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POLLUTION

Final

PREVENTION

Report

ADVISORY

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COUNCIL

North Carolina

EXECUTIVE SUMMARY

In 1993, the General Assembly enacted H.B. 976 which created the Pollution Prevention Advisory Council (PPAC or the Council). The PPAC is a 15-member Council charged with advising the Governor, the General Assembly, and the Secretaries of the Department of Environment, Health, and Natural Resources (DEHNR) and the Department of Commerce (DOC) on issues including, but not limited to: the potential to promote greater waste reduction practices in the State; the regulation of hazardous waste generation and management in North Carolina; and the hazardous waste management capacity needs of North Carolina business and industry.

The full set of Council recommendations is contained in Chapters II, III, and IV of this report. The primary Council recommendations are summarized below.

STRENGTHENING POLLUTION PREVENTION IN NORTH CAROLINA

The PPAC proposes that the following recommendations be implemented to enhance pollution prevention and waste reduction practices in the State.

- Pollution prevention planning for certain industrial facilities and state agencies.
- A statewide pollution prevention goal.
- Incentive programs to encourage North Carolina waste generating facilities to incorporate pollution prevention into their business operations.
- A comprehensive program to educate children, the general public, and industry about pollution prevention.

Currently, approximately one-third of the states, including North Carolina, have laws requiring some form of pollution prevention planning. In 1989, the NC General Assembly enacted S.B. 324 which requires all persons holding air and water permits or generating hazardous waste to submit a written description of current plans to reduce waste generation with payment of their annual fee. Adequate state resources have been unavailable to ensure the collection and review of the required reports.

A primary PPAC recommendation is that the General Assembly modify the current mandatory pollution prevention planning requirements to facilitate their implementation by industry and DEHNR. Subject facilities should be required to certify on their permit application or manifest that they have a pollution prevention plan in place and that it is being implemented. The plan should not be submitted to the State. Rather, the plan and an annually updated progress report should be kept on site for review by an inspector. Plan abstracts, however, should be provided to citizens upon request. The General Assembly should provide DEHNR with resources to hire technical staff to develop industry-specific multimedia guidelines and training for industries on pollution prevention planning.

The Council believes it is important to develop mechanisms that provide an incentive for industries to conduct pollution prevention activities. A statewide reduction goal would allow individual facilities to establish their own goals while using the state goal as a guideline. The Council recommends that the State set a goal of reducing releases and off-site transfers of TRI chemicals by 50% by the year 2005. Industry can achieve their emission reductions through the most appropriate means for their facilities. The statewide goal, however, should include a challenge to industry to reduce TRI chemicals requiring waste management by 25% by the year 2005 through source reduction and environmentally sound recycling.

To encourage implementation of pollution prevention activities, the Council further recommends developing a capital access fund; instituting a research and development tax credit; increasing the Pollution Prevention Challenge Grant Program; implementing an environmental honors program; and developing a voluntary industrial sector benchmarking effort.

The Council recognizes that education is the cornerstone of a successful statewide effort to promote pollution prevention. The PPAC recommends that the State develop a comprehensive program to educate children, the general public, and industry in North Carolina about the benefits of pollution prevention.

REGULATING HAZARDOUS WASTE MANAGEMENT IN NORTH CAROLINA

H.B. 976 required the Council to review issues including, but not limited to, the regulation of hazardous waste management in North Carolina. This charge coupled with the overall goal of encouraging pollution prevention, led the Council to recommend modifications to the State's hazardous waste management program, and related air and water program elements. The recommendations in this section of the report include:

- Providing enhanced public participation in the environmental permitting process;
- Developing risk assessment protocols that would be applied consistently across all environmental programs;
- Giving priority to source reduction and recycling permit applications, and developing on-site recycling guidance documents;
- Enhancing the inspection and enforcement process by: developing a training and technical assistance program for small quantity generators, hiring additional hazardous waste inspectors, piloting a multimedia inspection program, and developing policies on supplemental environmental projects and self-confessing; and
- Enhancing the management of household hazardous waste (HHW) by encouraging local governments to conduct HHW management programs, and

implementing a comprehensive HHW educational program for North Carolina citizens.

ASSURING ADEQUATE HAZARDOUS WASTE MANAGEMENT CAPACITY IN NORTH CAROLINA

The PPAC was required to determine whether there is adequate hazardous waste management capacity for North Carolina business and industry. Based on an analysis of in and out-of-state hazardous waste data, the Council determined that there is adequate capacity for most, if not all, of the major waste streams generated in North Carolina. The data indicate that by 1999 North Carolina will have the capacity to manage more hazardous waste commercially than it is producing.

To further evaluate the capacity question, the Council surveyed the State's large quantity generators. Most generators responded that they do not have a problem managing their wastes, and they do not anticipate having a problem. The survey indicated that a small percentage of waste streams currently do, or may, present a waste management problem.

The Council recommends that DEHNR study EPA's national capacity data to determine if the State could face future capacity shortfalls. The Council also recommends that DEHNR determine annually if North Carolina industry generates potentially vulnerable waste streams, and provide generators of those waste streams with technical assistance on waste management options and pollution prevention opportunities.

The Council evaluated the ability to permit commercial hazardous waste facilities in this State and the role of the State in the permitting process. The PPAC recommends that the State not assume responsibility for the siting of commercial hazardous waste facilities. Rather, DEHNR should confine its role to protecting human health and the environment and encouraging DOC and local officials to involve the public early in the siting process. The General Assembly should modify the current statutory provisions concerning the needs determination and local preemption. The determination of whether a commercial hazardous waste facility is needed should be considered within a national, rather than a state, framework. The existing process for preemption of local ordinances by state government should be repealed, and challenges to local ordinances that prevent the siting of a hazardous waste facility should be resolved in the courts.

The Council also believes that no population group should bear a disproportionate share of environmental impacts. The PPAC recommends that DEHNR's Hazardous Waste Section continue to identify sites that are at risk for environmental justice, and that a similar effort be undertaken by other DEHNR divisions and state agencies.

RESOURCE NEEDS

The total cost of all major recommendations requiring new or additional resources is estimated to be $2.0 million. The Council recommends funding $428,000 of this total through an increase in hazardous waste fees. The Council further estimates that approximately $204,180 of the total cost would be one-time appropriations. Therefore, total general appropriations needed on an annual basis after the first year of implementing the Council's major recommendations is approximately $1.4 million.

ACKNOWLEDGEMENTS

The Pollution Prevention Advisory Council would like to thank Dr. Deborah Amaral and her students in the Environmental Sciences and Engineering Department at the University of North Carolina at Chapel Hill's School of Public Health for the analysis they conducted for the Council entitled, "Hazardous Waste Capacity and Barriers to Pollution Prevention in North Carolina." The Council found this material to be invaluable in crafting its proposed and final recommendations. The PPAC also extends its appreciation to Dr. William Shobe for the report he prepared for the Regulatory Committee entitled, "Pollution Fees and Charges in North Carolina." Thanks also are due to the participants in the Creative Consensus Workshop held in May 1994, and to the numerous other individuals who provided oral and written comment on the PPAC's draft recommendations. Finally, special thanks are due to Catherine Nicholson for her recording and preparation of the Council's meeting minutes, and the following staff persons for their technical support.

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INTRODUCTION

The State of North Carolina is strongly committed to effective waste reduction practices, the appropriate management of hazardous waste, and environmentally sound pollution control. To further these goals, the General Assembly has given the Department of Environment, Health, and Natural Resources (DEHNR) the authority to implement the pollution prevention and hazardous waste management programs. The hazardous waste program implements the federal Resource Conservation and Recovery Act (RCRA), and other state-specific hazardous waste provisions. The Division of Environmental Management (DEM) within DEHNR implements air, water, and groundwater regulatory programs.

North Carolina is the recognized state leader in developing and implementing a multimedia pollution prevention program. The concept of pollution prevention began to take root in North Carolina as far back as 1982. By 1984, the Pollution Prevention Pays Program (PPP) received its initial funding. The program began as a three-person effort housed within DEM. Today, there is a 30-person Division, referred to as the Office of Waste Reduction, with a budget of approximately $1.7 million. The program was the first in the country to provide technical assistance to businesses and industries on ways to eliminate, reduce, recycle, and prevent wastes before they become pollutants. This non-regulatory program addresses water and air quality, toxic materials, and solid and hazardous waste. The services and assistance available through the program also include an information clearinghouse; wastestream-specific information packages; on-site technical assistance; outreach presentations to industries, trade associations, professional organizations, and citizens groups; and matching grants for pollution prevention projects in businesses and industries.

In addition to North Carolina's non-regulatory pollution prevention program, in 1989 the General Assembly enacted S.B. 324 which requires all persons holding air and water permits or generating hazardous waste to submit a written description of current plans to reduce waste generation with the payment of their annual fee. Adequate resources, however, have been unavailable to ensure the collection and review of the required reports. Additionally, since 1989, Congress and at least twenty-three states have enacted pollution prevention laws. Many of the state laws go beyond what is required in North Carolina by setting actual pollution prevention goals or targets and specifying proposed or required pollution prevention planning requirements.

Over the past decade, the State's pollution prevention efforts have helped North Carolina industries reduce their generation of hazardous waste and other pollutants. Even though these programs have made significant strides, hazardous waste, and toxic air and water emissions, continue to be produced in large quantities in North Carolina.[1/] In 1992

[1/] A direct correlation does not exist between the quantity of a chemical released to the environment and the risk presented by that chemical. Under TRI, companies are required to report total releases and transfers. The TRI data alone do not indicate the

alone, North Carolina industries generated 118,527,164 pounds of hazardous waste from industrial processes[2/] and, based on Toxics Release Inventory (TRI) data, 103,558,709 pounds of toxic chemicals were released to air, water, and land.[3/]

In addition to concerns regarding pollution levels in North Carolina, hazardous waste issues -- those related to waste management, waste reduction, and capacity needs -- have become increasingly complex and controversial in this State. In the past, these issues typically were addressed through traditional regulatory, or command-and-control processes. However, with rising interest in multimedia waste reduction practices by state regulators, industry, and the environmental community, and increasing opposition by North Carolina citizens to siting commercial hazardous waste facilities, the State saw the need to update and improve its approach to pollution prevention, and to approach these issues from an interdisciplinary, consensus-based, perspective.

Legislative Mandate

To address these concerns, in 1993 the General Assembly enacted H.B. 976 (See Appendix A) which, among other things, created the Pollution Prevention Advisory Council (hereinafter referred to as the PPAC or the Council). The PPAC is a 15-member Council representing industry, the environmental public interest community, citizens, and state and local government. The Council is charged with advising the Governor, the General Assembly, and the Secretaries from DEHNR and the Department of Commerce (DOC) on issues including, but not limited to:

1. The potential to promote greater waste reduction through new and existing programs and policies; and

2. The regulation of hazardous waste generation and management in North Carolina; and

3. The hazardous waste management capacity needs of North Carolina business and industry.

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risk presented to human health or the environment from exposure to a TRI chemical.

2/ The 1992 Annual Report on the Generation, Storage, Treatment and Disposal of Hazardous Waste in North Carolina.

3/ The Toxic Release Inventory (TRI) requires that companies in Standard Industrial Classification (SIC) codes 20-39 report releases to air, water, and land for approximately 300 listed toxic chemicals.

Council

H.B. 976 requires that the Council represent the following range of interests:

(1) The Secretary of Environment, Health, and Natural Resources or the Secretary's designee.

(2) The Secretary of Commerce or the Secretary's designee.

(3) Four members appointed by the Governor: one representative of industry; one representative of small business; one representative of the environmental and conservation community; and one citizen representative.

(4) Four members appointed by the President Pro Tempore of the Senate: one member of the Environmental Review Commission; one representative of industry; one representative of the environmental and conservation community; and one representative of county government.

(5) Four members appointed by the Speaker of the House of Representatives: one member of the Environmental Review Commission; one representative of industry; one representative of the environmental and conservation community; and one representative of city government.

(6) One member appointed by the Lieutenant Governor from the general public.

The appointments to the Council were made in the Fall of 1993. Table 1 below identifies the PPAC appointees, their affiliations, who they represent, and who they were appointed by. (See Appendix B for each Council member's biographical information.)

Committees

The Council established committees based on the three objectives defined in the implementing legislation (i.e., the Pollution Prevention Committee, Regulatory Committee, and Capacity Committee). Each committee consisted of Council members (one of which was the committee Chair), outside experts selected by DEHNR, and DEHNR staff. Appendix B also contains biographical information on each outside expert invited to sit on the three PPAC committees.

Council and Committee Meetings

The Pollution Prevention Advisory Council was created by legislation that became effective on July 1, 1993. Between July and November 1993, Council appointments were made. The Council met on the fourth Thursday of every month between November 1993

Table 1: List Of Pollution Prevention Advisory Council Members

APPOINTEES	AFFILIATION	REPRESENTING
Carolyn Anderson[a]	Carolina Power & Light	Industry
Thomas Cecich[a]	Glaxo	Industry
Edward Garner[c]	Citizen	Northampton Citizens Against Pollution (NCAP)
Robert Goodale	Deputy Secretary, DOC	Secretary DOC
Karen Gottovi[c]	State Representative	Environmental Review Commission
Lucious Hawkins[b]	County Commissioner	County Government
David Hughes[d]	NationsBank	General Public
Steven Levitas	Deputy Secretary, DEHNR	Secretary DEHNR
Jim McKay[a]	McKay Dry Cleaners	Small Business
Donnell Van Noppen[b]	Attorney	Environmental & Conservation
William Paige[c]	General Electric	Industry
J. Clark Plexico[b]	State Senator	Environmental Review Commission
Margaret Pollard[a]	Wake County Health Department	Environmental & Conservation
Elizabeth Treadway[c]	Greensboro Environmental Services	City Government
Dr. Gladys Van Pelt[a]	Greensboro	Citizen

[a] Appointed by the Governor
[b] Appointed by the President Pro Tempore of the Senate
[c] Appointed by the Speaker of the House of Representatives
[d] Appointed by the Lieutenant Governor

and September 1994. Each committee also met once a month. Subcommittees within committees met on an as needed basis.

Public Meetings and Comment

The Council obtained input from the public by three different means. The Pollution Prevention Committee conducted a creative consensus workshop with invited members from industry, nongovernmental organizations, and local governments to obtain input on possible pollution prevention planning and incentive programs, and the appropriate mechanisms for

incorporating pollution prevention into environmental education courses for K-12, the general public, and the industrial sector.

H.B. 976 requires that public meetings be held in three locations across the state to receive public comment on the approach and recommendations made by the Council. To address this mandate, the Council held public meetings in:

- Greensboro - July 12, 1994;
- Wilmington - July 19, 1994; and
- Asheville - July 26, 1994.

Finally, the Council accepted and received significant written comment on its draft recommendations.

In addition to attending the public meetings, the Council reviewed written summaries of each meeting and copies of all of the written comments. Based on the review and consideration of these materials, the Council made important modifications to its recommendations.

Purpose of this Report

This document is the Pollution Prevention Advisory Council's Final Report. It represents a substantial amount of work by the Council and Committee members and DEHNR staff. As directed, the report contains legislative, policy, regulatory, and procedural recommendations that will enhance waste reduction and hazardous waste practices in the State, and identify the course the State should take regarding its hazardous waste capacity needs.

The remainder of the report is organized into four major chapters and six appendices. The Chapters are:

- Chapter II: Strengthening Pollution Prevention in North Carolina;
- Chapter III: Regulating Hazardous Waste Management in North Carolina;
- Chapter IV: Assuring Adequate Hazardous Waste Capacity Needs in North Carolina; and
- Chapter V: Costs Associated with the Council's Primary Recommendations.

The appendices are:

- Appendix A: H.B. 976;
- Appendix B: Biographical Information on the Council and Committee members;
- Appendix C: Toxic Chemical Releases and Hazardous Waste Management in North Carolina;
- Appendix D: Pollution Prevention Case Studies; and
- Appendix E: Unresolved Issue: Technical Assistance Grants
- Appendix F: List of Acronyms

Appendix E summarizes an issue on which the Council spent a considerable amount of time deliberating, but was unable to attain consensus. The issue is the development of a Technical Assistance Grant (TAG) Program to assist communities concerned with commercial hazardous waste permitting or State inactive site remediation decisions. Appendix E summarizes the recommendation and the response to it by different Council members.

STRENGTHENING POLLUTION PREVENTION IN NORTH CAROLINA

The PPAC was directed to evaluate "the potential to promote greater reduction of waste generation through new and existing programs and policies." Based on this mandate, the Pollution Prevention Committee (PPC) developed the following mission statement:

> *To recommend policies that promote the prevention of pollution through waste reduction practices and programs in industry and government.*

Based on this mission statement, the PPC identified its primary goals as:

1. Producing recommendations for state government or the legislature on ways to promote source reduction and environmentally sound recycling that can be implemented by industry and government; and

2. Developing programs that encourage industry and government to move up the waste management hierarchy.[4/]

Pollution prevention is defined as source reduction and environmentally sound recycling. Environmentally sound recycling includes both recycling on-site and off-site, and is defined as a recycling process that significantly minimizes the release or discharge of the constituents in the material being recycled.

States increasingly are turning their attention to innovative approaches to encourage pollution prevention. These approaches stress multimedia practices which, as defined by the Council, are the reduction of releases to all media (air, water, and land) through source reduction and environmentally sound recycling. Source reduction involves reducing pollutants at the manufacturing or process level rather than through end-of-pipe controls. While, there is no standard definition for "environmentally sound recycling," the Council has defined environmentally sound recycling as a process that significantly minimizes the release or discharge of the constituents in the material being recycled.

The recommendations in this chapter focus on the development and implementation of pollution prevention planning requirements, and expanded pollution prevention education opportunities for public schools, the general public, and the state's business and industrial

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4/ The waste management hierarchy has four rungs, where source reduction is the ~~first~~ highest step. The remaining three steps, in descending order, are reuse or recycling, treatment, and disposal.

base. The Council also believes that the State should take an active role in pollution prevention and comply with similar pollution prevention planning requirements imposed on industry. The following pages also include recommendations on incorporating pollution prevention into North Carolina's state agency operations.

The PPAC recognized that the issues it considered are complex and that due to the variability within industries across the state there is no one correct set of pollution prevention program elements. Based on this recognition, the Council held a Creative Consensus Workshop to obtain ideas from industry and the environmental community on a range of pollution prevention issues. The recommendations provided below reflect the valuable input received from the workshop.

Facility Planning

Issue:

Pollution prevention planning is an important aspect of an industrial facility's waste reduction efforts. The success of an industrial facility's pollution prevention program depends on the assessment of opportunities in its process to reduce and prevent pollution. This assessment requires a comprehensive review of all manufacturing and production processes that use, generate, or release pollutants to determine the source and volume of each waste stream. Once these are identified, opportunities and strategies for pollution prevention can be determined.

Background:

Multimedia pollution prevention planning is an approach that minimizes the generation of pollutants and seeks to prevent the transfer of a pollutant from one medium (air, water, land) to another. For example, multimedia pollution prevention would avoid removing a pollutant with an air pollution control device and disposing of it on land. The value of multimedia pollution prevention planning has been recognized by many industrial firms and states. Industrial facilities which examine their processes to quantify and characterize wastestreams and identify associated opportunities for pollution prevention can develop strategies for taking advantage of the opportunities. This approach can lead to long-term changes in industrial planning -- away from an "end-of-pipe" approach toward a more holistic pollution prevention approach resulting in economic as well as environmental benefits. (See Appendix C for case study examples).

