responders to communicate and learn about issues related to hazardous materials. The 1993 conference program included more hands-on demonstrations, more technical sessions, and more exhibits than ever before. Certificates were provided toward annual/refresher training requirements.

Increase Profit Through Pollution Prevention Workshop
February, April, May, and October 1992

This pollution prevention workshop was first conducted in Northwest Indiana. It outlined reasons to reduce waste at its source, state and federal requirements that affect businesses, pollution prevention techniques, and how to develop pollution prevention strategies. It has since become a standard program offered around the state to chambers of commerce and other associations. The first workshop in Hammond was co-sponsored by the Chambers of Commerce of Gary, Hammond, East Chicago, and Merrillville. The workshop has also been offered in Whiting, Bremen, and Lafayette.

Facility Planning for Pollution Prevention
May 14, 1992

This conference, sponsored by IDEM, was held in conjunction with the 47th Annual Industrial Waste Conference at Purdue University. The 138 registrants, from businesses and industries, listened to experts discuss concepts behind pollution prevention planning.

Pollution Prevention/RAP Training
May 8 and 9, 1992

IDEM is of developing a Remedial Action Plan (RAP) for Northwest Indiana, an environmentally degraded area identified for cleanup by the International Joint Commission. An important component of the plan includes pollution prevent priorities in the northwest region. Pollution Prevention Training for Great Lakes Remedial Action Plans was offered in Northwest Indiana by the Waste Reduction Institute for Training and Application Research

(WRITAR) and sponsored by the United States Environmental Protection Agency and IDEM. The training was offered as part of the pollution prevention and technical assistance program. The workshops trained Remedial Action Plan (RAP) program managers and other key participants in pollution prevention approaches and techniques. RAP participants learned about pollution prevention, facilitating the integration of pollution prevention into the Great Lakes RAP process, and initiating a network between key personnel in the region. Those receiving training include IDEM staff, elected officials, representatives from environmental organizations, and industrial representatives.

Pollution Prevention for the Electroplating Industry
April 9, 1991 and March 31, 1992

The 1991 conference, part of the pollution prevention technical assistance program, was a joint effort with the Association of Electroplaters and Surface Finishers (AESF) and the National Association of Metal Finishers (NAMF). The conference involved 14 speakers in seven concurrent sessions on topics that included promoting industry involvement in waste prevention, current and future regulations affecting electroplaters, and four case study presentations from the industry. The sessions were attended by 168 participants.

A second edition of this conference was held in March, 1992. Approximately 140 registrants heard twelve speakers deliver presentations on such subjects as: "Pollution Prevention, Fact and Fiction;" "Reducing Heavy Metal Discharges to POTW's;" and "Form R Reporting Requirements for Pollution Prevention."

Pollution Prevention: A Multi-Media Approach
May 13, 1991

This pollution prevention workshop, sponsored by IDEM, was part of the 46th Annual Industrial Waste Conference, which covers many industrial waste issues. The workshop, attended by 112 registrants, provided both background and perspective on pollution prevention. The program taught the concepts behind pollution prevention planning, and demonstrated what two companies have accomplished in the area.

Pollution Prevention: How to Begin
March, 1991

This introductory conference on pollution prevention was held in Fort Wayne, West Lafayette, and Indianapolis. The conference explained the philosophy and definition of pollution prevention, and highlighted resources available through IDEM.

"Solvents: The Good, The Bad, and The Banned" Teleconference
March 14, 1991

This pollution prevention conference featured a re-broadcast of the Waste Reduction Assessment and Technology Transfer (WRATT) teleconference which originated at the

University of Tennessee. About 150 people attended the teleconference, which provided businesses and industries with solvents reduction information and technologies. Tapes of these broadcasts have been made for loan to the public. Topics covered in the teleconference included:

- The Future of Solvent Cleaning: Steps to Emissions Elimination
- Retrofitting Old Equipment, Technology for New Equipment, and HCFC's;
- Alternate Technologies: Fundamentals of Aqueous Cleaning-Water-based Parts Washing Systems;
- Degreasing Alternatives for Environmental Compliance; and
- Solvent Reduction Practices for Paint Stripping Operations.

Successful Management of Metal Working Fluids
October 20, 1990

This pollution prevention conference at Purdue provided technology to businesses and industries on the substitution of aqueous materials for solvents or the in-process recycling of solvents. Forty-five registrants participated in this well-received conference.

Waste Reduction Assessment and Technology Transfer Teleconferences
April - October, 1990

As part of the pollution prevention technical assistance program, IDEM offered seven, two-hour re-broadcasts of a national teleconference to help businesses and industries develop pollution prevention programs. The broadcast was assembled from a three-day Waste Reduction Assessment and Technology Transfer (WRATT) teleconference, which originated at the University of Tennessee in March, 1990. Tapes of these broadcasts are available on loan to the public. Topics covered in the teleconference:

- National Pollution Prevention Strategy,
- Procedures for Implementation
- Development of State and Local Pollution Prevention Programs
- Opportunities for Government to Promote Pollution Prevention
- Waste Reduction Incentives
- Industrial Waste Reduction Planning
- Economic Evaluation of Pollution Prevention Options
- Specific Industrial Case Histories

Pollution Prevention Workshop
May 7, 1990

An industrial pollution prevention powder coating technical and solvent reduction conference was held at Purdue University as part of the pollution prevention technical assistance program. The conference had 113 registrants. This workshop, held as part of the 45th Annual Purdue Industrial Waste Conference, introduced the concept of pollution prevention and covered such topics as powder coatings technology and solvent reduction alternatives.

C. P^2 PILOT PROJECTS [IC 13-9-2-11]

Legislative Mandate

The IDEM shall sponsor pilot projects to develop and demonstrate innovative techniques for pollution prevention. The results of pilot projects sponsored shall be made available for use by the public. However, information about a pilot project that is considered proprietary by a business involved in the pilot project may not be disclosed to the public.

IDEM Strategic Plan Mandate

Although preventing pollution is a goal outlined in our priorities section, pollution prevention is a means to achieving that goal and many others. IDEM promotes pollution prevention through voluntary programs, guidance documents, technical assistance manuals, policies, awards, education and training, and hearings and rules.

General Approach

The IDEM has funded or managed these pilot projects since June 1992;

a. Purdue's Environmental Education and Training Program received a grant from IDEM for $100,000 to develop 12 opportunity assessments and 2 case studies. A diverse set of industries are participating in the program. The reports have been received by the IDEM and are available for public review.

b. In a project funded by EPA, a consulting firm, PRC Engineering Inc. of Chicago, Illinois, is conducting two implementation pilot projects in the electroplating industry. The interim results of these projects were received at the end of 1993, and are available as reports.

c. In another project funded by EPA, IDEM is evaluating the successes in reducing TRI waste generation. The results are now available in report form.

d. Indiana University's Northwest Campus received a $75,000 grant from IDEM to promote pollution prevention in the steel industry. This project had a slow start but is now underway. Indiana University is surveying the steel industry for about 15 specific pollution prevention actions that the industry has identified worthy of investigation.

IDEM will continue evaluating these projects as they develop. Detailed reports on these projects are presented next in the progress report section of this chapter. A wide variety of other pilot projects have been developed since 1990 and are also presented in the progress report section that follows. The early projects were important to undertake to provide both technical information as well as experience on how to develop future pilot projects. The projects were conducted with minimal staffing and resources.

It is important to note that most of the projects discussed were funded in part with grant monies awarded to IDEM by EPA. Typically, EPA grant funded projects need to be conducted within the parameters and guidelines set forth by EPA. Failure to address these requirements can prevent a grant application from being approved and awarded or can jeopardize the continued funding of a project in progress. Because several of the projects were developed for use by RCRA programs, the terms waste minimization and/or source reduction were required to be used in the application process. However, some aspects of the projects did in fact involve activities that meet the statutory definition of pollution prevention in Indiana. IDEM presents in this report only the portions of the projects that demonstrate true pollution prevention technologies.

Progress Report

1. The Northwest Indiana Steel Industry Initiative

For over a year, representatives of National Steel, Bethlehem Steel, USS Steel, LTV Steel, and Inland Steel have met 26 times to discuss pollution prevention opportunities in the region. These meetings have been facilitated by Mark Rushkin, a professor at Indiana University - Northwest pursuant to a grant of $75,000 from IDEM to Indiana University - Northwest. The meetings have been conducted under the auspices of the Indiana Steel Advisory Commission.

IDEM has participated in many of the meetings and has worked closely with Mr. Rushkin to guide the project. The group recently completed a generalized summary of pollution prevention activities and considerations at the steel companies. They have also begun a series of educational meetings. These meetings have included detailed discussion and presentations on the USS - Gary Works environmental training program and degalvanizing of scrap steel.

Beyond continuing the educational efforts for the benefit of each other and for IDEM, the group has tentatively decided to use the $70,000 that remains of the grant to conduct a feasibility study for a degalvanizing process for scrap steel in the region. The zinc in galvanized steel causes operational problems for the mill and contaminates the air, water, and wastes that are generated from the process. Removing this toxic materials from the incoming raw material will improve the quality of the raw material and should significantly reduce the hazards of environmental wastes generated by the manufacturing process.

2. The Grand Calumet River Districts Project

This project addresses the critical toxic pollutants which directly discharge into the Grand Calumet River and Nearshore Lake Michigan Area of Concern. The project is focusing on mercury, lead, and copper with industrial users and indirect discharge sources that need reduction or elimination of these critical toxic pollutants in order to achieve local, state and federal environmental protection goals.

The project objectives are to:

1) identify the IUs and the indirect dischargers for the toxic pollutants (mercury, lead and copper).
2) conduct project reviews between district's pre-treatment coordinators and the IUs on techniques to reduce the three toxic pollutants.
3) provide toxic pollution prevention training programs for the Grand Calumet River District personnel, indirect discharger, and the IUs personnel on the three toxics.

The preliminary recommendations for pollution prevention practices on mercury are identified and a computer data base of information including the TRI and Harris directory lists are available. A list of the IUs and the indirect dischargers for the three critical toxic pollutants is being developed.

The project results, if successful, can be used as a model for other wastewater districts throughout Indiana, emphasizing pollution prevention as the best method to reduce toxic discharges to watersheds.

3. The Electroplating Industry Projects

These projects involved a cooperative effort between IDEM's Office of Pollution Prevention and Technical Assistance (OPPTA), its Office of Solid and Hazardous Waste Management (OSHWM), and USEPA's Resource Conservation and Recovery Act (RCRA) offices along with the assistance of the Indiana Association of Metal Finishers and the American Electroplaters and Metal Finisher Society. Two electroplating facilities were chosen for the project that had diverse manufacturing processes and offered the chance to transfer knowledge gained during the investigation to similar facilities. Greene Manufacturing, Inc. in Connersville located about 60 miles east of Indianapolis, and Franke Plating Works Inc., in Ft Wayne were selected to participate.

A desired outcome for the project is to have the state's CAP initiative supported by the project and reduce the generation of RCRA hazardous waste. More specifically, some of the associated CAP wastes are sludges from wastewater treatment facilities. The reduction in the disposal of such waste could be a direct result of the project. The pollution prevention options found during the project should result in a reduction in the need for such waste to be disposed of and further the CAP goal of reducing the need for space.

Another desired result was to gain information in the form of pollution prevention case studies for the state's electroplating industry. These case studies are to be used in a technology transfer effort to reduce the quantity of hazardous waste landfilled for Indiana's electroplating industry. The case study information gained will also be used in a proactive effort to reduce hazardous waste defined by the CAP. The final case study reports from these three pilot projects are now available for distribution to the industry or interested persons. The reports are also made available by IDEM inspectors when they visit facilities that can benefit from the pollution prevention methods as presented.

4. IDEM and EPA TRI Data Capabilities Grant Program Projects

In order to supplement ongoing activities focused on reducing toxic releases, IDEM received a grant from the EPA TRI Data Capabilities Grant Program.

The EPA grant, which is administered jointly by IDEM's Office of Air Management and Office of Pollution Prevention, has the following three initiatives:

1) to conduct a quality assurance review of the TRI data,
2) to target sources of pollution for early reductions, and
3) to target sources of pollution for multimedia pollution prevention.

To assist in completing the grant initiatives, IDEM awarded PRC Environmental Management, Inc. (PRC) a contract to provide technical assistance for various pollution prevention activities associated with the effort.

IDEM focused its efforts on degreasing, coating, and printing. These industrial operations were chosen because Indiana TRI data indicate that they are commonly practiced throughout Indiana and are significant sources of toxic air emissions. A full description for each report is available through IDEM, and a condensed fact sheet may be developed for each this year. The projects are summarized here.

The Coatings Report

Using the 1991 TRI database, IDEM identified Carrier Corporation of Indianapolis as a facility successfully using pollution prevention for the effort. Carrier manufactures a variety of gas furnaces and fan coils. Normal production is about 550,000 gas furnaces and 200,000 fan coils per year. Current facility operations include metal parts stamping, welding, alkaline cleaning, and assembly. Past operations also included coating and solvent vapor degreasing. Carrier currently has about 1,000 union employees that work two, 10-hour shifts, 4 days per week. Carrier's specific pollution prevention activities have focused on coating, degreasing, and adhesives operations, and have resulted in the following pollution reductions and cost savings:

- An electro static powder spray (EPS) coating system prevented about 400 tons of VOC emissions and about 50 tons of solvent sludge per year. The solvent-based coating system with the EPS coating system had a three year payback period for its $1,500,000 investment.

- Between 1989 to 1991, Carrier reduced its annual spent solvent hazardous waste stream and VOC emissions from 71 tons and 232 tons respectively, to zero.

- Through their supplier they converted to use an acceptable water-based adhesive and eliminated the VOC emissions associated with the operation. The conversion required a $3000 investment to change the nozzles of the adhesive guns; however, the annual cost savings was $500,000.

The Degreasing Report

IDEM's next investigation of TRI facilities who use pollution prevention in their operations was with Alcan Rolled Products of Terra Haute. Alcan produces about 35,000 tons of aluminum foil per year. Alcan manufactures two types of rolled aluminum foil: (1) package foil used primarily for kitchen wrapping and (2) container foil used to produce food containers such as pie plates and roasting pans. Alcan established the "project genesis" and instituted just-in-time inventory control for both raw materials and products. Alcan established a variety of process control and quality indicators that are tracked on a regular basis. These indicators provide process operators with regular feedback on the production process. These techniques contribute to pollution prevention by promoting an environment in which process improvements are encouraged and quickly implemented to reduce wastes.

The Printing Report

The Koch Label Company in Evansville uses rotogravure printing to produce labels for a variety of food and beverage manufactures. The Koch Pollution Prevention program is a computerized raw material tracking program, which is referred to as the Chemical Constituents Management Program. The program was developed in-house and uses information from raw material Material Safety Data Sheets (MSDS) to track hazardous compounds used in facility operations.

5. IDEM's Pollution Prevention Case Studies Grant

IDEM's Office of Pollution Prevention entered into a grant agreement with Purdue's Environmental Management and Education Program (EMEP) on May 29, 1992 for a period ending December, 1993.

There are three (3) tasks associated with the grant effort. The first two (2) tasks are associated with the development of two model pollution prevention case studies.

1) The first task included the coordination and enlistment of facilities into the grant's case study and opportunity assessment initiatives.

2) The second task of the model pollution prevention case study was to development a facility-specific pollution prevention opportunity assessment. A detailed, in-depth report of assessment results including training needs of staff, pollution prevention methodologies and technologies proposed and a follow-up report on implementation was required.

3) The third task was to do twelve (12) facility pollution prevention opportunity assessments and resulting individual reports for documentation of the results. This task also includes the development of pollution prevention individual facility type questionnaires.

The goal of this project was to develop twelve (12) unique and transferable industrial reports showing pollution prevention options for Indiana industry. The project has shown pollution prevention options from fourteen Indiana industries that addressed eight broad categories of SIC's. The manufacturing categories effected by this project are:

- 2500 Furniture and Fixtures Manufacturing
- 3000 Rubber and Misc. Plastic Products Manufacturing
- 3200 Stone, Clay, Glass and Concrete Products Manufacturing
- 3300 Primary Metals Industry
- 3400 Fabricated Metal Products Manufacturing
- 3600 Electrical and Electronic Machinery, Equipment and Supplies
- 3700 Transportation Equipment Manufacturing
- 3900 Miscellaneous Manufacturing Industry

The reports have been submitted to IDEM, and are presently being summarized into a series of Fact Sheets that will be available for industry distribution.

6. The TCA Substitution Program

The TCA Substitution program is a unique opportunity for IDEM to work in cooperation with the Indiana Manufactures Association, the Indiana State Chamber of Commerce, and the Pollution Prevention Board. The program is an example of the new environmental partnerships identified in the Governor's Toxic Emissions Reduction Initiative. The Governor's Initiative expressed an interest in forming a working relationship between these parties to develop a voluntary toxic emissions reduction program.

The purpose of the program is to encourage and promote safe substitutes for the toxic and hazardous materials now used by Indiana business. IDEM's function is to serve as a medium for the transfer of technical information received through this program. By using the TRI data, IDEM can communicate to businesses that use the same materials in similar processes, and can share their conversion successes. The cooperation needed for the success of this program will be the success of the program.

The selection of 1,1,1-trichloroethane by IDEM is a pilot project with this approach. The entire program will be continuously reviewed for possible improvements in communication and effectiveness. If successful, a similar approach will be used with other materials and other groups of high use industries. A network of industry specific useful information will be kept at IDEM and will be available for businesses to share.

The Federal EPA published a final rulemaking in the Federal Register 40 CFR Part 82 on December 10, 1993. This rule phases out TCA and other Class 1 ozone-depleting substances by December 31, 1995.

IDEM prepared a letter requesting the users of 1,1,1-trichloroethane to switch from the use of this stratospheric ozone-depleting substance to a safer alternative, such as an aqueous nonphosphate solvent. In this letter, IDEM requested the Indiana Chamber of Commerce

(ICC) and Indiana Manufacturer's Association (IMA) to participate with IDEM in this pollution prevention effort. The Chairman of the Pollution Prevention Board also added his signature in support of the initiative. A copy of the letter is included as Appendix O.

IDEM retrieved a list of 145 manufacturers from the 1991 TRI database, who are using over 10,000 pounds of 1,1,1-trichloroethane yearly. Letters sent to industries were mailed the week of March 1, 1994 to the specified users of 1,1,1-trichloroethane. So far, 23 companies have found substitutes and have notified IDEM of the change.

D. CITIZEN EMPOWERMENT [IC 13-9-2(4)]

Legislative Mandate

The office of pollution prevention shall develop policies and programs to reduce the generation of municipal wastes, reduce the generation of household hazardous wastes and pollutants, and reduce the use of toxic materials in consumer products by means of industrial pollution prevention.

IDEM Strategic Plan Mandates

- *Develop policies and programs to reduce the generation of municipal wastes, toxic materials and household hazardous wastes and pollutants, by means of industrial pollution prevention.*

- *Encourage the public to use non-polluting materials, or alternative practices that reduce the potential threat of groundwater degradation.*

- *As the agency charged with protecting our environment, we must help motivate citizens, the regulated community, local government and other state agencies to consider the environmental effects of their decisions.....*

General Approach

IDEM's vision for the future is: *"All industries in the state prefer to use pollution prevention methods rather than pollution control to protect the environment".*

The agency's strategy for reaching these objectives and achieving protection-through-prevention is to educate the public and private sectors on matters relating to waste generation and alternative practices, and to involve communities and provide support for local governments in efforts to promote pollution prevention and reduce the generation of environmental waste.

