Toxics Use Reduction: New Jersey's Approach to Pollution Prevention

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Over the past several years, a growing number of states have passed pollution prevention laws that are distinguished by their aggressive focus on reducing the use and generation of toxic substances in all areas of industrial activity. Core components of these laws include expanded chemical use reporting, mandates for numerical goal setting, and other legal requirements that demand greater accountability from industry. The New Jersey Pollution Prevention Act, a recent addition to the fold, establishes one of the most comprehensive state programs for achieving not only source reduction, but also toxics use reduction.

Toxics use reduction has been recognized as the preferred approach to pollution prevention in New Jersey. Enacted on August 1, 1991, the New Jersey Pollution Prevention Act transcends traditional hazardous waste reduction strategies and cuts to the heart of the solution to the toxics problem in New Jersey: the reduction or elimination of the initial use of hazardous substances in industrial production processes and products.

Since its introduction, the New Jersey Pollution Prevention Act has enjoyed the support of government officials, environmentalists, and industrial representatives. In particular, given the state's strong chemical industry, the endorsement of the New Jersey Chemical Industry Council and the Business and Industry Association represents a growing shift in political acceptance of toxics use reduction.

However, efforts at tackling the state's toxics problems did not originate in the "toxics use reduction" arena. The toxics debate in New Jersey experienced a gradual shift from "source reduction and recycling" to the current "toxics use reduction and source reduction" program.

Early attempts at fashioning a pollution prevention scheme for New Jersey focused on devising methods to curtail the state's hazardous waste problem. Over time, further investigation of the issue revealed that the array of toxics problems in the state warranted a broader approach. This conclusion was a result of an ongoing process of state-initiated studies, legislative hearings, government agency and environmental reports, negotiations, lobbying, and public education.

Pollution prevention advocates in New Jersey recognized the need to shift the misplaced emphasis on end-of-pipe control and waste management strategies to front-end, preventive methods which focus on the use of hazardous materials at the beginning of the process. This led to the adoption of the toxics use and source reduction approach.

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Reduction. While source reduction is a component of toxics pollution prevention, its focus is on improving efficiency to reduce waste prior to treatment, rather than the continuous innovation that is often necessary to reduce or completely eliminate the use of a chemical in the first place.

Moreover, many toxics risks are unrelated to the chemical wasted, but rather to the use of the chemical. Toxics use reduction asks industry to consider all the hazards associated with toxics use, including occupational exposures, consumer exposure to products containing toxics, the ultimate disposal of such products, storage, and transportation accidents or spills. These hazards can potentially exceed the risks stemming from the processing and release of chemical wastes.

Use reduction also avoids the tendency to confuse pollution prevention with end-of-pipe waste processing techniques, such as recycling or treatment. Accordingly, the use reduction debate in New Jersey resulted in the clarification of two key issues: (1) source reduction is a subset of the toxics use reduction scheme; and (2) out-of-process recycling, hazardous waste management practices, and pollution control strategies are not considered to be "pollution prevention" in New Jersey.

New Jersey Joins the Toxics Use Reduction States

Fortunately, the debate in New Jersey over industrial toxics pollution prevention benefitted from earlier progress in other state legislatures.

In July 1989, Massachusetts and Oregon enacted the first strong toxics use reduction laws. Since then, a growing number of other states have passed some form of pollution prevention laws, rooted in either toxics use reduction or source reduction methods, or both. Each state's approach has been crafted to suit the particular political climate within that state.

Before the passage of the New Jersey law, the Massachusetts law was viewed as the best model of toxics pollution prevention in the nation. The Massachusetts Toxics Use Reduction Act includes chemical use reporting, numerical goal setting for use reduction, a use-based fee, authority to set performance standards in 1995, and research regarding chemical use sunsetting.

Toxics use reduction is also the core of prevention laws in Oregon, Maine, Vermont, Indiana, Illinois, Connecticut, and Washington. These laws recognize toxics use reduction and multimedia source reduction as pollution prevention. They range from public reporting and planning requirements in Oregon to a business loan program in Connecticut.

State programs continue to evolve. California, for instance, has created an institute dedicated to toxics use reduction, but also requires single-medium source reduction plans. During an October 1991 hearing, the California Assembly examined pending legislation
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At the federal level, toxics use reduction also appears to be gaining unprecedented support among policy makers. Five bills containing toxics use reduction concepts have been introduced in Congress, including the Senate committee versions of the reauthorization of both the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act.

Waste Reduction or Use Reduction: New Jersey Settles the Debate

In 1984, the New Jersey Hazardous Waste Facilities Siting Commission (Commission) created the New Jersey Hazardous Waste Source Reduction and Recycling Task Force (Task Force) to assist the Commission in the development and implementation of a hazardous waste management strategy for New Jersey. The final report released by the Task Force in January of 1988 recommended a waste management plan for the state. In keeping with the hazardous waste management scheme adopted by the Commission in 1985, the Task Force suggested a hazardous waste management hierarchy consisting of the following techniques: (1) source reduction, (2) recycling, (3) recovery, (4) treatment and incineration, (5) secure storage, and (6) disposal.