Information from two states with pollution prevention planning requirements (California and Washington) indicates that the provisions are resulting in both environmental and economic benefits. The State of California surveyed a broad range of persons affected

by the requirements. Based on the survey results,[5/] it was determined that:

- The cost of preparing the planning documents was offset by the cost savings due to identified waste reduction opportunities;
- The majority of generators (68%) found waste reduction opportunities, and 53% of the respondents were able to reduce waste by greater than 10% in the first 18 months of implementation; and
- The overwhelming majority (greater than 70%) of generators and consultants felt that completing the planning process was worthwhile.

Washington is implementing its planning requirements in phases. Three hundred seven (307) facilities were subject to Phase 1 of the process. Based on a review of plan executive summaries, the State determined that:

- Over 4,800 pollution prevention opportunities were identified;
- Of these, 1,860 pollution prevention opportunities were selected for implementation; and
- 707 pollution prevention opportunities will undergo further analysis.

In April 1992 the U.S. Government Accounting Office (GAO) studied three states' pollution prevention programs. With regard to pollution prevention planning, the report indicated that:

> Because firms must examine and evaluate their processes and operations in order to develop plans, firms are likely to identify opportunities for improving their processes and operations and reducing their use of toxic chemicals. For example, most firms we visited had identified opportunities for improving their operations through the self-evaluation they had performed in developing such plans.

Further, in a recent study by the Business Roundtable, facilities identified as "best-in-class" in pollution prevention had developed and maintained flexible facility pollution prevention plans.

Currently about one third of the States, including North Carolina, have laws requiring some form of facility pollution prevention planning. In 1989, the N.C. General Assembly enacted Senate Bill 324 which modified the General Statutes to include a provision requiring

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[5/] The agency experienced a 41.6 percent survey response rate.

all persons holding a water quality or air quality permit or generating hazardous waste to submit a written description of current plans to reduce waste generation with payment of their annual fee. Additionally, this report would have to accompany all air quality and water quality permit applications. While this legislation recognized the importance of a facility being proactive in its environmental management and planning for future waste reduction, adequate resources were not available to collect and review the required reports.

The scope of the existing planning requirements includes many types of permits with either comparatively small environmental impact or limited opportunities for pollution prevention. Examples include: publicly or privately owned treatment operations for domestic sewage, sewer extensions, pump stations, swimming pool filter backwash discharges, groundwater remediation, etc. The PPAC believes that the planning requirement would be more readily implemented if the scope were limited to industrial facilities which have more pollution prevention opportunities. The Council further recommends modifying the existing planning requirements to facilitate their implementation by the State and industrial facilities.

For the pollution prevention planning process to be most effective, the process should be conducted by individuals at a facility site who have knowledge of pollution prevention. The pollution prevention efforts should be focused on reducing releases to all media (air, water, and land). Such a "multimedia" approach should ensure a net reduction of waste generated. The Council also feels very strongly that the individual facility should be allowed flexibility in the way it prepares its plans and in the way it evaluates and targets substances for pollution prevention initiatives so as to make the plan as useful to the facility as possible. In coming to these conclusions the Council has resolved the following:

- An effective pollution prevention program is an inherent component of sound business management; and

- Pollution prevention programs should be flexible, such that those individuals, in industry, closest to the processes are able to develop cost effective techniques and programs that minimize releases and off-site transfers of waste.

For pollution prevention planning to work, the plan must be more than a document that just sits on the shelf. It must be updated as necessary and implemented. The following recommendations are intended to make pollution prevention planning a useful and continuing exercise while minimizing unnecessary paperwork burdens.

Recommendation 1:

The General Assembly should modify the current mandatory pollution prevention planning requirements in G.S. 130A-294(k), G.S. 143-215.1(g), and G.S. 143-215.108(c); and DEHNR should promulgate regulations and develop guidance materials to implement these requirements, as modified. Having a pollution

planning requirements. The Office of Waste Reduction should develop industry-specific multimedia guidelines and training for industries on pollution prevention planning. This training will include a Pollution Prevention Planning Guidance Manual. Training should include seminars, workshops, training materials, remote classroom training sessions, etc. The Community College system should be utilized for small business and rural county programs.

Recommendation 3:

The Division of Environmental Management and the Division of Solid Waste Management should be responsible for enforcing the planning provisions in a manner consistent with enforcement guidelines developed by DEHNR. The Office of Waste Reduction should provide industry with assistance in developing and implementing pollution prevention plans.

Recommendation 4:

The General Assembly should provide $275,000 in funding for five additional technical staff (including central and regional office staff) to provide multimedia training and technical assistance to DEHNR staff and industrial facilities covered by the planning requirement.

Statewide Pollution Prevention Goal

Issue:

A quantitative statewide pollution prevention goal, combined with annual evaluation of goal attainment, would be an important tool to encourage pollution prevention efforts in North Carolina. A goal would provide a challenge to industrial facilities, state and local governments, environmental groups, research institutions, trade associations, vendors and suppliers, and consumers to work together for the benefit of the environment. Establishing a goal and publicizing progress towards the goal would help ensure that pollution prevention remains a priority issue.

Background:

In 1989 The U.S. Environmental Protection Agency established the 33/50 program which set national goals to reduce releases and off-site transfers of 17 targeted chemicals and chemical categories by 33% by 1992 and 50% by 1995. EPA asked industries to voluntarily commit to reduce their releases and transfers of these targeted chemicals. The Toxics Release Inventory (TRI) was used as the tool for tracking these reductions. The 33% reduction goal was actually achieved one year ahead of schedule with a 34% reduction from a 1988 baseline year through 1991. This success is an excellent example of how a voluntary reduction goal can be used to achieve significant reductions.

The 33/50 program has been criticized by some, however, because not all of the reductions achieved under the program resulted from pollution prevention. Prior to the 1991 reporting year, facilities were not required to report the pollution prevention activities they were employing to minimize releases, so it is difficult to ascertain the extent to which reductions were due to pollution prevention versus pollution control. Since the 1992 reporting year, however, companies have been required to indicate whether any reductions were achieved through source reduction or recycling. Many proactive companies dramatically reduced their TRI totals prior to 1992 and it is important that these companies be allowed to claim credit for these reductions.

In the absence of a statewide reduction goal, releases and off-site transfers of all chemicals reported on the TRI by North Carolina manufacturers declined by 17% from 1990 to 1992. Thirty-five percent of North Carolina companies that reported releases of the 33/50 targeted chemicals made commitments to EPA to reduce their releases and may have accounted for much of this reduction. These companies represent over 55% of the actual releases of the targeted chemicals. Reductions have also resulted from increased awareness on the part of industry of release quantities and associated costs that followed the advent of the TRI reporting requirement in 1987.

The PPAC is concerned about reducing releases to the environment, and encourages achieving such reductions through the implementation of source reduction and environmentally sound recycling practices. The Council believes that a statewide reduction goal, rather than facility- or industry-specific goals, would allow individual facilities and industrial sectors to establish their own goals using the state goal as a guideline, and achieve those goals through the most appropriate means. This would not penalize facilities which have already taken proactive steps to reduce their waste generation, and it would enable facilities to set goals that are technically and financially achievable. However, due to the Council's commitment to source reduction and environmentally sound recycling, the statewide goal should include a challenge to industry to reduce a certain percentage of TRI chemicals requiring waste management through these practices.

Recommendation 5:

The State of North Carolina should set a statewide goal of reducing releases and off-site transfers of TRI chemicals by 50% by the year 2005. The statewide goal should include a challenge to reduce TRI chemicals requiring waste management by 25% by the year 2005 through *source reduction and environmentally sound recycling.* Individual facilities should not be required to meet the statewide goal. Rather, facilities should be encouraged to use the statewide goal as a guide in establishing their pollution prevention goals. Individual facilities should strive for continuous improvement in the reduction of releases from all pollutants.

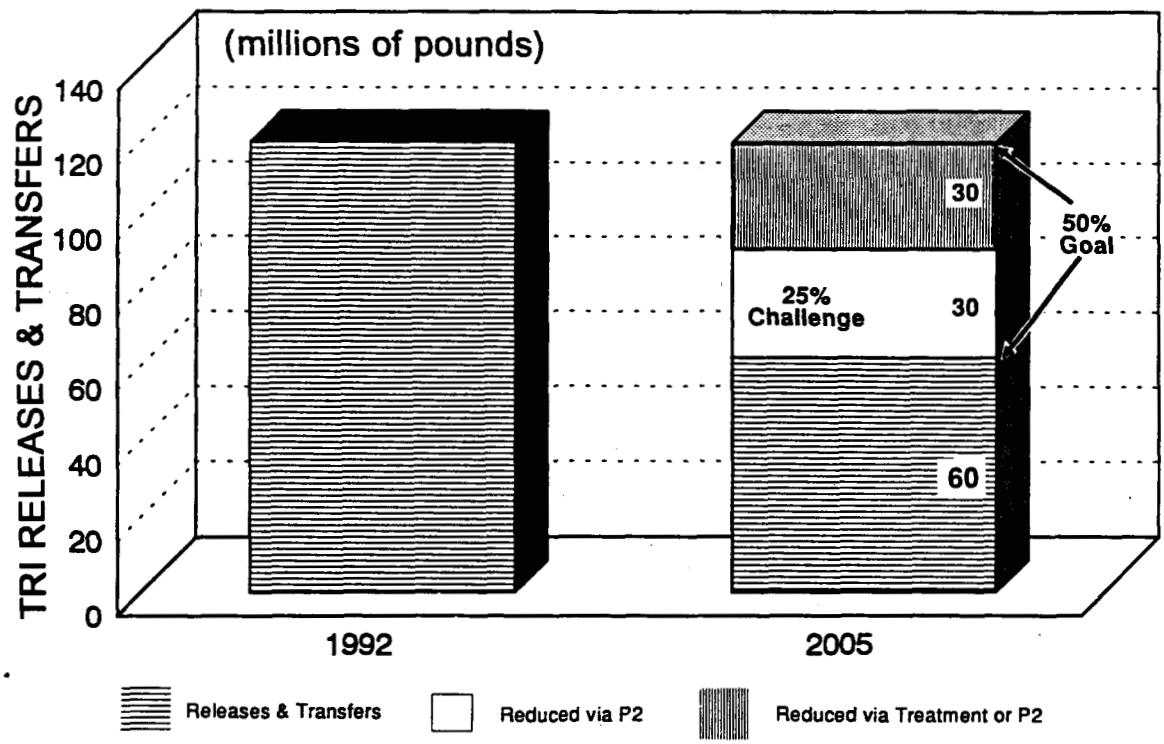

Figure 1: - Illustration of 50% Reduction Goal and 25% Challenge

Recommendation 6:

Statewide progress towards the goal should be tracked using the annually reported TRI data submitted by companies in SIC codes 20-39 for the 1992 list of reportable TRI chemicals. No additions to SIC codes or the list of reportable chemicals after 1992 should be used for tracking progress toward the statewide goal. Attainment of goals should be based on percent reductions from a 1992 base year. Recognition of significant reductions made prior to 1992 should be done in accordance with recommendation 7. The tracking methodology may be modified based on results from the study in recommendation 8.

Recommendation 7:

DEHNR's Office of Waste Reduction should publish a biennial report beginning two years after the enactment of the planning legislation. The report should provide statistics on progress toward the goals and should recognize the facilities with the highest reductions (total pounds and percentage-wise) in waste generation. The Office of Waste Reduction should also publish a report highlighting

the companies that significantly reduced multimedia waste generation prior to 1992.

Recommendation 8:

DEHNR's Office of Waste Reduction should evaluate currently reported environmental data to determine alternative methods for tracking statewide progress and adjusting data for new and expanded industry. Recommendations should be made to the Secretary of DEHNR by October 1, 1996.

Pollution Prevention Incentives

Issue:

Industrial facilities may encounter financial, regulatory, or technological barriers to implementing pollution prevention. Incentives to encourage and support the use of pollution prevention technologies and techniques and to incorporate pollution prevention into training programs will increase implementation of these activities at industrial facilities.

Background:

Non-regulatory barriers to pollution prevention for North Carolina large, small, and conditionally exempt hazardous waste generators were identified in a survey performed by the University of North Carolina. At the facility level, the most prevalent barrier was associated with the economic feasibility of pollution prevention projects. Economic barriers may be actual lack of capital for pollution prevention projects or perceived barriers due to inaccurate financial accounting procedures. The latter may be dealt with through education, the former through state grants, loans, and tax credits. Tax credits and low interest loans were identified by several industries in the survey as valuable incentives. The facilities surveyed seemed particularly interested in tax credits for recycling and investments in capital expenditures associated with pollution prevention equipment .

Incentive programs that currently exist in North Carolina include the Office of Waste Reduction's Challenge Grant Program which offers up to $15,000 to facilities to support pollution prevention projects, the Governors Award for Excellence in Waste Reduction, and a special tax provision for facilities or equipment used exclusively for recycling or resource recovery. These programs have proven to be very successful. For instance, the five Challenge Grants issued in 1992 resulted in almost $850,000 in annual savings as well as reductions in pollution generation and chemical and water use. Success from such projects is often the catalyst needed for a facility to begin a comprehensive pollution prevention program.

Aside from financial incentives, individual facilities also benefit from positive press reports documenting pollution prevention activities. These facilities receive improved image among customers and the local community that can equate to improved market share. The

development of an ongoing system for recognition and awards for pollution prevention accomplishments could provide facilities with this type of recognition.

Recommendation 9:

The State of North Carolina should develop a comprehensive incentives program designed to encourage all North Carolina waste generating facilities to incorporate pollution prevention into all business operations. Incentives may include, but not be limited to, regulatory incentives (reduced fees, priority permitting, compliance extensions, permit flexibility, and multimedia inspections), state income tax credits, and a capital access fund for pollution prevention activities (including equipment, consultation fees, training efforts, etc.). The Council recommends that a capital access fund for pollution prevention be administered as part of an existing DOC program. Income tax credits should be limited to research and development activities. The General Assembly should examine additional sources of revenue for the capital access program including assessments from air and water quality permit violations. The Council recommends that the State underwrite the capital access fund in the amount of $200,000, which will be leveraged to create a fund of approximately $2 million.

Recommendation 10:

The State of North Carolina should restore the existing Pollution Prevention Challenge Grant Program from $100,000 to $300,000 per year to assist industrial facilities with innovative pollution prevention projects.

Recommendation 11:

The State of North Carolina should establish a recognition and honors program similar to Alaska's Green Star Program or U.S. EPA's proposed Environmental Leadership Program. Identified companies would receive special recognition from the Governor along with a logo that could be used on stationery, etc., and/or a flag that would identify the facility as a leader in pollution prevention. A council should be appointed by Governor Hunt to establish criteria which facilities must meet to receive this honor and determine eligibility of individual facilities. Criteria may include:

- a demonstrated commitment by management to pollution prevention;
- the facility must be willing to exchange and share information on pollution prevention with other facilities through a pollution prevention network;
- the facility must fund or serve as a host site for a pollution prevention internship program for teachers and/or students;

- at least one employee should be designated to serve on a pollution prevention speaker bureau to speak in public schools, pollution prevention conferences and other local activities;

- the facility must demonstrate that it actively works with customers and suppliers to reduce the overall environmental impact of its products.

The General Assembly should provide a one-time appropriation of $50,000 to fund the Council for one year, and $27,500 on an annual basis for one-half of an employees' time. Ongoing employee salaries or other financial needs could be funded through application fees for the environmental honors program.

Industrial Sector Focus

Issue:

Larger contributions to the overall statewide pollution prevention effort can be accomplished when facilities within industrial sectors work together. Industrial and regional networking can work to improve the transfer of technology and encourage the pooling of resources. The identification of benchmark facilities within an industry sector can facilitate the transfer of technology within that sector. Issues and barriers common to specific industries and regions may also be addressed.

Background:

The "Creative Consensus Workshop," sponsored by the PPAC Pollution Prevention Committee, brought together representatives from North Carolina industries, environmental groups, and government. This group worked to develop recommendations concerning the incorporation of pollution prevention into North Carolina policy and legislation. One of the group's recommendations was that several pilot activities be targeted at industrial categories whose emissions are of the greatest concern. These activities include:

- identifying a list of priority industry categories considering the number of facilities in North Carolina and the volume and toxicity of emissions,

- developing work groups that include representatives from government, industry, and the public, and

- encouraging the work groups to design a program for the industry category in question to establish best-in-class benchmarks, to determine how to use benchmarks in permit negotiations, and to determine how to gather and disseminate pollution prevention information.

Benchmarking is often used by a company to measure its performance and processes

against those of recognized industry leaders. This helps a company to establish priorities, targets, and approaches that can lead to a competitive advantage in the marketplace.

Adapting the benchmarking concept for use in the comparison of a company's environmental performance requires a company to identify a method of evaluating itself in reference to other facilities performing a similar industrial function. Benchmarking therefore requires an evaluation system which takes into account the quantities and types of wastes generated within an industrial function. Other issues such as the use of employee educational and incentive programs and total quality management approaches can also affect a company's environmental performance and may need to be considered in determining a benchmark.

Most current measures of environmental performance focus solely on the identification of facilities generating minimum quantities of waste. Currently publicly available pollution generation and production activity data have been criticized for (1) their inconsistency due to their self-reported nature, (2) the need to combine more than one database to obtain all the information required, and (3) the tendency to focus on facility-level pollution generation as opposed to process-level generation which groups together facilities within an industry sector that may or may not use the same processes to make the same product. An environmental benchmarking methodology should account for these measurement issues in order to identify true leaders in environmental performance.

Once benchmarks have been established, it is important to determine how to transfer the practices of the best performers to other facilities within an industry. Many facilities, particularly smaller ones, either do not have access to this type of information or do not know how to utilize the information to improve their environmental management. The lack of technical information is linked to information accessibility and technology transfer capabilities. Technical limitations, market development, and the development of new technology identification within an industry can be accomplished through a comprehensive program designed to bring interested and knowledgeable parties together.

Recommendation 12:

DEHNR should work with industry and trade associations to identify one to three industrial sectors which would voluntarily participate in a pilot project for establishing an industrial sector benchmark and developing a waste reduction program. This program should be established as follows:

12a. The Governor should meet with representatives from the identified industrial sectors and request their cooperation in establishing a benchmark and encouraging those sectors to make pollution prevention the foundation of their environmental and business policy.

12b. Industry groups should be requested to appoint a "focus" group to design a program for that industrial sector. The "focus" group should examine issues

such as how to determine benchmarks and what barriers exist. The focus group should also develop a specific strategy to encourage pollution prevention for that industrial sector.

12c. DEHNR should work with industry groups to develop guidance for identification of benchmark facilities in environmental performance and to identify benchmark technologies within priority industrial sectors.

12d. Facilities within industrial sectors should be requested to set voluntary reduction goals (using the industry benchmark and state goals as a guide) as part of their waste reduction planning process.

Environmental Technologies

Issue:

The environmental technology industry is one of the fastest growing sectors of the international economy. This industry holds great potential to advance the development and implementation of pollution prevention practices by a multitude of industries that currently employ chemicals in their operations.

Background:

DEHNR is developing an environmental technology initiative with the Board of Science and Technology, the Department of Commerce, and the North Carolina Alliance for Competitive Technologies. This group is working on a strategy to develop public/private partnerships in North Carolina for environmental technology development, deployment, manufacture, and export.

Recommendation 13:

The State should develop an environmental technology consortium practices. whose objectives are to:

- Identify and prioritize areas that would benefit from the development of critical environmental technologies;
- Foster the development and growth of industries in North Carolina that create, develop, manufacture, and/or use environmental technologies;
- Identify effective public and private partnerships for the development and use of environmental technologies;
- Act as a catalyst for the commercial development and utilization of

environmental technologies; and

- Identify economic, regulatory, and other barriers to and incentives for utilization and export of environmental technologies.