Progress Report

1. Support for Local Government & Community Involvement [IC 13-9-2-5(9)]

The act states that *the commissioner may appoint liaison advisory panels to assist the division in the functions of the division. Individual panels must include members representing different areas of interest in and potential support of pollution prevention and environmentally related technical assistance, including the following:*

- *Industry*
- *Education*
- *Environmental and public interest groups*
- *State government*
- *Local government officials associated with state programs for pollution prevention*
- *Organized labor*

The commissioner may appoint liaison advisory panels to assist the division in the functions of the division. At this time the liaison advisory panels have not been formed. The panels resemble the Pollution Prevention Board by nature of its diverse membership, and so far have not been needed. However, in response to comments received on the draft report during the comment period, this topic will be presented to the Board for further discussion and consideration this year. IDEM would consider forming a panel for each of the industries the Institute has selected to work with. No decision has been made at this time.

IDEM continues to promote increased coordination between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes. IDEM provides technical assistance concerning environmental matters to local and state government entities and businesses on a continual basis through a variety of outreach and education programs. A good example of this type of effort is the pollution prevention grant for the Monroe County Solid Waste Management District to work primarily with conditionally exempt small quantity generators in Monroe county.

2. Public and Private Education [IC 13-9-2-12]

IDEM combines its fulfillment of the mandate to encourage Indiana citizens and businesses to reduce the volume or toxicity of material entering the waste stream with its mandate to encourage solid waste reduction (House Enrolled Act 1240; Public Law 10-1990). This combined effort to reduce toxic emissions and material disposal is the most effective approach because conditionally exempt quantities of hazardous waste (as defined by federal regulations 40 CFR 261.5) generated by businesses and household hazardous waste are considered "problem waste" categories within Indiana's municipal solid waste stream. In accordance with HEA 1240, solid waste management districts are responsible for managing the amount of conditionally exempt hazardous waste and household hazardous waste that is generated within their jurisdictions.

IDEM offers consumer awareness education relative to pollution prevention. When a concerned citizen contacts the agency for information, IDEM staff informs the person about

household hazardous waste source reduction. In cases where citizens express an interest in becoming involved in issues regarding a neighboring industrial activity or express concern about potential risks in the workplace, for example, they are told about IDEM's P^2 Program and may be referred to citizens' groups or environmental organizations for more information. Concerned employees are encouraged to approach their employers to discuss potentially safer pollution prevention alternatives. IDEM also provides comments to non-profit environmental organizations on programs and documents relevant to pollution prevention.

IDEM teaches school-aged people, industry, agriculture, local governments and all citizens who request information about the importance of choosing durable products rather than single-use products, using fewer resources to manufacture a product, and substituting less toxic or non-toxic ingredients or products.

Source reduction and pollution prevention education is carried out through workshops, often in cooperation with other agencies and the Indiana Recycling Coalition, public and private speaking events, and distribution of print materials and news releases. Individual requests for information, via phone, mail or in person, are handled as top priorities.

Staff members are assigned "areas of expertise," and thus able to provide assistance on specific topics. The unknown is researched when necessary, utilizing experts from IDEM's offices of air, water, and waste management; the information clearinghouse; external databases; and experts from outside the agency as information sources.

3. Source Reduction Manual [IC 13-9-2-5(4)]

IDEM, with the Indiana Recycling Coalition, directed the development of a source reduction manual entitled *You Can Cut It!* The manual gives Indiana's solid waste district officials, municipal recycling coordinators, solid waste planners and industry environmental specialists a valuable education tool to help change wasteful consumer behavior. Easy-to-understand fact sheets are included in *You Can Cut It!* that offer tips on reducing specific solid and hazardous wastes. Fact sheets are designed so solid waste districts, cities and businesses can add their identifying logos and/or contact information before the sheets are photocopied and distributed to local target audiences. IDEM will enhance current pollution prevention educational efforts with brochures and other publications. Small businesses and small business development councils will become a primary focus in 1994.

4. Reducing Workplace Exposure [IC 13-9-1-10]

Reduced workplace exposure to toxic materials is a result and direct benefit of pollution prevention in business and industry. As less toxic or less quantity of toxic materials are substituted in the manufacturing process, workers will enjoy a safer and healthier environment. Businesses significantly reduce the potential for exposure from accidental spills or leaking containers of toxic materials as they are reduced or eliminated in the transportation, handling and storage of such materials. IDEM encourages pollution prevention in business and industry through educational workshops, seminars and technical assistance which provides guidance for reduced workplace exposure.

V. ASSESSMENT OF PROGRAM IMPACT AND BARRIERS ENCOUNTERED

Chapter Overview

The first part of the chapter consists of IDEM's assessment of the effectiveness of its pollution prevention program. This summary of existing and previous pollution prevention efforts sets a premise for identification of barriers in this chapter, and making recommendations in Chapter VI. The remainder of the chapter focuses on the second responsibility - removing barriers to pollution prevention. For simplicity, barriers are divided into three categories, following the program assessment:

A. ASSESSMENT OF PROGRAM IMPACT
B. BARRIERS ENCOUNTERED
   1. Anticipated Barriers in a Successful Program
   2. Ambiguities in the Statute
   3. Unanticipated Changes in Circumstances

A. ASSESSMENT OF PROGRAM IMPACT

Legislative Mandate **[IC 13-9-6-2]**

The report required must include an assessment of how programs under this article have promoted and assisted pollution prevention and the costs and benefits to government and industry of those programs.

IDEM Strategic Plan Mandate

....and our Agency will use TQM-based processes to continuously improve the effectiveness and efficiency of our services.

General Approach

As demonstrated by the summary of IDEM's pollution prevention activities in Chapters III and IV of this report, IDEM has effectively used the framework and resources provided by the statute and the Governor to positively impact many people and businesses. During this period, the agency's focus has been on fulfilling the statutory mandates. It has not been focused on developing an objective measure to assess the impact of its program. This approach has changed with the adoption of IDEM's Strategic Plan and its Total Quality Management Initiative. IDEM has committed to developing objective measures of its effectiveness. These measures are essential for the agency, the legislature, businesses, and the public to assess IDEM's programs. The anticipated measurements for the pollution prevention program are as follows.

Progress Report

1. Using the Toxic Chemical Source Reduction and Recycling Report to compare a manufacturer's expectations one year to their actual performance the next year.

An effective pollution prevention program will result in a manufacturer's actual performance being significantly better than its previous expectations. While these changes may not be directly linked with the Indiana's pollution prevention program, they do provide a quantitative assessment of changes in a manufacturer's expectations. These changes are likely to have resulted from the state's educational effort and other environmental programs.

As an example, in its Form R report for 1991, assume Company X estimated that it would generation 100,000 pounds of toxic chemicals in its environmental wastes in 1992 and 1993. In its 1992 Form R report, the company reported 80,000 pounds of actual total generation of toxic chemicals in environmental wastes and an estimated 70,000 pounds in 1993. In this scenario, Company X would have had a 20% reduction in 1992 and 30% reduction in 1993 beyond its 1991 expectations. If the company reported a production rate index of 1.00 between 1991 and 1992. This reduction did not occur as a result of production rate changes. The company's pollution prevention program did significantly better than it expected. While not a direct measurement of the impact of the state's pollution prevention program, this technique does provide an indirect assessment of the state's program.

2. Requiring in its grants program, that grant recipients measure the effectiveness of their program in terms of actual reduction in the generation of environmental wastes.

In its 1994 grants program, IDEM required this measurement of all grant recipients and provided the four grant recipients offering technical assistance programs with additional funding to meet this requirement. This requirement is not typical of most pollution prevention programs offered by other states. The results of this effort will provide guidance to IDEM in the future as it refines its programs.

3. Tracking other measurement information such as:

- the number of enforcement actions that involve offsets for pollution prevention projects and a quantitative assessment of the pollution prevention benefits of those projects;
- number and quality of grant and award applications; and
- changes in rulemaking that result from the agency's pollution prevention impact analysis.

The results of these efforts are not available since they have just begun. Information on this topic should be available in IDEM's 1995 annual report on pollution prevention.

B. BARRIERS ENCOUNTERED

Legislative Mandate **[IC 13-9-6-2]**

The annual report by IDEM must include an identification of regulations and government policies that are inhibiting pollution prevention and an assessment of how the initiative has promoted and assisted pollution prevention and the costs and benefits to government and industry of those programs.

IDEM Strategic Plan Mandate

In fulfilling our mission, we are committed to making decisions and forming policies that: eliminate, where possible, the manufacture and use of materials that are harmful to human health or the environment. Where that is not possible, minimize the use of those materials and/or recycle them, or -- at the very least -- ensure safe and effective disposal methods.

General Approach

Indiana's pollution prevention program requires a fundamental shift in our approach to environmental protection. Historically, environmental protection programs assume that wastes or pollutants will be created, and focus on the best methods to control their impact. Indiana's pollution prevention program challenges this assumption. An effective pollution prevention program asks the questions whether a waste or pollutant must be generated and whether a toxic material needs to be used in the first place. The ability of an individual to make this shift is more limited by the individual's perspective than the resources or technologies that are available.

As a result of years of operating with a focus on control rather than prevention, the state and federal environmental protection programs have created barriers to pollution prevention. The Indiana Industrial Pollution Prevention and Safe Materials act of 1990 provides the agency with the framework and the authority it needs to overcome these barriers.

As the agency began to use the tools provided by the statute, it encountered a series of barriers to the effective and efficient use of the available tools and resources. Some of these barriers were anticipated by the statute. Other barriers were created by ambiguities in the statute. The third type of barriers are those created by unanticipated changes in circumstances surrounding the program. The barriers encountered are described next according to each of the three types.

Progress Report

1. Anticipated Barriers in a Successful Program

The statute presumed that the pollution prevention program would encounter various barriers to pollution prevention and provided some mechanisms to overcome them. These barriers are typical of pollution prevention programs at the state and federal levels.

a. The Definition of Pollution Prevention is Not Inherently Obvious

If five people were asked what the definition of pollution prevention is, each person would give a different definition. The answers would range from keeping pollution out of the environment to reducing the use of toxic materials. There is no obvious answer to a lay person. The result would be the same if the question were presented to businesses and environmental managers.

In Indiana, the legislature has answered the question by adopting a specific statutory definition. This definition focuses on manufacturing processes and not on the environmental protection activities that support those processes. In essence, Indiana has adopted a definition that is functionally equivalent to the reduced use of toxic materials. It has excluded from the definition activities that are not essential to the operation of the manufacturing process when environmental concerns are **not** considered in the decision as to what is an essential operation. This definition excludes many activities that are considered pollution prevention by the federal government and by most states.

Because pollution prevention is not an obvious concept and because Indiana's definition of pollution prevention differs from other definitions, businesses have had a difficult time understanding and accepting Indiana's definition. However, this barrier was anticipated when the statute was adopted and overcoming it is an inherent and necessary aspect of any effective pollution prevention program.

Therefore, IDEM has committed substantial resources to educating businesses, the public, and its own employees about Indiana's definition and the significance of the definition. This commitment has diverted energy and resources away from the basic goal of implementing other aspects of Indiana's pollution prevention program. If the definition were more obvious, this educational effort would be simpler and less-resource intensive.

b. Threat of Mandating Pollution Prevention

Many businesses have been and continue to be concerned that IDEM will mandate that they implement pollution prevention. The 1990 act significantly restricted IDEM's authority to require pollution prevention and emphasized that Indiana's pollution prevention program is based on the voluntary participation of businesses. IDEM has consistently reassured businesses that the agency does not want the program to become mandatory. Their concern were alleviated in part by 1993 legislation that made it clear that businesses could not be required to implement pollution prevention unless EPA

grants IDEM authority under federal law. The business community still is concerned, and these concerns present a barrier to participation in the state's program.

c. Concerns with Confidentiality

Pollution prevention addresses the manufacturing process. Information about these processes is essential to the technology exchange and technical assistance aspects of the IDEM's pollution prevention effort. However, some businesses are reluctant to share information with IDEM regarding their manufacturing processes because this information may be a trade secret or they believe it may be used against them in an enforcement action. Since Indiana's pollution prevention program is voluntary, businesses do not have to participate or share the information.

Business' reluctance to participate is a barrier to their learning about pollution prevention opportunities from IDEM and taking advantage of IDEM's pollution prevention resources as well as to IDEM learning more about their needs and concerns. To reduce this barrier, IDEM has developed an enforcement referral policy for the Office of Pollution Prevention and Technical Assistance that balances business' need for confidentiality with the state's commitment to environmental protection. A copy of the policy is at the end of this chapter as Attachment A.

The policy generally maintains any information received by OPPTA as confidential if it was part of OPPTA's voluntary technical assistance program. This information would only be provided to other programs if the information reveals a violation of state environmental laws which poses an imminent hazard or an actual or potential criminal act or it was brought to the attention of the business by OPPTA and the business failed to address the concern. This policy provides protection for businesses and substantially removes concerns about confidentiality as a barrier to pollution prevention.

An additional option for a businesses to maintain confidentiality were available with the establishment in January 1994 of the Pollution Prevention and Safe Materials Institute. The Institute should provide the necessary confidentiality that these businesses seek. With the adoption of OPPTA's confidentiality policy and the availability of the Institute, IDEM believes that this barrier has been overcome.

d. The Balance with Recycling

IDEM's pollution prevention effort must maintain a difficult balance. On one hand it needs to present pollution prevention as a clear choice over pollution control. The environmental protection hierarchy expects no less. If recycling is presented as a close substitute to pollution prevention, businesses may choose it instead of seriously considering pollution prevention practices that may involve more complicated, and perhaps more risky, changes in their manufacturing processes.

On the other hand, IDEM does not want to discourage environmentally sound recycling practices. The statute also expects no less. Many businesses with limited pollution

prevention opportunities may be interested in aggressively enhancing their environmental protection programs. Their justification for this interest includes seeking a marketing advantage, improving their manufacturing efficiency, gaining a better relationship with their neighbors, and avoiding potential liability. Classifying their efforts as a distant second choice to pollution prevention may stem their interest. And IDEM has a strong desire to encourage any effort by a business to enhance its environmental protection efforts beyond the regulatory mandates.

This barrier was addressed by the act in 1990 and was reaffirmed in 1993 when the legislature stated that IDEM shall not discourage the use of recycling or treatment techniques determined to be acceptable for pollution that has not been prevented. In order to enhance its efforts to overcome this barrier, IDEM uses the concept of environmental stewardship to recognize a broader range of environmentally beneficial efforts that may not qualify as pollution prevention. These efforts include recycling. In addition, IDEM is providing an offset in enforcement actions for recycling and other pollution control efforts. These offsets will be less than those that are available for pollution prevention. Also, the Governor's Awards for Excellence in Recycling recognize outstanding recycling efforts by businesses. Similarly, recycling operations are only partially regulated in the solid and hazardous waste programs in an effort to create a middle ground between pollution prevention and waste treatment and disposal..

Finally, IDEM is beginning to work with small businesses that would become especially distracted by any barriers to enhancing their environmental protection programs. IDEM plans to develop an integrated environmental education program that puts pollution prevention and recycling in perspective.

e. Regulatory Flexibility

State and federal regulatory programs have been developed to accomplish specific environmental protection objectives. Often, these programs did not recognize multi-media impacts and did not address the operational efficiencies that makes pollution prevention attractive to many businesses. In some cases, the programs encouraged pollution control over pollution prevention because pollution control was often easier to monitor and regulate.

This single-media, command-and-control approach has created various barriers that inhibit businesses from implementing pollution prevention. These barriers include:

- compliance schedules based on pollution control operations;
- permit limits that establish parameters based on the performance of pollution control operations;
- regulatory cutoffs that are not based on the quantity or toxicity of an environmental waste that is generated; and
- construction permits or permit modifications that are required even when a business is implementing a pollution prevention project.

- establishing financial incentives that encourage approaches other than pollution prevention. For example, the resource recovery property tax credit in Indiana provides an economic incentive to recycle. No similar incentive is present for pollution prevention.

The statute provided a mechanism to identify and overcome these barriers. IDEM is required to develop a pollution prevention impact analysis of all environmental rulemaking efforts. In this analysis, IDEM identifies potential multi-media impacts of the regulations, obstacles to pollution prevention in the regulation, and methods to change to regulation to create incentives for pollution prevention. This analysis provides a format for the agency to provide regulatory flexibility where necessary and appropriate. In addition, through IDEM's Pollution Prevention Workgroup, the agency is constantly evaluating its programs for barriers to pollution prevention.

Several businesses identified the federal Food and Drug Administrations regulations for pharmaceuticals and health care products as a significant barrier to their efforts to implement pollution prevention. The FDA regulations impose strict reporting and assessment requirements on process changes and raw material substitutions. The requirements constrain the manufacturers flexibility is modifying its process. Even after safe and effective pollution prevention changes are identified and the company submits the necessary documentation to FDA, these changes are not given priority at FDA because they often do not enhance the safety of foods and drugs. Approval may take several years.

2. Ambiguities in the Statute

The Indiana Industrial Pollution Prevention and Safe Materials Act provided a clear direction to IDEM as it implemented the mandates of the act. However, as IDEM began to meet its responsibilities, two ambiguities in the statute have lead to barriers in full implementation. These ambiguities are the line between prevention and recycling, and how to identify safer substitutes. Each of these ambiguities are discussed below.

a. The Line Between Prevention and Recycling

The statutory definition of pollution prevention in Indiana is carefully crafted to clearly convey its intent to exclude many activities that may be considered pollution prevention by businesses. However, there is a significant ambiguity in the definition regarding the types of on-site recycling processes that meet the definition. This ambiguity is a barrier to implementing pollution prevention. Without a clear definition, businesses are reluctant to participate in the state's pollution prevention program. And since it is a voluntary program, they do not have to participate.

Pollution prevention in Indiana expressly includes on-site "inprocess, inline, or closed-loop recycling according to standard engineering practices." (IC 13-9-1-14) Any one of these three types of recycling activities (inprocess, inline, and closed-loop) should qualify as pollution prevention. Unfortunately, the statute does not expressly define any of these three types of recycling and standard engineering reference manuals provide no guidance. The absence of specific guidance creates a serious ambiguity that poses a barrier to pollution prevention.

Only inprocess recycling is defined, albeit indirectly, by the statute. When describing the contents of a multi-media pollution prevention plan, the statute states that inprocess recycling "refers to recycling, reuse, or extended use of toxic materials by using equipment or methods that become an integral part of the production unit of concern, including filtration and other closed looped methods." (IC 13-9-5-2 (2)(E)) In addition, in HEA 1412, which amended the original law, the 1993 General Assembly further clarified the definition of inprocess recycling by stating that "inprocess recycling is not a means of preventing pollution unless the inprocess recycling is a **closed and integral part** of the production process or operation." (IC 13-9-5-3(b)). Both these clauses imply that in-process recycling is a subset of closed-loop recycling. In-process recycling in closed and integral, while closed-loop recycling is only closed.

In addition, the statute excludes only off-site recycling from the definition of pollution prevention. It does not exclude on-site out-of-process recycling. This approach creates a gap between in-process recycling and on-site recycling that is not defined. The definition on closed-loop recycling falls into this gap. Based on its interpretations of the statute, IDEM has concluded that the statute does not define closed-loop recycling. IDEM must refer to standard engineering practices for resolution to this issue.

IDEM reviewed the federal regulatory programs and requested public input several times. Regulatory definitions of solid waste pursuant to the Resource Conservation and Recovery Act (RCRA) provided the best guidance as the relevant issues and concerns. Based on its review, IDEM proposed a definition of closed-loop recycling in December 1993. The definition was:

a. Recycled materials must be returned to the same or substantially similar on-site processes that generated the materials that were to be recycled.

b. Materials to be recycled are to be conveyed or transported in a manner that minimizes releases to the environment. The presumption is that the manner of conveyance should be an enclosed means of conveyance.

c. The manner and duration of storage of materials to be recycled must be similar to that provided by the facility for raw materials and products. This duration is presumed to be 90 days or less.

d. All handling and processing is conducted at the same facility.