Further debate turned to the question of how the state would define true pollution prevention. After much deliberation, New Jersey rejected out-of-process recycling as a pollution prevention method. Only in-process recycling is considered acceptable pollution prevention because the hazardous substances are continuously recycled within the production process and never emerge as waste. In contrast, out-of-process recycling does not qualify as prevention because of the risks to workers and communities. For instance, out-of-process recycling allows spent chemical wastes to be removed from the process or transported, which increases the potential for occupational exposures and accidents.

The Task Force Report suggested the following measures could be considered source reduction: process modifications, in-process recycling, housekeeping improvements, inventory control, input substitution, and end-product substitution. In distinguishing between source reduction, waste minimization, and waste management, the
Task Force reached the following conclusion:

Source reduction focuses strictly on activities undertaken during the production process to eliminate or reduce the loss from the process of the hazardous materials being used. When hazardous materials leave the production and support processes and are of no further value to that particular operation, they then become "hazardous wastes."

Note that the Task Force definition of source reduction above indicates that the key objective is to "eliminate or reduce the loss," (i.e., waste) from a production process prior to waste handling, recycling or treatment. Nonetheless, source reduction is considered a form of prevention because it includes only activities undertaken while a company is making its products or delivering its service. It logically excludes all waste-related processing and handling because waste management is not physically necessary to production.

The production process is the "source" of toxic chemicals to be reduced. This source is what distinguishes pollution prevention from managing or controlling pollution. Once a toxic waste is generated by the production process, every waste management option poses new risks. For example, the workers who operate waste recycling equipment face new exposures and accident risks; and waste treatment will typically involve hazardous chemicals. Moreover, pollution controls may merely shift toxic chemicals from one waste stream to another, such as sludge or incinerator ash. Source reduction is intended to avoid risk shifting and trade-offs that are inherent to pollution control and waste recycling.

Like source reduction, toxics use reduction encompasses activities undertaken during production: input substitution, product reformulation, process modifications, in-process recycling, and improved housekeeping. It is generally defined as:

Changes in production processes, products or raw materials that reduce, avoid, or eliminate the use of toxic or hazardous substances and the generation of hazardous byproducts per unit of production, so as to reduce overall risks to health of workers, consumers or the environment without shifting risks between workers, consumers or the environment.9

Although the methods for achieving toxics use reduction and source reduction are similar, toxics use reduction or elimination of the initial use of the chemical is more comprehensive than the pure waste focus of source reduction.

Moreover, an explicit focus on use reduction seeks to avoid shifting from one medium to another. Media shifting can occur if
Use reduction can also facilitate multifunctional management cooperation by extending the task beyond manufacturing engineers, to product engineers, marketing specialists, and research and development scientists.

changes made to reduce waste (source reduction) shift toxic chemicals into the workplace or into consumer products. For example, during the last decade, semiconductor manufacturers have experimented with photolithography based on the use of gases rather than solvents. Such techniques would reduce solvent wastes; however, the use of deadly gases such as arsine pose new risks of worker exposure and accidents.

Toxics use reduction needs to be the preferred strategy for all industries that use toxic chemicals. As a short-term reality, firms in the chemical and petroleum industry that manufacture chemicals might focus on source reduction. Nevertheless, these companies should be encouraged to search for safer inputs, to reduce ancillary use of toxics, and to manufacture and sell less toxic products.

There are psychological reasons for user industries, in particular, to focus on use reduction strategies. Many companies and government agencies have difficulty with preventive thinking because of their preoccupation with waste management and end-of-pipe controls. Source reduction is merely an extension of that thinking where internal engineers are asked to solve waste problems with a primary focus on housekeeping improvements and in-process, closed-loop recycling.

In contrast, toxics use reduction shifts the focus to the front end of the production process—the materials entering the process and the design of products. Thus, toxics use reduction directly stimulates thinking and innovation toward changes in production processes, product design, and chemical substitutes. For example, a company may use 100 tons of a hazardous substance, of which 90 tons are put into products and 10 are wasted. From an engineering perspective, the question of reducing 100 tons of chemical use is different from that of reducing 10 tons of waste.

Use reduction can also facilitate multifunctional management cooperation by extending the task beyond manufacturing engineers, to product engineers, marketing specialists, and research and development scientists. Perhaps this is why some high-tech companies such as Polaroid and various electronic firms view toxics use reduction as an incentive for improved productivity and total quality management. At Polaroid, chemical use is a yardstick against which manufacturing operations as well as product research are evaluated. [See Pollution Prevention Review, Summer 1991, pages 257-72.]