Education

Issue:

Education is the cornerstone of a successful statewide effort to promote pollution prevention. Current efforts to educate industry, government, and the public have encouraged the pollution prevention measures the state has already experienced. Industry and the general public lack general information on how their choices and activities impact the environment. Educational avenues need to be enhanced and additional routes developed in order for the state to experience further significant pollution prevention.

A. Formal Education

Background:

The 1993 session of the General Assembly passed the North Carolina Environmental Education Act which established the Office of Environmental Education within the DEHNR. This legislation also mandated that the Department of Public Instruction (DPI) work with the Office of Environmental Education to:

1. Coordinate environmental education within the State curriculum and among the DPI and other State agencies.

2. Conduct teacher training in environmental education topics in conjunction with the Department and other State agencies.

3. Coordinate and integrate topics within the various curriculum areas of the standard course of study.

4. Promote awareness of environmental issues to the public and to the school communities, including students, teachers, and administrators.

5. Establish a repository of environmental education instructional materials and disseminate information on the availability of these materials to schools.

6. Promote and facilitate the sharing of information through electronic networks to all schools.

Pollution prevention currently is not integrated into the everyday curriculum of North

Carolina's public school system. Funding has been unavailable for public schools to expand their environmental education activities, including pollution prevention.

Recommendation 14:

The State of North Carolina should integrate environmental education into all public school curricula for all grade levels. The Council further recommends that:

14a. Pollution prevention should be integrated into the environmental education curricula.

14b. Pre-service environmental education should become a part of teacher training throughout the college and university system.

14c. The In-service training programs in environmental education for teachers should be strengthened and supported through close cooperation of DEHNR and DPI.

14d. Teacher internships based upon current, community-based environmental topics, including pollution prevention, should be provided and funded through DEHNR.

The General Assembly should provide a one-time appropriation of $54,180 to develop an environmental education curriculum that includes pollution prevention.

B. Non-formal Education

Background:

North Carolina's approach to environmental education can not be limited only to students when the entire adult population of the state has not benefitted from the knowledge and understanding needed for responsible stewardship of the state's natural resources and environmental quality. It is more difficult to reach this disbursed and diverse audience, and creative avenues must be explored.

Recommendation 15:

DEHNR should develop and oversee the management of environmental education, including pollution prevention, for activities outside of the public school system such as civic groups, Scouts programs, 4-H groups, Boys/Girls Clubs, etc. DEHNR should initiate the development of community-based educational programs emphasizing site visits to public facilities and access to North Carolina site-specific environmental data.

The General Assembly should provide $46,800 annually to hire an education specialist to implement these programs.

C. Industrial Education

Background:

In recent surveys and via self-reporting, hazardous waste generators, air and water quality permit holders identified the lack of education as a significant barrier to pollution prevention. Lack of educational opportunities addressing regulatory and pollution prevention issues has been cited as a concern. Enhanced education programs will ensure the implementation of pollution prevention and better compliance in industrial facilities. In addition, the development of an environmental stewardship policy that involves industry, business, government, and other non-profit organizations will lead to better environmental education for citizens of the state.

In addition to the longstanding efforts to educate industry on pollution prevention by DEHNR's Office of Waste Reduction, DEHNR's Air Quality Section has begun to include a flyer with all air permit applications that emphasizes pollution prevention as the preferred compliance strategy and refers applicants to the Office of Waste Reduction for technical assistance. Regional inspectors are also sharing pollution prevention information with industries during on-site inspections.

Recommendation 16:

DEHNR should provide enhanced educational opportunities to hazardous waste generators, air and water permit holders, and significant industrial users. The Council recommends that:

16a. Educational materials include information on compliance with environmental rules and regulations, and effective implementation of pollution prevention practices.

16b. The environmental and pollution prevention materials should be made available to small businesses, local and municipal governments, and less regulated sectors such as agriculture and tourism. These materials could be made available through conferences, workshops, teleconferences, partnerships with industrial and environmental organizations, and permit writers and inspectors.

16d. Programs to train others to be trainers in pollution prevention ("train-the-trainers") should be conducted to provide a more efficient and widespread means of training North Carolina business and industry. Trainers could include trade associations; community colleges; chambers of commerce; insurance, banking, and other commercial insurers and lenders; suppliers and

vendors; and local government agencies (e.g., cooperative and engineering extension services). Training could be provided through seminars, workshops, teleconferences and other state-of-the-art information systems.

The General Assembly should provide $320,000 annually to fund this effort.

Integrating Pollution Prevention Into State Agencies

Issue:

State government should lead by example and work to reduce waste generated in its own operations, as it now expects industry to do.

Background:

North Carolina State Government, which is one of the State's major employers, has a multi-billion dollar operational budget and activities scattered all across the State. Any operation this large has a major impact on the environment, and, as such, there are opportunities to implement pollution prevention strategies. State agencies should integrate waste reduction into all operations and decisions. These agencies should be expected to undertake the same level of waste reduction planning as required of North Carolina industry.

In 1993, President Clinton signed Executive Order 12856 which established a 50% waste reduction goal by 1999 for federal facilities and required all federal facilities to develop a written strategy for reducing waste generation. This order also made federal facilities subject to Emergency Planning and Community Right-to-Know Act reporting requirements for the first time and established a recognition program to reward facilities and individuals for outstanding performance in environmental management. The order had many other elements, but the theme was to make the federal government a positive example for the rest of the country. North Carolina has long been recognized as a leader in pollution prevention, yet its governmental operations have not necessarily adopted this basic philosophy.

Also in 1993, Governor Hunt signed Executive Order 8, committing State Government to an aggressive solid waste reduction, recycling, and buy-recycled program. This Order required each agency to designate a contact to coordinate and oversee the solid waste reduction effort. It also directed the Office of Waste Reduction to provide technical assistance on solid waste reduction to other state agencies and required each department to report annually on its solid waste reduction activities and progress.

State government must act as any responsible business and use pollution prevention to minimize its environmental impact. For example, state agencies currently are working toward the legislatively mandated solid waste reduction goal of 40% by 2001. Opportunities exist within each department to identify and reduce waste generation and promote pollution

prevention through purchasing, procurement practices, and operational procedures. Governmental operations should seize the opportunity to demonstrate pollution prevention and lead by example. By these actions, state government can also reap the economic benefits that have already prompted industry to adopt pollution prevention principles.

For purposes of these recommendations, "state agencies" shall include state government departments and the University of North Carolina.

Recommendation 17:

Each State agency should establish a voluntary goal of reducing multimedia waste generation by 50% by 2005. State agencies should rely on source reduction and environmentally sound recycling to comply with this goal whenever practical. Every department should be required to submit to DEHNR an annual report summarizing progress toward meeting the 50% reduction goal. Annual progress reports should be made available to the public upon request. All state agencies holding air or water permits, or hazardous waste generators (large and small) shall be subject to the planning requirements.

Recommendation 18:

The Secretary of each Department and the Chancellor of each university should appoint at least one senior staff member to an Inter-Departmental Pollution Prevention Task Force. This group should coordinate waste reduction activities in State Government, establish guidelines for incorporating pollution prevention into Department operations, identify barriers and incentives to waste reduction in State agencies, and act as a forum for information exchange. This Task Force should be coordinated by the Office of Waste Reduction. It should develop a report on its finding and recommendations to the General Assembly and the Governor by September 1, 1995.

Recommendation 19:

The Secretary of each department and the Chancellor of each university should establish an intra-departmental pollution prevention work group to review practices, procedures, and operations and identify multimedia sources of waste and waste reduction opportunities. This group should consist of representatives of each section in the Department and also include the Department's member of the Inter-Departmental Task Force. A responsibility of each group is to review major Department activities, including construction, contracting, purchasing, and facilities operation and management to identify ways to reduce waste generation and environmental impacts. For example, this activity could include reviewing chemicals purchased to determine if there are alternatives to those which contain toxic materials or generate hazardous waste when they are used or disposed. The work group would also be required to

develop a multimedia pollution prevention plan for the department. The Secretary of each department will be responsible for approving the pollution prevention plan and ensuring that the plan is implemented.

Recommendation 20:

State operated facilities that are comparable to facilities in SIC codes 20-39 (e.g., The Department of Corrections furniture manufacturing and paint-blending operations) should report annually to DEHNR the amount of toxic materials generated as waste or released into the environment. The information should be submitted in accordance with the requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. This reporting includes submitting Toxics Release Inventory Reports where reporting thresholds are exceeded.

Recommendation 21:

The state should establish an employee and agency recognition program to reward individuals and programs within state government for excellence in reducing waste from governmental operations.

Recommendation 22:

Departments and universities should develop procedures to ensure that pollution prevention is incorporated into all contracted work, where appropriate, and that pollution prevention programs are required of industries receiving grants/funds from the state.

Recommendation 23:

A percentage of the state's repair and renovation fund should be earmarked for pollution prevention projects. The Inter-Departmental Task Force should develop guidelines to govern the disbursement of funds for individual departments and projects.

Recommendation 24:

The General Assembly should provide $255,000 annually to DEHNR to help train and support state agencies to identify pollution prevention opportunities.

Nonpoint Source Pollution Prevention

Issue:

Nonpoint source pollution is recognized as a large contributor to water and air quality

problems which need to be addressed.

Background:

Many members of the Pollution Prevention Advisory Council and participants in the "Creative Consensus Workshop" expressed their concerns about the pollution that occurs from nonpoint sources. Runoff from agriculture and golf courses is frequently loaded with pesticides and nutrients that cause fish kills, contaminate water supplies, and result in algae blooms which delete the supply of oxygen in the water. Stormwater runoff from cities, highways, and industries contains oil and other contaminants which affect water quality. Mobile sources are significant contributors of VOCs, carbon monoxide, and nitrous oxides and are a major environmental concern, especially in areas that are classified as "non-attainment."

Many of the existing efforts to address non-point source pollution have been based on pollution prevention. Some examples include integrated pest management, required stormwater permitting and planning, the elimination of lead from gasoline, and the inspection and maintenance program for motor vehicles required in some parts of the state.

While the Council recognizes that addressing these concerns is beyond its mandate, the members believe that the issue is too important to ignore, and that further action should be taken to encourage pollution prevention strategies to address these problems.

Recommendation 25:

DEHNR should work with relevant State agencies to address multimedia nonpoint sources such as agricultural and mobile sources and to assure that pollution prevention strategies are used to address these problems.

Recommendation 26:

The State of North Carolina should establish a council, similar to the Pollution Prevention Advisory Council, to address nonpoint source pollution.

REGULATING HAZARDOUS WASTE MANAGEMENT IN NORTH CAROLINA

H.B. 976 required the Council to "review issues relating to hazardous waste management, including, but not limited to, the regulation of hazardous waste generation and management in North Carolina." Based on this legislative mandate, and the broader intent behind the PPAC, the Regulatory Committee identified its mission as the following.

> *To evaluate North Carolina's hazardous waste program, and related air and water program elements, and make policy and legislative recommendations that increase the efficiency and effectiveness of these programs for the regulated community while enhancing the State's protection of human health and the environment.*

As discussed earlier in this document, the Council views pollution prevention as a multimedia concept. The recommendations in this section are targeted at the State's hazardous waste program. However, where the air and water programs could be modified to provide specific pollution prevention benefits, parallel recommendations are made.

The recommendations in this section are targeted at enhancing public participation opportunities in the environmental permitting process, developing risk assessment protocols, reducing specific regulatory barriers, and developing new inspection/enforcement programs to enhance compliance with environmental regulations.

Public Participation In Environmental Permitting Decisions

Issue:

Citizen participation in the decision making process on issues that affect the quality of our environment is essential to maintaining the credibility and efficacy of regulatory programs. The involvement of those affected by environmental regulatory actions should be sought at the earliest stage of any proposal or application. An inclusive process improves the likelihood of achieving an acceptable result that meets the needs of the regulated activity and those who are affected by it.

Background:

A review of existing rules and procedures has identified varying opportunities for public participation in environmental permit decisions. In the air and water programs, and under federal hazardous waste requirements, formal public involvement does not begin until after the submission of a permit application. A common complaint is that, by this point in the process, the permitting authority and the applicant usually have entered into significant discussions. In short, the public often feels as though important permit decisions are made without an appropriate level of public involvement. In North Carolina, over the past decade, insufficient public notice and lack of meaningful opportunity for public comment has

contributed to the controversy surrounding several environmental permits.

State and federal regulators have recognized that certain aspects of the permit process could be modified to provide more timely and meaningful public involvement. Under the North Carolina Hazardous Waste Management Rules, companies seeking a RCRA treatment, storage, or disposal permit must give notice and hold two public meetings prior to the submission of a permit application. [15A NCAC 13A .0009(r)(7)] The U.S. EPA also recently proposed modifications to the federal permit process that somewhat mirrors North Carolina's program. Under the proposed federal approach, permit applicants would be required to provide notice and hold at least one informal public meeting prior to submitting a RCRA permit application. [59 Fed. Reg. 28680, June 2, 1994]

In North Carolina, local officials also have taken steps to enhance the public participation process. Several counties (e.g., Guilford and Forsyth) have established local Environmental Advisory Boards to represent citizens in environmental permit decisions.

Recommendation 27:

The Department should form a task force to develop an approach for enhanced public participation opportunities prior to the submission of certain environmental permit applications. The task force should pay particular attention to the impact of the developed approach on the total time added to permit issuance.

27a. The task force should incorporate any new public participation planning requirements into the Department's environmental permit reform efforts.

27b. The task force should recognize that there are significant differences between the few major environmental permits and the hundreds of routine permits processed each year. The task force should develop criteria (e.g., the relative significance or impact of the activity on the surrounding community) for deciding which permit applications require upfront public participation planning efforts.

27c. The task force should consider the application of tiered public participation planning requirements.

27d. Full public participation planning provisions should require subject applicants to notice and hold at least one public meeting prior to the submission of a permit application. To ensure there are effective discussions between the subject applicant and the host community, the public participation plan should outline who in - and how - the surrounding community will be involved in the public meeting process. The public participation plan, and proof of its implementation, should be submitted with the permit application.

27e. DSWM should issue a regulation that modifies the existing hazardous waste rules to apply the full public participation planning requirements outlined in 27d above to facilities (commercial and noncommercial) seeking a RCRA Part B permit.

27f. The task force should obtain public comment on its proposed approach to enhance the public participation process for other nonhazardous waste environmental permits.

Risk Assessment Guidelines/Protocol

Issue:

The approach for conducting risk assessments has not been consistent across DEHNR Divisions and among outside consultants. For example, some agencies may only consider exposure from one medium (e.g., air) whereas other agencies evaluating the same site may take into account exposure from all media (multi-media approach). Lack of a consistent approach for conducting risk assessments causes confusion among contractors and state agencies which results in increased cost and delays. It also causes distrust among citizens who recognize these inconsistencies.

Background:

Risk assessment is used in DEHNR to estimate the risk of developing adverse health effects (including cancer and other non-cancer effects) resulting from exposure to chemicals in the environment. Risk assessment has been a valuable tool in environmental management decision making within DEHNR's environmental and health divisions. Decisions that are currently influenced by risk assessment include: 1) determining the acceptability of current or proposed operating parameters for facilities requiring environmental permits, 2) determining whether contaminated sites should be remediated, and 3) determining whether a public or private water supply is suitable for drinking or bathing. Risk assessments are conducted for several programs within DEHNR including the Division of Solid Waste Management, the Division of Environmental Management, and the Division of Environmental Health. These risk assessments may be conducted by toxicologists in the Environmental Epidemiology Section, the Superfund Section, or technically qualified individuals outside of state government.

DEHNR, the regulated community, and interested citizens would benefit from integrated, consistent risk assessment protocols that specify when established state-wide environmental standards are applicable and when a site-specific risk assessment protocol is necessary. Protocols would also specify the approach for conducting a risk assessment.

Recommendation 28:

DEHNR should establish a working group to review and approve consistent risk assessment protocols and to evaluate the acceptability of proposed alternative protocols.

28a. The risk assessment protocols should be multimedia, address various types of risks, and be applied as consistently as possible by DEHNR.

28b. The working group should develop guidance documents describing the established risk assessment protocols. Guidance documents can be used to ensure adherence to the protocols.

28c. The working group should consider the applicability of EPA guidance and incorporate it, as appropriate.

28d. DEHNR should provide a mechanism for public participation in the development of the guidance.

The General Assembly should provide a one-time appropriation of $50,000 to support this effort.

Regulatory Barriers to Pollution Prevention

Issue:

More than two decades ago severe pollution of our environment caused government to respond by enacting legislation designed to protect public health and the environment. The result of that action is not only a cleaner environment, but also an exceedingly complex regulatory control structure. Concerns exist that we may now have unnecessary regulatory barriers to recycling and resource reduction of hazardous waste.

Several surveys and studies performed after 1990 have identified regulatory barriers to pollution prevention. A recent report to the Council from a survey conducted by the Environmental Sciences and Engineering Department at the University of North Carolina at Chapel Hill's School of Public Health cited regulatory barriers to pollution prevention that are existing or perceived by generators of hazardous waste in North Carolina. Both regulatory inflexibility and uncertainty have been mentioned as major barriers. In October 1992, the director of US EPA's Office of Solid Waste formed the Definition of Solid Waste Task Force and charged it with developing a comprehensive solution to address the unnecessary impediments to recycling under the Resource Conservation and Recovery Act (RCRA). That process is continuing and the Task Force issued on April 22, 1994 a draft report, Reengineering RCRA for Recycling, with the draft recommendations for improving the hazardous waste recycling regulations under RCRA.

The Council has focused on two ways to remove barriers and provide incentives for increased pollution prevention and on-site recycling efforts.

A. Environmental Permitting Procedures

Background:

A commonly cited barrier to the implementation of pollution prevention activities is the lengthy permitting process. Permitting burdens were listed by 14.3% of the generators responding to one recent survey as significant barriers that prevent or hinder pollution prevention efforts. Ways to streamline environmental permitting are now being studied at the national and state levels.

The Department could, however, mitigate some of the lengthy permitting problems by adopting a policy that directs appropriate divisions to give permitting priority to source reduction and recycling activities. Department personnel are concerned, however, that prioritized permit processing could result in delay of some projects that provide even greater benefits to human health or environment than the source reduction project. The Council agrees that the degree of human health and environmental protection must be a criterion in setting permit review priorities.

Another concern expressed was whether each environmental program should set priorities on a single or multimedia basis. The Council believes that the criteria for setting permitting priorities must include a multimedia perspective so that significant decreases in waste generation or emissions are not blocked by delays in processing for an incidental permit. The multimedia perspective should also prevent a priority permit issuance or modification that results in a small improvement for one media but results in more emissions to another media or increased waste generation.

The State's hazardous waste management rules provide for temporary authorization to allow a permittee to implement changes under its permit while the administrative processing occurs. The permittee must satisfy DSWM that all applicable standards will be met during the interim period, and the permittee has to follow up with all permit modification procedures within 180 days. The permittee assumes some risk that final approval will not be granted, but DSWM's experience with the process has shown that it does work. The Committee believes that the Department should pursue a similar approach in the clean air and clean water programs. The applicant should always be required to show an immediate and legitimate need for a temporary authorization and priority should be given to requests for implementing source reduction or recycling practices.