IDEM received public comments both in favor and opposed to its proposal. After several meetings with the Pollution Prevention and Safe Materials Institute, which is housed at Purdue University, IDEM decided to defer to the decision of the Institute. IDEM made this decision for the following reasons:

a. The statute indicates that the Institute is designated to be the lead on technical issues relating to pollution prevention, and the evaluation of standard engineering practices is a technical issue;

b. With the resources of Purdue University at hand, the Institute has more technical ability than IDEM to determine what standard engineering practices are; and

c. IDEM decided that it was essential for the Institute and the agency to promote a consistent definition. Any inconsistency would lead to confusion and increase the barrier to pollution prevention caused by the ambiguity in the statute.

The Institute's definition, as written in the form of a Pollution Prevention Board resolution is as follows:

Recognizing that some accumulation of materials may be inherent in a given process itself, the Board adopts the following as guidelines for the Pollution Prevention Institute and recommends that the Pollution Prevention Division adhere to the same guidelines on the issue of inprocess recycling:

Consistent with Indiana statute, the Institute shall recognize that the terms inprocess, inline, and closed loop recycling are functionally equivalent for the purposes of implementing the state pollution prevention program.

The Institute shall recognize the definition of inprocess recycling under IC 13-9-5-2(E) and IC 13-9-5-3(b) as the only recycling technique consistent with the definition of pollution prevention under IC 13-9-1-14. Inprocess recycling shall be interpreted as the least desirable pollution prevention technique, and shall not be promoted in such a way as to undercut progress in the more desirable techniques such as product reformulation, input change and production process redesign. Furthermore, inprocess recycling must result in reduced health and environmental risk, and shall not initiate activities requiring storage or out-of-process waste management. Moreover, inprocess recycling means the return of potential environmental waste directly and immediately to the process from which it originated using "hard pipe", "closed loop" and "totally enclosed" engineering techniques, consistent with accepted engineering practice. Finally, inprocess recycling must serve a productive function with the making of the commercial product for which the original process was designed and must be an integral part of that process, i.e. the production process cannot function without the recycling process when the design-decision is made to implement the inprocess recycling option. Inprocess recycling does not include combustion techniques, such as use of the materials in furnaces or boilers.

The Institute shall recognize that no storage of environmental wastes for inprocess recycling is a necessary or acceptable condition for such operations to fulfill the definition of inprocess recycling under IC 13-9-5-2(E), including the definition of pollution prevention under IC 13-9-1-14. The definition of pollution prevention under IC 13-9-1-14 does not recognize storage as a pollution prevention technique.

The Institute shall alert and educate industry and the public about the danger that exists for incorporating or embedding harmful environmental wastes or potential wastes into consumer, commercial or industrial products when businesses attempt to implement inprocess pollution prevention recycling techniques. The statutory definition of industrial pollution prevention does not recognize shifting environmental wastes or potential environmental wastes into products as a pollution prevention method.

In essence, most activities that are traditionally referred to as recycling will not be considered pollution prevention because of the limitations on storage and on the means of conveyance. The Institute's definition was adopted by the Pollution Prevention Board at its June 17, 1994 meeting. IDEM will follow the guidance of the Institute. An original copy of the resolution is included in Appendix P, and a letter of support for the resolution from the Director is included as Appendix Q.

IDEM recommends that the legislature resolve the ambiguity in order to avoid additional distraction and disputes that may arise as the agency begins establishing tangible incentives for pollution prevention.

b. Identifying Safer Substitutes

Pollution prevention includes activities which reduce the industrial use of a toxic material or reduces the environmental and health hazards associated with an environmental waste without diluting or concentrating the waste before it is managed. Businesses frequently need assurances that the substitute chemicals they may use in the interests of pollution prevention are in fact safe substitutes. Using the definition of pollution prevention as guidance leads to either a complicated analysis of environmental and health impacts or a mechanical application of the definition that recognizes any reduced use of a listed toxic material - even if the quantity of the substitute used is substantially greater or if the substitute may have greater hazards and simply has not made it to the list yet.

For example, switching from a solvent degreaser to a water-based degreaser may reduce air pollution but it may interfere with the operation of the wastewater treatment system. In another actual situation IDEM has encountered, a facility using 1,1,1-trichloroethane, a stratospheric ozone-depleting substance that is on the toxic material list, replaced it with heptane, a flammable liquid with significant acute and chronic health effects that is not on the toxic material list. The switch met the definition of pollution prevention but significantly increased hazards to the workers.

The answer to this question involves a complex balancing of many environmental, safety, and health risks. The identification of safer substitutes is an ongoing effort dependent

upon review of current research, studies, and reports. The ultimate decision on substitution of materials is the responsibility of the business. However, most successful conversions result from close cooperation and consultation with a manufacturer's supplier who is most familiar with materials that have similar properties or characteristics, can maintain product quality, and can reduce or eliminate the quantity of hazardous materials used in an industrial process.

IDEM can assist businesses in this conversion by providing regulatory guidance and trying to ensuring that the resultant material is used in a manner which addresses present and future state, federal, safety, and environmental regulations. This effort to provide pollution prevention regulatory guidance will continue as the P^2 Initiative develops its staffing expertise.

The definition of "toxic materials" was initially set equivalent to the CERCLA hazardous substances list as it existed on January 1, 1990. It also includes any mixtures containing CERCLA hazardous substances. Since the CERCLA hazardous substance list dos not encompass many serious environmental pollutants and since it has been updated since January 1, 1990, the Commissioner is considering exercising her discretionary authority under IC 13-9-1-15 to designate the following additional materials as toxic materials.

a. Stratospheric ozone-depleting substances (also known as "controlled substances") as defined in 40 CFR Section 80.3(g). These materials include chloroflourocarbons (CFCs) and hydrochloroflourocarbons (HCFCs). They are being phased out of use by the Clean Air Act and the Montreal Protocol.

b. Clean Air Act Hazardous Air Pollutants (HAPs). On November 15, 1990, Congress added 41 new chemicals or chemical categories to the list when it adopted 189 hazardous air pollutants. Most significant of these new chemicals is ethylene glycol. This action essentially updates the reference date in the law.

c. Toxic chemicals as defined in 40 CFR Section 372.3. These materials are subject to Form R reporting as part of the community right-to-know program. If all HAPs are added to the list, few additional toxic chemicals would need to be added.

d. OSHA air contaminants for which a permissible exposure limit has been established under 29 CFR Part 1910 Subpart Z.

e. Toxic substances subject to significant new use regulations (SNUR) under 40 CFR Part 721 pursuant to the Toxic Substances Control Act. A complete list can be found in 40 CFR Part 721 Subpart E.

Beyond the changes described above, IDEM needs additional time and experience to evaluate potential alternative methods to identify safer substitutes. The approach in the statute provides a mechanism that is a reasonable start and should be retained until a better system is developed.

3. Unanticipated Changes in Circumstances

Since the statute, barriers has arisen as a result of changes in circumstances that were not anticipate in the original statute. IDEM has been able to overcome most of these barriers.

a. EPA's and Indiana's Definitions Differ

Eight months after Indiana adopted its definition, Congress adopted the federal Pollution Prevention Act. This Act provided the basic definition of pollution prevention to EPA. This definition, although narrower than EPA's prior proposals, is still broader than Indiana's. This difference has made joint pollution prevention efforts with EPA and with programs operated by IDEM under EPA's oversight challenging. The efforts must recognize and coordinate both definitions.

b. Structure of OPPTA

The Office of Pollution Prevention and Technical Assistance was established by the Industrial Pollution Prevention and Safe Materials Act of 1990 as an office that would centralize many of the agency's pollution prevention efforts into a single office to coordinate the agency's efforts and serve as a pollution prevention technical resource. This centralization was designed to make pollution prevention a priority within the agency and avoid it becoming lost in the existing programs. The statute mandated that the office be designated a division at IDEM on par with the Office of Water Management, Air Management, Solid and Hazardous Waste Management, and Environmental Response to ensure parity with these programs. It also mandates that an Assistant Commissioner head the office to further ensure parity.

When the statute was adopted in 1990, IDEM's source reduction and recycling effort was just beginning to make significant progress. This progress accelerated with the adoption of HEA 1240 in the same year. During this time, IDEM worked to improve its efficiency and effectiveness by merging operations that were engaged in similar types of activities. Operations that involved providing grants, coordinating awards, managing clearinghouses, offering voluntary, non-regulatory technical assistance, and educating the public were assigned to the Office of Pollution Prevention and Technical Assistance. Therefore, the agency's source reduction and recycling program was added to OPPTA. In 1994, the General Assembly recognized the merits of this approach and added the recycling program's responsibilities to OPPTA's statutory mandate.

This structure has been viewed as both as a barrier and an opportunity by interested parties. A barrier because it distracts resources away from pollution prevention. An opportunity because it provides an integrated message that recognizes the primary role of pollution prevention and the complementary role of Indiana's source reduction and recycling program. The structure helps IDEM put the relationship between pollution prevention, source reduction, and recycling in their proper context. As pollution prevention is currently defined, recycling is not pollution prevention. By maintaining close coordination between the offices, this message is clearer and can avoid confusion.

c. Staffing Restrictions at IDEM

OPPTA has 32 positions on the staffing table created in 1992. Fourteen positions on table are committed to working on pollution prevention. The other staff are designated to work on source reduction, recycling, and environmental education issues. Before OPPTA began to fill positions, the national recession began to affect the economic climate in Indiana. The Bayh Administration responded by holding down the cost of government and implemented a headcount freeze on most agencies. IDEM was subject to this general headcount freeze.

The freeze meant that every new person in OPPTA would have to be offset by a equal reduction in other offices in the agency. Therefore, growth was slow. Most people working in the office were brought on as temporaries and hired at a later date. Because pollution prevention positions were a higher salary class and had higher minimum job qualifications, it was difficult to find temporaries to fill those positions.

The limited number of personnel working on pollution prevention reduced the program's effectiveness. This reduced effectiveness limited business' ability to learn of the benefits of pollution prevention and how to implement it in their operations. It also limited IDEM's ability to integrate pollution prevention into the other programs.

Despite the continuing headcount restrictions and the agency's funding cuts during the fall of 1993, IDEM demonstrated its commitment to increase its pollution prevention effort. Four personnel have been added to the program to work full-time on pollution prevention. This effort adds to the four people working on pollution prevention in the spring of 1993. In addition, four other individuals share responsibilities with pollution prevention and OPPTA's other programs.

IDEM will continue to pursue fully staffing the OPPTA.

d. Competing Hierarchies

Shortly after the Indiana Industrial Pollution Prevention and Safe Materials Act was adopted in 1990, HEA 1240 established a three tier solid waste management hierarchy puts recycling, reuse and composting activities in a separate tier between source reduction and final disposal. In response to the potential confusion created by the relationship between this hierarchy and pollution prevention, the 1993 legislature established an environmental protection hierarchy (IC 13-1-10.1 Section 7 of HEA 1412, PL13-1993) for Indiana that creates a two-tiered system: pollution prevention and all other environmental protection activities. Conventional recycling falls into the lower tier.

This hierarchy appears to conflict with the solid waste management hierarchy. However, this apparent conflict can be reconciled by focusing on the objectives of each hierarchy. The solid waste management hierarchy has three objectives: environmental protection; natural resource conservation; and landfill capacity conservation. Recycling is clearly superior to final disposal when considering all of these three objectives. On the other

hand, the environmental protection hierarchy only considers the first objective - environmental protection. In essence, the environmental protection hierarchy concludes that recycling does not protect the environment significantly better than final disposal and treatment techniques but it does conserve natural resources and landfill capacity.

The key to understanding the differences and reconciling the similarities in the two hierarchies is recognizing the word *management* in both hierarchies. The environmental protection hierarchy does not go so far as to classify management strategies. It simply states that any management of waste is less preferable to preventing waste in the first place. The solid waste management hierarchy lists pollution prevention as the preferable alternative by placing source reduction at the top of the hierarchy, but then says that within waste management or pollution control alternatives, some choices are better than others based on considerations other than environmental protection. It ranks management choices by considering their effectiveness at conserving resources and disposal capacity.

e. Measuring Progress Through Releases

Pollution prevention is designed to reduce the generation of environmental wastes before the wastes are managed. Therefore, the state's progress in implementing pollution prevention should not be measured as reduced releases to the environment. It should be measured as reduced generation of environmental waste or reduced use of toxic materials. A failure to make this distinction has caused some confusion among the regulated community and members of the public. The confusion creates a distraction to pollution prevention. This distraction is a barrier to pollution prevention by diverting resources away from implementing pollution prevention.

On June 27, 1992, Governor Evan Bayh announced his Toxic Emission Reduction Initiative to reduce Indiana's toxic discharges by 50% by 1995. 1988 was the baseline year for this reduction. The initiative established a series of steps that were designed to encourage the use of pollution prevention in achieving these goals. Some people who considered this program to be a pollution prevention initiative were frustrated because releases were being used as a measure of the initiative's success. They believed that the initiative created a barrier to pollution prevention by distracting businesses from reducing the generation of environmental wastes.

This perception is based on a misunderstanding of the initiative. The initiative's objective was to reduce releases to the environment and not to solely promote pollution prevention. The initiative was designed to encourage pollution prevention as the primary means to achieve the objective of reduced releases. This distinction is more evident by subsequent efforts at IDEM. IDEM will not measure pollution prevention progress through release reductions in the Toxic Chemical Release Inventory. IDEM will use the Toxic Chemical Source Reduction and Recycling Report. As discussed in Chapter II, the Toxic Chemical Source Reduction and Recycling Report allows waste management activities, including treatment, disposal, and recycling, to be measured and total generation of environmental wastes to be tracked. This report was not available when the Governor announced his initiative.

ATTACHMENT A

ENFORCEMENT REFERRAL POLICY FOR OPPTA

VOLUNTARY TECHNICAL ASSISTANCE PROGRAM

In an effort to balance the desire to provide technical assistance with respect to pollution prevention and other issues at manufacturing facilities with IDEM's obligation to determine compliance and enforce environmental laws, this document sets forth the policy to be followed if OPPTA or any contractor working for OPPTA sees a violation while providing voluntary technical assistance to a private company.

1) In cases where the OPPTA or a contractor of the OPPTA observes a violation of state environmental laws which pose an imminent hazard or actual or potential criminal act, the OPPTA will refer the matter to the appropriate program office for further investigation as soon as possible. OPPTA will make the determination whether the violation poses an imminent hazard or actual or potential criminal act in consultation with the appropriate program. OPPTA and the programs will develop criteria within each program area to define imminent hazards. OPPTA will develop criteria with the Office of Environmental Investigations for determining actual or potential criminal acts;

2) In cases where a "potential" hazard or possible violation is observed, the OPPTA will identify to the company, in writing, the situation and ask that the business take the necessary steps to address the situation and send a follow-up letter to the OPPTA stating that the matter has been resolved. If there is no response or the response is inadequate, the OPPTA will refer the matter to the appropriate program or programs for further investigation. OPPTA will consult with the programs to determine if the response is adequate;

3) The OPPTA will maintain a database of all site visits and follow-ups for use by the other offices within the IDEM. While no referral will be made to programs or OE, the information from the site visits may be used by the programs to determine the compliance status of a business;

4) Organizations that contract with the OPPTA to provide technical assistance to businesses must adhere to this policy. The policy will be written into future contracts with parties retained by the OPPTA to aid with the provision of technical assistance; and

5) An explanation of this policy will be included in the correspondence to the company arranging the OPPTA site visit so that they know they will not be subject to enforcement action except as described above.

VI. RECOMMENDATIONS

Chapter Overview

This chapter provides a summary of recommendations by IDEM to enhance the state's pollution prevention program. The recommendations are divided into three categories.

A. LEGISLATIVE RECOMMENDATIONS
B. ENCOURAGING INVESTMENT IN RESEARCH AND DEVELOPMENT
C. ENCOURAGING GREATER USE OF INDIANA'S PROGRAM

A. LEGISLATIVE RECOMMENDATIONS

Legislative Mandate [IC 13-9-6-2]

The commissioner shall prepare and submit to the governor and the general assembly a report regarding the pollution prevention information gathered.....including a description of the operations and activities of the programs and recommendations the commissioner may have for legislative action.

IDEM Strategic Plan Mandate

In fulfilling our mission, we are committed to making decisions and forming policies that: eliminate, where possible, the manufacture and use of materials that are harmful to human health or the environment. Where that is not possible, minimize the use of those materials and/or recycle them, or -- at the very least -- ensure safe and effective disposal methods.

General Approach

IDEM continues to implement the Industrial Pollution Prevention and Safe Materials Act. However, as discussed in Chapter V the definition of pollution prevention is not inherently obvious, and Indiana's definition is inconsistent with the federal definition. Despite a relatively clear statutory definition and an aggressive effort by IDEM and others, confusion among the business community persists.

Recommendations

Ambiguities in the statute need to be resolved. The first ambiguity deals with the definition of closed-loop recycling. IDEM recommends that the legislature adopt a clear definition of closed-loop recycling consistent with standard engineering practices. Also discussed in Chapter V, was the issue that closed-loop recycling represents the dividing line between pollution prevention and pollution control. However, the statute does not define closed-loop recycling, and standard engineering practices provide little guidance. This ambiguity also discourages businesses from using the state's pollution prevention program.

To establish an effective pollution prevention program, IDEM recommends that the legislature either; adopt a clarification of the definition of closed-loop recycling consistent with standard engineering practices, or remove the term from the definition.

The other ambiguity deals with the identification of safer substitutes. The approach in the statute does not provide a refined method to evaluate the comparative risks in a particular pollution prevention option. This area is extremely complex and IDEM does not have a recommendation at this time.

B. ENCOURAGING INVESTMENT IN RESEARCH AND DEVELOPMENT

Legislative Mandate **[IC 13-9-6-2]**

The report must include a statement concerning the identification of opportunities and development of priorities for research and development in pollution prevention techniques, economic analysis, and management techniques useful in supporting pollution prevention.

IDEM Strategic Plan Mandate

...Our environmental priorities will always be foremost in our minds, determining the actions we must take to deliver the best decisions and services.

General Approach

Pollution prevention is typically accomplished through the adoption of any or all of four basic interrelated approaches: formal evaluation and planning; implementation of new technologies; enhanced financial analysis; and improved measurement techniques. This section discusses each one of these approaches, assesses the need for research and development of the approach; and, if appropriate, makes recommendations to encourage investment in this research.

Progress Report

1. Formal Evaluation and Planning

Many states have chosen to require businesses to implement a formal pollution prevention planning program and, in some cases, submit the plan to the state for review. Indiana's program has rejected the command-and-control approach and mandated the Pollution Prevention and Safe Materials Institute to develop a Pollution Prevention Technical Assistance Manual and to establish and operate a training program for pollution prevention planners. This approach should provide Indiana businesses with a pool of individuals who can formally evaluate process and develop pollution prevention plans.

After conducting several case studies, including two detailed analysis in the electroplating industry, and working with many businesses, IDEM believes that most business already have the basic skills they need to develop pollution prevention plans. These skills have been developed in recent years through Total Quality Management, Statistical Process Control, Performance Excellence or similar quality management programs. To develop the pollution prevention plans, these businesses need three things:

a. A sound understanding of what pollution prevention is and what it is not;
b. Ideas as to how to adapt pollution prevention into their existing quality management program; and
c. Incentive to begin and complete the work.

Quality management programs provide the best tool to evaluate processes. Integration of pollution prevention into these programs is likely to be the most effective approach to formally evaluating pollution prevention opportunities. A stand alone pollution prevention planning program in most businesses, especially small and medium business with mature quality management programs, is likely to be unsuccessful.