Based on these assumptions and ideas, toxics use reduction was viewed by some in New Jersey as the superior strategy from both a practical and psychological standpoint. For example, in May 1990, a study was released which revealed that, in a single year, billions of pounds of hazardous substances were used and produced in New Jersey. This large quantity of toxics use was linked to the high incidence of routine occupational exposures to chemicals known to cause cancer in humans, consumer exposures from toxic products, indoor air pollution linked to these products, and thousands of storage
and transportation accidents. Toxics use reduction could potentially reduce the incidence of such hazards.

After considerable give and take by all sides, the final law, as outlined below, superimposed a toxics use reduction framework over the original multimedia source reduction mandate. The law truly promotes reductions in the use of hazardous substances and their generation as nonproduct output. Furthermore, out-of-process recycling and other waste management practices and control technologies were firmly excluded from consideration as pollution prevention in New Jersey.

The Goals and Key Terms of the New Jersey Act

The New Jersey Pollution Prevention Act (P.L. 1991 c. 235), adopted on August 1, 1991, is designed to fundamentally change the way industrial facilities, government agencies, workers, and citizens view the use of chemicals. For the first time, it forces toxic hazardous substance users to consider elimination or reduction of the use of the substance altogether, as opposed to controlling or minimizing wastes. Based on this premise, the law explicitly outlines a planning and reporting process for the reduction of hazardous substance use and the generation of nonproduct output prior to storage, recycling, or treatment.

The definition of pollution prevention is based on toxics use reduction and source reduction. Source reduction is expressed by law as reduction in “nonproduct output” defined as multimedia losses or wastes prior to handling, treatment, or recycling. The definition explicitly disallows the inclusion of treatment, out-of-process recycling, incineration, or other management of any wastes already generated.

Reporting, planning, and goal-setting provisions are the centerpiece of the law. These requirements are geared to both the facility level as well as the production processes. Reporting and goal-setting allows evaluation of both nonproduct output (e.g., source reduction) and chemical use.

The following is a brief summary of the key components of the pollution prevention law in New Jersey.

The preamble

The introduction to the law provides an effective overview of the legislative intention to promote toxics use and multimedia source reduction as the state's pollution prevention strategy. The law concedes the limitations of the current system of pollution control which “constitutes a fragmented approach to environmental protection and potentially allows pollution to be shifted from one environmental medium to another” and “does not adequately address the impact of the use of hazardous substances upon occupational health in pollution-generating industrial processes.” The preamble asserts the need for “a rigorous accounting of the use of hazardous substances, the generation of hazardous substances as non-product output, and the
multimedia environmental release of hazardous substances . . .

Moreover, the bill’s introduction specifies that the use of hazardous substances must be tracked “at each step of an industrial process” . . . and states that “pollution prevention can be achieved through a more efficient and rational use of hazardous substances, or through the use of less hazardous substitute substances or processes less prone to produce pollution . . . without adversely affecting the State’s economic health or the livelihood of those employed by industries that use and discharge hazardous substances.”

The preamble also proposes a state public policy goal that pollution prevention achieve a 50 percent reduction over the five-year period following the preparation of pollution prevention plans required under the law. The introduction highlights hazardous substance use and generation of nonproduct output as the target of legislation. The law’s definition of “pollution prevention,” duplicated below, explicitly disallows the inclusion of waste management practices such as recycling, treatment, and incineration in the pollution prevention planning process.

**Definition of pollution prevention**

In comparison with definitions in other states and pending federal legislation, the New Jersey definition of pollution prevention has the necessary elements to clearly include toxics use reduction and multimedia source reduction:

- A focus on products, raw materials, and production processes
- A focus on reduction in the use of hazardous substances or the losses (nonproduct output) from processes before treatment or recycling
- An exclusion of out-of-process recycling and treatment
- An exclusion of any shifting of toxics use risks among workers, consumers, or parts of the environment, or the creating of new risks

“Pollution prevention” is defined as:

changes in production technologies, raw materials or products, that result in the reduction of the demand for hazardous substances per unit of product manufactured and the creation of hazardous products or nonproduct outputs, or changes in the use of raw materials, products, or production technologies that result in the reduction of the input use of hazardous substances and the creation of hazardous by-products or destructive results; or on-site facility changes in production processes, products, or the use of substitute raw materials that result in the reduction of the amount of hazardous waste generated and disposed of on the land or hazardous substances discharged into the air or water per unit of product manufactured prior to treatment, and that reduce or eliminate, without shifting, the risks that the use of hazardous substances at an industrial facility pose to employees, consumers, the environment and human
Pollution prevention shall include, but need not be limited to, raw material substitution, product reformulation, production process redesign, or modification, in-process recycling, and improved operation and maintenance of production process equipment. Pollution prevention shall not include any action or change entailing a substitution of one hazardous substance, product or nonproduct output for another that results in the creation of substantial new risks, and shall not include treatment, increased pollution control, out-of-process recycling or incineration, except as otherwise provided pursuant to subsection f. of section 7 of this act.