Recommendation 29:

The Department should develop and implement an environmental permit policy that gives priority to those facilities seeking a permit or permit modification that

would significantly contribute to source reduction or recycling activities that will be protective of human health and the environment. To qualify for priority in permit processing, the activity must result in no net increase in air or water emissions or waste generation. The policy should include minimum criteria under which the permitting agency would consider granting a temporary authorization for a permit modification request. It would be incumbent on the applicant to clearly state and justify any request for priority processing of an environmental permit or modification.

B. Encourage Generators To Recycle On-Site

Background:

Under EPA rules, hazardous waste recycling processes are exempt from regulation under RCRA. Certain practices at these facilities, such as storage of hazardous waste for a specified time period, would require the acquisition of a RCRA Part B permit. North Carolina's rules are different in that they require off-site hazardous waste recycling processes to be permitted in accordance with the full Part B standards. This requirement, however, does not apply to on-site hazardous waste recycling activities.

The Council has reviewed the hazardous waste rules as they apply to on-site recycling and under what circumstances permits are required. Further, the Council recognizes that there are misconceptions and much confusion in the regulated community that serve as barriers to increased on-site recycling. Clear guidelines should be developed so that legitimate and environmentally sound on-site recycling of generator waste is encouraged.

Provided below are examples of two commonly cited barriers, and how guidance on issues such as these could aid efforts to conduct on-site recycling practices.

- A commonly cited barrier to recycling is the requirement for a storage permit when a generator stores hazardous waste more than 90 days. The 90-day rule prevents generators from accumulating large quantities of hazardous waste for extended time periods. Facilities that want to conduct recycling on-site typically believe a permit is required if they store hazardous waste greater than 90 days. These facilities, however, are unaware of the rules governing speculative accumulation. Under RCRA, materials that are <u>not</u> accumulated speculatively can be stored for up to one year without triggering RCRA permit requirements. Speculative accumulation is defined as recyclable materials where at least 75 percent by weight or volume is not recycled during a calendar year. [40 C.F.R. Section 261.1(b)(8)]

- Another barrier is the inability of generators within the same company to consolidate waste for the purpose of conducting on-site recycling. Under RCRA, generators are not allowed to send manifested waste to other generators. Rather, generators can only send manifested waste to TSDs or

"designated facilities." Under current North Carolina interpretation, generators can send manifested hazardous waste to "designated facilities" owned by the same company for the sole purpose of recycling. As defined under RCRA, however, for a facility to be a "designated facility," it may not store hazardous waste prior to recycling without a permit. [40 C.F.R. Section 260.10] Therefore, the shipment must arrive "just in time" and be placed into the recycling process during a normal work day.

Recommendation 30:

DSWM should develop guidance for on-site recycling of hazardous waste that clearly explains what the rules allow. All written information should be promoted throughout the state at seminars, generator workshops and other educational opportunities.

Inspections/Enforcement/Penalties

A.. RCRA Inspectors

Issue:

The State has experienced a strong positive correlation between the number of inspectors and the rate of facility compliance. With respect to hazardous waste generators, 100 percent of the State's large quantity generators are inspected on an annual basis. Due to available resources, however, the State is able to inspect annually only 5 percent of the small quantity generators. Of the 5 percent of small generators inspected annually, approximately 75 percent are found to be in noncompliance.

Background:

The North Carolina Hazardous Waste Management rules regulate the generation, and treatment, storage, and disposal of hazardous waste. Hazardous waste generators fall into the three categories:

- Large Quantity Generators (LQGs) which generate greater than 1,000 kilograms (kg) (2,200 pounds (lbs)) of hazardous waste, or greater than 1 kg of acutely hazardous waste, in any calendar month;

- Small Quantity Generators (SQGs) which generate between 100 kg (220 lbs) and 1,000 kg of hazardous waste, or less than 1 kg of acutely hazardous waste, in any calendar month; and

- Conditionally Exempt Small Quantity Generators (CESQGs) which generate less than 100 kg per month of all hazardous waste and less than 1 kg of

acutely hazardous waste or less than 100 kg of acutely hazardous waste spill residue.

North Carolina has approximately 6,400 generators (600 LQGs, 2,800 SQGs, and 3000 CESQGs). The State has 14 RCRA inspectors who inspect each LQG, and approximately 5 percent of the SQGs, on an annual basis. CESQGs are inspected only if a complaint is submitted to the State.

EPA requires that LQGs be inspected at a rate of 8 percent per year. As indicated, historically North Carolina inspects 100 percent of LQGs annually. This inspection rate may change, however, due to a decision to refocus department resources based on case development, non-notifiers, and the need for increased attention on SQGs.

It is the State's experience that smaller generators have more trouble complying with the regulations than do larger facilities. Small quantity generators tend to have less financial and human resources with which to track, understand, and comply with a very complicated set of rules and regulations. Of the 5 percent of SQGs inspected annually, approximately 75 percent are in noncompliance, whereas of the 100 percent of LQGs inspected annually, between 30-50 percent are in noncompliance.

SQG noncompliance ranges from simple labeling and paperwork problems to serious violations of the law. SQGs that are unaware of the hazardous waste requirements may conduct waste management practices that have caused significant environmental contamination. For example, small dry cleaning operations have discharged perchloroethylene into septic systems resulting in ground water contamination. In one case, this type of activity caused an area in North Carolina to be designated as a National Priority List, or Superfund, site. The State has had to conduct emergency response operations at a number of small metal plating facilities due to contamination from cyanides, chrome, and acids used in their processes.

The State has experienced a strong positive correlation between the number of facility inspections and the compliance rate. The Resident Inspector Program (RIP), which is designed to enhance compliance at commercial treatment, storage, and disposal (TSD) facilities, is an excellent example. Based on a number of criteria, the program requires commercial TSDs to be inspected anywhere from two times a month to daily. Since the program began in 1991, there has been a clear trend toward a reduction in the number of enforcement actions taken. If additional RCRA inspectors are hired to focus specifically on small quantity generators, they similarly could help facilities understand the laws they are subject to and enhance the rate of SQG compliance.

Recommendation 31:

The Division of Solid Waste Management should hire three new RCRA inspectors and focus their efforts on small quantity generators. It is estimated that

three additional inspectors will cost $150,000 annually. This cost should be financed through a modest increase in hazardous waste fees. (See Chapter V for a detailed discussion of estimated costs and expenditures).

Recommendation 32:

The Department should review the effectiveness of the three additional RCRA inspectors to determine if more inspectors should be added to the program.

B. Training and Compliance Assistance

Issue:

Proper management of hazardous waste can be a difficult task due to the complexity and dynamics of the regulations. One of greatest impediments to substantial compliance, and ultimate protection of human health and the environment, is a lack of understanding or knowledge of the hazardous waste regulations by regulated parties.

Background:

Efforts to educate and train those persons responsible for the environmental programs at generator sites are already underway by DSWM but are severely limited by lack of personnel and funding. Recently, four highly successful workshops were conducted by the field inspectors and presented across the state for large quantity generators. In addition to regulatory training, an hour session on waste reduction provided the attendees with information on the existing regulations encouraging waste reduction, slides and commentary on waste reduction achievements across the state, and referred them to the Office of Waste Reduction for technical assistance. The Chemical Industry Council handled the logistics of the workshop at a cost of $65 per person. Participants remarked on the course evaluations that they wanted more courses presented by field personnel inspecting for compliance, and more information on waste reduction opportunities.

This same type of educational effort devoted to practical compliance issues facing small businesses could result in a higher level of SQG compliance, significant waste reduction, and increased recycling of those wastes that are still being produced. To address this concern, the Committee is focusing on training and educational needs of the regulated community, with particular emphasis on small quantity generators and small businesses.

Recommendation 33:

Establish a position in the Hazardous Waste Section (HWS) for a training coordinator to function as a liaison primarily with SQGs. The coordinator would:

33a. Develop training materials and programs directed at SQGs.

33b. Implement half-day training workshops in several locations throughout the state. The coordinator would be directed to use innovative approaches to reach as many SQGs as possible. Examples include using the community college network for satellite courses, and producing a training video for use by individual companies.

33c. Include pollution prevention and waste reduction philosophies in all training materials. Coordinate efforts with OWR and all other appropriate Department Divisions.

Recommendation 34:

Establish up to four positions in the Hazardous Waste Section to provide generators and, in particular SQGs, compliance assistance on the state hazardous waste management rules and regulations. The HWS should determine how the compliance assistance staff will operate, the degree to which they will coordinate with hazardous waste inspectors, and whether they will provide some level of multi-media assistance (i.e., on the air and water quality programs). The program, however, should not provide relief for knowing or willful violations of the law.

This Recommendation and Recommendation 33 above are estimated to cost approximately $278,000 annually. This cost should be financed through a modest increase in hazardous waste fees. (See Chapter V for a detailed discussion of estimated costs and expenditures).

Recommendation 35:

At a minimum, the HWS should evaluate the NC-OSHA compliance assistance program as a template. The NC-OSHA program allows a company to invite an OSHA "consultant" to conduct a mock facility inspection, document any violations, and provide corrective action suggestions. Compliance assistance is provided on a confidential basis. Companies are, however, given a certain period of time to correct any uncovered violations, but are immune from routine inspections during the allotted time period. If the company fails to correct these violations during the agreed upon time period, the file is turned over to the enforcement section. This program does not apply to imminent hazard violations. If an imminent hazard is found at a facility, it is turned over to the enforcement section.

C. Financial Assurance for RCRA Generators

Issue:

Under current law, the State has no authority to require generators to notify it when they intend to leave a site, or to have liability assurance to cover the costs of significant

environmental contamination. In those instances where clean up is necessary, the State must take responsibility for the site.

Background:

The North Carolina Hazardous Waste Management rules require that when TSDs close their facilities, closure is done in a manner that minimizes the need for further maintenance, and controls or eliminates the post-closure escape of hazardous wastes, hazardous constituents, or leachate to groundwater, surface water, or the atmosphere. These rules also require that TSDs have environmental liability assurance to guarantee their ability to finance proper closure and post-closure care activities.

Similar closure/post-closure care and financial assurance requirements are not imposed on hazardous waste generators. Generator facilities, however, have the same potential to pose environmental hazards during their operating life by releasing hazardous wastes or constituents into the environment. Approximately 28 percent of the State Superfund sites are -- or were -- generator facilities. Often by the time the State discovers a violation warranting closure or post-closure activity at a generator site, the company no longer is in existence.

Recommendation 36:

DSWM should develop a financial assurance program for closure at generator sites which, at a minimum, requires RCRA generators to notify the State 90 days prior to the intended closure of their facility.

D. Multimedia Inspections

Issue:

The emphasis on pollution prevention is causing industry to think at the process level (at the source of the problem) rather than at end-of-pipe controls, and evaluate all of its emissions together rather than media-by-media. The shift in attention by the regulated community may need to be matched by a similar cultural shift from state inspection/enforcement personnel. If developed properly, a multimedia approach to inspections could, at a minimum, have the benefit of increasing the efficiency of the inspection process, enhancing compliance assistance, and minimizing cross-media transfers.

Background:

There are a variety of complex technical environmental rules and regulations that are applicable to industry. These rules and regulations are implemented and enforced by numerous state agencies, including the Division of Solid Waste Management and the Division of Environmental Management. The regulatory agencies, including the inspection and

enforcement divisions, are divided along single media lines (i.e., air, water, and wastes, etc.). The single-media focus of the last twenty years has given rise to cross media transfers of pollutants. For example, a facility may install a water pollution control device that reduces toxic water emissions, but concentrates the pollutants in a sludge that leaves the facility as hazardous waste.

Although there remains a strong single-media focus, the goal of pollution prevention has led industry and regulators to think at the process level (at the source of the problem), rather than at end-of-pipe controls. Once one begins to think at the process level, all emissions should be taken into account, rather than media-by-media. A number of states are piloting multimedia inspection programs. To date, the cited program benefits include:

- Making inspection activities more efficient,
- Identifying unpermitted activities,
- Enhancing compliance assistance,
- Minimizing cross-media transfers,
- Minimizing duplicate site visits, and
- Identifying waste reduction opportunities.

Although there will always be a need for single-media compliance and enforcement efforts, industry and the public may be better served by a greater multimedia effort.

Recommendation 37:

The Department should conduct a two-year pilot multimedia inspection project to enhance facility compliance with the hazardous waste, air, and water regulations, and help facilities identify waste reduction opportunities.

Recommendation 38:

Facilities should help test the pilot project on a voluntary, nonpunitive basis. The multimedia inspection team should evaluate the efficiency and effectiveness of the proposed process by working with volunteer facilities on a compliance assistance basis.. This process should work in accordance with Recommendation 35 under Training and Compliance Assistance. Multimedia inspections conducted as part of this pilot should not be enforceable until DEHNR has fully developed the program.

Recommendation 39:

The Department should identify permitting and inspection personnel from the air quality, water quality, and hazardous waste Divisions to work as a multimedia inspection team. The team should: develop the facility selection criteria and coordinate with state trade associations and other organizations to communicate with industry across the state; review other state multi-media inspection programs and

develop a format appropriate for the size and complexity of North Carolina industries; and submit reports to the Secretary at the end of the first and second years of the project that discuss the project's progress and provide recommendations as to how the Department should proceed.

E. Supplemental Environmental Projects (SEPs)

Issue:

Environmental agencies take enforcement actions against facilities for not complying with a rule or regulation based on site-specific conditions. Under some circumstances, the agency may consider downward adjustment of a penalty during a settlement based on the violators agreement to undertake a "supplemental environmental project" (SEP) that is both environmentally beneficial and goes beyond mere compliance with the rules and regulations. SEPs can be used to encourage facilities to go beyond their usual way of operating and strive for significant pollution prevention achievements. This process has not been fully utilized in all DEHNR agencies and therefore, further progress in pollution prevention can still be realized.

Background:

EPA and other state environmental agencies increasingly are using the enforcement process to achieve compliance through the application of pollution prevention projects. As stated in an EPA enforcement memorandum, until an enforcement action begins, the regulated community "is free to choose how they will comply with environmental requirements. However, once a civil or administrative action has been initiated, the specific means of returning to compliance are subject to a mutual agreement between the Agency and the respondent."[7/] The settlement process can -- and is -- being used to "identify and implement pollution prevention activities consistent with [an agency's] enforcement approach."

For example, EPA's Resource Conservation and Recovery Act (RCRA) 1990 Civil Penalty Policy serves as guidance for North Carolina's Hazardous Waste Section on the settlement of administrative penalties. The use of SEPs is included as a mechanism to achieve environmental benefits beyond the benefit of full compliance. Projects must: not be a part of a company's normal business practice or a project already planning to be undertaken; benefit the environment and general public not only the violator or the agency; and demonstrate a good-faith commitment by the violator to improve compliance and the

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7/ EPA Memorandum entitled, "Interim Policy on the Inclusion of Pollution Prevention and Recycling Provisions in Enforcement Settlements." From James Strock, Assistant Administrator to the Regional Administrators, Assistant Administrators, and the General Council. February 25, 1991.

environment.[8/] The deterrent objective of the penalty process is maintained by only considering the actual cost of the activity(ies) minus tax benefits accrued. The penalty mitigation can not significantly detract from the general deterrent effect of the settlement process. In addition, if the violator issues any public statement regarding the environmental or general public benefits of the project, a statement must be included that indicates funding for the project is in partial settlement of an enforcement case.

Several projects were approved in the settlement of penalties issued by the Hazardous Waste Section within the last year. These include a pollution prevention project regarding improvement of container storage areas, whole facility environmental audits and education, improvements to existing (permitted) air pollution control devices, and studies investigating the use of less toxic materials.

Recommendation 40:

The Department should identify an environmental enforcement team to develop an approach for the incorporation of pollution prevention into enforcement settlements that would be applied Department-wide. The policy should be offered for public comment prior to implementation.

Recommendation 41:

The Hazardous Waste Section should continue to use SEPs as a settlement tool in its enforcement cases. Where feasible and appropriate, SEP agreements should be based on a facility's agreement to implement pollution prevention measures.

F. Self-Confessor Policy

Issue:

As the potential liability for not complying with the multitude of environmental regulations is being realized, companies are conducting more environmental audits of their facilities and identifying problem areas. Where problems are found, companies must remedy the situation as well as address the environmental concerns of the applicable regulatory agency. A Self-Confessor Policy can be used to encourage companies to bring forward their environmental issues so that the Department is aware of any real or potential impacts to the environment or public health, cooperatively work with industry to remedy compliance problems, and encourage the implementation of pollution prevention activities. (Self-

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[8/] As outlined by EPA, SEPs fall into the following five categories: pollution prevention, pollution reduction, environmental restoration, environmental auditing projects, and public awareness projects. [Memorandum from James Strock entitled, "Policy on the Use of Supplemental Environmental Projects in EPA Settlements."]

Inactive Sites

Issue:

North Carolina has 1009 inactive hazardous sites on its inventory. Inactive hazardous sites range from sites found with small environmental problems to those with major contamination covering several miles. There are a number of problems with the State's inactive sites program. First, the program lacks the authority (i.e., injunctive relief) to compel responsible parties to clean up contaminated sites; therefore there is a heavy reliance on responsible parties conducting voluntary clean ups. Second, there is inadequate civil penalty authority for violations involving hazardous substances, as opposed to hazardous wastes, at inactive hazardous substance or waste disposal sites. Third, the Inactive Hazardous Sites Clean Up Fund is inadequate to clean up those sites for which responsible parties can not be found, or will not clean up. Fourth, the program is significantly under staffed given the statutory task it is charged with implementing, and the magnitude of the problem in North Carolina.

Background:

The North Carolina Inactive Hazardous Site Response Act of 1987 established a program to identify, assess, and clean up unregulated hazardous substance or waste disposal sites. The Inactive Hazardous Sites Cleanup Fund is used to: (1) address imminent hazard sites; (2) pay for assessment and cleanup of sites without financially-viable responsible parties; (3) pay for assessment and cleanup of sites when responsible parties do not comply with orders to conduct remedial action; and (4) pay for survey plat preparation for recording notices of inactive hazardous substance or waste disposal sites. There is no regular appropriation or other source of revenue for the cleanup fund.

North Carolina has an inventory of 1009 inactive hazardous sites. Of these sites, 133 are being addressed by other agencies, 224 have undergone appropriate completion, and 652 require action by the inactive hazardous sites program. Of the 652 requiring action, 153 are on the State's inactive sites priority list, and 483 still need to be ranked. Of the 483, 16 sites with responsible parties are conducting clean ups pursuant to consent agreements (these sites are exempt from ranking), and voluntary clean ups are being conducted for 41 additional sites (these sites may require ranking).

The inactive sites program has 6 staff people to perform all site rankings, record notices of inactive hazardous substance or waste disposal sites, and supervise State-funded, voluntary, and enforcement-lead site assessments and cleanups. These resources allow 20 sites to be ranked annually, which is less than the number of sites discovered and added to the inventory each year. At this staffing level, it will take more than 500 years to complete all of the program's activities.

Administrative costs for the inactive sites program are funded through general

revenues. There is, however, an Inactive Hazardous Sites Clean Up Fund which can be used for expenditures related to site clean up (e.g., site investigations, emergency response, and removals, etc.). In 1987 the fund received an initial appropriation of $100,000, and in 1988 it received another $500,000 appropriation. The fund also receives any excess over $500,000 in the State's Emergency Response Fund. There currently is a fund balance of approximately $1.9 million. North Carolina also has a separate CERCLA match fund which has a balance of $3.9m.