In addition, IDEM believes that a separate pollution prevention planning program may face significant barriers within the business. The program will be competing for valuable time. Marketing and compliance mandates will frequently take precedence. Therefore, IDEM recommends that pollution prevention planning be integrated into the existing worker safety and environmental protection planning mandates. These mandates include:

- Clean Water Act Spill Prevention Control and Countermeasure (SPCC) Plans
- Clean Water Act Storm Water Pollution Prevention Plans
- Clean Water Act Slug Control Plans
- Clean Water Act Best Management Practices
- RCRA Waste Minimization Program
- Clean Air Act Accident Prevention Plans
- OSHA Process Safety Management Standard
- OSHA Fire Prevention Plans
- OSHA Health and Safety Plans
- OSHA Hazard Communication Plans

IDEM does see a need for encouraging stand-alone pollution prevention planning efforts. Businesses need assistance integrating pollution prevention into their existing quality management programs and using the existing planning mandates as the format and incentive to perform pollution prevention planning.

2. Technology Research and Development

The technology to make significant strides in implementing pollution prevention is already available. The challenge is to make them accessible to businesses in a manner and format that they can implement. IDEM believes that significant research into new technologies is best handled at either at the national level by industry associations, EPA, Department of Energy, and others, or at the individual business level where they need to make the technology fit a particular need. Innovative technological research is not the pressing need for the state at this time. The state's limited resources are better invested in fully using existing technology.

3. Financial Analysis Research and Development

Despite the development of quality management skills among some businesses, they need significant assistance in integrating pollution prevention concepts into their financial analysis techniques. Some businesses have developed systems to chargeback to the operating unit the environmental costs created by their processes (in addition to administrative support). Others have modified their analysis to emphasis long-term benefits, since pollution prevention is usually most beneficial in the long-term. Other businesses have developed factors to address intangible environmental impacts and potential liabilities. However, IDEM is not aware of any businesses that have effectively integrated all of these assessments efficiently.

IDEM recommends that research and development be conducted on incorporating pollution prevention into financial analysis and decision-making. For this reasons, it has created a series of efforts to provide incentives for the effort. Financial analysis was a separate category for small and for large businesses in the 1994 Governor's Awards for Excellence in Pollution Prevention. In addition, the research is a candidate for funding in the Pollution Prevention Challenge Grants program. Finally, offsets to civil fines in enforcement actions may be available for the research.

4. Measurement Research and Development

A basic principle of quality management is that you must be able to measure a problem in order to manage it. Unfortunately, measurements of pollution prevention progress at the individual plant level and at the statewide level are rudimentary. A particular problem is the ability to measure the generation of environmental wastes. Progress has been made in recent years with the advent of cost-effective electronics and environmental mandates to measure pollution. However, significant progress is still needed.

For example, IDEM was recently contacted by a business needing a continuous, immediate response oil and grease sampler for its wastewater. This device would have allowed the

business to identify the source of the intermittent problem it was experiencing and prevent it from reoccurring. After much research, several potential products were identified by the company. But they were relatively expensive and innovative. IDEM recommends that research and development is needed in this area.

The Institute is mandated to develop measurement techniques. As with financial assistance research and development, IDEM has developed a series of incentives in this area. In addition, to further emphasize the importance of measurements, IDEM crafted the Pollution Prevention Challenge Grants program so that a project must be able to measure its impact in terms of reduced use of toxic materials or generation of environmental wastes. This approach has spurred interest in the topic based on comments received to date. However, the grant money is not available for capital expenditures.

C. ENCOURAGING GREATER USE OF INDIANA'S PROGRAM

Legislative Mandate **[IC 13-9-6-2]**

IDEM's annual report must include recommendations concerning incentives and policies needed to encourage investment in research and development in pollution prevention and in making greater use of Indiana's pollution prevention program.

IDEM Strategic Plan Mandate

...We must maximize our resources to the greatest extent possible, and where necessary seek additional resources to meet the growing demands for environmental protection... Through consolidation and efficiencies, we will receive more benefits from the resources we have.

General Approach

IDEM has structured its program to remove barriers to pollution prevention and create incentives for it. In general IDEM has made substantial progress in this area. However, resource barriers and programmatic ambiguities limit businesses use of Indiana's pollution prevention program. In order to encourage use of its programs, IDEM has the following concerns and recommendations.

Progress Report

1. Electronic Access to Clearinghouse

IDEM's Pollution Prevention Clearinghouse is currently not accessible by businesses electronically through a modem or other communications device. Many businesses are reluctant to come to Indianapolis to conduct the research. And IDEM does not have the resources to perform the research for the businesses. Therefore, IDEM will pursue providing electronic access to the clearinghouse.

2. Grants Program

The best incentive for a business to participate is usually a financial incentive. Therefore, IDEM will strive to continue, and perhaps expand, its Pollution Prevention Challenge Grant program. This program provides significant incentives for businesses to become aware of pollution prevention and to implement pollution prevention techniques in their operations.

3. Establish Priorities

Businesses look to the state's environmental agency to establish environmental priorities. Proactive businesses will respond to these priorities and prepare for future agency activity in the area. Without these priorities, businesses tend not to use the state's pollution prevention program for fear that they may become a priority and because they may believe that the program may not have the specific type of information they seek.

IDEM has responded to this need by adopting eight environmental priorities. However, businesses may need more specific guidance. Therefore, IDEM is recommending that it and the Institute develop a series of pollution prevention priorities. These priorities would be specific pollution prevention actions that are achievable by most businesses, measurable, and consistent with the agency's environmental priorities.

4. Coordination with Compliance Assistance

Businesses need to have a reason to use the state's pollution prevention program. Many of these businesses are unaware of their pollution prevention opportunities and, therefore, do not take advantage of the resources that are available. IDEM has concluded that an essential method to encourage use of pollution prevention resources is to link the program with a compliance assistance program. Businesses are increasingly aware that they have significant compliance responsibilities, and are more likely to take the initiative to use those services.

IDEM plans to closely coordinate its soon-to-be-formed Office of Voluntary Compliance with its pollution prevention program. The Office of Voluntary Compliance will be created by January 1, 1995 and will be responsible for providing compliance assistance.

APPENDIX

APPENDIX A. Industrial Pollution Prevention and Safe Materials Act

Indiana Pollution Prevention and Safe Materials Act

(IC 13-9, HEA No. 1106, P.L. 105-1990)

Indiana Pollution Prevention and Safe Materials Act

(IC 13-9, HEA No. 1106, P.L. 105-1990)

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 1. Definitions
IC 13-9-1-1 Pollution Prevention: Definitions for Article 9
The definitions in this chapter apply throughout this article.

IC 13-9-1-2 Pollution Prevention: "Assistant Commissioner" Defined
"Assistant commissioner" refers to the individual appointed by the commissioner:
(1) under IC 13-9-1.3-2 to the highest position in the office of pollution prevention and technical assistance until July 1, 1993; and
(2) after June 30, 1993, under IC 13-9-2-2 to the highest position in the division.

IC 13-9-1-3 Pollution Prevention: "Board" Defined
"Board" refers to the pollution prevention board created under IC 13-9-3.

IC 13-9-1-4 Pollution Prevention: "Business" Defined
"Business" means a person that carries on a business or commercial operation in Indiana.

IC: 13-9-1-5 Pollution Prevention: "Business Organization" Defined
"Business organization" means an organization whose members include businesses.

IC 13-9-1-6 Pollution Prevention: "Commissioner" Defined
"Commissioner" refers to the commissioner of the department of environmental management appointed under IC 13-7-2-12.

IC 13-9-1-7 Pollution Prevention: "Department" Defined
"Department" refers to the department of environmental management created under IC 13-7-2.

IC 13-9-1-8 Pollution Prevention: "Director" Defined
"Director" refers to the director of the pollution prevention institute appointed by the board under IC 13-9-3-8(2).

IC 13-9-1-9 Pollution Prevention: "Division" Defined
"Division" refers to the division of pollution prevention created under IC 13-7-2-13(b)(6) and IC 13-9-2.

IC 13-9-1-10 Pollution Prevention: "Environmental Wastes" Defined
"Environmental wastes" means all environmental pollutants, wastes, discharges, and emissions, regardless of whether or how they are regulated and regardless of whether they are released to the general environment or the workplace environment.

IC 13-9-1-11 Pollution Prevention: "Institute" Defined
"Institute" refers to the pollution prevention and safe materials institute created under IC 13-9-4.

IC 13-9-1-12 Pollution Prevention: "Mass Balance Calculation" Defined
"Mass balance calculation" means a determination of the annual quantities of each toxic material that is:
(1) transported to;
(2) produced at;
(3) used at;
(4) accumulated or stored at;
(5) released from or
(6) transported from; a business or facility as a waste or pollutant, as a commercial product or byproduct, in a commercial product or byproduct, or as a component of a commercial product or byproduct, based upon an analysis of each process or operation at the business or facility.

IC 13-9-1-13 Pollution Prevention: "Multimedia" Defined
"Multimedia" refers to air, water, land, and workplace environmental media into which pollutants and wastes are emitted, released, discharged, or disposed.

IC 13-9-1-14 Pollution Prevention: "Pollution Prevention" Defined
(a) "Pollution prevention" means the employment by a business of a practice that reduces the industrial use of toxic materials or reduces the environmental and health hazards associated with an environmental waste without diluting or concentrating the waste before the release, handling, storage, transport, treatment, or disposal of the waste. The term includes changes in production technology, materials, processes, operations, or procedures, or the use of inprocess, inline, or closed loop recycling according to standard engineering practices.
(b) The term does not include a practice that is applied to an environmental waste after the waste is generated or comes into existence or after the waste exits a production or commercial operation.

(c) The term does not promote or require any of the following:
(1) Waste burning in industrial furnaces, boilers, smelters, or cement kilns for purposes of energy recovery.
(2) The transfer of an environmental waste (otherwise known as waste shifting) from one (1) environmental medium to any of the following:
(A) Another environmental medium.
(B) The workplace environment.
(C) A product.
(3) Offsite waste recycling.
(4) Any other method of end-of-pipe management of environmental wastes, including waste exchange and the incorporation or embedding of regulated environmental wastes into products or byproducts.

IC 13-9-1-15 Pollution Prevention: "Toxic Material" Defined
"Toxic material" means any of the following:
(1) A chemical substance in a gaseous, liquid, or solid state that meets the definition of hazardous substance in the Comprehensive Environmental Response, Compensation, and Liability Act in effect on January 1, 1990 (42 U.S.C. 9601(14)).
(2) A mixture of substances described in subdivision (1).
(3) An element, a substance, a compound, or a mixture designated by the commissioner as a toxic or hazardous substance.
(4) A mixture of substances containing a substance described in subdivision (1).

IC 13-9-1-16 Pollution Prevention: "Waste Exchange" Defined
"Waste exchange" means a method of end-of-pipe management of environmental wastes that involves the transfer of environmental wastes between businesses or between facilities owned by the same business for recovery or to serve a productive purpose.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 1.3.Office of Pollution Prevention and Technical Assistance
IC 13-9-1.3-1 Office of Pollution Prevention: Established
An office of pollution prevention is established within the department of environmental management.

IC 13-9-1.3-2 Office of Pollution Prevention: Assistant Commissioner to Head
The commissioner shall appoint an assistant commissioner to head the office.

IC 13-9-1.3-3 Office of Pollution Prevention: Employees
The commissioner shall hire employees of the office.

IC 13-9-1.3-4 Office of Pollution Prevention: Advisory Panels
(a) The commissioner may appoint liaison advisory panels to assist the office in the functions of the office. Individual panels must include members representing different areas of interest in and potential support of pollution prevention and environmentally related technical assistance, including the following:
(1) Industry.
(2) Education.
(3) Environmental and public interest groups.
(4) State government.
(5) Local government officials associated with state programs for pollution prevention.
(6) Organized labor.
(b) A member of a liaison advisory panel is not entitled to the minimum salary per diem provided by IC 4-10-11-2.1(b). However, such a member is entitled to reimbursement for traveling expenses and other expenses actually incurred in connection with the member's duties, as provided in the state travel policies and procedures established by the department of administration and approved by the budget agency.

IC 13-9-1.3-5 Office of Pollution Prevention: Scope of Responsibilities
The commissioner and the assistant commissioner, through coordinated effort, shall do the following:
(1) Periodically review state environmental programs and projects for their ability and progress in promoting multimedia industrial pollution prevention.
(2) Assist the division of air, the division of water, and the division of solid and hazardous waste management in identifying, within planned and existing regulatory programs of the department, obstacles to pollution prevention and opportunities to promote and assist in pollution prevention, including the following:
(A) Encouraging regulatory flexibility to afford businesses the opportunity to develop or implement pollution prevention technologies and practices.
(B) Performing pollution prevention impact analyses of administrative rules before proposed rules are published and before final adoption.
(C) Exploring permanent funding for the program.

(3) Promote increased coordination between the divisions of the department and between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes, including, to the fullest extent possible, the following:
   (A) Joint planning processes.
   (B) Joint research and studies.
   (C) Joint public hearings.
   (D) Joint hazard assessments.
   (E) Joint environmental and workplace impact statements.
   (F) Joint pollution prevention impact analyses for existing and proposed administrative rules.
(4) Develop policies and programs to reduce the generation of municipal wastes, reduce the generation of household hazardous wastes and pollutants, and reduce the use of toxic materials in consumer products by means of industrial pollution prevention.
(5) Provide general information about, and actively publicize the advantages of and developments in, pollution prevention and the requirements of this article.
(6) Assist businesses that seek information, guidance, planning assistance, or recommendations for pollution prevention by providing technical information to those businesses at production or commercial locations.
(7) Work with existing environmental regulatory programs to make use of existing information gathering systems that may assist the division in assessing the progress of pollution prevention statewide.
(8) Grant or deny applications for pollution prevention grants under section 10 of this chapter.
(9) Provide technical assistance concerning environmental matters to local and state government entities and businesses.

IC 13-9-1.3-6 Office of Pollution Prevention: Assistance to Other Governmental Regulatory Programs
The office shall assist other governmental regulatory programs in devising standards, administrative rules, and permits based on goals and principles of pollution prevention.

IC 13-9-1.3-7 Office of Pollution Prevention: Unified Reporting and Permitting Authority
To facilitate the use and coordination of reporting requirements, the commissioner may seek unified reporting and permitting authority from the United States Environmental Protection Agency with respect to federal toxic material, waste management, and pollution control laws and regulations in effect on January 1, 1990, including the following:
(1) The Clean Air Act (42 U.S.C. 7401 et seq.).
(2) The Water Pollution Control Act (33 U.S.C. 1251 et seq.).
(3) The Toxic or Hazardous Substance Control Act (15 U.S.C. 2601 et seq.).
(4) The Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).
(5) The Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et seq.).

IC 13-9-1.3-8 Office of Pollution Prevention: Coordination by Commissioner and Board
The commissioner and the pollution prevention board established under IC 13-9-3 shall coordinate their efforts in the implementation of this article.

IC 13-9-1.3-9 Office of Pollution Prevention: State Information Clearinghouse
(a) To promote pollution prevention statewide by all industries and companies and to assist in obtaining information on the progress of multimedia reduction of environmental wastes and related environmental policies and programs, the commissioner, in cooperation with the board, shall establish and operate a state information clearinghouse for pollution prevention.
(b) The clearinghouse established under this section must include a computer data base containing information on managerial, technical, and operational approaches to achieving pollution prevention. The computer data base must be maintained on an expert system designed to enable businesses and state agencies to obtain information specific to production technologies, materials, operations, and products.
(c) The commissioner shall use the clearinghouse established under this section to do the following:
   (1) Collect and compile the following:
      (A) Information from organizations receiving grants under this article.
      (B) Information from the published technical literature.
   (2) Mount active outreach and educational programs to further the development and adoption of principles and techniques of pollution prevention.
(d) The clearinghouse established under this section must include data on the operation and effectiveness of industry pollution prevention programs. The office shall permit and facilitate free use of this data by businesses, governmental agencies, and the general public. A business may not be required to submit information of a proprietary nature to the clearinghouse or to a governmental program funded under this article.
(e) The office shall provide information to the clearinghouse established under this section.

IC 13-9-1.3-10 Office of Pollution Prevention: Grant Awards

(a) The commissioner may award grants to support and sustain pollution prevention, including pollution prevention through reductions in the use of toxic materials in production and commerce.
(b) Subject to subsection (a), the commissioner may award grants for any purpose the commissioner considers appropriate, including the following:
  (1) Grants to nonprofit organizations to establish free or low cost technical assistance programs to supplement the activities of the pollution prevention and safe materials institute established under IC 13-9-4.
  (2) Grants to assist trade associations, business organizations, labor organizations, and educational institutions in developing training materials and making those training materials available to workers for in-plant use that will foster pollution prevention.
  (3) Grants to assist industry, business organizations, educational institutions, and labor organizations in establishing programs or materials to train and assist industry personnel in developing methods to measure and plan for pollution prevention.
  (4) Grants to assist industry or business organizations and educational institutions in creating programs to train and certify environmental auditors, engineers, and industrial hygienists to identify, evaluate, and implement pollution prevention measures and alternatives in audits, plans, and programs.
  (5) Grants to any organization for generic research and development, pilot tests, and demonstration projects that:
    (A) involve commonly used industrial or commercial processes or materials; and
    (B) will produce results that will be of use to business other than businesses that may be involved in the research and development, pilot tests, or demonstration projects.
(c) The commissioner may require that a grantee provide matching funds for a grant awarded under this section.
(d) Grant money awarded under this section may not be spent for capital improvements or equipment.
(e) The money for grants awarded under this section must come from funds appropriated to the department for the purposes of this section.

IC 13-9-1.3-11 Office of Pollution Prevention: Pilot Projects

The office shall sponsor pilot projects to develop and demonstrate innovative techniques for pollution prevention. The results of pilot projects sponsored under this section shall be made available for use by the public. However, information about a pilot project that is considered proprietary by a business involved in the pilot project may not be disclosed to the public.

IC 13-9-1.3-12 Office of Pollution Prevention: Education and Training Programs

The commissioner may provide for the establishment of education and training programs in pollution prevention techniques at schools and universities in Indiana.

IC 13-9-1.3-13 Office of Pollution Prevention: Hearings and Investigations

The commissioner may order all hearings and investigations necessary for the administration of this article and may advise and assist other governmental units on matters of planning or program administration within the scope of the commissioner's powers, duties, and objectives under this article.

IC 13-9-1.3-14 Office of Pollution Prevention: Commissioner may Adopt Rules

The commissioner may adopt rules under IC 4-22-2 to administer this article.

IC 13-9-1.3-15 Office of Pollution Prevention: IC 13-9-1.3 Expires

This chapter expires July 1, 1993.

PL106-1990, §10 Office of Pollution Prevention: Transfer Upon Expiration

(a) On July 1, 1993, all powers, duties, liabilities, property, and records of the office of pollution prevention and technical assistance established under IC 13-9-1.3, as added by this act, shall be transferred to the division of pollution prevention and technical assistance established under IC 13-9-2, as added by this act.
(b) This SECTION expires July 2, 1993.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 2. Division of Pollution Prevention and Technical Assistance

IC 13-9-2-1 Division of Pollution Prevention: Established

(a) This chapter applies after June 30, 1993.
(b) A division of pollution prevention is established within the department of environmental management.

IC 13-9-2-2 Division of Pollution Prevention: Assistant Commissioner to Head

The commissioner shall appoint an assistant commissioner to head the division.

IC 13-9-2-3 Division of Pollution Prevention: Employees

The commissioner shall hire employees of the division.