Subsection f. of section 7, mentioned in the last sentence of the definition, allows the New Jersey Department of Environmental Protection and Energy (DEPE) to authorize a facility to plan for out-of-process recycling if the DEPE determines that pollution prevention strategies are not reasonably available to the facility. Out-of-process recycling is not considered a “pollution prevention” strategy, even when added to pollution prevention plans.

**Other key definitions**

Other key terms in the planning and reporting sections of the law (outlined below) are defined as follows:

- **Consume** means “to change or alter the molecular structure of a hazardous substance within a production process.”
- **Nonproduct output** is defined as “all hazardous substances or hazardous wastes that are generated prior to storage, recycling, treatment, control, or disposal and that are not intended for use as a product.” Reduced nonproduct output is source reduction. It should not be confused with emissions, releases, or discharges which would be subject to treatment or recycling.
- **Process** means “the preparation of a hazardous substance, after its manufacture, for the sale or use in the same form or physical state, or in a different form or physical state, than it was received at the industrial facility where it is processed, or as part of an article or product containing the hazardous substance.”
- **Product** is “a desired result of a production process that is used as a commodity in trade in the channels of commerce by the general public in the same form as it is produced.”
- **Production process** refers to “a process, line, method, activity or technique, or a series or combination of processes, lines, methods or techniques used to produce a product or reach a planned result.” This excludes waste management activities.
- **Source** means “a point or location in a production process at which a nonproduct output is generated or released, provided, however, that similar, related, or identical kinds of sources may be considered a single source for the purposes of this act.”
- **Targeted process** is “any production process which signifi-
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In New Jersey, over 800 companies currently report pollution data under the federal law. The 800 facilities are the priority industrial facilities for the purposes of pollution prevention.

Facilities Covered by the Law

Facilities covered by the law are divided into two categories: priority industrial facilities and industrial facilities.

Priority Industrial Facilities

Priority industrial facilities are those facilities required to prepare and submit a toxic chemical release form under federal Title III of the Superfund Amendments and Reauthorization Act, also known as the Emergency Planning and Community Right to Know Act (EPCRA). This includes all facilities within Standard Industrial Classification (SIC) codes 20-39 in the manufacturing sector. Covered facilities must have ten or more employees. Further, in order to trigger reporting requirements, a facility must use 10,000 pounds or more of a hazardous substance or manufacture, or process 25,000 pounds of a hazardous substance a year. The list of substances eligible for reporting includes approximately 330 hazardous chemicals and chemical compounds. In New Jersey, over 800 companies currently report pollution data under the federal law. The 800 facilities are the priority industrial facilities for the purposes of pollution prevention.

For the first round of pollution prevention planning under the new law, facilities in the following SIC codes must complete a pollution prevention plan and submit a plan summary to the DEPE on or before July 1, 1994: 26 (Paper and Allied Products); 28 (Chemical and Allied
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For each industrial facility to be included for coverage, the DEPE must conduct an analysis of the past performance of the industrial facility and draft a written report of its findings. The analysis must be based on the facility's compliance with permits, administrative orders, and so on, and on the facility's hazardous substance use or its contribution to hazardous substance releases in the state. Moreover, the DEPE must determine that the completion of a pollution prevention plan, plan summary, and progress report could potentially yield reductions in the use and generation as nonproduct output of hazardous substances, or in the environmental threats posed by use, generation, or release of hazardous substances and generation of hazardous waste. The criteria must also include levels of toxicity and quantities of hazardous substances used or hazardous wastes released and documentation of any unauthorized releases at the facility. The DEPE may exempt industrial facilities with less than ten employees from having to complete a pollution prevention plan, plan summary, or progress report.

Products); 30 (Rubber and Miscellaneous Plastics); 33 (Primary Metals); and 34 (Fabricated Metal Products). The facilities in these five SIC codes were selected as a result of an analysis of the 1988 Toxics Release Inventory data which revealed that these industrial categories were responsible for the largest quantities of hazardous substances discharged in New Jersey's environment during that reporting year. Moreover, in the first round of pollution prevention reporting, the DEPE stated that it preferred to start with about 500 facilities which it viewed as a more manageable number. These five industries include between 450 and 500 facilities in the state.

All other priority industrial facilities within SIC codes 20-39 that are not already listed above must complete a pollution prevention plan and submit a plan summary to the DEPE on or before July 1, 1996.

After January 1, 1995, the DEPE may, pursuant to rules and regulations, designate priority industrial facilities other than those already covered in the Act. These facilities must be approved by the state legislature at least one year prior to the adoption of the applicable rules and regulations.