There are a number of problems with the inactive sites program. First, the program lacks the authority (i.e., injunctive relief) to compel responsible parties to clean up contaminated sites; therefore there is a heavy reliance on responsible parties conducting voluntary clean ups. Second, there is inadequate civil penalty authority for violations involving hazardous substances, as opposed to hazardous wastes, at Inactive Hazardous Substance or Waste Disposal Sites. The universe of hazardous substances consists of much more than hazardous wastes.[2/] Many inactive hazardous substance or waste disposal sites contain hazardous substances but no hazardous wastes. Third, the Inactive Hazardous Sites Clean Up Fund is inadequate to clean up those sites for which responsible parties can not be found, or will not clean up. Fourth, the program is significantly under staffed given the statutory task it is charged with implementing and the magnitude of the problem in North Carolina.

With regard to injunctive relief, under current law there is no authority for the Secretary to compel a responsible party to comply with an order to clean up a site. If a responsible party fails to comply with the Secretary's cleanup order, the Secretary must expend State funds to clean up the site and attempt to recover the costs in court. Because there is limited funding available for the Inactive Sites Cleanup Fund, the Secretary is hampered in his ability to enforce cleanup by threatening to expend state funds.

Due to limited inactive hazardous sites cleanup funds and the inability to enforce cleanups, the majority of the inactive hazardous sites program resources have been focused on those sites where cleanup is being carried out voluntarily by responsible parties. While a preference exists for the funding of cleanups by responsible parties rather than by use of State funds, the voluntary remedial actions usually do not involve the "priority" cases. Also, negotiations of consent agreements for cleanup are difficult when no means exist for compelling non-cooperative parties to conduct a cleanup.

Voluntary cleanup processes and consent agreements work well for those sites with responsible parties truly interested in cleaning them up. Those sites with responsible parties

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2/ A hazardous substance is defined as that which is designated hazardous under any one of the following five federal statutes: Section 311(b)(2)(A) of the Federal Water Pollution Control Act; Section 3001 of RCRA; Section 307 of the Clean Water Act; and Section 7 of the Toxic Substances Control Act (TSCA). See CERCLA Section 101(14).

unwilling to conduct voluntary cleanups require a mechanism to enforce a clean up.

Regarding civil penalty authority, administrative penalties are currently possible at some inactive hazardous substance or waste disposal sites for violations involving hazardous wastes. However, the absence of an explicit reference in the North Carolina Solid Waste Management Act regarding assessment of administrative penalties for hazardous substance releases at inactive hazardous substance or waste disposal sites makes imposing penalties at these sites problematic. Little incentive exists for responsible parties to comply with consent agreements related to site assessment and cleanup.

With regard to staffing and financial resources, North Carolina has one of the smallest staffs and clean up funds relative to the number of inactive sites. North Carolina has 6 staff and a cleanup fund of $1.9m. North Carolina is in the bottom 25% for state-funded staffing. (The states with a higher site/staff ratio for their Inactive Sites Programs are Vermont, Virginia, West Virginia, Illinois, Arkansas, Nebraska, South Dakota, Utah, and Hawaii.) Regarding fund balances:

- 2 states have no fund,
- 7 states have less than $1m,
- 15 states have between $1m and $5m,
- 11 states have between $5m and $10m,
- 12 states have between $10m and $50m, and
- 3 states have greater than $50m.

Most states, other than North Carolina, also use a combination of funding sources (e.g., fees on hazardous waste generators and TSDs, broad-based taxes, or bonds) to finance their clean up funds and programmatic costs.[10/]

Recommendation 45:

The General Assembly should modify N.C.G.S. 130A-310.3 to provide the Secretary of the Department of Environment, Health, and Natural Resources with the ability to seek injunctive relief against parties not complying with orders to conduct cleanups. Injunctive relief would also provide responsible parties with an incentive to conduct voluntary cleanups.

10/ Unpublished information from the Environmental Law Institute on state inactive site programs. (1994).

Recommendation 46:

The General Assembly should modify N.C.G.S. 130A-22 to provide clear civil penalty authority for hazardous substance violations at Inactive Hazardous Substance or Waste Disposal Sites. The availability of penalties (in particular penalties for violation of orders and stipulated penalties in consent agreements with recalcitrant responsible parties) will help ensure completion of site assessment and cleanup activities.

Recommendation 47:

The Environmental Review Commission should evaluate both the magnitude of the inactive sites problem in North Carolina relative to other states and the approach other states are taking to clean up their inactive sites problem. Based on that review, the ERC should determine whether an alternate approach should be used to ensure, within a reasonable time frame, the clean up or management of all inactive sites in North Carolina.

Universal and Household Hazardous Waste

Issue:

Since the early 1980's, with the implementation of RCRA Subtitle C regulations, vast improvements have been made in hazardous waste management by industrial facilities. Currently, however, regulatory focus is shifting from large industrial facilities to smaller industrial, commercial and institutional sectors, and households. While the quantity of hazardous waste generated by these institutions and households is relatively small, the large number of these potential generators is overwhelming. Small establishments and households also are often the least educated on proper hazardous waste management practices.

The PPAC has examined the management of certain commonly generated hazardous wastes and is making recommendations to better facilitate the collection, recycling, and proper disposal of these waste streams. The recommendations address batteries, pesticides, household hazardous waste, and hazardous waste generated by Conditionally Exempt Small Quantity Generators (CESQG). The recommendations are not comprehensive with regard to the wastes addressed; rather the Council seeks to enhance the management of selected waste streams that have been both under or over regulated.

A. Batteries and Pesticides (Universal Waste)

Background:

In February, 1993, the EPA issued proposed rules (Federal Register Volume 58, No. 27 page 8102) that establish Part 273 - Standards for Special Collection System Waste,

otherwise referred to as the "Universal Waste Rule." The proposed rule specifically addresses used nickel-cadmium batteries and suspended and/or canceled pesticides. The purpose of the rule is to encourage the collection, recycling and/or proper disposal of these commonly generated wastes. The rule provides an alternate, less onerous, management system for the collection, manifest, and transportation of these materials. The justification for the reduced requirements is that these materials are generated by many sources and present minimal impact during their transport to proper waste management facilities.

The Universal Waste Rule as applied to pesticides and batteries generally has received favorable response. The public comment period has closed and EPA plans to issue final rules by late summer 1994 which will address these used batteries and pesticides.

Recommendation 48:

DSWM should not modify the state's regulations governing universal waste, as defined in EPA's proposed Section 273 of RCRA. Rather, DSWM should adopt EPA's final rule, if it is determined to be equally protective of human health and the environment. The PPAC encourages the state to adopt this general approach to better facilitate proper collection, and management of these special wastes.

B. Household Hazardous Waste Issues

Background:

Household hazardous waste (HHW) is generated when a product purchased by a consumer is not totally expended and it contains either a listed or characteristic hazardous waste. Once the homeowner determines that the item is a "waste," it legally can be discarded in the municipal solid wastestream along with other routine household wastes.

Household hazardous waste is specifically exempted from Subtitle C regulation. A growing number of landfills, however, have groundwater contamination or are being added to the Superfund National Priority List. Problems with municipal solid waste (MSW) landfills have raised the awareness of local government officials, regulators, and solid waste professionals of the potential threat posed by discarding household hazardous waste in the solid waste stream. Some communities have responded by establishing separate collection programs for household hazardous waste. In North Carolina there are eleven city and county HHW collection programs. Thus, only a fraction of the total local governments in North Carolina have addressed HHW disposal issues.

By January 1, 1998, all municipal solid waste must be managed in high-tech, lined, Subtitle D facilities. Owners and operators of these facilities also must implement a program to detect and prevent the disposal of hazardous waste and liquid waste, and address the storage and final disposition of these materials. With the requirements for MSW landfills to store hazardous wastes, it may be relatively easy to allow collection of HHW at these sites

on a permanent basis. Permanent collection sites would offer the advantage of providing a consistent outlet for HHW, rather than collection programs that occur once or twice a year, and that are costly and collect only a small percentage of the total volume of household hazardous wastes generated (approximately 1 percent). The primary materials collected are latex paints, used oil, and pesticides.

The Council believes that any household hazardous waste management effort should have as its basis a sound education program. The public needs to be better educated on what household hazardous waste is, how to purchase the quantity of material needed and use all that is bought, and how to manage properly that which is discarded as waste. The Council recognizes, however, that the decision to establish HHW collection programs rests with local governments operating municipal solid waste disposal facilities. These programs represent an attempt by local governments to reduce any long term liability associated with ground water contamination at landfills or air emissions at MSW incineration facilities.

Recommendation 49:

DSWM should encourage local governments to conduct voluntary household hazardous waste management programs (e.g., education or collection programs for hazardous waste and nonhazardous, nonlandfillable recyclable materials, such as used oil). The Division should provide local governments with technical and regulatory guidance on permanent collection sites, temporary collection days, and financing options for managing household hazardous wastes.

Recommendation 50:

The Department should conduct a state-wide program to educate households on how to reduce household hazardous wastes generation rates, how to safely store, recycle or dispose of such materials, and how to manage such materials within the household. The North Carolina Office of Waste Reduction should develop educational materials for use at the local level. The General Assembly should fund this effort through a one-time appropriation of $50,000.

C. Management of Hazardous Waste from Conditionally Exempt Small Quantity Generators

Background:

Under current law, generators of less than 100 kg (220 lbs) of hazardous waste per month are exempt from the majority of Subtitle C requirements. To ensure the proper management of hazardous waste generated by CESQGs, they should be encouraged to participate in HHW collection programs. For example, the HHW collection program in the City of Raleigh allows CESQGs to preregister with a waste handler during HHW collection days. CESQGs pay for the disposal or recycling of their own waste, but the costs are

reduced since the hazardous waste handler is not mobilizing specifically for one generator.

Recommendation 51:

DSWM should encourage local household hazardous waste management programs to allow participation by CESQGs on a pay-as-you-go basis.

Funding Sources

Issue:

Establishing the SQG training and compliance assistance program and hiring additional RCRA inspectors, as recommended in this Chapter, will require additional funds. These funds can be generated through a modest increase in hazardous waste fees.

Background:

There is a general national trend toward funding pollution control programs and services through increased fees on the regulated community, e.g., permittees or users of the resource. For example, under the Clean Air Act Amendments of 1990 (CAAA), states were directed to fund their air quality permitting program for large sources entirely through fees, and to assess fees of at least $25 per ton of emissions (adjusted annually for inflation).

Currently, the State Hazardous Waste Program receives funding from federal grants (<56%), State General Fund (<25%), and fees (<20%). The fees are set by statute, as is a 30% cap on the portion of the program that can be funded by fees. The fees represent a portion of total program funding, and at their current level are not considered to be high. (See Table 2 below.)

Two primary recommendations in this section are the establishment of an SQG training and compliance assistance program, and hiring additional RCRA inspectors. The Council believes that it is appropriate to pay for regulatory or compliance programs such as these through fees assessed on those regulated parties that will benefit from the programs.

Recommendation 52:

The General Assembly should raise fees assessed on regulated parties to fund the SQG training and compliance assistance program and the additional RCRA inspectors. Table 2 below provides one possible scenario for a modest fee increase that would fund these recommendations. These programs should be implemented after DEHNR has begun to collect the fee money.

Table 2: Hazardous Waste Fee Increases

Source	Number of Units	Current Fee ($)	Revenues	Proposed Fee	Revenues
SQG	2,658	25	66,450	100	265,800
LQG	584	500	292,000	800	467,200
Transporter	70	600	42,000	800	56,000
Facility	118	1,200	141,600	2,000	236,000
Generator, per ton	67,896	.50	33,948	1.00	67,896
Facility, per ton	41,390	1.75	72,433	2.75	113,823
Total			648,431		1,206,719
Increment to Revenues					558,288

Recommendation 53:

Funding for the hazardous waste program, as well as hazardous waste, fees should be adjusted annually for inflation.

ASSURING ADEQUATE HAZARDOUS WASTE MANAGEMENT CAPACITY IN NORTH CAROLINA

H.B. 976 also required that the PPAC evaluate "the hazardous waste management capacity needs of North Carolina business and industry." Based on this mandate, the Capacity Committee determined that its mission is:

> *(1) To determine whether adequate hazardous waste management capacity exists to meet the needs of North Carolina business, industry, and other waste generators, and (2) to make recommendations for meeting those needs over the long term.*

The Council's capacity recommendations are based on an evaluation of existing and new data to determine current hazardous waste generation rates, and in and out-of-state hazardous waste management capacity. With regard to out-of-state capacity, the Committee evaluated the facilities to which North Carolina generators most commonly send their wastes. Capacity also was evaluated for a defined set of other facilities east of the Mississippi. The Committee also paid particular attention to the waste streams and waste management methods that would be most vulnerable to inadequate capacity. The recommendations also address the impact of adequate capacity on the availability of Federal Superfund monies.

Recognizing that companies may in the future try to site commercial hazardous waste management capacity in North Carolina, attention also was focused on issues that impact the "ability to permit" these facilities, and environmental equity concerns regarding the siting of commercial hazardous waste facilities.

Capacity Assurance

Issue:

A primary mission of the PPAC was to determine the hazardous waste management capacity needs of North Carolina business and industry. This is an important issue because the availability of hazardous waste management capacity affects the operations of many businesses. Inadequate capacity could result in the loss of both new and existing business from the state, due to potentially higher waste management costs. To evaluate the capacity needs of the state, an evaluation was done of the supply of and demand for current capacity. The means for preventing capacity shortfalls also were evaluated.

Background:

The U.S. EPA currently is evaluating the supply of hazardous waste management capacity on a national basis. On May 1, 1994, states submitted Phase 1 of their Hazardous Waste Capacity Assurance Plans to EPA in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA or Superfund")

Section 104(c)(9). The Phase 1 submittal included data on the demand for and capacity of commercial and non-commercial hazardous waste management facilities.

Based on the data submitted to EPA, it appears that there is adequate capacity for most, if not all, of the major waste streams generated in North Carolina. A number of different hazardous waste treatment and recycling facilities are located in this State. Commercial management, however, primarily is limited to liquid energy recovery, hazardous wastewaters, and the treatment of hazardous sludges. According to the State's projections for capacity supply and demand (see Table 3 below):

- In 1993, total waste generation exceeded management capacity by 11,813 tons;
- In 1999, total waste management capacity will exceed waste generation by 10,139 tons; and
- In 2013, total waste management capacity will exceed waste generation by 21,115 tons.

The data indicate that by 1999 North Carolina will have the capacity to manage more hazardous waste commercially than it is producing. Additionally, in July 1994, EPA made a preliminary determination that there is adequate national capacity in all capacity assurance planning management categories. EPA considers all states to have adequately assured the availability of hazardous waste management capacity, and it intends to make Superfund remedial action funding available to all states.

To further evaluate the capacity question for North Carolina business and industry, the Council asked the Environmental Science and Engineering Department at the University of North Carolina's School of Public Health to survey the top 45 out-of-state hazardous waste management facilities used by North Carolina generators. The survey concluded that currently there is adequate hazardous waste management capacity for North Carolina business and industry. (See Table 4 for an identification of capacity reserves.) The top 45 out-of-state facilities, which represent approximately 94 percent of the waste (by weight) shipped out-of-state, were studied because North Carolina generators rely heavily on out-of-state hazardous waste management capacity. The study found that not only are there adequate capacity reserves, many of the surveyed facilities plan to expand capacity in the future. The survey indicated, however, that although landfills used by North Carolina generators are operating at 60-75 percent of their permitted capacity, there may be limited capacity at these facilities in the future. A potential capacity problem may exist for certain types of hazardous waste that are limited to one treatment method or served by a specialized hazardous waste management facility. These wastes would be the most vulnerable to capacity shortfalls.

Table 3: Demand vs. Capacity of Commercial Hazardous Waste Management from Recurrent Waste Expected to be Generated In State (tons)

CAP Management Category	Commercial Subtitle C Management Capacity and Demand					
	1993		1999		2013	
RECOVERY	Demand	Capacity	Demand	Capacity	Demand	Capacity
Metals Recovery	4083.977	0	4083.977	0	4083.977	0
Inorganics Recovery	51.641	0	51.641	0	51.641	0
Organics Recovery	5726.059	1814.324	5726.059	1814.324	5726.059	1814.324
Energy Recovery - Liquids	15062.461	12977.826	15062.461	34929.826	15062.461	45905.826
Energy Recovery - Sludges/Solids	129.899	0	129.899	0	129.899	0
TREATMENT						
Stabilization/ Chemical Fixation	2006.752	0	2006.752	0	2006.752	0
Incineration - Liquids and Gases	4565.066	0	4565.066	0	4565.066	0
Incineration - Sludges/Solids	1770.247	0	1770.247	0	1770.247	0
Fuel Blending	10309.715	2280.750	10309.715	2280.750	10309.715	2280.750
Hazardous Wastewaters and Sludges Treatment	8453.027	32005.062	8453.027	32005.062	8453.027	32005.062
DISPOSAL						
Landfill	8731.726	0	8731.726	0	8731.726	0
Deepwell/Under-ground Injection						
Land Treatment/Farming						
TRANSFER/STORAGE						
Transfer/Storage						

Table 4: Annual Capacity Reserves at Surveyed TSDFs

Distance from Raleigh (miles)	Capacity Reserve (lbs)	Capacity Reserve (% of total capacity)
Hazardous Waste Treatment		
161	16,000,000	50%
255	3,395,294	15
315	30,840,000,000	25
324	0	0
428	674,709,358	80
501	210,000,000	60
504	1,966,265	17
510	418,500,000	55
Solvent Treatment		
83	6,406,036	16%
92	0	0
130	20,271,102	44
210	9,023,654	33
255	2,042,313	15
324	0	0
370	2,142,857	30
435	23,820,000	60
446	6,057,692	35
447	78,850,000	50
570	4,933,333	25
640	3,630,000	20
653	5,855,618	30
855	231,589,000	50
Landfills		
180	162,016,000	23%
503	119,240,000	30
594	440,000,000	40
Incinerators		
201	31,483,973	40%
504	1,370,000	25
Metals Recovery		
351	372,000,000	69%
357	5,400,000	20
380	128,000,000	24

The PPAC also conducted a survey of North Carolina LQGs to determine their beliefs about the availability of current and future hazardous waste management capacity for the waste streams generated by their facilities. Two hundred and fifty of the 597 LQGs surveyed responded to the questionnaire for a survey response rate of approximately 42 percent. Most generators indicated that currently they have no problem managing their wastes, and they do not anticipate having a capacity problem in the future. However, seventy percent of the respondents stated that although they do not have a problem managing their wastes, they believe that additional recycling and incineration capacity should be sited in the state. Twenty-five companies stated that the absence of treatment, storage and disposal facilities in North Carolina had an effect on the growth of their company within the state. Many generators believe their waste management costs are high due to the increased cost associated with shipping waste to out-of-state facilities and the higher disposal fees imposed by facilities on the receipt of out-of-state waste. A number of generators also expressed concern about having adequate capacity within North Carolina if, at some point in the future, states are able to close their borders to out-of-state wastes.

The survey did indicate that a small percentage of waste streams generated in North Carolina currently present a waste management problem, or may present a problem in the future. The noted waste streams are: D001 (ignitable waste), F003 (non-halogenated ignitable solvents), F005 (spent non-halogenated and toxic solvents), D009 (mercury waste), and D003 (corrosive waste).

Recommendation 54:

DSWM should study EPA's national capacity conclusions to determine if North Carolina could face future capacity shortfalls. DSWM also should study the capacity projection data of the states to which North Carolina generators send their waste to see if they anticipate reductions in capacity. Further, the Division should monitor statutory and regulatory changes to anticipate the possibility of states closing their borders to North Carolina waste.