IC 13-9-2-4 Division of Pollution Prevention: Advisory Panels

(a) The commissioner may appoint liaison advisory panels to assist the division in the functions of the division. Individual panels must include members representing different areas of interest in and potential support of pollution prevention and environmentally related technical assistance, including the following:
    (1) Industry.
    (2) Education.
    (3) Environmental and public interest groups.
    (4) State government.
    (5) Local government officials associated with state programs for pollution prevention.
    (6) Organized labor.
(b) A member of a liaison advisory panel is not entitled to the minimum salary per diem provided by IC 4-10-11-2.1(b). However, such a member is entitled to reimbursement for traveling expenses and other expenses actually incurred in connection with the member's duties, as provided in the state travel policies and procedures established by the department of administration and approved by the budget agency.

IC 13-9-2-5 Division of Pollution Prevention: Scope of Responsibilities

The commissioner and the assistant commissioner, through coordinated effort, shall do the following:
(1) Periodically review state environmental programs and projects for their ability and progress in promoting multimedia industrial pollution prevention.
(2) Assist the division of air, the division of water, and the division of solid and hazardous waste management in identifying, within planned and existing regulatory programs of the department, obstacles to pollution prevention and opportunities to promote and assist in pollution prevention, including the following:
    (A) Encouraging regulatory flexibility to afford businesses the opportunity to develop or implement pollution prevention technologies and practices.
    (B) Performing pollution prevention impact analyses of administrative rules before proposed rules are published and before final adoption.
    (C) Exploring permanent funding for the program.
(3) Promote increased coordination between the divisions of the department and between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes, including, to the fullest extent possible, the following:
    (A) Joint planning processes.
    (B) Joint research and studies.
    (C) Joint public hearings.
    (D) Joint hazard assessments.
    (E) Joint environmental and workplace impact statements.
    (F) Joint pollution prevention impact analyses for existing and proposed administrative rules.
(4) Develop policies and programs to reduce the generation of municipal wastes, reduce the generation of household hazardous wastes and pollutants, and reduce the use of toxic materials in consumer products by means of industrial pollution prevention.
(5) Provide general information about, and actively publicize the advantages of and developments in, pollution prevention and the requirements of this article.
(6) Assist businesses that seek information, guidance, planning assistance, or recommendations for pollution prevention by providing technical information to those businesses at production or commercial locations.
(7) Work with existing environmental regulatory programs to make use of existing information gathering systems that may assist the division in assessing the progress of pollution prevention statewide.
(8) Grant or deny applications for pollution prevention grants under section 10 of this chapter.
(9) Provide technical assistance concerning environmental matters to local and state government entities and businesses.

IC 13-9-2-6 Division of Pollution Prevention: Assistance to Other Governmental Regulatory Programs

The division shall assist other governmental regulatory programs in devising standards, administrative rules, and permits based on goals and principles of pollution prevention.

IC 13-9-2-7 Division of Pollution Prevention: Unified Reporting and Permitting Authority
To facilitate the use and coordination of reporting requirements, the commissioner may seek unified reporting and permitting authority from the United States Environmental Protection Agency with respect to federal toxic material, waste management, and pollution control laws and regulations in effect on January 1, 1990, including the following:
(1) The Clean Air Act (42 U.S.C. 7401 et seq.).
(2) The Water Pollution Control Act (33 U.S.C. 1251 et seq.).
(3) The Toxic or Hazardous Substance Control Act (15 U.S.C. 2601 et seq.).
(4) The Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).
(5) The Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et seq.).

IC 13-9-2-8 Division of Pollution Prevention: Coordination by Commissioner and Board
The commissioner and the pollution prevention board established under IC 13-9-3 shall coordinate their efforts in the implementation of this article.

IC 13-9-2-9 Division of Pollution Prevention: State Information Clearinghouse
(a) To promote pollution prevention statewide by all industries and companies and to assist in obtaining information on the progress of multimedia reduction of environmental wastes and related environmental policies and programs, the commissioner, in cooperation with the board, shall establish and operate a state information clearinghouse for pollution prevention.
(b) The clearinghouse established under this section must include a computer data base containing information on managerial, technical, and operational approaches to achieving pollution prevention. The computer data base must be maintained on an expert system designed to enable businesses and state agencies to obtain information specific to production technologies, materials, operations, and products.
(c) The commissioner shall use the clearinghouse established under this section to do the following:
  (1) Collect and compile the following:
    (A) Information from organizations receiving grants under this article.
    (B) Information from the published technical literature.
  (2) Mount active outreach and educational programs to further the development and adoption of principles and techniques of pollution prevention.
(d) The clearinghouse established under this section must include data on the operation and effectiveness of industry pollution prevention programs. The division shall permit and facilitate free use of this data by businesses, governmental agencies, and the general public. A business may not be required to submit information of a proprietary nature to the clearinghouse or to a governmental program funded under this article.
(e) The division shall provide information for the clearinghouse established under this section.

IC 13-9-2-10 Division of Pollution Prevention: Grant Awards
(a) The commissioner may award grants to support and sustain pollution prevention, including pollution prevention through reductions in the use of toxic materials in production and commerce.
(b) Subject to subsection (a), the commissioner may award grants for any purpose the commissioner considers appropriate, including the following:
  (1) Grants to nonprofit organizations to establish free or low cost technical assistance programs to supplement the activities of the pollution prevention and safe materials institute established under IC 13-9-4.
  (2) Grants to assist trade associations, business organizations, labor organizations, and educational institutions in developing training materials and making those training materials available to workers for in-plant use that will foster pollution prevention.
  (3) Grants to assist industry, business organizations, educational institutions, and labor organizations in establishing programs or materials to train and assist industry personnel in developing methods to measure and plan for pollution prevention.
  (4) Grants to assist industry or business organizations and educational institutions in creating programs to train and certify environmental auditors, engineers, and industrial hygienists to identify, evaluate, and implement pollution prevention measures and alternatives in audits, plans, and programs.
  (5) Grants to any organization for generic research and development, pilot tests, and demonstration projects that:
    (A) involve commonly used industrial or commercial processes or materials: and
    (B) will produce results that will be of use to business other than businesses that may be involved in the research and development, pilot tests, or demonstration projects.
(c) The commissioner may require that a grantee provide matching funds for a grant awarded under this section.
(d) Grant money awarded under this section may not be spent for capital improvements or equipment.
(e) The money for grants awarded under this section must come from funds appropriated to the department for the purposes of this section.

IC 13-9-2-11 Division of Pollution Prevention: Pilot Awards
The division shall sponsor pilot projects to develop and demonstrate innovative techniques for pollution prevention. The results of pilot projects sponsored under this section shall be made available for use by the public. However, information about a pilot project that is considered proprietary by a business involved in the pilot project may not be disclosed to the public.

IC 13-9-2-12 Division of Pollution Prevention: Education and Training Programs
The commissioner may provide for the establishment of education and training programs in pollution prevention techniques at schools and universities in Indiana.

IC 13-9-2-13 Division of Pollution Prevention: Hearings and Investigations
The commissioner may order all hearings and investigations necessary for the administration of this article and may advise and assist other governmental units on matters of planning or program administration within the scope of the commissioner's powers, duties, and objectives under this article.

IC 13-9-2-14 Division of Pollution Prevention: Commissioner May Adopt Rules
The commissioner may adopt rules under IC 4-22-2 to administer this article.

PL105-1990, §5 Division of Pollution Prevention: Timetable for Staffing Division
(a) The commissioner of the department of environmental management shall make appointments and hire staff as required for the establishment of the division of pollution prevention under IC 13-9-2, as added by this act, before January 1, 1993.
(b) This SECTION expires January 1, 1993.

ARTICLE 9. **Industrial Pollution Prevention and Safe Materials**
CHAPTER 3. ***Pollution Prevention* Board**
IC 13-9-3-1 Pollution Prevention Board: Established
The pollution prevention board is established.

IC 13-9-3-2 Pollution Prevention Board: Membership
(a) The board consists of eleven (11) members.
(b) The commissioner shall serve as an ex officio nonvoting member of the board. The commissioner may in writing designate a technical representative to serve as a nonvoting member of the board when the commissioner is absent from a meeting of the board.
(c) The governor shall appoint ten (10) members of the board as follows:
  (1) Two (2) representatives of public or private universities in Indiana, one (1) of whom must have expertise in occupational health and the workplace environment.
  (2) Three (3) representatives of business, including one (1) representative of small business.
  (3) One (1) representative of a statewide environmental organization.
  (4) One (1) representative of organized labor.
  (5) One (1) representative of the public.
  (6) One (1) representative of county government.
  (7) One (1) representative of municipal government.
(d) To be appointed as a member of the board under subsection (c), an individual must demonstrate a knowledge of policy or of technical matters concerning multimedia pollution prevention.
(e) Neither of the individuals appointed to the board under subsection (c)(1) may represent a university that is selected to establish the pollution prevention and safe materials institute under IC 13-9-4.

IC 13-9-3-3 Pollution Prevention Board: Terms; Appointments
(a) The term of office of a member appointed under section 2 of this chapter is four(4) years. An appointed member may not serve more than two (2) consecutive terms. The term of office of an appointed member of the board continues until the member's successor is appointed and qualified.
(b) If a vacancy occurs in the appointed membership, the governor shall appoint a member to fill the vacancy for the remainder of the unexpired term.
(c) A member appointed under section 2 of this chapter serves at the pleasure of the governor.

IC 13-9-3-4 Pollution Prevention Board: Legislative Advisors
(a) The president pro tempore of the senate shall appoint two (2) members of the senate as nonvoting advisors to the board. The senators appointed under this subsection may not be members of the same political party.
(b) The speaker of the house of representatives shall appoint two (2) members of the house of representatives as nonvoting advisors to the board. The representatives appointed under this subsection may not be members of the same political party.
(c) Legislative advisors appointed under this section serve at the pleasure of the appointing authority.

IC 13-9-3-5 Pollution Prevention Board: Reimbursement and Travel
(a) The commissioner shall serve on the board without additional compensation.
(b) An appointed member of the board or an advisor appointed under section 4 of this chapter is not entitled to the minimum salary per diem provided by IC 4-10-11-2.1(b). However, an appointed member of the board or an advisor appointed under section 4 of this chapter is entitled to reimbursement for traveling expenses and other expenses actually incurred in connection with the duties of the member or advisor, as provided in the state travel policies and procedures established by the department of administration and approved by the budget agency.

IC 13-9-3-6 Pollution Prevention Board: Chairperson; Duties
The governor shall appoint one (1) member of the board to serve as chairperson. The chairperson shall do the following:
(1) Act as the executive and operating officer of the board.
(2) Determine the time and place of meetings.
(3) Preside at meetings.
(4) Carry out the policy decisions of the board.
(5) Perform all other duties and functions assigned by the board or by law.

IC 13-9-3-7 Pollution Prevention Board: Meetings; Notice
(a) The board shall meet at least quarterly. A majority of the members of the board constitutes a quorum for doing business. A majority vote of the body is required for passage of any matter put to a vote. The board shall establish procedures and requirements governing the conduct of the board's meetings.
(b) The meetings of the board shall be open to the public under IC 5-14-1.5.

(c) The chairperson of the board shall cause a notice of a meeting to be published:
  (1) once in two (2) daily newspapers in the county in which the public meeting will take place, subject to the requirements in IC 5-3-1-4(b); and
  (2) once in the Indiana Register.
(d) The chairperson of the board shall afford any person attending a public meeting of the board an adequate opportunity to comment through the oral or written presentation of facts or argument.
(e) The chairperson of the board shall include in the notice required under subsection (c) the following:
  (1) A statement of the date, time, and place at which the public meeting will be convened.
  (2) A general description of the subject matter to be discussed at the meeting.
(f) The chairperson of the board must comply with the publication requirements in subsection (c) at least twenty-one (21) calendar days before the public meeting is convened.
(g) All written comments submitted to the board shall be maintained and made available for public inspection.

IC 13-9-3-8 Pollution Prevention Board: Duties of Board
The board shall do the following:
(1) Assess the progress of the pollution prevention and safe materials institute in implementing this article.
(2) Appoint the director of the institute.
(3) Provide consultation and recommendations to the commissioner of the department of environmental management on the implementation of this article.
(4) Provide a forum for discussion and deliberation on matters pertaining to the implementation of this article.
(5) Receive public complaints and inquiries concerning the implementation of this article.
(6) Periodically review grant proposals and the grants program operated under I C 13-9-2 and assess the capacity of the grant program to fulfill the directives of this article. An assessment of the grants program shall be incorporated into the report submitted by the institute under IC 13-9-4.
(7) Review the annual report submitted by the director of the institute.
(8) Direct the institute to coordinate the institute's efforts with the department in the implementation of this article.
(9) Receive, expend, and account for state funds made available for the purpose of this chapter.
(10) Apply for and accept gifts and grants, which must be administered as public funds, made for the purposes of this chapter.
(11) Enter into lawful agreements as required as a condition for receiving gifts, grants, or other funds for the purposes of this chapter.

IC 13-9-3-9 Pollution Prevention Board: Directives to Pollution Prevention Institute
The board, on the board's own initiative or at the request of the public may direct the institute to study and formulate recommendations on particular issues and problems that arise concerning the implementation of this article.

IC 13.9-3-10 Pollution Prevention Board: Additional Directives to Pollution Prevention Institute
The board may direct the institute to conduct research studies and programs, to collect and analyze data, and to prepare reports, charts, and tables.

PL105-1990, §4 Pollution Prevention Board: Initial Appointments
(a) The governor shall appoint the members of the pollution prevention board established by IC 13-9-3, as added by this act, before July 1, 1992.
(b) Notwithstanding IC 13-9-3, as added by this act, the term of office of three (3) of the initial members of the pollution prevention board is two (2) years. However, not more than one (1) of the individuals appointed initially under IC 13-9-3-2(c)(l) and not more than one (1) of the individuals appointed initially under IC 13-9-3-2(c)(2) may be determined to have a term of two (2) years.
(c) This SECTION expires July 1, 1994.

PL105-1990, §6 Pollution Prevention Board: Timetable for Board to Select Entity to Establish Institute
(a) The pollution prevention board established by IC 13-9-3, as added by this act, shall select a university or not-for-profit corporation to establish the pollution prevention and safe materials institute under IC 13-9-4, as added by this act, before January 1, 1993.
(b) This SECTION expires January 1, 1993.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 4. The Pollution Prevention and Safe Materials Institute

IC 13-9-4-1 The Institute: Establishment
A pollution prevention institute shall be established and operated under this chapter by a university or a not-for-profit corporation located in Indiana.

IC 13-9-4-2 The Institute: Board to Select Entity to Establish; Board to Adopt Guidelines and Criteria for Selection Process
The pollution prevention board established under IC 13-9-3 shall select a university or a not-for-profit corporation to establish the pollution prevention institute. A university or a not-for-profit corporation that is located in Indiana and that submits an application to the board must be considered for selection under this section. The selection of a university or a not-for-profit corporation by the board shall be based on an objective application of criteria relating to the suitability of the university or a not-for- profit corporation as the establishing entity and site for the institute. The board shall adopt guidelines governing the application and selection process and setting forth the criteria to be applied in making the selection.

IC 13-9-4-3 The Institute: Selected Entity to Submit Statement of Offerings
The university or a not-for-profit corporation selected to establish and operate the Institute shall submit to the board a statement indicating the types of services, programs, and priorities related to pollution prevention that the institute will offer.

IC 13-9-4-4 The Institute: Duties of Institute
The institute shall establish cooperative programs with public and private colleges and universities designed to augment the implementation of this article. The institute may establish fees, tuitions, or other financial charges for the programs of the institute. The institute shall do the following through the institute's programs:
(1) Develop and provide curriculum and training on pollution prevention for:
  (A) students and faculty;
  (B) until July 1, 1993, employees of the office of pollution prevention and technical assistance; and
  (C) after June 30, 1993, employees of the division.
(2) Engage in research, development, and demonstration of techniques and methods for pollution prevention, including the following:
  (A) An assessment of the impact of adopting the methods on the environment, public health, and work exposure.
  (B) Assessments of the impact on profitability and employment within affected companies and industries.
(3) Provide waste generators an opportunity to develop pollution prevention plans.
(4) Develop methods to measure pollution prevention progress at the plant level and the company level on the basis of reduction in waste generation and changes in toxic materials use relative to production output for specific wastes. Nothing in this subdivision may be construed to require a business to reveal its trade secrets.

IC 13-9-4-5 The Institute: Qualifying Pollution Prevention Planners
(a) The institute shall establish and operate a planning program for individuals who desire to be qualified as pollution prevention planners. Public and private colleges and universities located in Indiana may establish and operate programs for qualifying pollution prevention planners. To ensure consistent training procedures, the institute shall provide a curriculum plan for qualifying pollution prevention planners to colleges and universities that do not operate the institute.
(b) The programs established under this section shall be designed to train auditors to be qualified to:
  (1) assist businesses and business organizations in the development and implementation of the most up-to-date pollution prevention techniques and practices; and
  (2) prepare and review pollution prevention plans referred to in IC 13-9-5.
(c) The institute shall qualify as a pollution prevention planner an individual who has successfully completed a pollution prevention planning program.

IC 13-9-4-6 The Institute: Developing Ways of Measuring Pollution Prevention Progress
The institute shall assist governmental agencies, businesses, and business organizations in developing methods and measurement techniques for assessing progress in pollution prevention per unit of output and shall explore the development or personal computer software for these purposes.

IC 13-9-4-7 The Institute: Assisting IDEM
If requested by the commissioner, the institute may assist in the training of inspectors and other key personnel employed by the division or the department to assist in the implementation of IC 13-9-3.

IC 13-9-4-8 The Institute: Annual Report by the Institute
Before January 1 of each year, the institute shall prepare and submit to the governor, the board, the commissioner, and the general assembly a report on the institute's operations and activities under this chapter, including the status, funding, and results of all projects. The report must do the following:
(1) Include recommendations the institute may have for legislation.
(2) Identify state and federal economic and financial incentives that can best accelerate and maximize the research, development, demonstration, and support of pollution prevention technologies and practices.
(3) Include an assessment by the institute of the grants program administered by the department under IC 13-9-2.
(4) Include a proposed work plan for the following year.

IC 13-9-4-9 The Institute: Coordination of Activities and Policies
The activities and policies of the institute shall be coordinated with the activities and policies of the department and shall address specific problems involving a particular situation or condition affecting a business or businesses at production or commercial locations. The activities of the institute shall be coordinated with the activities of other public and private programs that provide managerial and technical assistance to businesses, including programs operated by public and private educational institutions. The institute may make grants to public or private persons or associations to establish and operate elements of the program.

IC 13-9-4-10 The Institute Memorandum of Understanding with IDEM
The institute and the department may enter into a written memorandum of understanding describing the responsibilities of the institute and the department in coordinating the implementation of this article. A copy of the written memorandum shall be provided to the board.

IC 13-9-4-11 The Institute: Onsite Assistance and Advice
The institute may provide experts for onsite technical assistance, economic advice, and other managerial advice to businesses and industries needing assistance, including advice on planning for pollution prevention and advice on pollution prevention audits.

PL105-1990, §8 The Institute: Timing for First Annual Institute Report
(a) The first report that the pollution prevention and safe materials institute is required to prepare under IC 13-9-4-8, as added by P.L.105-1990, shall be submitted to the governor, the pollution prevention board, the commissioner of the department or environmental management, and the general assembly before July 1, 1994.
(b) This SECTION expires July 1, 1994.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 5. Multimedia Pollution Prevention Plans
IC 13-9-5-1 Multimedia Plans: Business Encouraged to Develop Plans
The pollution prevention and safe materials institute established under IC 13-9-4 shall encourage businesses to develop multimedia pollution prevention plans.