Industrial facilities
The law gives the DEPE the authority to issue a directive requiring other industrial facilities, which are not priority industrial facilities, to prepare pollution prevention plans, plan summaries, and progress reports. Industrial facilities may be chosen from those covered by the New Jersey Worker and Community Right to Know Act (NJRTK) and must be selected according to the criteria outlined below. If such a facility is directed by the DEPE to prepare a pollution prevention plan, plan summary, or progress report, the industrial facility must respond within eighteen months of the DEPE's request and must continue to submit annual progress reports.

For each industrial facility to be included for coverage, the DEPE must conduct an analysis of the past performance of the industrial facility and draft a written report of its findings. The analysis must be based on the facility's compliance with permits, administrative orders, and so on, and on the facility's hazardous substance use or its contribution to hazardous substance releases in the state. Moreover, the DEPE must determine that the completion of a pollution prevention plan, plan summary, and progress report could potentially yield reductions in the use and generation as nonproduct output of hazardous substances, or in the environmental threats posed by use, generation, or release of hazardous substances and generation of hazardous waste. The criteria must also include levels of toxicity and quantities of hazardous substances used or hazardous wastes released and documentation of any unauthorized releases at the facility. The DEPE may exempt industrial facilities with less than ten employees from having to complete a pollution prevention plan, plan summary, or progress report.
Hazardous Substances Covered

Hazardous substances covered by the law include those on the list of reportable substances under Section 313 of EPCRA. The DEPE may, pursuant to specific criteria in the law's rules and regulations, include additional hazardous substances to be reported in pollution prevention plans, summaries, and progress reports. The criteria for selecting hazardous substances to be included on the list must be based on the toxicity of the substance, the amount of the substance produced in commercial quantities, and substances regulated under other state environmental laws.

Thresholds for reporting quantities of hazardous substances used, processed, or manufactured at an industrial facility under the federal law are outlined above. However, under the New Jersey Pollution Prevention Act, DEPE is authorized to adopt rules and regulations that would establish a threshold quantity (which cannot exceed 10,000 pounds) for reporting the use, manufacturing, or processing of a hazardous substance. Thus, if a facility is using a Section 313 substance below the EPCRA threshold, but above the New Jersey pollution prevention threshold, it could, under the state law, be required to complete a plan, plan summary, and progress report for that hazardous substance.

Facility Reporting, Planning, and Goal-Setting Requirements

The facility audit and planning requirements in the New Jersey law are divided into two parts. Part I of the plan contains an inventory and analysis of the use, release, and generation as nonproduct output of hazardous substances, both facilitywide and by production process. Part II of the plan includes information concerning targeted production processes and sources, including process descriptions, hazardous substance reduction goals, and pollution prevention techniques. The plan summary is a synopsis of the full pollution prevention plan which is submitted to the DEPE for approval.

Both the pollution prevention plan and plan summary must be completely revised five years after the year of initial completion of the first plan, and no later than July 1 of each fifth year thereafter. Specific sections of the pollution prevention plan must be updated annually. Those sections are outlined below.

The pollution prevention progress report is an annual report of the facility's progress toward meeting its goals for implementing the pollution prevention techniques in the five-year plan.

The pollution prevention plan remains at the facility and must be available for inspection by the DEPE. Both the plan summaries and progress reports are available to the public upon request from the DEPE.

Pollution prevention plan—part I

Specifically, Part I of the plan is a seventeen-paragraph comprehensive accounting of the use and generation of nonproduct output of hazardous substances, both facilitywide and by production process.
output of hazardous substances, the release of hazardous substances, and the generation of hazardous waste. Part I of the plan requires an analysis of the following:

1. Plant certification of the accuracy of the plan and the corporate policy of the facility to achieve pollution prevention goals;
2. The names and numbers of owners/high ranking officials and nonmanagement employee representatives at the facility;
3. An identification of each process using or producing covered hazardous substances, the product produced in the process, and total units of production produced in each process;
4. For each hazardous substance used, manufactured, or stored at the facility, the Chemical Abstract Service (CAS) number and chemical identity;
5. Facilitywide quantity throughput data for each hazardous substance, including the quantity stored at the facility on the first and last days of the year, stored on an annual average, manufactured as a product, brought into the facility, generated as nonproduct output, used, consumed, or contained in product(s) produced;
6. Amount of each hazardous substance per production process used, generated as nonproduct output, manufactured, consumed, or contained in the product;
7. Quantities of each hazardous waste generated and hazardous substance released by each production process, and nonproduct output generated at each source;
8. Address of each off-site treatment, disposal, or storage facility and type or method of treatment or disposal used at the facility;
9. Facilitywide quantity of each hazardous waste generated, recycled in-process, treated, stored, disposed of, or recycled outside of any production process off-site, and treated, stored, or disposed of off-site;
10. Quantity of each hazardous substance in nonproduct output recycled within each production process at the industrial facility, or recycled outside of any production process both on-and off-site;
11. Quantities of all hazardous substances emitted into all environmental media following recycling or treatment or combination of both; and
12. Financial analysis of costs associated with use, generation, release, or discharge of hazardous substances as a result of production processes, including cost of hazardous waste treatment and disposal, and liability insurance.