Recommendation 55:

DSWM should evaluate, on an annual basis, potentially vulnerable waste streams generated by North Carolina hazardous waste generators. DSWM, in conjunction with OWR, should provide generators of vulnerable waste streams technical assistance on waste management options and pollution prevention opportunities.

Ability to Permit Commercial Hazardous Waste Facilities

A. The Role Of the State in the Permitting Process

Issue:

In North Carolina the permitting and siting of commercial hazardous waste facilities has been highly controversial, and public trust for government officials has eroded significantly. The State's past involvement in the siting of commercial hazardous waste facilities has contributed to this problem.

Background:

During the late 1980s and early 1990s, EPA interpreted that the Federal Superfund law required each state to demonstrate its ability to handle its own hazardous wastes for a period of 20 years. At that time and currently, North Carolina generated more hazardous waste than commercial facilities located in the state could handle and was thus deemed a net exporter of hazardous waste. Because it appeared that North Carolina could not easily demonstrate its ability to handle its hazardous wastes, the State chose to enter into a regional agreement with several other southeastern states to meet the EPA Superfund requirements. As part of the agreement North Carolina committed to building a hazardous waste incinerator, and the State became actively involved not only with permitting the incinerator but with trying to site the facility within the required time frame. Additionally, during this same time period, selected laws were passed which attempted to either facilitate the siting process or inhibit the ability of the State to permit a commercial facility.

From the outset, the permitting and siting process for the incinerator was controversial. Communities where sites were proposed organized citizen groups to oppose any attempt to site a facility. In the case of Northhampton County, citizens believed that secret siting meetings were occurring and that the state had made its permitting decision long before the public process began. Public trust of state regulators and community officials to guard the best interests of its citizens was lost. In the end the State did not site a commercial incinerator in North Carolina, and it became apparent that its ability to permit any commercial facility could be a problem.

While it currently is not imperative that a new commercial hazardous waste incinerator be built in North Carolina, it is possible that a commercial hazardous waste facility would need to be permitted in North Carolina in the future. Because of the problems discussed above, it is unclear that any type of commercial facility could be successfully sited in the State if needed in the future.

In future siting decisions, it is therefore essential that the State avoid the perception of operating in a biased and/or adversarial manner. The State's primary role is to protect human health and the environment and to provide a permitting process that has the best

interests of the public in mind. This includes, among other things, facilitating community involvement, evaluating public health risks, minimizing environmental impact, and addressing other risk issues.

Recommendation 56:

Except in the event of an imminent risk to human health or the environment, the State should not assume responsibility for the siting of commercial hazardous waste facilities. In particular, DEHNR's role should be confined to protecting human health and the environment. DEHNR also should encourage DOC, and local officials (e.g., county commissioners), to involve the public as early in the siting process as possible.

B. "Needs" and "Local Preemption" Requirements

Issue:

Under two North Carolina laws, DEHNR is required to determine if a hazardous waste facility is "needed" prior to it being permitted in the State. [G.S. 130A-295(c) and Section 268 of Chapter 321 of 1993 Session Laws]. North Carolina law also authorizes DEHNR to preempt local ordinances that prohibit the siting of hazardous waste facilities [G.S. 130A-293]. One criterion used to determine whether to preempt a local ordinance is finding that a facility is "needed." DEHNR has found it difficult to interpret how the needs requirement should be applied in a permitting decision, and the Department has never invoked its authority to preempt a local ordinance.

Background:

G.S. 130A-295(c) prohibits the issuance of new or modified permits for a hazardous waste facility unless it can be demonstrated that a facility "is needed to meet the current or projected hazardous waste management needs of the State or to comply with the terms of any interstate agreement for the management of hazardous wastes to which the State is party." The statute does not define the "needs of the State." Rather, "hazardous waste management" is defined in the general statute as "the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery and disposal of hazardous waste" [G.S. 130A-290(12)]. The needs requirement appears to limit the examination of waste disposal capacity to in-state facilities, which discriminates between in-state and out-of-state waste. As a result, the constitutionality of the statute could be challenged based on the Commerce Clause of the United States Constitution.

The impact of Section 268 of Chapter 321 of 1993 Session Laws is more problematic, since Section 321 of the same act [Chapter 321] states that "[e]xcept for statutory changes or other provisions that clearly indicate an intention to have effects beyond the 1993-95 biennium, the textual provisions of this act shall apply to funds appropriated for and activities

occurring during the 1993-95 biennium." Section 268 does not involve a statutory charge and it is an open question as to whether it was intended to have an effect beyond the 1993-95 biennium.

Section 268 provides that a permit cannot be issued for a commercial hazardous waste incinerator or treatment facility until DEHNR determines that "...additional hazardous waste treatment capacity is needed." Assuming that Section 268 applies beyond the end of the 1993-95 biennium, its application is limited to commercial hazardous waste incinerators and treatment facilities, which is a subset of hazardous waste facilities to which G.S. 130A-293 applies. However, Section 268 is not specifically limited to consideration of the need for additional capacity for hazardous waste generated in-state, although that was probably the intent. If the needs determination is applied only to waste generated in the State, this provision is also subject to challenge under the Commerce Clause.

The needs provisions restrict the State's ability to permit commercial hazardous waste facilities including recyclers, state-of-the-art treatment facilities, and entrepreneurial enterprises or to permit new technologies and improved processes at existing facilities. The PPAC believes, in appropriate circumstances, that it is advantageous to the citizens of North Carolina and to North Carolina industry to have the ability to permit such facilities and to modify existing technologies and processes. The PPAC also recognizes that there is a relationship between the availability of hazardous waste treatment and disposal capacity and the impetus to reduce and recycle hazardous waste and that the hazardous waste facility permitting process should therefore take into account the actual and projected needs for such capacity. The PPAC believes that if a needs determination is to be retained as a part of the hazardous waste facility permitting process, the determination should be based on national capacity needs so as to avoid a potential constitutional challenge.

With regard to preemption, the federal Resource Conservation and Recovery Act specifically provides that state and local standards may be more stringent than federal standards, and North Carolina law provides that rules adopted for the management of hazardous waste may incorporate standards and restrictions that exceed and are more comprehensive than comparable federal regulations [G.S. 130A-294(e)]. However, federal courts have held that local ordinances that unreasonably prohibit the development of a facility for which a permit may be issued under RCRA unconstitutionally violate the Supremacy Clause of the United States Constitution. State law echoes this principle. G.S. 130A-296 states that "[i]t is the intent of the General Assembly to prescribe a uniform system for the management of hazardous waste and to place limitations upon the exercise of all units of local government in the State of the power to regulate the management of hazardous waste by means of special, local, or private acts on resolutions, ordinances, property restrictions, zoning regulations, or otherwise... [G.S. 130A-296]." The present statutory preemption process was enacted to achieve this intention. However, the preemption statute creates an administrative process that has never been used and that is of doubtful utility. In addition, having DEHNR in the role of both permitting facilities and preempting local ordinances that prohibit facilities from siting has the potential for the public or the permit applicant to

perceive DEHNR as being biased in its permitting decision.

The PPAC recognizes the important role of local government in protecting the health, safety, and welfare of its citizens. Citizens of a community have a reasonable expectation that they can exercise control over the destiny of the community through their local government. The PPAC also recognizes the importance of a uniform and stable regulatory environment under which hazardous waste management facilities necessary to protect health and safety and to continued economic development can be permitted. The regulated community has a reasonable expectation that the permitting process will be fair and predictable for all concerned.

The PPAC believes that the courts are best equipped to resolve disputes relating to the foregoing principal that may arise between a permit applicant and local governments, and that the portion of the existing preemption statute that provides for an administrative determination of whether a local ordinance is to be preempted should be repealed.

Recommendation 57:

The General Assembly should modify the "needs" requirements found at G.S. 130A-295(c) and, if it is to have continuing effect, Section 268 of Chapter 321 of 1993 Session Laws to provide that the determination of whether a particular commercial hazardous waste facility is needed should be made on the basis of national capacity needs.

Recommendation 58:

The General Assembly should repeal the administrative preemption provisions. Challenges to local ordinances that prevent, or have the effect of preventing, the siting of a hazardous waste facility, and that can not be resolved informally, should be resolved in the courts, rather than through an administrative process. In making this recommendation, the Council does not advocate any changes to existing law with regard to the balance between the power of local government to enact ordinances that reasonably reflect local needs and priorities, and the State's ability to maintain a uniform system of hazardous waste management throughout the State.

Environmental Justice

Issue:

During the late 1980s and early 1990s the State of North Carolina attempted to locate acceptable sites for a hazardous waste incinerator. During this process, a number of concerns were noted in communities selected to host the facility. These included, among other issues, concerns over environmental equity in selecting sites for commercial hazardous waste facilities. For example, some citizens from Northhampton County believe that the

attempt to site a commercial hazardous waste incinerator in their county was driven in part by the fact that their community is rural, has a lower educational level, and has a large minority population.

Background:

In recent months the State of North Carolina, as well as numerous other states and EPA, have begun evaluating and in some cases adopting standards for "environmental justice." Such evaluations include addressing concerns that communities, based on demographic characteristics, may be exposed to disproportionate environmental risks. An Environmental Justice Committee has been formed within the Division of Solid Waste Management which is collecting information on, among other things, the demographics of existing facility locations and environmental risk. The PPAC feels that DEHNR should continue to investigate this issue to ensure that no population group unfairly bears a disproportionate share of environmental impacts.

Recommendation 59:

The State should ensure that no population group unfairly bears a disproportionate share of environmental impacts. The PPAC supports the work of the Division of Solid Waste Management Environmental Justice Committee and believes that the Committee should continue its evaluations and data gathering to identify sites that are at risk for environmental injustice. The Committee's work should be expanded to other DEHNR divisions, to other departments in state government, and the public to address environmental justice issues across the spectrum of environmental and health disciplines. Evaluations should include investigations of communities where commercial hazardous waste facilities are located or could potentially be sited. Should environmental injustices be identified based on DEHNR policies or regulations, these policies and regulations should be modified to reduce the likelihood of future inequities.

Recommendation 60:

Any environmental justice study commission created by the North Carolina General Assembly or any legislative actions governing environmental justice should include requirements to evaluate environmental justice as it relates to the siting of commercial hazardous waste facilities.

COSTS ASSOCIATED WITH THE COUNCIL'S PRIMARY RECOMMENDATIONS

The Pollution Prevention Advisory Council has studied the issues it was mandated to address and has developed numerous recommendations for consideration by the Governor, the General Assembly, and the Secretaries of DEHNR and DOC. The recommendations can be grouped into three types, those requiring: legislation, new or modified regulations, or policy development. Many of the recommendations can be implemented using existing state resources, while other of the recommendations would require hiring additional staff and developing training/workshop materials for distribution across the State. The Council has developed cost figures for its major recommendations that would require additional State resources.

Table 5 provides the Council's best estimate of the costs associated with its major recommendations. The primary pollution prevention recommendations requiring additional resources are: training and technical assistance for industry to develop pollution prevention plans; development of the environmental honors program; the pollution prevention capital access and challenge grant programs; implementation of the planning requirements by state agencies; and broad based education programs for K-12, industry, and the general public. The Council estimates that these programs would cost approximately $1.3 million annually and an additional one-time appropriation of $104,180 for the environmental honors program and the development of a curriculum that incorporates pollution prevention into environmental education.

Other major recommendations requiring additional resources are: additional staff to conduct small quantity generator training and compliance assistance; additional RCRA inspectors; the development of a risk assessment protocol; the development of a technical assistance grant program for communities to comment on permit decisions for hazardous waste facilities and state remediation decisions; and the development of educational materials on household hazardous wastes. The Council estimates that these programs would cost approximately $528,000. The Council recommends that one-time appropriations be made to develop the risk assessment protocol and the educational materials for household hazardous wastes. The Council also recommends that the training and compliance assistance staff and the RCRA inspectors be paid for by industry through an increase in hazardous waste fees. (See Table 2 for a list of the proposed fee increases).

The total cost of all major recommendations requiring new or additional resources is estimated to be $2.0 Million. The Council recommends funding $428,000 of this total through an increase in hazardous waste fees. The Council further estimates that approximately $204,180 of the total cost would be one-time appropriations. **Therefore, total general appropriations needed on an annual basis after the first year of implementing the Council's major recommendations is approximately $1.4 million.**

Table 5: PPAC Program Costs

PROGRAM	FTEs	HAZARDOUS WASTE		WASTE REDUCTION		EDUCATION	
		One-Time	Annual	One-Time	Annual	One-Time	Annual
SQG Training & Compliance Assistance	5		278,000				
RCRA Inspectors	3		150,000				
Household Hazardous Waste		50,000					
Risk Assessment		50,000					
State Agency P2	3				255,000		
P2 Technical Assistance/ Training	4				320,000		
P2 Planning/ Industrial Education	5				275,000		
Environmental Honors	.5			50,000	27,500		
P2 Incentives					400,000		
K-12 Education						54,180	
Non-Formal Education							46,800
total		100,000	428,000	50,000	1,277,500	54,180	46,800

APPENDIX A

H.B. 976

GENERAL ASSEMBLY OF NORTH CAROLINA
1993 SESSION
RATIFIED BILL

CHAPTER 501
HOUSE BILL 976

AN ACT TO REORGANIZE AND TRANSFER THE GOVERNOR'S WASTE MANAGEMENT BOARD TO THE OFFICE OF ENVIRONMENTAL EDUCATION, TO MAKE CONFORMING CHANGES, AND TO CREATE THE POLLUTION PREVENTION ADVISORY COUNCIL.

The General Assembly of North Carolina enacts:

Section 1. Part 4A of Article 7 of Chapter 143B of the General Statutes is repealed.

Sec. 2. G.S. 7A-29 reads as rewritten:

"**§ 7A-29. (See Note) Appeals of right from certain administrative agencies.**

(a) From any final order or decision of the North Carolina Utilities Commission not governed by subsection (b) of this section, the Department of Human Resources under G.S. 131E-188(b), the Commissioner of Banks under Articles 17, 18, 18A, and 21 of Chapter 53 of the General Statutes, the Administrator of Savings and Loans under Article 3A of Chapter 54B of the General Statutes, the North Carolina Industrial Commission, the North Carolina State Bar under G.S. 84-28, the Property Tax Commission under G.S. 105-290 and G.S. 105-342, ~~or an appeal from~~ the Commissioner of Insurance under G.S. 58-2-80, ~~or from the Governor's Waste Management Board under G.S. 130A-293 and G.S. 104E-6.2,~~ or the Secretary of Environment, Health, and Natural Resources under G.S. 104E-6.2, appeal as of right lies directly to the Court of Appeals."

Sec. 2.1. G.S. 104E-5 is amended by adding a new subdivision to read:

"(14b) 'Secretary' means the Secretary of the Department of Environment, Health, and Natural Resources."

Sec. 3. G.S. 104E-6.2 reads as rewritten:

"**§ 104E-6.2. Local ordinances prohibiting low-level radioactive waste facilities invalid; petition to preempt local ordinance.**

(a) It is the intent of the General Assembly to maintain a uniform system for the management of low-level radioactive waste and to place limitations upon the exercise by all units of local government in North Carolina of the power to regulate the management of low-level radioactive waste by means of special, local, or private acts or resolutions, ordinances, property restrictions, zoning regulations, or otherwise. Notwithstanding any authority granted to counties, municipalities, or other local authorities to adopt local ordinances (including but not limited to those imposing taxes, fees, or charges or regulating health, environment, or land use), any local ordinance ~~which~~ that prohibits or has the effect of prohibiting the establishment or operation of a low-level radioactive waste facility ~~which the Governor's Waste Management Board (hereinafter 'the Board')~~ which the Secretary has preempted pursuant to subsections (b) through (f) of this section, shall be invalid to the extent necessary to effectuate the purposes of this Chapter or Chapter 104G of the General

(5) Utilize existing programs, educational materials, or facilities, both public and private, wherever feasible.

"§ 143B-285.24. Grants and awards.

The objective of grants and awards made under the provisions of this Part shall be to promote the further development of local and regional environmental education and information dissemination to aid especially, but not be limited to, school-age children. The Office shall recommend each year to the Governor recipients for the Project Tomorrow Award, which the Governor shall award for outstanding environmental projects by elementary schools in North Carolina.

"§ 143B-285.25. Liaison between the Office of Environmental Education and the Department of Public Instruction.

The Superintendent of the Department of Public Instruction shall identify an environmental education liaison within the Office of Instructional Services of the Department of Public Instruction to:

(1) Coordinate environmental education within the State curriculum and among the Department and other State agencies.

(2) Conduct teacher training in environmental education topics in conjunction with Department and other State agencies.

(3) Coordinate and integrate topics within the various curriculum areas of the standard course of study.

(4) Promote awareness of environmental issues to the public and to the school communities, including students, teachers, and administrators.

(5) Establish a repository of environmental education instructional materials and disseminate information on the availability of these materials to schools.

(6) Promote and facilitate the sharing of information through electronic networks to all schools."

Sec. 29. G.S. 150B-1(e)(2) is repealed.

Sec. 30. There is created the Pollution Prevention Advisory Council.

(a) The Council shall consist of 15 members as follows:

(1) The Secretary of Environment, Health, and Natural Resources or the Secretary's designee.

(2) The Secretary of Commerce or the Secretary's designee.

(3) Four members appointed by the Governor as follows: one representative of industry; one representative of small business; one representative of the environmental and conservation community; and one citizen representative.

(4) Four members appointed by the President Pro Tempore of t Senate as follows: one member of the Environmental Rev Commission; one representative of industry; one representati the environmental and conservation community; and representative of county government.

(5) Four members appointed by the Speaker of the H Representatives as follows: one member of the Env Review Commission; one representative of ind representative of the environmental and conservatio and one representative of city government.

(6) One member appointed by the Lieutenant Gov general public.

(b) The Secretary of Environment, Health, and Natur Secretary's designee shall serve as chair of the Council.

(c) The Council shall, in an advisory capacity, assist the Governor, the Secretary of Environment, Health, and Natural Resources, the Secretary of Commerce, and the General Assembly in reviewing issues relating to hazardous waste management, including, but not limited to:

(1) The regulation of hazardous waste generation and management in North Carolina;

(2) The potential to promote greater reduction of waste generation through new and existing programs and policies; and

(3) The hazardous waste management capacity needs of North Carolina business and industry.

(d) Any appointed member of the Council may be removed by the appointing authority for misfeasance, malfeasance, or nonfeasance. A member who fails to attend three consecutive meetings of the Council shall cease to be a member of the Council. Vacancies shall be filled by the appointing authority.

(e) The Council shall meet upon the call of the Chair. A majority of the Council shall constitute a quorum for the transaction of business.

(f) Any person who is a member of the Council may hold such membership concurrently with and in addition to any other elective or appointive office or offices such as a person is permitted to hold under G.S. 128-1.1.

(g) Members of the Council who are not State employees shall receive per diem and necessary travel and subsistence expenses in accordance with the provisions of G.S. 138-5.

(h) All clerical services required by the Council shall be supplied by the Department of Environment, Health, and Natural Resources. The Attorney General shall provide legal services provided by the Council. The Council may select outside contractors to provide technical and other support services pursuant to the budgetary provisions in this act.

(i) The Council shall hold public meetings in at least three locations to receive public comments. The Council may prepare separate reports on issues it selects. The Council shall make an interim report to the Governor, the Secretary of Environment, Health, and Natural Resources, the Secretary of Commerce, and the Environmental Review Commission of the General Assembly on or before March 1, 1994. The Council shall make its final written report to the same bodies on or before October 1, 1994. Upon making its final written report, the Council shall terminate.

Sec. 31. This act is effective upon ratification.

In the General Assembly read three times and ratified this the 23rd day of July, 1993.