IC 13-9-5-2 Multimedia Plans: Technical Assistance Manual; Contents
The institute shall develop a technical assistance manual for pollution prevention planning. The manual shall be designed to provide criteria to assist businesses in the preparation of multimedia pollution prevention plans. The manual must provide assistance in the following pollution prevention actions:
(1) Identification of the types and quantities of the toxic materials that enter or exit each production process, operation, storage area, product, and pollution control system at the facility, or that are transported from the facility as a waste or in a waste, presented in the form of a mass balance calculation.
(2) Assessment of the applicability, for each production process or operation in which a toxic material is used, of each of the following approaches for pollution prevention and reduction in the use of toxic material:
    (A) Input change, which refers to replacing a toxic material used in a production unit with a nontoxic or less toxic material.
    (B) Product reformulation, which refers to changing the design, specification, or composition of an existing end product to reduce the need for toxic materials.
    (C) Production process redesign, which refers to developing or using production units of a different design or type, or to upgrading, modernizing, or renovating production unit equipment to reduce the need for toxic materials.
    (D) Operational improvement, which refers to such techniques as improved housekeeping practices, system adjustments, product and process inspections, and the use of production unit control equipment or methods.
    (E) In process recycling, which refers to recycling, reuse, or extended use of toxic materials by using equipment or methods that become an integral part of the production unit of concern, including filtration and other closed looped methods.
(3) Assessment of the technical and economic feasibility of each pollution prevention approach set forth in subdivision (2).

IC 13-9-5-3 Multimedia Plans: Technical Assistance Manual; Additional Contents Requirements

(a) The manual developed by the institute under this chapter must encourage a business that is preparing a multimedia pollution prevention plan to consider the feasibility of all of the following options:
  (1) Input change.
  (2) Product reformulation.
  (3) Production process change.
  (4) Operational improvement.
  (5) Inprocess recycling.

(b) The manual developed under this chapter may not include information on:
  (1) the use of pollution control approaches that address waste after the waste has been created; or
  (2) the mitigation of toxic material hazards by measures other than by reduced use of toxic materials.
  (3) The manual developed under this chapter must state that inprocess recycling is not a means of preventing pollution unless the inprocess recycling is a closed and integral part of the production process or operation.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 6. State Report
IC 13-9-6-1 State Report: Annual Report by Commissioner

Each year the commissioner shall prepare and submit to the governor and the general assembly a report regarding the pollution prevention information gathered under this article, including a description of the operations and activities of the programs under this article and recommendations the commissioner may have for legislative action.

IC 13-9-6-2 State Report: Coverage

The report required under this chapter must include at least the following:
(1) A quantitative assessment of statewide pollution prevention progress among all types of industries.
(2) An identification of regulations and government policies that are inhibiting pollution prevention and opportunities in existing regulatory programs to promote and assist in pollution prevention, including reductions in the use of toxins in production and commerce.
(3) An assessment of how programs under this article have promoted and assisted pollution prevention and the costs and benefits to government and industry of those programs.
(4) A statement concerning the identification of opportunities and development of priorities for research and development in pollution prevention techniques, economic analyses, and management techniques useful in supporting pollution prevention. The state report may not include information considered by a business to be a trade secret of that business.
(5) Recommendations concerning incentives and policies needed to encourage investment in research and development in pollution prevention and in making greater use of programs established under this article.

IC 13-9-6-3 State Report: Draft Open to Public Comment

Before the commissioner submits a report to the governor and the general assembly under section 1 of that chapter, the commissioner shall make a draft version of the report available for at least forty-five (45) days for comment by the public and the liaison advisory panels established under IC 13-9-2. The final report shall respond to public comments submitted during the comment period.

PL105-1990, §7 State Report: Timing for First Annual Commissioner's Report

(a) The first report that the commissioner of the department of environmental management is required to prepare under IC 13-9-6, as added by P.L.105-1990, shall be submitted to the environmental policy commission before July 1, 1994.
(b) This SECTION expires July 1, 1994.

ARTICLE 9. Industrial Pollution Prevention and Safe Materials
CHAPTER 7. Program Implementation
IC 13-9-7-1 Program Implementation: Voluntary Only

Programs developed under this article are to be implemented based on voluntary participation by businesses. Businesses may not be required to comply with any program developed under this article.

IC 13-9-7-2 Program Implementation: Effect of IDEM Policies on Participating Businesses

Guidance documents, technical assistance manuals, and policies developed or used in implementing programs under this article are not binding on participating businesses unless rules are adopted by the division, under IC 4-22-2, that incorporate these documents, manuals, or policies into the implementation of a program other than a pollution prevention program, such as a solid waste management or an air pollution control program.

IC 13-9-7-3 Program Implementation: Impact on Pollution Control Programs

Programs implemented by the division shall encourage pollution prevention and not discourage the use of environmentally sound recycling or treatment techniques for pollution that has not been prevented.

APPENDIX B. Indiana Environmental Protection Hierarchy

Indiana's Pollution Prevention Program Implementation

(IC 13-1-10.1, Section 22 & 23 of HEA 1412, PL13-1993)

Section 1. Voluntary Only

Programs developed under this article are to be implemented based on voluntary participation by businesses. Businesses may not be required to comply with any program developed under this article.

Section 2. Effect of IDEM Policies on Participating Businesses

(a) Guidance documents, technical assistance manuals, and policies developed or used in implementing programs under this article are not binding on participating businesses.

(b) The air pollution control board, the water pollution control board, the solid waste management board, or the department may not do the following:

(1) Incorporate documents, manuals, or policies developed under this article into rules adopted under IC 4-22-2.

(2) Adopt rules under IC 4-22-2 requiring business implementation of pollution prevention practices by means of:

(A) permit conditions;

(B) enforcement actions; or

(C) other department actions.

(c) Subsection (b) only applies to pollution prevention as defined in this article.

(d) Subsection (b) does not apply to authority granted under federal law to implement pollution prevention as defined under:

(1) federally delegated air, water, solid waste, and other programs;

(2) guidance documents developed to implement programs described in subdivision (1); or

(3) programs established under IC 13-9.5.

(e) Not withstanding subsection (b), the department shall do the following:

(1) Present pollution prevention as an option to businesses in:

(A) permit conditions;

(B) enforcement actions; and

(C) other department actions.

(2) Direct businesses to the institute for technical assistance in pollution prevention.

Section 3. Programs implemented by the division shall encourage pollution prevention and not discourage the use of recycling or treatment techniques determined to be acceptable for pollution that has not been prevented.

APPENDIX B. Indiana Environmental Protection Hierarchy

Indiana's Environmental Protection Hierarchy

(IC 13-1-10.1, Section 7 of HEA 1412, PL13-1993)

Section 1. The general assembly recognizes that there are two (2) approaches to environmental protection:

(1) pollution prevention or

(2) waste management, which is also known as pollution control.

Section 2. Pollution prevention consists of economically feasible practices that reduce, avoid, or eliminate the unnecessary use of harmful industrial materials and the generation of industrial wastes, pollutants, emissions, and discharges at the point of production. Pollution prevention practices are limited to the following:

(1) Product reformulation.

(2) Input substitution.

(3) Equipment redesign.

(4) Improved operations and procedures.

(5) Closed loop, in process recycling.

Section 3. Waste management or pollution control consists of environmental protection practices employed after industrial wastes, pollutants, discharges, and emissions have been generated. Waste management or pollution control practices include the following:

(1) Waste storage and waste transportation.

(2) Waste treatment, including the following:

  (A) Detoxification.

  (B) Incineration.

  (C) Biological treatment.

(3) Land disposal of waste.

(4) Conventional waste recycling.

(5) Burning waste as fuels.

(6) Dispersal of waste to air or water.

(7) Dewatering of waste.

Section 4. The general assembly recognizes the following:

(1) Pollution prevention is

  (A) the most reliable and effective form of environmental protection; and

  (B) the preferred approach to environmental protection

(2) Wastes, pollutants, emissions, or discharges that have not been avoided or eliminated by means of pollution prevention at the point of production should be managed or controlled in a manner that has the least adverse impact on human health and the environment.

APPENDIX C. Indiana HEA 1182 (in part)

Second Regular Session 108th General Assembly (1994)

PRINTING CODE. Amendments: Whenever an existing statute (or a section of the Indiana Constitution) is being amended, the text of the existing provision will appear in this style type, additions will appear in this style type, and deletions will appear in ~~this style type~~.

Additions: Whenever a new statutory provision is being enacted (or a new constitutional provision adopted), the text of the new provision will appear in this style type. Also, the word NEW will appear in that style type in the introductory clause of each SECTION that adds a new provision to the Indiana Code or the Indiana Constitution.

Conflict reconciliation: Text in a statute in *this style type* or ~~this style type~~ reconciles conflicts between statutes enacted by the 1993 General Assembly.

HOUSE ENROLLED ACT No. 1182

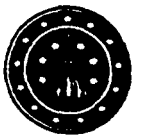
AN ACT to amend the Indiana Code concerning the environment and to make an appropriation.

Be it enacted by the General Assembly of the State of Indiana:

SECTION 1. IC 13-1-1-3 IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 1994]: Sec. 3. (a) There is created a board to be known as the air pollution control board of the state of Indiana.

(b) The powers and duties of the board are vested in a nine (9) member board. The commissioner of the state department of health, the lieutenant governor, and the director of the department of natural resources shall serve as ex officio members of the board. An ex officio member of the board may designate in writing a technical representative to serve as a voting member of the board when the ex officio member is unable to attend a board meeting. The remaining six (6) members shall be appointed by the governor, who shall appoint:

(1) one (1) representative of agriculture;
(2) one (1) representative of business and industry;
(3) one (1) representative of environmental interests;
(4) one (1) representative of labor;
(5) one (1) representative of local government; and



does not apply to a person who operates a municipal waste collection and transportation vehicle licensed under IC 13-7-31.

(b) A person may not act as a waste tire transporter unless the person is registered with the department as a waste tire transporter. A person who registers with the department as a waste tire transporter shall disclose the following:

(1) The person's name.

(2) The address of the person's principal office.

(3) The addresses of any offices maintained by the person in Indiana.

(c) The rules adopted under section ~~15~~ **14** of this chapter must adopt a manifest form and require a waste tire transporter to prepare and carry a manifest based upon that form each time a waste tire transporter transports waste tires. The format and wording of the form must require a waste tire transporter to enter information in each manifest indicating the source and number of waste tires to be transported and the destination to which the waste tires are transported.

(d) Until the rules prescribing a manifest form are adopted under subsection (c), a waste tire transporter may use a manifest form designed by the waste tire transporter. A form designed and used under this subsection must meet the format and wording requirements set forth in subsection (c).

(e) A person who acts as a waste tire transporter in Indiana shall pay an annual registration fee of twenty-five dollars ($25), **that, beginning July 1, 2000, shall be deposited in the state general fund and appropriated to the department for the department's use in providing for the removal and disposal of waste tires from sites where the waste tires have been disposed of improperly.**

(f) A waste tire transporter shall do the following:

(1) Retain a copy of a manifest described under this section for at least one (1) year.

(2) Make a copy of a manifest described under this section available to the department upon request.

SECTION 18. IC 13-9-2-5 IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 1994]: Sec. 5. The commissioner and the assistant commissioner, through coordinated effort, shall do the following:

(1) Periodically review state environmental programs and projects for their ability and progress in promoting multimedia industrial pollution prevention.

(2) Assist the division of air, the division of water, and the

division of solid and hazardous waste management in identifying, within planned and existing regulatory programs of the department, obstacles to pollution prevention and opportunities to promote and assist in pollution prevention, including the following:

(A) Encouraging regulatory flexibility to afford businesses the opportunity to develop or implement pollution prevention technologies and practices.

(B) Performing pollution prevention impact analyses of administrative rules before proposed rules are published and before final adoption.

(C) Exploring permanent funding for the program.

(3) Promote increased coordination between the divisions of the department and between the department and other governmental regulatory programs with responsibilities and duties relating to toxic materials and environmental wastes, including, to the fullest extent possible, the following:

(A) Joint planning processes.

(B) Joint research and studies.

(C) Joint public hearings.

(D) Joint hazard assessments.

(E) Joint environmental and workplace impact statements.

(F) Joint pollution prevention impact analyses for existing and proposed administrative rules.

(4) Develop policies and programs to reduce the generation of municipal wastes, reduce the generation of household hazardous wastes and pollutants, and reduce the use of toxic materials in consumer products by means of industrial pollution prevention.

(5) Provide general information about, and actively publicize the advantages of and developments in, pollution prevention and the requirements of this article.

(6) Assist businesses that seek information, guidance, planning assistance, or recommendations for pollution prevention by providing technical information to those businesses at production or commercial locations.

(7) Work with existing environmental regulatory programs to make use of existing information gathering systems that may assist the division in assessing the progress of pollution prevention statewide.

(8) Grant or deny applications for pollution prevention grants under section 10 of this chapter.

(9) ~~Provide technical assistance concerning environmental matters to local and state government entities and businesses.~~ **Provide source reduction and recycling technical assistance and administer the Indiana recycling grants program.**

SECTION 19. IC 13-9-3-8 IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 1994]: Sec. 8. The board shall do the following:

(1) Assess the progress of the pollution prevention and safe materials institute in implementing this article.

(2) Appoint the director of the institute.

(3) Provide consultation and recommendations to the commissioner of the department of environmental management on the implementation of this article.

(4) Provide a forum for discussion and deliberation on matters pertaining to the implementation of this article.

(5) Receive public complaints and inquiries concerning the implementation of this article.

(6) Periodically review grant proposals and the grants program operated under IC 13-9-2 and assess the capacity of the grant program to fulfill the directives of this article. An assessment of the grants program shall be incorporated into the report submitted by the institute under IC 13-9-4.

(7) Review the annual report submitted by the director of the institute.

(8) Direct the institute to coordinate the institute's efforts with the department in the implementation of this article.

(9) Receive, expend, and account for state funds made available for the purposes of this chapter.

(10) Apply for and accept gifts and grants, which must be administered as public funds, made for the purposes of this chapter.

(11) Enter into lawful agreements as required as a condition for receiving gifts, grants, or other funds for the purposes of this chapter.

(12) Approve the institute's proposed biennial budget request.

(13) Prepare and file with the budget agency a separate written statement required under IC 4-12-1-7 for each of the following:

(A) The board.

(B) The institute.

(14) At public meetings concerning the budget, present in

APPENDIX D. Pollution Prevention Board Members (revised 07/01/94)

POLLUTION PREVENTION BOARD

LELAND E. BOREN
Chairman
Upland, Indiana
Represents Business

ROBERT F. BLOMQUIST
Valparaiso, Indiana
Represents Private University

CHARLES DEPPERT
Indianapolis, Indiana
Represents Organized Labor

IRIS F. KIESLING
Bloomington, Indiana
Represents Municipal Government

DONNA L. McCARTY
Indianapolis, Indiana
Represents Public

SAM F. MILLER
Indianapolis, Indiana
Represents Business (Small)

JOHN H. WALKER
Evansville, Indiana
Represents Business

KATHY PROSSER
Commissioner
Indianapolis, Indiana
Indiana Department of Environmental Management

ADVISORY LEGISLATORS

REP. MARK KRUZAN
Bloomington, Indiana

REP. SUE SCHOLER
West Lafayette, Indiana

SEN. BEVERLY GARD
Greenfield, Indiana

SEN. KATIE WOLF
Monticello, Indiana

INSTITUTE DIRECTOR

DR. LYNN CORSON
West Lafayette, IN
Purdue University

APPENDIX E. Public Notice Distribution List (revised 07/01/94)

INDIANA POLLUTION PREVENTION BOARD PUBLIC NOTICE LIST
ESTABLISHED MARCH 9, 1994
REQUESTS UNDER OPEN DOOR LAW: (IC 5-14-1.5-1 et seq)

Kyle Niederpruem
The Indianapolis Star
PO Box 145
Indianapolis, IN 46206-0145

Lois Wygant, LSA
WJOB/WZVN Radio
6405 Olcott Avenue
Hammond, IN 46320

Metro Desk
The Evansville Courier
PO Box 268
Evansville, IN 47702-0268

Victor Locke
WPTA-TV
PO Box 2121
Fort Wayne, IN 46801

Chesterton Tribune
PO Box 558
Chesterton, IN 46304

Guinn P. Doyle
Barnes and Thornburg
1313 Merchants Bank Building
11 South Meridian Street
Indianapolis, IN 46204

Marcia Oddi
1319 N. Alabama Street
Indianapolis, IN 46202

Tim Higgins
Environmental Quality Control Inc.
430 Indiana Avenue, Suite 104
Indianapolis, IN 46202

William Beranek Jr.
Indiana Environmental Institute, Inc.
150 W. Market Street Suite 816
Indianapolis, IN 46204

Jack E. Leonard
Environmental Management Institute, Inc.
5610 Crawfordsville Road, Suite 15
Indianapolis, IN 46224

Lynn A. Corson
Purdue University, Environmental
1291 Cumberland Avenue Suite C
West Lafayette, IN 47906-1385

Director Environmental Affairs
Indiana Chamber of Commerce
One North Capitol, Suite 200
Indianapolis, IN 46204-2248

David H. Benshoof
Best Lock Corporation
6161 East 75th Street
Indianapolis, IN 46250

Office of Regulatory Ombudsman
Indiana Department of Commerce
One North Capitol, Suite 700
Indianapolis, IN 46204-2288

Andy Knott
Hoosier Environmental Council
1002 E. Washington Street, Suite 300
Indianapolis, IN 46202

Vincent L. Griffin
Public Service Indiana Energy
1000 East Main Street
Plainfield, IN 46168

Debbie Stockberger
Miller Auto Care
434 Range Line Road
Carmel, IN 46032

John Clark
HC Industries
1205 East Elmore Street
Crawfordsville, IN 47933

Mr. Dave Schipe
Indiana and Michigan Power Co.
P.O. Box 60
Ft. Wayne, IN 46801

Thomas L. Russell
WW Engineering & Science
6435 Castleway West Drive
Indianapolis, IN 46250-1940

Indiana University
Business/SPEA Building 3027
801 West Michigan Street
Indianapolis, IN 46202-5152

Charles Knebl, Editor
The Pollution Prevention Letter
PO Box 13315
Silver Spring, MD 20911-3315

Marion County Health Department
Department of Water Quality and
Hazardous Materials Management
3838 North Rural Street
Indianapolis, IN 46205-2930

Nozi Hamidi
American Electric Power
One Riverside Plaza
Columbus, Ohio 43215

Cindy Tarka
Safety Kleen
385 Airport Drive, Suite C
Elgin, Illinois 60123

Mr. Blake Jeffery
Indiana Manufacturers Association, Inc.
2400 1 American Square, PO Box 82012
Indianapolis IN 46282

C. Michael Pitts
Indiana Oil Marketers Assoc., Inc.
101 W. Washington St., Suite 1338
Indianapolis, IN 46204-3413

Guin Brown, Reporter
Accurate Reporting of Indiana
9287 East 30th St.
Carmel, IN 46229

John Wilkins
Lilly Corporate Center
Drop Code
Indianapolis, IN 46285

Robert W. Bilheimer, Director
Bethlehem Steel Corporation
Burns Harbor Plant, Box 248
Chesterton, IN 46304

Joyce Jackson
City of Indianapolis
2700 South Belmont Avenue
Indianapolis, IN 46221

Cindy Wagner
Marion Co. Health Dept.
3838 North Rural
Indianapolis, IN 46205

John V. Barnett, Jr., Atty.
143 West Market, Suite 400
Indianapolis, IN 46204

Mark Rushkin
Indiana University, NW
3400 Broadway
Gary, IN 46408

Edwin R. Squiers, Ph.D
Director Environmental Science Program
Taylor University
500 West Reade Avenue
Upland, IN 46989

Lloyd H. Ketchum, Jr., Ph.D
Dept. of Civil Eng. & Geological Sciences
University of Notre Dame
156 Fitzpatrick Hall
Notre Dame, IN 46556-0767

Stanley Byers, Ph.D
Dept. of Industry & Technology
Ball State University
Practical Arts Building
Muncie, IN 47306

Donald E. Sobek, Director
Technical Assistance Center
University of Southern Indiana
8600 University Boulevard
Evansville, IN 47712

Larry J. Wilson
Center for Urban Policy & The Environment
Indiana University SPEA
342 North Senate Avenue
Indianapolis, IN 46204-1744

Hartley O. Holte
8275 Rockport Rd. S.
Bloomington, IN 47403

P2 Board Packets:
Tom Neltner, OPPTA
Lynn Corson, Purdue
Miriam Smulevits Dant, Gov. Office
Joyce Martin, OLC
Steve Allen, OMBA
Lois Wygant, LSA, Room 302 State House, 46204
Donald Arnold, INDOT

Last Update 6/27/94
bh

APPENDIX F. Press Release for Public Notice of 1994 Annual Report Comment Period

IDEM News Release

Indiana Department of Environmental Management
Phone 317/232-8560

Indiana Government Center North
P.O. Box 6015
Indianapolis, IN 46206-6015

For Immediate Release
April 27, 1994

Contact: Bill Hess
317/233-5626

IDEM SEEKS PUBLIC COMMENT ON POLLUTION PREVENTION ANNUAL REPORT

The public is invited to review and comment on the Indiana Department of Environmental Management's draft version of its first annual Pollution Prevention Progress Report. The public comment period will be from April 27 through June 10.