Paragraphs (13) through (16) of Part I of the plan include calculations
of the annual reductions or increases:

(13) In the use of each hazardous substance per unit of production in each targeted production process (or any other production process as determined by the DEPE), compared to the use of each hazardous substance per unit of production in each production process reported in the plan for the previous year;

(14) From each targeted production process and source (or any other targeted process or source as determined by the DEPE), the quantity of each hazardous substance generated as nonproduct output and quantities of hazardous waste generated per unit of product compared to the quantities reported in the plan for the previous year;

(15) In the use of each hazardous substance by the entire industrial facility compared to the quantity reported in the plan for the previous year;

(16) In the quantity of each hazardous substance generated as nonproduct output and each hazardous waste by the entire industrial facility compared to the quantities reported in the plan for the previous year; and

(17) Indications of the methods used to achieve reductions reported in (13), (14), (15), and (16), and the industrial facility's five-year goals for these reductions, both by production process and facilitywide.

It is important to note that the information that is reported in paragraphs (13) through (17) of Part I must be updated annually. The information required in paragraphs (1) through (12) of Part I must be updated annually only if a significant change occurs in operations within a priority industrial facility. “Significant changes” as described in the law include major changes in production processes, such as: cessations or expansions of processes; installation or removal of major components of the process; or use, release, or generation of a hazardous waste that did not exist when the initial plan was executed.

Pollution prevention plan—part II

Part II of the plan requires an analysis of targeted production processes and sources, and reduction goals for each process and source, and must include the following information:

(1) Facilitywide goals: five-year numeric goals for reduction of both the use of each hazardous substance and the generation as nonproduct output of each hazardous substance;

(2) Targeted production process goals: the five-year numeric goals for reduction of both the use of each hazardous substance per unit of product and the generation as nonproduct output of each hazardous substance per unit of product in the targeted production process:
For each targeted production process and each targeted source:

1. Descriptions of each;
2. Reduction options for each, which may include methods, technologies, or equipment that may substantially reduce use and generation as nonproduct output of hazardous substances;
3. Feasibility analysis of reduction options described in paragraph (4) such as costs, technological obstacles, and so on;
4. For each targeted production process, a description of the options to be utilized by the facility over the next year to attain its five-year goals, including an implementation schedule. Potential options may include, but need not be limited to: employee training, management policies, inventory control, scheduling improvements, material handling improvements, and spill and leak prevention;
5. Description of valuation methods used by the owner or operator to determine not to install or utilize each option identified under paragraph (6) that would have resulted in a greater percentage reduction in the use of hazardous substances or generation of nonproduct output than the option;
6. Assessment and schedule for implementation of on-site out-of-process recycling with regard to those facilities that have been authorized by the department to include out-of-process recycling in a pollution prevention plan; and
7. Description, by medium, of the impact of individual pollution prevention techniques on posttreatment multimedia environmental releases of hazardous substances.

Plan summary

The plan summary is submitted to the DEPE and is available to the public. Facilities must provide the following information:

1. Facilitywide, five-year numeric goals for reducing the use of each hazardous substance and generation of each nonproduct output;
2. For each targeted production process, five-year numeric goals for reducing the use of each hazardous substance and the generation of nonproduct output per unit of product;
3. Description of each targeted production process and targeted source;
4. For each targeted production process, a description of the techniques the facility intends to implement to achieve the reduction goals, including an implementation schedule;
5. Ranges for each hazardous substance used in a production process, an indication of whether the hazardous substance is used in an amount of 0 to 5,000 pounds, 5,000 pounds to
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10,000 pounds, or greater than 10,000 pounds;
(6) Written certification that the plan was prepared by the owner or operator and is available on-site for DEPE inspection;
(7) Document list of all permits, certificates, registrations, or other approvals or documents issued by the DEPE for the facility.

Progress report
The progress report consists of the following information:

(1) Identification of each production process and targeted production process, and calculations for the industrial facility and for each targeted production process (and any other production process required by the DEPE) of the reduction or increase in the use of each hazardous substance per unit of production, in the generation of each nonproduct output per unit of production, and in multimedia releases by medium, following recycling and treatment of each hazardous substance, in comparison to the previous year;
(2) Indication of method used to achieve each reduction described in paragraph (1);
(3) Numerical statement of progress toward reaching each of the facility's five-year goals, including the most recent information required in paragraphs (1) and (2) of Part I of the plan (see Part I);
(4) Explanation as to why the facility's progress may be less than the implementation schedule in the plan;
(5) Description of pollution prevention techniques to be used in the forthcoming year in targeted production processes.