DENNIS A. WICKER

Dennis A. Wicker
President of the Senate

DANIEL BLUE, JR.

Daniel Blue, Jr.
Speaker of the House of Representatives

APPENDIX B

POLLUTION PREVENTION ADVISORY COUNCIL MEMBERS

Carolyn Anderson has been with Carolina Power and Light for 21 years as a field biologist/limnologist and legislative/regulatory environmental specialist. She chairs the Edison Electric Institute's Emergency Planning and Community Right-to-Know Act Sub-Committee; is co-founder of the Edison Electric Institute's Pollution Prevention Task Force; and co-developer of the pollution prevention policy for the electric utility industry. Ms. Anderson was appointed by Senator Basnight.

Thomas F. Cecich is a certified industrial hygienist and Vice President of Safety and Environmental Affairs for Glaxo Incorporated. He is responsible for developing and directing a corporate program designed to comply with all federal and state safety and environmental regulations, and implementing policies and procedures that protect Glaxo employees and the environment in which the company operates. In 1990 he received the North Carolina Safety Professional of the Year Award, and in 1993 Glaxo received the Governor's Award for Excellence in Waste Management. Mr. Cecich was appointed by the Governor.

Edward Garner is a grassroots organizer and co-founder of Northampton's Citizens Against Pollution, which successfully blocked the siting of a hazardous waste incinerator in Northampton County. Mr. Garner was appointed by Representative Blue.

Robert Goodale is the Deputy Secretary to the Department of Commerce. From 1986 to 1989 he was President of Harris Teeter.

Representative Karen E. Gottovi is the former New Hanover County Commissioner, and currently is the State Representative for North Carolina's 13th District. Ms. Gottovi was appointed by Representative Blue.

Lucious Hawkins grew up in Weldon, North Carolina (Halifax County). He received his education in Washington, DC and Warrenton, North Carolina (Warren County). He spent most of his professional career as an elementary school principal in Warrenton, NC. He lived and worked in close proximity to a PCB disposal area, and subsequently became interested in hazardous waste management issues. He currently serves as Chairman of the Warren County Board of Commissioners. Mr. Hawkins was appointed by Senator Basnight.

C. David Hughes, Jr. is an Assistant Vice President and Trust Officer with NationsBank. He has been a resident of Charlotte, North Carolina for 10 years, and has participated in efforts regarding the Charlotte-Mecklenburg waste management plan. Mr. Hughes was appointed by the Lieutenant Governor.

Steven Levitas is the Deputy Secretary to the Department of Environment, Health, and

Natural Resources. Prior to this appointment, he was Director of the N.C. Environmental Defense Fund, which he founded in 1987. Mr. Levitas was a member of the Clean Air Act Advisory Council and chaired the Council's toxics work group. The council determined how the 1990 amendments to the Clean Air Act will be implemented in North Carolina. He also was instrumental in the development of the Tar-Pamlico pollution trading program, an innovative approach to reducing non-point source pollution in the Tar-Pamlico river basin. Mr. Levitas also helped develop North Carolina's landmark biotechnology legislation.

Jim McKay owns and operates three dry cleaners in the Raleigh Area. He is the past President of the North Carolina Association of Launderers and Cleaners, past chair of the Association's Environment Committee, and co-chair of the Education and Training Committee. He is a member of the International Fabric Care Institute, and a graduate of the New York School of Dry Cleaning. Mr. McKay was appointed by the Governor.

Donnell (Trip) Van Noppen III is an attorney in private practice in Raleigh with the firm Patterson, Harkavy & Lawrence. He has experience in hazardous waste and other environmental issues, including involvement in the siting dispute regarding a hazardous waste incinerator, and in litigation regarding the now-closed Caldwell systems hazardous waste incinerator. Mr. Van Noppen was appointed by Senator Basnight.

Dr. William E. Paige is the Manager of Prevention and Compliance Programs for the General Electric Company (GE) - Industrial and Power Systems. He has been a key champion and organizer in recent consensus building meetings between GE, the states of NC and SC, and EPA regulatory programs. He developed a partnership program with EPA to perform joint multi-media waste reduction assessments at select GE locations. He also has coordinated efforts between EPA Region 4 and GE on developing a multi-media pollution prevention program used by GE to train manufacturing engineers. Mr. Paige was appointed by Representative Blue.

Senator J. Clark Plexico is the State Senator from Asheville, is a member of the Environmental Review Committee, and is Vice Chairman of the Senate Environment and Natural Resources Commission. Mr. Plexico was appointed by Senator Basnight.

Margaret Pollard is the former Director of Public Health and Wellness Education at the Wake Area Health Education Center. She has received state and national recognition for her efforts to limit the use of pesticides and herbicides. Ms. Pollard has been active in the low level radioactive waste debate in Chatham County, and she currently is a member of the Minority Health Council. Ms. Pollard was appointed by the Governor.

Elizabeth Treadway is the Director of Environmental Services for the City of Greensboro. She is a member of the U.S. Environmental Protection Agency's Advisory Council on local government regulatory requirements; member of the American Public Works Association's Executive Council on Water Resources; Director of North Carolina's American Public Works Association Board; and Director of the Greensboro Beautiful Board. Ms. Treadway

was appointed by Representative Blue.

Dr. Gladys Van Pelt is a retired professor from Guilford College. She is a former member of the Environmental Management Commission, and the Air Quality Subcommittee Chair; a former member of the Mining Commission; and she has served on the Guilford County Planning Board and other county environmental boards. She is active in the North Carolina Garden Club, where she focuses on solid waste management, energy, economics, and other environmental projects. Dr. Van Pelt was appointed by the Governor.

COMMITTEE MEMBERS

Dikran Kabbendjian is the Manager of Environmental and Human Resource Services for Alcatel, a manufacturer of telephone switching systems and electronic transmission cables. He has been a leader in developing and implementing hazardous waste reduction programs, and has served on the Technical Advisory Committee to the Governor's Waste Management Board.

Dr. Lee Kindberg is Manager for Environmental, Health & Safety Affairs with Cape Industries (a division of Hoechst Celanese Corporation). She joined Hoechst Celanese in 1977 as a research and development chemist. Since then, she has held positions in Technical Service, Marketing, Quality Assurance, and Environmental, Safety, and Health Affairs. She is Vice President of Parents for Academically Gifted Education, Vice Chair of the Advisory Council for Academically Gifted Education for the New Hanover County Schools, and served on the Board of the Earth Day Alliance of the Lower Cape Fear.

Gordon Miller is Manager for Safety & Environmental Affairs for all of Rexham Corporation's operations. He is a certified industrial hygienist (CIH), a certified hazardous control manager (CHCM), and a certified hazardous material manager (CHMM). Rexham, a nationally known printing company, has been a leader in waste reduction under Miller's direction. Rexham won the 1987 Governor's Award for Excellence in Waste Management.

Ted Outwater is Director of the Clean Water Fund of North Carolina (CWF-NC). He has twenty years of community organizing experience in North Carolina. Under his direction, CWF-NC has published reports on the Yadkin and Neuse River Basins, groundwater pollution in several North Carolina counties, hazardous waste incineration in cement and aggregate kilns, and the disposal of radioactive waste in North Carolina. He was active in the recent revision of North Carolina's groundwater cleanup rules. He also serves on the Board of the Institute for Southern Studies, the UNC-Environmental Resource Program, the Hamlet Response Coalition for Workplace Safety, and North Carolina Community Shares.

Dr. William Shobe is an Assistant Professor of Economics at the University of North Carolina at Greensboro. He teaches undergraduate and graduate courses in environmental and natural resource economics, law and economics, microeconomics, and managerial

economics. Dr. Shobe also is a lawyer, and an active member of the state Sierra Club.

Trip Sizemore is an attorney and principal in the law firm, Trip Sizemore & Associates, which concentrates on environmental law, economic and business development, state and federal regulatory issues, and governmental affairs and government finance. His firm is currently representing the national wood furniture and finishing industry in connection with a federal EPA regulatory negotiation on setting the volatile organic compound and hazardous air pollutant emissions standards under the new Clean Air Act. In addition to the foregoing, he coordinated the business community response to the new proposed statewide water supply-watershed rules, and is a Board member of the Environmental Policy and Studies Center in Hickory, North Carolina. He was a three-term member of the State Legislature where he served as Chairman of the House Judiciary Committee on Corrections, Vice Chairman of the Appropriations Committee on Education, and was a member of the House Ethics Committee.

Melinda Taylor is Director and Senior Attorney at the North Carolina Environmental Defense Fund. From 1991 to 1993, she was a partner in the environmental, public interest, law firm of Henry, Lowerre & Taylor in Austin, Texas. Prior to this, she was the Deputy General Counsel at the National Audubon Society in Washington, D.C., where she oversaw the litigation docket and directed the toxics program.

APPENDIX C

POLLUTION PREVENTION CASE STUDIES

Case Study: KEMET Electronics Corporation

Location:	Shelby, NC (Cleveland County)
Industry:	Electronic Capacitors (SIC 3675)
Pollution Prevention Application:	Materials Reclamation and Reuse
Annual Savings:	$622,000 Challenge Grant Project $926,000 Other Projects
Payback Period:	Various
PPP Challenge Grant Awarded:	$15,000
Contact:	Rena Huffman, Environmental Coordinator, (704) 484 8181

Background

KEMET's manufacturing operation utilizes ceramic sheet that contains latex to manufacture multi-layer capacitors. Under the direction of the Corporate Environmental Manager, KEMET's corporate-wide waste minimization team has aggressively pursued waste minimization and has implemented the projects described below.

Background for Challenge Grant Waste Reduction Program

The ceramic powder portion of the sheet contains barium metal that exceeds Toxicity Characteristic Leachate Procedure (TCLP) limits. Lack of on-site technology to reclaim this scrap latex sheet resulted in 90,000 pounds of ceramic raw material, i.e., one-third of the company's annual ceramic raw material input, being sent to a Subtitle D landfill. The scope of the effort was to develop a process to use recovered latex sheet as raw material for the manufacture of new off-line cover layers on one off-line dielectric. A Challenge Grant from the Pollution Prevention Program provided assistance for latex sheet recycling.

Challenge Grant Waste Reduction Activities

Under the Challenge Grant, KEMET developed a process to soften the latex sheet with ammonia, blend and disperse sheet scraps into small particles, and stabilize the resultant dispersion with surfactants for recasting. Although the company investigated the use of the recovered latex in on-line and off-line processes, its use in the latter was found more suitable. Potential exists for expanding the reuse into other dielectric applications. The off-line processes now run completely on recovered feedstock.

Additional Waste Reduction Activities

- High-temperature firing sand is used to impart the ceramic properties associated with dielectric capacitors. Whereas lead capacitors prohibit reuse of the firing sand, barium capacitors allow its continual reuse. To facilitate reuse, Kemet switched from lead- to barium-based dielectrics.

- KEMET implemented a recycling program to recover and reuse the metal-contaminated slurry sand used in its ceramic chip polishing operations.

- Application of a release agent with a 1,1,1-trichloroethane carrier agent was previously used to remove cast latex sheet from the stainless steel conveyor belt after drying. KEMET commissioned a multi-disciplinary team comprised of environmental, equipment, and process engineers to develop a safe, non-hazardous, and economically feasible alternative. After three years of research, this team implemented a mechanical and chemical process using a water-based carrier system.

Waste Reduction/Cost Savings

Collectively, these waste reduction efforts reduce the generation of hazardous waste per year by 653,000 pounds and VOC emissions by 40,000 pounds. Net savings in materials purchase, disposal costs, and labor costs total $1.6 million per year.

Activity	Outlay, $	Waste Reduced, lbs/yr	Cost Savings, $/yr	Payback
Latex sheet reuse	$106,000	27,000 (hazardous waste)	$622,000	2 months
Switch from lead to barium capacitors	$100,000	474,000 (lead-contaminated)	$200,000	6 months
Recover metal-contamined slurry sand	$10,000	152,000 (D006, D008)	$100,000	1.2 months
Switch to water-based carrier agent	$40,000	40,000 (VOC's)	$27,000	1.5 years

Additional benefits from the latex sheet reuse project include increased casting and chipmaking capacity, improvement in chip quality from reduced screen blinding, and fewer delays in the printing cycle. This new recovery process may be applicable to other latex operations, including paint manufacturing.

Case Study: Amital Spinning Corporation

Location:	New Bern, NC (Craven County)
Industry:	Acrylic Yarn Production (SIC 2281)
Application:	Solid Waste Reduction, Water Conservation and Reuse, Energy Conservation
Contact:	James Ipock, Plant Engineer, (919) 636-3435

Background

Amital Spinning Corporation, which currently employs approximately 330 people at its New Bern facility, produces approximately 300,000 pounds per week of packaged, custom-dyed, high-bulk acrylic yarn for the textile industry. The company has combined reuse of process water with solid waste recycling to achieve significant energy and cost savings.

Source Reduction Activities

- Chemicals and dyes previously delivered in 30- or 55-gallon drums are now delivered in either bulk quantities or in 400-gallon returnable totes. Currently, five 6,500-gallon permanent storage tanks are refilled on site for bulk storage of dyes and chemicals.

- Amital has negotiated a pallet swap with its vendors wherein Amital will place a used pallet on the outgoing truck for every incoming shipment delivered on a pallet. Those who refused to ship without pallets or to accept the used pallets were eliminated as vendors. Pallets not returned to the vendor are cut up and donated for use as firewood. Since Amital uses pallets to move materials internally and those delivered from vendors are not the proper size or type, the company manufactures custom pallets for in-house product movement. Currently, approximately 200 reusable wood pallets are circulated within the facilities.

- Amital warned its chemical vendors that they must either reduce or eliminate packaging or be removed as a supplier.

- To reuse and conserve process water, Amital collects non-contact cooling water to use in preparing dye liquors in the color kitchen, and the dye liquors can now be prepared at high temperatures. As a result, steam requirements during dying are reduced, process water is recovered, and the expended chemicals are replenished. These reductions, in turn, generate reductions in water and energy consumption and costs. Other savings include a reduction in the quantity of batch chemicals and in the time required for heating by 8 to 10 minutes per cycle.

Waste Reduction

- Amital has reduced the quantity of chemical and dye drums generated for disposal per week from 70 in 1990 to approximately 1 in 1994. In addition, the number of pallets generated for disposal has decreased per week from approximately 50 in 1990 to less than 10 in 1994.

- In the period 1988 to 1994, Amital reduced water usage from 19.34 gallons per pound of yarn dyed to 2.7 gallons, despite an increase in production per week from 90,000 pounds to greater than 300,000 pounds. potential water usage at the facility decreased from 292 million gallons to actual usage of less than 40 million gallons in 1994.

Annual Savings

The elimination of chemical and dye drums saves $175,000 annually as a result of an average reduction of $0.04 per pound in the cost of chemicals and dyes and $26,100 in avoided drum disposal/handling costs. Energy savings associated with the reuse of process water avoids approximately $500,000 annually. In 1994, reduced water usage will avoid approximately $756,000 in costs.

Other Activities

Amital also increased its profitability through a solid waste recycling and reuse program for various cardboard, metal, plastic, and acrylic fiber components. Waste products are recycled back to the same process or sold through an outside market. Disposal costs for these recyclables are, therefore, avoided. A baler was installed to handle the acrylic yarn waste. Of 1.1 million pounds of solid waste generated in 1992, the company recycled approximately 933,000 pounds and realized approximately $100,000 through solid waste recycling and reuse. In addition, Amital was awarded the Governor's Award for Significant Achievement in Waste Management in 1992.

Case Study: Morganite, Inc.

Location:	Dunn N.C. (Harnett County)
Industry:	Manufacturers Electrical Components SIC 3620)
Pollution Prevention Application:	Solid Waste Recovery/Reuse
Annual Savings:	$200,000
PPP Challenge Grant Award	$5,000
Contact:	Norb Dickmann, Environmental Engineer

Background

Morganite, Inc., a manufacturer of electric motor parts, is made up of two divisions: the Electrical Carbon Brush Division, which makes carbon brushes, and the Commutator Division, which makes commutators. In 1989, Morganite's 748,300 lbs of hazardous waste made it one of the top 25 waste generators in North Carolina.

This waste, which was produced solely from the Electrical Carbon Brush Division, consisted of lead-contaminated dust from the dust-collection system, lead-contaminated offcuts and other solid scrap pieces from brush processing, solvent waste from brush rinsing (acetone, alcohol and varsol), cyanide waste from plating silver on copper tamping powder, copper plating waste from specialty copper-plated carbon brushes, and lead-contaminated filters from the dust-collection system.

In 1990, Morganite invested in an environmental engineer position to address the quantity of hazardous waste generated. The following activities were implemented between 1990 and 1993.

Waste Reduction Activities

- One of Morganite's first steps, and the one that resulted in the largest reduction of hazardous waste, was to separate the dust-collection system. Several different operations in the plant that produce dust particulates were jointly connected to this system. Although only 10 percent of the brush grades produced contained lead, each operating area used some quantity of lead, and all the dust collected was eventually contaminated. In 1990, Morganite designated a Cutting and Grinding Department to produce carbon brushes with no lead content. The dust from this department was connected to a separate dust-collection system that yielded non-hazardous dust waste.

- Because the carbon content of the hazardous dust was reduced, the waste containing lead now contained high concentrations of copper. Morganite initiated a project to test the briquetting of the high-copper dust into a marketable form. This project facilitated the briquetting of dust containing 50 percent or more of copper to be sold to a local

scrap metal dealer. After several attempts to locate markets for dust with lower copper content, Morganite found a smelter that could take dust with the copper as low as 15 percent and now ships this metal-bearing dust as a saleable, recyclable by-product rather than as a hazardous waste.

- Morganite examined operations that generate the remaining lead-contaminated dust disposed of as a hazardous waste. The blending operations, where materials are bound together with resins and, then, ground to produce a powder, were redesigned to eliminate the high volume of powder removed by the dust-collection system. The new dust-collection system at the milling ope*ation, where the clumped resin-powder mix is ground, was installed with a small cyclone to capture the powder for reuse before any contamination occurred. These modifications not only reduced raw material costs and hazardous waste generation, but the waste dust from the blending operation now contained enough copper to be shipped off for reclamation.

- A reconfiguration of the cutting and grinding operations permitted the offcuts of the pure carbon brushes to be completely separated from lead-contaminated offcuts. Furthermore, because of the large reduction in pure carbon offcuts, the remaining offcut waste contained at least 50-percent copper. These offcuts are claimed as exempt scrap metal and shipped off site for copper reclamation.

- The Impregnation Department, where solvents are used to impregnate the resins into the brushes, initiated an employee involvement program to facilitate reductions in shipments of hazardous solvent wastes. A 50-percent reduction in the solvent waste was achieved as a direct result of employee frugality.

- Morganite contracted out its cyanide plating needs and, therefore, eliminated this plating waste stream. The other plating waste was generated from a copper plating operation installed to produce specialty brushes for a single customer. As a result of the new grade of brush designed by Morganite's product development team that out-performed the copper-plated brush, this plating operation was eliminated.

- A limited quantity of the final carbon brushes are wet ground for specialty application purposes, and the wastewater from this operation is contaminated with small amounts of lead. In the past, the waste was drummed and disposed of as a hazardous waste. The installation of a filtration unit permits the water to be reclaimed and the dust particles removed for disposal.