The Indiana Industrial Pollution Prevention and Safe Materials Act (IC 13-9, HEA No. 1106, P.L. 105-1990) requires IDEM Commissioner Kathy Prosser to submit the report to the Governor and General Assembly by July 1, 1994. The report is being prepared by IDEM's Office of Pollution Prevention and Technical Assistance and must include the following:

- A quantitative assessment of statewide pollution prevention progress among all types of industries;
- An identification of regulations and government policies that are inhibiting pollution prevention and opportunities in existing regulatory programs to promote and assist in pollution prevention, including reductions in the use of toxins in production and commerce;
- An assessment of how pollution prevention programs promote and assist pollution prevention, and the costs and benefits to government and industry;
- A statement concerning the identification of opportunities and development of priorities for research and development in pollution prevention techniques, economic analyses and management techniques useful in supporting pollution prevention. The report may not include information considered by a business to be a trade secret of that business; and
- Recommendations concerning incentives and policies needed to encourage investment in research and development in pollution prevention and in making greater use of programs established under IC 13-9.

For additional information or to receive a copy of the draft report, contact Bill Hess of the Office of Pollution Prevention and Technical Assistance at (317) 233-5626. Written comments should be addressed to:

Mr. Bill Hess
Indiana Department of Environmental Management
Office of Pollution Prevention and Technical Assistance
Indiana Government Center North
P.O. Box 6015
Indianapolis, IN 46206-6015

- # -

APPENDIX G. Newspaper Public Notice for 1994 Annual Report Comment Period

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

April 15, 1994

Indianapolis Star/News
P.O. Box 145
Indianapolis, IN 46206-0145
Attention: Public Notices, Legal Advertising

Dear Indianapolis Star/News:

Re: Pollution Prevention Annual Report

Enclosed please find one (1) Indiana Department of Environmental Management (IDEM) Notice of public comment period for the DRAFT 1994 IDEM Pollution Prevention Annual Report. This comment period is required by statute, Indiana Code 13-9-2. The report shall respond to public comments submitted during the comment period.

Please print this notice one time, in each of your two daily newspapers on or before April 25, 1994, in order for us to satisfy the statutory requirement of a 45-day comment period.

Please send a notarized form together with the clipping and bill, showing the date of publication and your Federal ID number to William Hess, Office of Pollution Prevention and Technical Assistance, Department of Environmental Management, Indiana Government Center North, 100 N. Senate, P.O. Box 6015, Indianapolis, IN 46206-6015.

Sincerely,

William L. Hess

William Hess
Environmental Manager

Enclosure

APPENDIX H. Indiana Register Public Notice for 1994 Annual Report Comment Period

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
NOTICE OF PUBLIC COMMENT PERIOD
IDEM POLLUTION PREVENTION ANNUAL REPORT

Notice is hereby given that a 45 day public review period will be open from April 27 through June 10, 1994. A DRAFT version of the first annual 1994 IDEM Pollution Prevention Progress report will be available for public review and comment.

The Indiana Industrial Pollution Prevention and Safe Materials Act, 1990, (IC 13-9-3-2) requires that the Commissioner of IDEM prepare an annual report to be submitted to the Governor and General Assembly by July 1, 1994. The report is being prepared by IDEM's Office of Pollution Prevention and Technical Assistance. The report must include at least the following:

a. A quantitative assessment of statewide pollution prevention progress among all types of industries.

b. An identification of regulations and government policies that are inhibiting pollution prevention and opportunities in existing regulatory programs to promote and assist in pollution prevention, including reductions in the use of toxins in production and commerce.

c. An assessment of how pollution prevention programs have promoted and assisted pollution prevention and the costs and benefits to government and industry of those programs.

d. A statement concerning the identification of opportunities and development of priorities for research and development in pollution prevention techniques, economic analyses, and management techniques useful in supporting pollution prevention. The report may not include information considered by a business to be a trade secret of that business.

e. Recommendations concerning incentives and policies needed to encourage investment in research and development in pollution prevention and in making greater use of programs established under this article.

For additional information or to receive a DRAFT copy of the report, contact Mr. William Hess, Office of Pollution Prevention and Technical Assistance at phone 317/233-5626; Fax 317/233-5627. Address written comments to Mr. Hess at:

Department of Environmental Management
Office of Pollution Prevention and Technical Assistance
Indiana Government Center North
100 N. Senate
P.O. Box 6015
Indianapolis, IN 46206-6015

APPENDIX I. Recommendation for Pollution Prevention Institute Site Selection

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

July 29, 1993

Mr. Joe Wiesinger, Procurement Analyst
Indiana Department of Administration
Procurement Division
402 West Washington Street, Room 468
Indianapolis, Indiana, 46204

Dear Mr. Wiesinger:

Re: Broad Agency Announcement 93-12 Solicitation for:
Pollution Prevention Institute

The Indiana Pollution Prevention Board has deliberated on the respondents to the Subject BAA and rendered a decision to tentatively accept the proposal of the Purdue University, School of Civil Engineering, Environmental Management and Education Program. This decision was based upon careful consideration of the proposals using the criteria established for the BAA (Attachment A).

The selection process being accomplished, the Board and the Indiana Department of Environmental Management (IDEM) now respectfully request that the Department of Administration Procurement Division certify the procedure as properly executed and give approval for contract negotiations to commence.

To recap the selection process, after the close of the BAA response period on February 22, 1993, four proposals were forwarded to the IDEM for Board review. The four proposals were from:

1. Purdue University
2. Environmental Management Institute Inc.
3. Indiana State University
4. Froebel School Restoration Task Force

On February 23, these proposals were mailed to the Pollution Prevention Board, Institute Site Selection Committee and a meeting was scheduled for preliminary discussion on March 15. The Committee convened on March 15 (Attachment B) and determined that the Froebel School Restoration Task Force proposal did not include a response to the stated criteria in the BAA, and it was dropped from further consideration. The Committee then discussed the remaining three proposals and opened the selection process to the full Board for consideration at their meeting on March 26.

APPENDIX I. Recommendation for Pollution Prevention Institute Site Selection

The March 26, meeting (Attachment C), resulted in the elimination of the Indiana State University proposal from further consideration because it was objectively determined to be less responsive to the BAA criteria than either Purdue or the Environmental Management Institute. The Board desired further consultation with the two finalists and invited them to make presentations and submit to direct questions at a June 25 Board meeting.

Chairman, Leland Boren corresponded with the proposed finalists to inform them of the inquiries which the Board had raised and to instruct them regarding the objective procedure for the final selection process (Attachment D).

On June 25, the Board convened to hear the finalists and voted individually on the final selection, using the established BAA criteria . Seven of ten voting members participated, two were absent and Mr. Boren abstained. The seven score sheets, (Attachment E), were tallied and recorded to determine that the Purdue University proposal received the highest score. The cumulative scores were : Environmental Management Institute 996 points, Purdue 1299 points, out of a possible 1400 total available numeric value.

The Board, therefore, completed its selection process and approved the nomination of Purdue University as the sponsoring organization for the Pollution Prevention and Safe Materials Institute (PPSMI). Mr. Boren advised Purdue by letter of the Board's decision on June 28, (Attachment F).

This evidence of the Pollution Prevention Board's objective evaluation and selection procedure for the Pollution Prevention Institute is submitted for your review and approval. If you have further questions or require additional information about this matter, please do not hesitate to contact me at the above address or by telephone at 317-232-8174. Thank you for your cooperation and assistance on behalf of the Pollution Prevention Board and the IDEM.

Sincerely,

Charles C. Sullivan RETIRED

Charles C. Sullivan
Senior Environmental Manager
Office of Pollution Prevention
and Technical Assistance

Attachments
cc: Leland Boren
Joyce Martin
Steve Allen
Becky Schenk

APPENDIX J. Recommendation for Pollution Prevention Director Selection

PURDUE UNIVERSITY

INSTITUTE FOR
INTERDISCIPLINARY
ENGINEERING STUDIES

December 22, 1993

Mr. Leland E Boren
Avis Industrial Corporation
1909 South Main Street
Upland IN 46989

Re: Ranking of the Final Candidates for the Position of Director, Indiana Pollution Prevention and Safe Materials Institute

Dear Leland:

The Search Committee for the Director of the Indiana Pollution Prevention and Safe Materials Institute is pleased to forward the resumes of three diverse candidates for the Board's consideration: David Allen, Lynn Corson, and Terry Stopps. Also enclosed are copies of the presentations of Corson and Stopps.

Following the seminars and discussions with candidates last week, the members of the search committee met to rank and discuss the candidates. We asked each committee member first to indicate if any of the candidates were unsatisfactory for the position. They then were asked to rank the satisfactory candidates 1 (best), 2 or 3.

David Allen was considered unsatisfactory by two of the search committee members. Lynn Corson and Terry Stopps each were considered unsatisfactory by one member.

The average rankings of those candidates by the board members resulted in essentially a "dead heat" -- Dave Allen an average ranking of 1.75, and Lynn Corson and Terry Stopps 1.88 each (lower is better). In terms of first place votes, Dave and Terry had 4 first place votes each, while Lynn had 2. Lynn, on the other hand, had 6 second place votes, while the other candidates only had 2.

Three faculty members with interests in the area of pollution prevention who only attended the seminars ranked Stopps first, Corson second, and Allen third.

In the discussion that followed our ranking process, it became clear that the committee saw the candidates as distinct alternatives, not indistinguishable choices; each candidate would bring a different set of strengths and weaknesses to the position.

Dave Allen was seen by the committee as a person dedicated to the concept of pollution prevention, who would bring a clear understanding of the role of pollution prevention to the institute, as well as giving instant national visibility to our program. His moral integrity and commitment to the concept were other positive aspects that were mentioned.

APPENDIX J. Recommendation for Pollution Prevention Director Selection

The committee's concerns with Dave arose from questioning if he would be able to gain the confidence of the industrial sector which was felt to be necessary in the non-regulatory climate of the institute, as well as work effectively with IDEM. Others expressed concern about Dave's management experience, and his ability and willingness to take the time to handle the administrative details that go with the job.

Lynn Corson's obvious strength is having written the proposal. We all know exactly what we can expect him to accomplish; few deviations from the work plan can be expected with Lynn as the director. Further, he knows the Indiana situation, is aware of the need for working effectively with industry, and is acutely aware of who the actors are and where the potential pitfalls lie. Lynn's weak point is the baggage any "insider" candidate brings to the position. Additionally, he has been only marginally successful in integrating the work of his existing center into the Purdue culture, although the nature of the center's work made the job of integration a difficult one.

Terry Stopps' major advantages are his technical background, his experience in both the areas of technology and public policy, and a proven record of being able to accomplish program goals within a large bureaucracy with the support of the industrial sector. Terry has strong interpersonal skills, and would probably be a very articulate voice for the institute.

Terry was seen by some as being too political, in that he might be too interested in building a consensus in order to move the program forward. Others were not sure of Terry's commitment to pollution prevention, as opposed to pollution control.

In summary, we think we have presented three viable candidates for your consideration. I would be more than happy to go into further detail as to our perceptions at your next Board meeting if you wish.

Best regards,

F.T. Sparrow, Head, Search Committee

Enclosures (5) (Resumes, presentation handouts)

cc: Board Members (enclosing resumes and presentation handouts)
Search Committee (enclosing presentation handouts only)
Henry Yang, Dean of Engineering (presentation handouts)
Harry Morrison, Dean of Science (presentation handouts)
Victor Lechenberg, Dean of Agriculture (presentation handouts)
Charles Rutledge, Dean of Pharmacy, Nursing, and Health Sciences (presentation handouts)
Larry Pherson, Office of Contract & Grant Business Affairs (presentation handouts)

APPENDIX K. Press Release for Governor's Awards for Pollution Prevention Program

OFFICE OF THE GOVERNOR
INDIANAPOLIS, INDIANA 46204-2797

EVAN BAYH
GOVERNOR

For Immediate Release Friday, February 18, 1994

GOVERNOR BAYH ANNOUNCES POLLUTION PREVENTION AWARDS NOMINATION OPEN

Gov. Evan Bayh today announced he is seeking nominations for the first Governor's Awards for Excellence in Pollution Prevention. The awards, to be announced in June, will recognize businesses that have voluntarily gone beyond traditional treatment, control and disposal techniques, and focused instead on not using toxic materials or generating environmental wastes in the first place.

The Governor's Awards will be made in two classifications:

- Small business or commercial operation and supporting organization with 100 employees or less;
- Large business or commercial operation with more than 100 employees.

Three categories are available for each classification to enter:

- Implementation of pollution prevention;
- Integration of pollution prevention into product research and development;
- Integration of pollution prevention into financial accounting and capital appropriations decision-making.

Nomination information may be obtained from the Office of Pollution Prevention and Technical Assistance, Indiana Department of Environmental Management, P.O. Box 6015, Indianapolis, IN 46206-6015, phone number 317/232-8172 or 1-800/451-6027. Applications from nominees are due by March 25, and will be reviewed by a committee for the awards announcement in June.

For more information contact: Pat Morrison, IDEM 317/232-8560

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APPENDIX L. Press Release for Governor's Awards for Pollution Prevention Recipients

OFFICE OF THE GOVERNOR
INDIANAPOLIS, INDIANA 46204-2797

EVAN BAYH
GOVERNOR

For Immediate Release Friday, June 24, 1994

GOVERNOR BAYH ANNOUNCES POLLUTION PREVENTION AWARD WINNERS

Three Indiana industries received Governor's Awards for Excellence in Pollution Prevention today. These first-time awards were given to companies that voluntarily implemented new technology and practices that go beyond traditional treatment, control and disposal techniques, and focus instead on eliminating toxic material use or environmental waste.

"These companies are pacesetters in the effort to prevent pollution at the source," said Gov. Bayh. "They're showing other small and large businesses that pollution prevention has short and long term benefits. I hope all Indiana businesses will feel challenged to do their share."

The awards were given to United Technologies Carrier Corporation, Indianapolis; Benchmark Products Inc., Indianapolis, and General Electric Appliances, Bloomington.

- The Carrier heating and cooling manufacturing plant reduced emissions by using less-toxic substitutes. The use of a water-based glue rather than a solvent adhesive, for example, eliminated their annual release of 14,000 pounds of volatile organic compounds. Additionally, the plant has reduced air emissions 99 percent between 1988 and 1993, while hazardous waste generation decreased 89 percent during the same period.

- General Electric formed a pollution prevention team of high level managers to track air, water, and waste disposal costs. The team works to eliminate all possible waste and already has saved nearly $124,000 through pollution prevention. Projects included the substitution of chrome-free raw materials which eliminated worker exposure and reduced the plant's hazardous waste by 39 percent.

- Benchmark Products integrated pollution prevention into product research and development. The company makes chemical coatings for manufacturers of automotive trim, bumpers, and other products that need corrosion protection.

more

APPENDIX L. Press Release for Governor's Awards for Pollution Prevention Recipients

Benchmark reformulated a nickel plating solution, excluding three hazardous materials used in traditional plating baths and resulting in improved performance. The efforts have a compound effect because Benchmark sells plating solutions to many manufacturers. Changing to the new bath is simple for manufacturers and requires no equipment changes.

For more information contact: Will Fay, IDEM 317/232-8560

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APPENDIX M. Press Release for Pollution Prevention Challenge Grants Program

IDEM News Release

Indiana Department of Environmental Management
Phone 317/232-8560

Indiana Government Center North
P.O. Box 6015
Indianapolis, IN 46206-6015

For Immediate Release
March 25, 1994

Contact: Bill Hess
317/233-5626

IDEM OFFERS $250,000 IN POLLUTION PREVENTION GRANTS

Indiana Department of Environmental Management Commissioner Kathy Prosser announced that pollution prevention grants, totaling $250,000, are available from the 1994 Pollution Prevention Challenge Grants Program. The grants will help promote pollution prevention among Indiana businesses, provide information exchange and technology transfer, and result in a reduction in the use of industrial toxic materials, or in the generation of environmental wastes.

"These grants will help Indiana businesses, industries and commercial operations develop and implement new ways to prevent, reduce or eliminate multi-media wastes, and to promote pollution prevention activities," Commissioner Prosser said.

Administered through the IDEM's Office of Pollution Prevention and Technical Assistance, the 1994 Pollution Prevention Challenge Grants Program will fund projects that (1) provide technical training to industry in toxic use reduction; (2) develop training materials or programs for in-plant workers or plans to foster pollution prevention; and/or (3) conduct generic research and development, pilot tests and demonstration projects that (a) involve commonly used industrial or commercial processes or materials and (b) produce results useful to other businesses.

Eligible applicants include businesses, trade associations, labor organizations, not-for-profit organizations, local units of government and educational institutions. An eligible applicant may request up to $25,000 to support a project consistent with program guidelines. A dollar-for-dollar cash and/or in-kind match of the grant amount is required. While grant funds may not be used for the purchase of capital equipment or capital improvements, they may be used for a wide variety of other costs that promote pollution prevention. Projects must show a measurable reduction in either the use of toxic materials or the generation of environmental wastes by an industry.

Grant applications will be mailed to trade organizations, labor unions, educational institutions, departments of commerce and interested businesses, among others. Applications also will be available through IDEM. Completed applications must be received no later than May 2. For more information on the grants program, contact IDEM's Office of Pollution Prevention and Technical Assistance at 317-232-8172 or toll-free 1-800-451-6027.

- # -

APPENDIX N. Press Release for Pollution Prevention Challenge Grants Recipients

IDEM **News Release**

Indiana Department of Environmental Management
Phone 317/232-8560

Indiana Government Center North
P.O. Box 6015
Indianapolis, IN 46206-6015

FOR IMMEDIATE RELEASE
June 20, 1994

CONTACT: Will Fay 317/232-8560

STATE AWARDS POLLUTION PREVENTION GRANTS TO EIGHT BUSINESSES AND ORGANIZATIONS

Eight Indiana businesses and organizations received more than $165,000 in pollution prevention grants from the Indiana Department of Environmental Management. These groups will use the matching grants for projects to reduce the industrial use of toxic materials or reduce the generation of environmental wastes.

"These grants shine the spotlight on environmentally conscious efforts to reduce pollution by preventing it in the first place," said Kathy Prosser, IDEM commissioner. "These model programs will be of benefit to other pollution prevention efforts statewide."