Government's Commitment to Pollution Prevention
The new law establishes an Office of Pollution Prevention (OPP) in the DEPE which is responsible for the implementation of the law and coordination of all pollution prevention regulatory and enforcement policies within the DEPE.

Office of Pollution Prevention
Although the law does not explicitly outline the reasons for the creation of a separate office in the DEPE to deal with pollution prevention, Agency officials and legislators indicated that such an office would not only undertake most pollution prevention activity on behalf of the DEPE, but also move in the direction of promoting a "preventive ethic" in virtually every office and department in the DEPE hierarchy.

General DEPE authority
Within eighteen months of enactment, the DEPE must adopt
rules and regulations necessary for the implementation and enforcement of the Act. The DEPE has the authority to require the preparation of pollution prevention plans and the submission of plan summaries and progress reports by the owner or operator of the priority industrial facilities and industrial facilities covered by the law. The DEPE is authorized to approve or disapprove of a plan, plan summary, or progress report, or may require that the plan, plan summary, or progress report be modified to comport with the requirements of the law. If the DEPE chooses to mandate revisions or modifications, it must consider the financial impact, if any, of such changes.

The regulations must ensure that the reporting requirements under the pollution prevention law dovetail with the already existing environmental substance reporting mandated under the NJRTK. The reporting standards under the NJRTK law, like its federal counterpart, EPCRA, require covered facilities to report emissions data to the DEPE, including the total stack and point source emissions, fugitive and non-point source emissions, surface or groundwater discharges, discharges into publicly owned treatment works, and the facilitywide quantity throughput data for all reportable hazardous substances, including quantities produced, consumed, stored, brought into, and shipped out (as or in products) at the facility. The New Jersey Pollution Prevention Act amended the NJRTK law to include all substances on the EPCRA environmental substance list.

Reporting on the environmental NJRTK survey also requires, for each environmental hazardous substance, a description of the use of the substance and waste information such as quantity, methods of disposal, method of on-site storage, disposal locations, and hauler identity. Thus, the Pollution Prevention Act facility planning and reporting requirements are largely an extension of the NJRTK law.

**Issuance and renewal of permits**

The DEPE has explicit authority under the law to require implementation or extension of pollution prevention strategies at all stages of the water, air, and hazardous waste permitting process. During the initial application or renewal phase, the DEPE may require that the permit, certificate, registration, or approval include pollution prevention strategies outlined in the plan, plan summary, or progress report. The DEPE may also mandate that, before issuance or approval of any condition of the permit, certificate, and the like, the priority industrial facility or industrial facility must complete a pollution prevention plan, plan summary, and progress report pursuant to the law.

**Modification or revocation of permits**

The DEPE also has the discretion to revoke, reissue, or modify an existing permit or any other relevant approval issued to a priority industrial facility or industrial facility. This power may be exercised
for the purpose of issuing a facilitywide permit or to require stronger standards in the permit, if the DEPE determines that such standards might be met through the pollution prevention strategies contained in the pollution prevention plan, plan summary, or progress report.

**Trend analysis**

The law requires the DEPE to conduct a pollution prevention trend study of priority industrial facilities within the SIC codes covered in the law, including an analysis of the pollution prevention plan summaries and, if necessary, pollution prevention plans. A pollution prevention profile report must be submitted to the governor and the legislature and be made available to the public.

Based on the research conducted with regard to each industrial classification, the DEPE may recommend administrative and legislative changes, if necessary, to augment pollution prevention practices in priority industrial facilities.

**Facilitywide permitting**

A facilitywide permit is a multimedia permit containing components of air, water, solid waste, and hazardous waste permits previously issued to the facility, as well as the pollution prevention strategies contained in the pollution prevention plan. The facilitywide permit will address the use of hazardous substances at the facility on a holistic basis and ensure that media-specific information is integrated into a facilitywide approach.

Under the new law, facilitywide permits will be issued by the DEPE to no fewer than ten, but no more than fifteen, priority industrial facilities pursuant to specific criteria to be developed. These criteria, at the very least, must include: (1) use of priority industrial facilities that could possibly serve as statewide models; and (2) use of facilitywide permitting as a means for priority industrial facilities that have not attained industrywide or individual pollution prevention goals to potentially meet or exceed those goals. The DEPE is empowered to develop other criteria for use in selecting priority industrial facilities.

Within three years after the adoption of rules and regulations under the planning and reporting provisions of the law, the DEPE must prepare and submit to the governor and the legislature a report analyzing the facilitywide permitting program, with recommendations, if any, for expansion of the program.