The recipients and their awards are:

- Allison Engine Company, Inc., Indianapolis, $12,550
- Ball State University and Taylor University, Muncie $27,000
- Executive Furniture, Inc., Huntingburg, $14,000
- James River Corporation, Indianapolis, $25,000
- Monroe County Solid Waste Management District, Bloomington, $23,000
- Notre Dame University, South Bend, $26,217
- Purdue University, West Lafayette, $14,500
- Wabash National Corporation, Lafayette, $25,000

The 1994 Pollution Prevention Challenge Grants Program is part of Governor Evan Bayh's Toxic Reduction Initiative to help manufacturers voluntarily reduce releases to the environment by 50 percent by the end of 1995.

The pollution prevention grants program is designed to help promote pollution prevention among Indiana businesses, provide information exchange and technology transfer with a resulting toxic material use and generation reduction. Eligible projects were:

- Technical training for industry in toxic use reduction;
- Development of training materials or programs for in-plant workers or plans to foster pollution prevention; and/or
- Generic research and development, pilot tests and demonstration projects that (a) involve commonly used industrial or commercial processes or materials and (b) produce results useful to other businesses.

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APPENDIX N. Press Release for Pollution Prevention Challenge Grants Recipients

1994 Pollution Prevention Challenge Grants Program
Grant Recipients
June, 1994

■ **Allison Engine Company, Inc.** (Indianapolis)
Contact: Mark Linville, (317) 230-3617 *$12,550*

Allison Engine Company, Inc. will develop an alternative process that will replace methylene chloride vapor degreasing with an aqueous cleaning process prior to fluorescent penetrant inspection of aircraft parts. This project must meet the stringent quality control tests of the aircraft industry. It will provide a challenging test of the effectiveness of the alternatives to give others confidence in those alternatives.

■ **Ball State University in cooperation with Taylor University** (Muncie)
Contact: Stanley Byers/Edwin Squiers, (317) 285-5644/(317) 998-5386 *$27,000*

Ball State University, in cooperation with Taylor University, will develop and field test a pollution prevention training curriculum that will be used as a tool for providing Indiana industries with a clear explanation of how pollution prevention can be applied in their particular settings. The project will include collecting and digesting available pollution prevention curricular materials and tailoring those materials to fit the specific needs of Indiana industry. The universities will measure reduced industrial use of toxic materials or generation of environmental waste that resulted from the use or field testing of the curriculum.

■ **Executive Furniture, Inc.** (Huntingburg)
Contact: David L. Hurst, (812) 683-3334 *$14,000*

Executive Furniture, Inc., a producer of finished wood furniture, will formulate and test waterborne finishes on its wood products. A wood finish poses a special challenge because of the high quality and appearance needed. If the quality of the waterborne finish matches that of the solventborne finish currently being used, Executive Furniture will replace its solventborne finishing system with a waterborne finishing system and will reduce its use of toxic and hazardous chemicals. The experience gained from the tests will be useful to other wood finishing industries in Indiana.

■ **James River Corporation** (Indianapolis)
Contact: Daniel Homan, (317) 541-3503 *$25,000*

James River Corporation, a printing company which produces photopolymer type for use in its printing operation, will test the replacement of its current solvent-based plate washing system (perchloroethylene and butanol) with a water-based system. If the test verifies that the water-based system delivers the same quality printed product that the current solvent-based system does, then James River Corporation will convert to a water-based system that will eliminate the need for toxic materials. Because printers have special quality concerns, the results of tests and evaluations made during this project will be useful to other members of the printing industry.

APPENDIX N. Press Release for Pollution Prevention Challenge Grants Recipients

■ **Monroe County Solid Waste Management District** (Bloomington)
Contact: Greg Nottingham, (812) 333-3867 *$23,000*

The Monroe County Solid Waste Management District will conduct a model project which involves developing innovative methods to work primarily with the estimated 400 conditionally exempt small quantity generators of hazardous waste in Monroe county. The technical assistance program will use a technical advisory group that will educate business owners and managers on pollution prevention methods. The District will follow up with businesses and show measurable reductions in the industrial use of toxic materials or in the generation of environmental wastes. The results of this project will be evaluated for use in the rest of the state.

■ **Notre Dame, University of** (Notre Dame)
Contact: Lloyd H. Ketchum, Jr., (219) 631-5696 *$26,217*

University of Notre Dame personnel will accompany the city of Elkhart's pretreatment inspectors on inspections of 46 significant industrial users of the city's wastewater treatment plant and will identify opportunities for pollution prevention and facilitate the implementation of pollution prevention by those industries. Notre Dame will follow up with each significant industrial user and determine actual reductions in the industrial use of toxic materials or generation of environmental wastes. This effort will serve as a model for pretreatment managers in other communities on assisting their own significant industrial users in the practice of pollution prevention.

■ **Purdue University** (West Lafayette)
Contact: James E. Alleman, (317) 494-7705 *$14,500*

Purdue University's School of Civil Engineering will develop and distribute a technical guidance manual to assist plant engineers and mechanics in the proper selection and installation of gaskets and packings for high-performance applications which place considerable stress on product durability and survival. The manual will serve as a tool for Indiana manufacturers who are making operational improvements in their production unit control equipment through the identification and remediation of improperly sealed flanges and valves. Purdue University will follow up with users of the manual to determine actual reductions in the industrial use of toxic materials or generation of environmental waste that resulted from their use of the manual.

■ **Wabash National Corporation** (Lafayette)
Contact: Rick Bossingham, (317) 449-5427 *$25,000*

Wabash National Corporation will pilot test hot melt coating technology in place of its current solvent-based coating process on cross members of its semi trailers. If the pilot test produces successful results, Wabash National will implement a full-scale hot melt coating system that will reduce the use and generation of toxic materials, provide a safer working environment because the coating material is non-flammable and reduce the potential for spills because the material is stored in a solid block. The results of this project will serve as a model for other manufacturers who use similar coatings and coating processes on structural members that are exposed to severe elements.

APPENDIX O. Request for Participation in TCA Substitution Program

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

Re: Reduction of 1,1,1-trichloroethane

According to the 1991 TRI Form R, your company is one of the 145 manufacturers using over 10,000 pounds of 1,1,1-trichloroethane yearly. Indiana Department of Environmental Management (IDEM), Indiana State Chamber of Commerce (ICC), Indiana Manufacturers' Association (IMA), and Indiana Pollution Prevention Board (IPPB) are working together to encourage the users of 1,1,1-trichloroethane (also known as methyl chloroform or TCA) to switch from the use of this stratospheric ozone-depleting substance to a safer alternative, such as an aqueous, non-phosphate solvent.

Federal EPA has published a final rulemaking in Federal Register at 40 CFR Part 82 on December 10, 1993. This rule phases out TCA and other Class 1 ozone-depleting substances by December 31, 1995. TCA will become increasingly difficult to purchase and the cost will dramatically increase. It will be one of the more difficult transitions that manufacturers like you will face. We believe that the substitution of TCA with an aqueous, non-phosphate solvent may be a viable option you should consider. It will likely reduce your long term cost of complying with many regulations, potentially improve your process efficiency, and help to protect the environment.

Your substitution of TCA to an aqueous, non-phosphate solvent is pollution prevention. Pollution prevention (P^2) has been declared to be the preferred means of environmental protection in Indiana according to IC 13-9-2-5(4). As a non-regulatory office within IDEM, the Office of Pollution Prevention and Technical Assistance (OPPTA) takes a cooperative approach with TCA users and encourages a substitution to safer materials to protect your workers, the public, and the environment. OPPTA would like to help you get past some of the barriers you might encounter by providing you the following information:

1. The 1991 TRI list (enclosed) contains the 145 facilities that submitted a Form R for TCA. The list is sorted out by Standard Industrial

APPENDIX O. Request for Participation in TCA Substitution Program

Side 2

Code (SIC) to allow you to identify other facilities in your industry. Also, other release information and projected releases are provided to help you better understand what the facilities are doing and plan to do. Please get in touch with your peers to better understand their plans to convert from TCA.

2. An article on substitutes from TCA to a safer alternative "Multi-Industry Success Stories To Reduce TCA Use in Ohio" by K. Kohler and A. Sasson is enclosed. Copies of other technical manuals and related technical information are available on request from OPPTA.

3. Register with OPPTA and be eligible for recognition from the agency upon completion of a successful conversion from TCA to safer alternative. When you identify a safer alternative or substitute, contact OPPTA so they can track Indiana's progress and use the information to help other facilities in Indiana. When the conversion is completed for your facility, OPPTA will delete your name from the list.

The enclosed brochure explains Indiana's definition and approach to pollution prevention. This brochure provides some of the basics of IDEM's pollution prevention efforts. If you want more information on developing a pollution prevention program for your facility or would like to register your conversion program, call OPPTA at 1-800-451-6027 and ask for Anup Raychowdhury at 233-5628.

Sincerely,

Kathy Prosser, Commissioner
Indiana Dept. of Environmental Mgmt.

Sincerely,

Leland E. Boren, Chairman
Pollution Prevention Board

Sincerely,

Christopher LaMothe, President
Indiana State Chamber of Commerce

Sincerely,

Pat Kiely, President
Indiana Manufacturers' Association

Enclosures

APPENDIX O. Request for Participation in TCA Substitution Program

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APPENDIX O. Request for Participation in TCA Substitution Program

Side 2

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Sincerely,

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Indiana Dept. of Environmental Mgmt.

Sincerely,

Leland E. Boren, Chairman
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Sincerely,

Christopher LaMothe, President
Indiana State Chamber of Commerce

Sincerely,

Pat Kiely, President
Indiana Manufacturers' Association

Enclosures

APPENDIX P. Recommendation for Closed-Loop Recycling Definition

Indiana Pollution Prevention and Safe Materials Institute

TO: Members, Indiana Pollution Prevention Board

FROM: Lynn A. Corson, Ph.D., Director, Indiana Pollution Prevention and Safe Materials Institute

DATE: March 21, 1994 (corrected March 24, 1994)

SUBJECT: "Closed-Loop" Recycling

The debate concerning the definition of "closed-loop" recycling, as the terms are used in the Indiana statute, has been an educational experience for the staff of the Institute. The Institute director appointed himself to mediate the debate between Board member Smith and Assistant Commissioner Neltner, the two individuals representing the two somewhat conflicting views of the definition.

The director held discussions with Institute engineering staff and graduate assistants, selected faculty of the Schools of Civil Engineering, Chemical Engineering and Mechanical Engineering at Purdue, and others. The resolution of the public debate may not rest upon the findings derived from these discussions; however, the definition is now sufficiently clear for the Institute staff to proceed with its provision of technical assistance to industry.

The Institute staff's research revealed that the terms "closed-loop" are not used in "standard engineering practice", as the qualifying phrase in IC 13-9-1-14(a) requires, when referring to recycling. The term most commonly used in standard engineering practice, but not used in the Indiana statute, is "closed cycle". The term "closed system" is also used in common parlance to means "closed cycle". Probably the best example of a "closed cycle" or "closed system" is a space station which has all of its life-support systems on-board, including systems which process waste products for reuse.

Another possible example of a "closed cycle" process is the solvent recovery operations at the Tippecanoe Laboratories, described by John R. Wilkins, Manager, Environmental Affairs, Eli Lilly and Company in his November 22 printed remarks to the Board: the operation is centralized "in one part of the plant; spent solvents which can be recovered are transferred from any of several manufacturing buildings to holding tanks prior to being recovered." To insure that this system is in fact "closed cycle", Lilly would have to apply the principal criterion of a "closed cycle" process: the amount (volume) of spent solvent returned to the pharmaceutical manufacturing process after recovery must be approximately equal to the amount generated by the manufacturing process as a by-product. The amount returned

would seldom be exactly the same as the amount generated because of drips, evaporation, etc., but in a "closed cycle" process there can be no intentional intervention to divert by-product or recovered product to another process; e.g., incineration of some quantity of the spent solvent. A "closed cycle" process, by definition, must-

- process all of the by-product generated, and
- reuse all of the by-product recovered

[read "all" with the caveats aforementioned]

"Closed cycle" processes are not defined by the-

- type of storage--the material could be stored in a bulk storage tank or in drums or in other containers;
- duration of storage--the material could be stored overnight or for 6 months or more;
- manner in which the material is conveyed from and returned to the production process--it could be conveyed by a piping system, by manually-filled drums or other means.

So, what about a "closed-loop" recycling process? How is one to read the statute? It is apparent to the Institute staff that the authors of the Indiana statute and the authors of the Congressional Office of Technology Assessment report, the source of some of the definitional material for the statute, perceived an image of an enclosed system that conveyed the by-product from the terminus of the production process through a hard-piped "loop" back to the beginning of the production process for reuse. This "closed-loop" system would be incorporated when the manufacturing process was designed or re-designed.

The terms "closed-loop", if applied to recycling, would mean that the recycling process, for example, would compensate for a drop in pH of the raw material inputs by introducing an amount of recycled material to elevate the pH to a pre-set level. "Closed-loop" systems are, for this reason, also called "feedback control" systems. As defined in controls engineering terms the "closed-loop" system would operate by automatic control, not manual intervention.

The authors of the Indiana statute (and the authors of the OTA report) may have used the terms "feedback control" systems in private discussions, but the terms do not appear in the statute nor can they be found in the OTA report. What is certain is that in defining "closed-loop", the authors of the statute used phrases which describe a "feedback control" system, such as in IC 13-9-1-14(b):

> "The manual developed under this chapter must state that inprocess recycling is not a means of preventing pollution unless the inprocess recycling is a closed and integral part of the production process or operation". (underline added)

APPENDIX P. Recommendation for Closed-Loop Recycling Definition

Or, as in IC 13-9-5-2(2)(E):

> "Inprocess recycling, which refers to recycling, reuse, or extended use of toxic materials by using equipment or methods that become an integral part of the production unit of concern, including filtration and other closed looped [sic] methods." (underline added)

These descriptions and the statutory linkage between "closed loop, inprocess recycling", [IC 13-1-10.1 Sec. 2] and "inprocess, inline, or closed loop recycling" [IC 13-9-1-14(a)] are adequate to establish for the Institute that a "closed loop" process is a "feedback control" system and that it is an enclosed system integral to the production process. The Indiana statute does not include the terms "closed-cycle" or "closed-system", so neither can be considered as representative of the pollution prevention strategies industry will be encouraged to adopt. The efforts of industries, such as Eli Lilly and Company, which install and operate "closed cycle" processes, are taking positive steps toward the protection of the environment. Such efforts are commendable and should be evaluated on their own merit, but not as part of Indiana's pollution prevention effort.

LAC/ksn

cc: Tom Neltner, Assistant Commissioner, IDEM
John Wilkins, Manager, Environmental Affairs, Eli Lilly and Co.

APPENDIX Q. Letter of Support for Resolution

Indiana Pollution Prevention and Safe Materials Institute

TO: Tom Neltner, Assistant Commissioner
OPPTA, IDEM

FROM: Lynn A. Corson, Ph.D., Director

DATE: May 2, 1994

SUBJECT: Pollution Prevention Board, Legislative Committee Resolution re: Recycling: Introduced to and Deferred by the Board Until June 17, 1994

At the Legislative Committee meeting on March 25, during the discussion of the proposed resolution about recycling, you asked for correspondence from me stating whether I "adopt the resolution". This memoranda is to convey that I adopt or accept the resolution, as stated, and as approved by the Legislative Committee.

During the Legislative Committee meeting and during the break in the Board meeting questions were asked about the meaning of certain words used in the resolution. Your question, during the Committee meeting, concerned the definition of the terms "hard pipe" and whether such terms included open conveyor system for solids. The Congressional Office of Technology Assessment, upon whose reports much of Indiana's statutory definition rests, states that closed-loop recycling "...is more applicable to liquid waste streams than to solids, sludges, or gases."*

I believe an enclosed system which returns a material, whether solid, liquid, or gas, from the terminus to the beginning of a production process for reuse in the production process when such reuse is integral to the production process must be evaluated in the context of the terms "hard pipe", "closed-loop" and "totally enclosed" as used in the resolution. Conformance of enclosed systems with the letter and intent of the resolution and Indiana statutory definitions would have to be assessed on a case-by-case basis. However, it seems to me the term "totally enclosed" would preclude open conveyor systems. Moreover, open conveyor systems are not usually integral to the affected production process and may result in worker or environmental exposure.

During the break in the Board meeting, David Benshoof, Best Lock Corporation, expressed concern about the prohibition (in paragraph four) for "storage of environmental wastes" and he asked whether this statement could be modified in this paragraph by reference to the first paragraph which begins: "Recognizing that some accumulation of materials may be inherent in a given process..."

---

*"Serious Reduction of Hazardous Waste" (1986); p. 78

APPENDIX Q. Letter of Support for Resolution

I read the definition of pollution prevention in IC 13-9-1-14, as referenced in paragraph four, and that definition does not "recognize storage as a pollution prevention technique", as stated in the last sentence of that paragraph.

The phrase included in the Board's resolution which recognizes "that some accumulation of materials may be inherent in a given process" should not be interpreted to refer to storage. The phrase refers, first, to the amount of a material required for operation of a particular production process and, second, to episodic fluctuations in the use of a material within a process where the material may build up for a short period of time at one point in the process prior to its use at a later point in the same process. Again, the judgment of the institute staff will have to be applied on a case-by-case basis to situations involving episodic accumulations of material within production processes. However, pollution prevention, as defined by Indiana statute, involves only activities integral to production processes. Any activities external to production processes, including storage of materials and open conveyor systems, do not satisfy this definition.

I hope that this analysis is responsive to your inquiries and, by copy, to those of Mr. Benshoof. Please contact me if further clarification of this analysis is needed.

cc: David Benshoof

cg

APPENDIX R. Request for Board Member Comments on Barriers to Pollution Prevention

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

MEMORANDUM

TO: Pollution Prevention Board Members

FROM: Mr. Bill Hess BH

DATE: February 25, 1994

SUBJECT: IDEM Annual Report on Pollution Prevention

The OPPTA is in the process of drafting the above mentioned report. Due to the importance of this report, and in order to reflect all opinions and produce a factual document, our office requests your assistance on contributing to its content.

In Chapter III of the report, there is a section titled "**Identifying Barriers to Pollution Prevention**". This chapter will be divided into the following sections or subtitles:

- State Regulatory Issues
- Federal Regulatory Issues
- Expanding the Definition of Toxic Material
- Clarification on the Definition of Closed-Loop Recycling
- Unified Reporting and Permitting Authority
- Fiscal Constraints

If you have thoughts on any of these topics, please submit your written comments to me at the OPPTA. If you do your text on a word processor, I would appreciate a copy on a 3.5" disc in Word Perfect 5.1 or 5.2, or saved as an ASCII.text (DOS) file. I need your comments by March 18, 1994 so I can incorporate them into the Draft document I plan to have ready by April 1, 1994.

Please call me at (317) 233-5626 if you have any questions. Thank you in advance for your assistance and contributions.

APPENDIX S. Request for Institute Director Comments on Barriers to Pollution Prevention

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

MEMORANDUM

TO: Pollution Prevention and Safe Materials Institute

Attention: Dr. Lynn A. Corson, Ph.D.

FROM: Mr. Bill Hess

DATE: February 25, 1994

SUBJECT: IDEM Annual Report on Pollution Prevention

The OPPTA is in the process of drafting the above mentioned report. Due to the importance of this report, and in order to reflect all opinions and produce a factual document, our office requests your assistance on contributing to its content.

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- Unified Reporting and Permitting Authority
- Fiscal Constraints

If you have thoughts on any of these topics, please submit your written comments to me at the OPPTA. If you do your text on a word processor, I would appreciate a copy on a 3.5" disc in Word Perfect 5.1 or 5.2, or saved as an ASCII.text (DOS) file. I need your comments by March 18, 1994 so I can incorporate them into the Draft document I plan to have ready by April 1, 1994.

Please call me at (317) 233-5626 if you have any questions. Thank you in advance for your assistance and contributions.

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