**Violations of the Act**

The law empowers the Commissioner of the DEPE to penalize all violations of the Act. Violations of any provisions or rules and regulations, administrative orders, or facilitywide permits triggers the Commissioner's penalty power. The Commissioner may issue an administrative order, levy monetary penalties, or bring a civil action against the violator. Civil penalties may not exceed a daily fine of
$15,000 per violation.

Public outreach and citizen involvement
To foster widespread public awareness of pollution prevention, the DEPE has the authority to establish an educational and outreach program designed to explain and make available to the general public all pollution prevention plan summaries and progress reports submitted to the DEPE, with the exception of information that is granted trade secret protection. Citizens may obtain copies of the pollution prevention plans and progress reports upon written request to the DEPE. The DEPE must respond to such a request within thirty days and may charge for the cost of printing and postage.

The Pollution Prevention Advisory Board
The Pollution Prevention Advisory Board is comprised of government officials, scientists, and environmental and labor representatives, which will include experts in occupational diseases and health, an economist, industrial representatives, and members of the public. All members of the Board are appointed by the governor. All duties of the Board are discretionary.

The Board may review the general implementation of all aspects of the law, which includes a continuous study of pollution prevention progress and recommendations to the OPP and DEPE for improvements. The Board may also perform any or all of the following tasks: investigate possible techniques and potential for the development of classifications for standardized production processes; advise the OPP on the information submitted in the pollution prevention plan summaries; assess scientific literature regarding potential health risks of hazardous substances (including occupational and community exposures and environmental risks) and make recommendations to the governor and the legislature with regard to restrictions on such substances; study the impact of pollution prevention practices on employment levels; and conduct occasional reviews of DEPE pollution prevention planning criteria and make recommendations for changes.

The Board was designed to provide a back-up service to the DEPE. Subjects such as the feasibility of the classification and standardization of production processes, the impact of the use of hazardous substances on occupational or public health and the environment, and the effects of pollution prevention activity on employment levels were viewed as critical issues in the pollution prevention arena. It was believed that the Board, in some cases, could begin research in particular areas and make recommendations. The DEPE could choose to implement these recommendations or conduct further study of the issue.

Funding
The pollution prevention program is funded by increasing the fee for each employee paid by employers who are covered by the NJRTK
Toxics Use Reduction: New Jersey's Approach to Pollution Prevention

The pollution prevention program is funded by increasing the fee for each employee paid by employers who are covered by the state "Right to Know" law. This increases the existing $2.00 per employee fee to $4.00 per employee, which will raise about $2.5 million. These funds will be allocated to the DEPE for ongoing implementation of the Act, with the exception of $200,000 allocated to the Hazardous Substance Management Research Center at the New Jersey Institute of Technology (NJIT). The money allotted to the Research Center at NJIT will support the implementation of a Pollution Prevention Technical Assistance Program.

At this time, the New Jersey Technical Assistance Program (TAP) bill is still pending before the state legislature. This legislation awaits a floor vote in the Senate and Assembly and is expected to reach the governor's desk before the 1992 new year. Under this program, facilities will be able to seek technical support in their efforts to devise and implement pollution prevention strategies. New Jersey TAP officials have indicated that they will also be playing a proactive role by taking the initiative to select particular industries and production processes and attempting to promote changes before inquiries are made by plant owners and operators. Further, TAP hopes to provide a clearinghouse for pollution prevention techniques for use with data gathered on a state, national, and international scale.

Conclusion

New Jersey is one of the latest examples of the growing acceptance of toxics use reduction. For instance, the reporting provisions of the law are among the strongest in the country and allow public access to process-specific data on chemical use trends. Nonetheless, the law enjoys the support of both the chemical industry and business community in the state.

Like New Jersey, Massachusetts and a handful of other states are pioneering bold toxics use reduction programs designed to prevent the array of potential hazards associated with the use of toxic chemicals. As a result, the pollution prevention debate has shifted away from the limited focus on waste reduction. These states have paved the way for passage of a toxics use reduction law on the federal level.

An examination of the state laws can be beneficial to Congress when it considers the toxics use reduction amendments targeted for inclusion in the reauthorization of the Clean Water Act and the Resource Conservation and Recovery Act. Toxics use reduction advocates in Congress are encouraged to improve upon the best state toxics use reduction laws and design new preventive measures that can be implemented throughout the nation.

Notes
1. An Ounce of Toxic Pollution Prevention, Rating States' Toxics Use Reduction Laws, the National Environmental Law Center (NELC) and The Center for Policy Alternatives (CPA), January 1991.
5. *Toxics Use Reduction, From Pollution Control to Pollution Prevention,* A Policy Paper, PIRG Toxics Action and the National Toxics Campaign, February 1989 and *An Ounce of Toxic Pollution Prevention,* (cited in note 1).