Waste Reduction

Morganite reduced its hazardous waste generation in the face of a 10-percent growth in production per year. Assuming no increase in hazardous waste generation from other sources or process changes, Morganite generated at least 718,300 fewer pounds of hazardous waste in

1993 than in 1989 as a result of the waste reduction activities. As the list below shows, the different projects account for varying percentages of the 718,000-pound waste reduction:

Waste Reduction Project	Percentage of Waste Reduction
Dust separation	48
No-lead carbon offcuts	15
High-copper offcuts	13
Powder dust recovery	5
Copper dust reclamation	10
Solvent waste reduction	3
Elimination of plating wastewater	3

The waste reduction activities at Morganite may make it possible for the company to be categorized as a small quantity generator in 1994.

Annual Savings

The waste reduction activities have resulted in disposal savings of approximately $200,000 annually. Capital investment for all the process modifications has not been compiled.

APPENDIX D

TOXIC CHEMICAL RELEASES AND HAZARDOUS WASTE MANAGEMENT IN NORTH CAROLINA

Toxic Release Inventory

The Toxic Release Inventory (TRI) is the primary database used nationally to evaluate releases and transfers of approximately 300 toxic chemicals reported by most facilities in standard industrial classification (SIC) codes 20-39 and federal facilities. This chapter provides an accounting of TRI releases and transfers, and hazardous waste generation data for North Carolina business and industry from 1988-1992. The following data also indicate how North Carolina ranks nationally as well as within the Southeast for total TRI releases and transfers.

In North Carolina, approximately 980 companies report environmental release and transfer data for 152 toxic chemicals. Figure D-1 provides North Carolina's total TRI releases and transfers from 1988-1992. In 1988, industries in SIC codes 20-39 were required to report if they manufactured, processed, or used greater than 50,000 pounds of a listed chemical. Since 1989, however, the reporting threshold has been 25,000 pounds. Therefore, a larger universe of industries has been reporting TRI emissions since 1989. There has been a 27 percent decrease in releases and on-site transfers over the 1988 to 1992 reporting period, and a 15.2 percent decline between 1990 and 1992. These reductions can be attributed to a number of factors including increased pollution prevention activities, tougher and more comprehensive regulatory requirements, improvements in conventional waste management practices, and changes in production activities. Even though TRI emissions have been declining in North Carolina, total 1992 releases were 103.5 million pounds (Mlbs) and total releases and transfers were 120.4 (Mlbs).[1/]

Figure D-2 provides North Carolina's 1992 TRI release and transfer data by media. The data indicate that, in 1992, there were 81.9 Mlbs of releases to air, .82 Mlbs of releases to water, 20.7 Mlbs of releases to land, and 16.6 Mlbs of off-site transfers (excluding transfers for recycling or energy recovery). Of total 1992 releases and transfers, air releases represent 68.2 percent, water releases represent .68 percent, land releases represent 17.2 percent, and off-site transfers represent 13.8 percent.

1/ Beginning in 1991, off-site transfers include materials sent for recycling and energy recovery. To make comparisons between 1988 and 1992, the 1991 and 1992 data exclude off-site transfers for recycling and energy recovery. For example, in 1992 alone, total off-site transfers were 135.9 million pounds. This figure is reduced to 16.8 million pounds after removing off-site transfers for recycling and energy recovery.

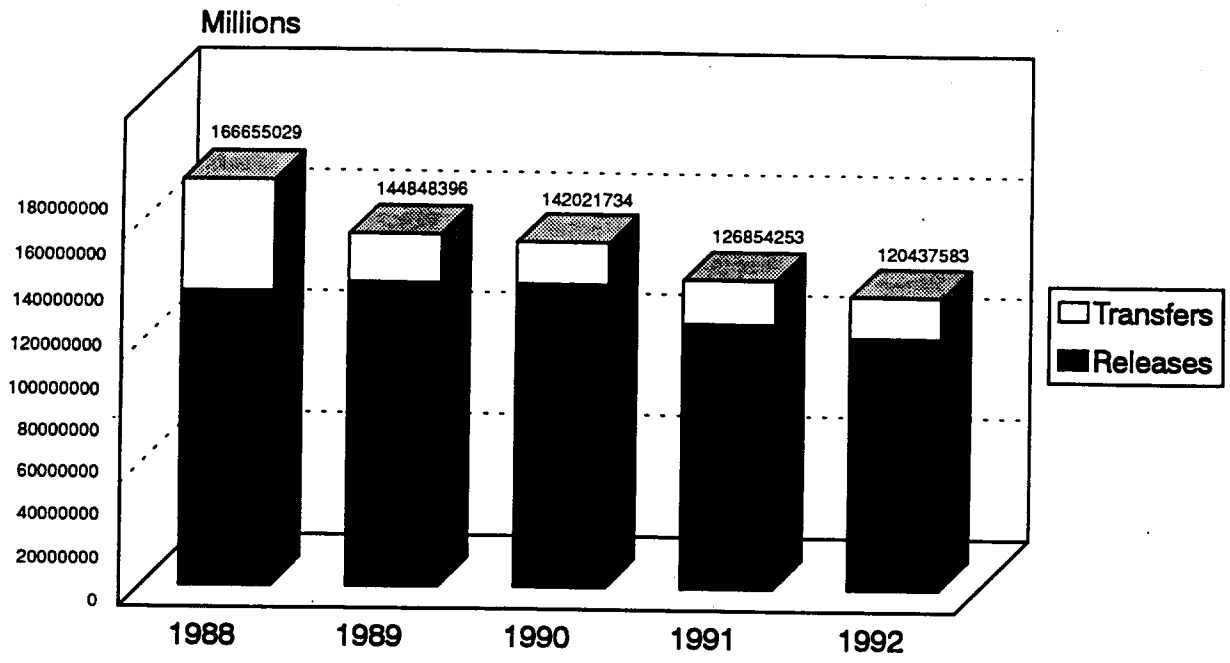


Figure D-1: Total TRI Releases & Transfers 1988-92

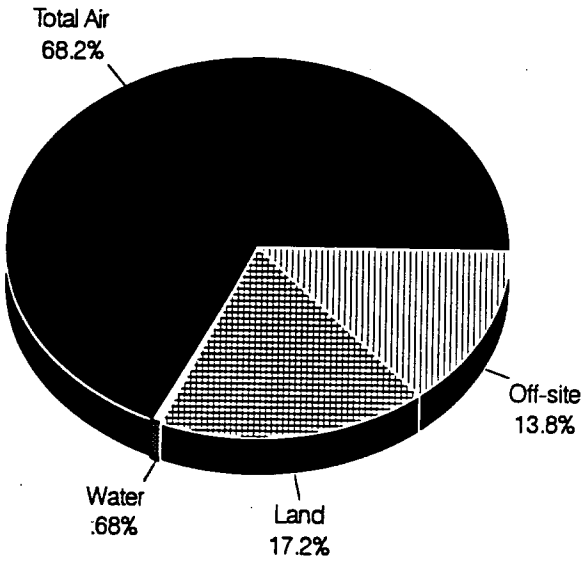


Figure D-2: Total TRI Releases & Transfers by Media

Based on 1992 data, North Carolina ranked 12th nationally, and 3rd in the Southeast (i.e., EPA Region IV), for total releases and transfers. Relative to other states, however, North Carolina has a strong industrial base, and ranks eighth nationally for the gross value of its manufactured products.

Figure D-3 compares how TRI reported chemicals are managed by North Carolina industries relative to the country as a whole and the Southeast Region. Most notable are the figures for on-site recycling. In North Carolina, 21.5 percent of TRI reported chemicals are recycled on-site, compared with 42.7 percent nationally, and 39.5 percent in the Southeast. The data also indicate that North Carolina industries send more materials for off-site recycling, and conduct more on-site treatment, than is done on a national basis or within the Southeast Region.

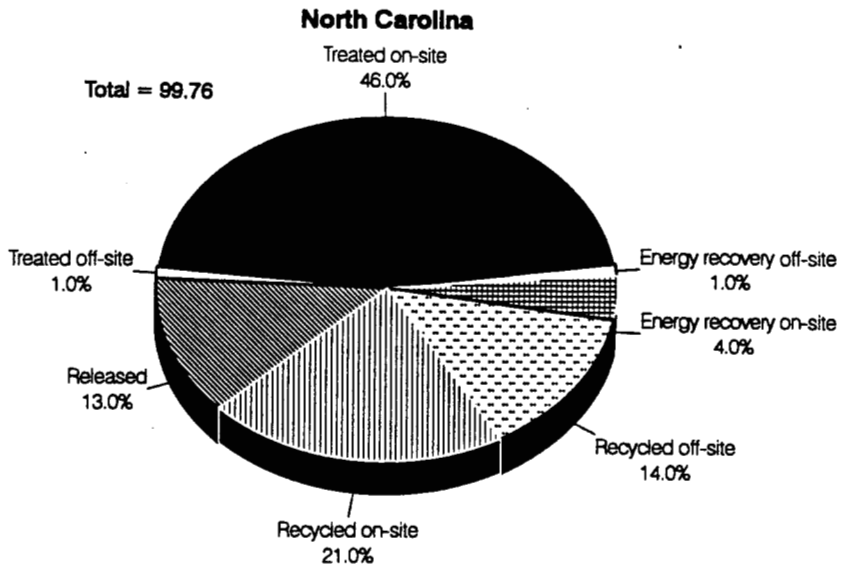
Figure D-4 shows total TRI releases and transfers by North Carolina county. The data indicate that the counties which consistently experience the greatest TRI releases (i.e., greater than 4 Mlbs) are: Beaufort, Brunswick, Caldwell, Catawba, Columbus, Forsyth, Haywood, and New Hanover. Table D-1 provides a detailed list of the quantities of total TRI releases by North Carolina county.

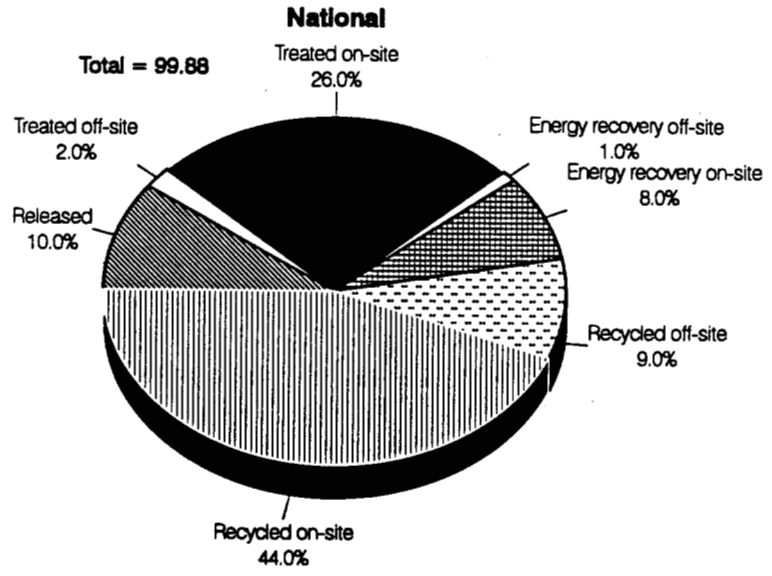
Pollution Prevention Activities

In a survey conducted by the University of North Carolina at Chapel Hill for the PPAC, 97 percent of the 75 hazardous waste generators surveyed indicated that they have implemented source reduction or recycling activities. Fifty-nine percent of the industries surveyed also stated that they plan on achieving additional reductions in hazardous waste generation, air emissions, and wastewater discharges. Based on 1992 TRI data, 38 percent of North Carolina industries reported that they implemented source reduction activities. The majority of activities were operation and maintenance changes, process modifications, and raw material modifications. Participatory team management, vendors, waste audits, and employee recommendations were the four most commonly cited sources of ideas for these pollution prevention projects.

Hazardous Waste Management

In 1992, 118.6 Mlbs of hazardous waste was generated from industrial processes. Based on normal operating procedure data, this represents a 5 percent decrease from 1991, and a 3.6 percent decline since 1988. (See Table D-3 below). This information is based on reports from all of North Carolina's 586 Large Quantity Generators. These data do not include wastes generated by North Carolina's approximately 2500 Small Quantity Generators, and 2500 Conditionally Exempt Small Quantity Generators.





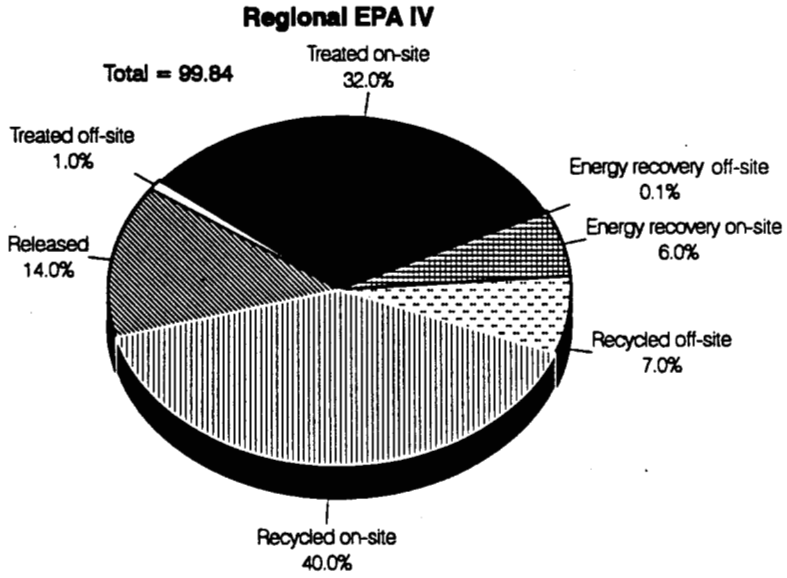


Figure D-3: Waste Management Strategies (North Carolina, National, Southeast Region)

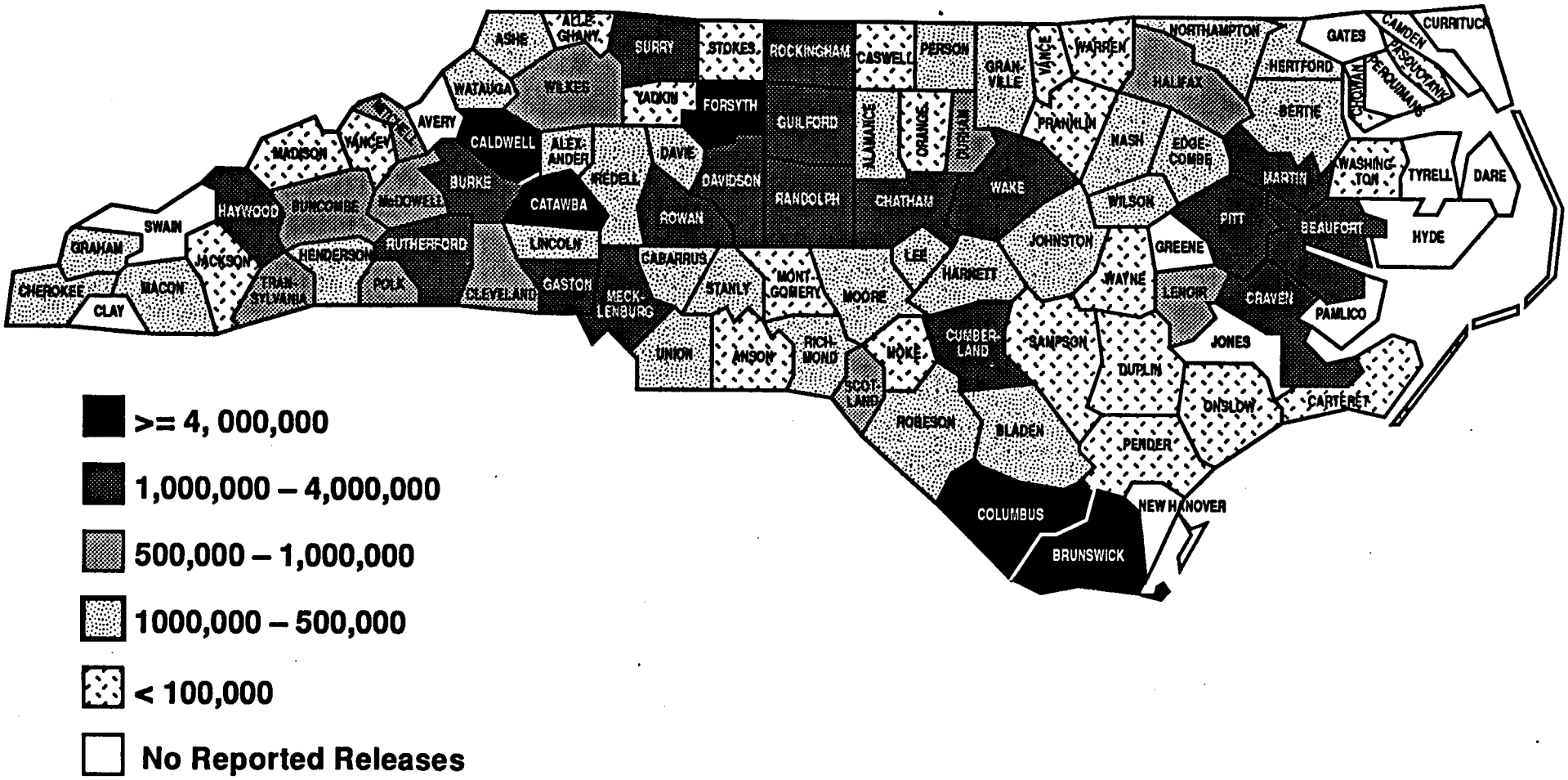


Figure D-4: 1992 TRI Air Releases by County (Pounds)

Table D-1: TRI Releases and Transfers by County 1988-1992 (Pounds)

COUNTY	1992**	1991**	1990	1989	1988*
ALAMANCE	615,128	511,037	556,725	805,467	936,575
ALEXANDER	264,569	241,344	292,569	374,185	404,384
ANSON	28,210	43,910	131,200	335,347	532,026
ASHE	257,851	206,952	274,114	374,594	436,927
BEAUFORT	15,177,376	1,6577,403	26,366,037	18,467,666	10225,714
BERTIE	442,583	447,745	389,885	168,375	250
BLADEN	192,897	235,794	393,033	26,102	38,456
BRUNSWICK	5,167,743	7,033,393	7,769,994	8,307,529	10269,493
BUNCOMBE	1,033,609	1,390,414	1,482,395	1,764,725	2,607,017
BURKE	1,499,016	1,708,656	2,086,677	2,061,891	2,256,867
CABARRUS	511,670	576,453	650,496	632,989	1,021,393
CALDWELL	4,765,993	5,087,500	5,960,170	5,912,478	6,248,913
CATAWBA	6,999,191	5,160,800	9,234,340	10,692,157	11356,418
CHATHAM	1,062,405	1,118,051	912,324	1,105,763	978,703
CHEROKEE	178,183	198,539	234,127	313,438	402,662
CHOWAN	48,249	100,808	97,135	255,504	513,340
CLEVELAND	1,333,204	1,648,337	956,300	1,082,443	2,118,396
COLUMBUS	4,669,136	4,056,575	3,131,473	2,968,149	5,962,095
CRAVEN	1,377,894	1,439,393	790,860	1,019,104	1,088,968
CUMBERLAND	3,983,927	4,103,346	4,457,986	4,357,411	5,106,928
DAVIDSON	4,253,458	3,756,371	3,555,025	4,132,031	4,041,075
DAVIE	430,660	495,107	353,617	461,184	430,141
DUPLIN	45,624	48,669	48,287	137,989	30,835
DURHAM	1,040,558	1,099,808	1,199,775	1,600,001	1,922,095
EDGECOMBE	335,278	383,441	673,216	586,169	420,019
FORSYTH	6,074,583	7,826,936	6,426,752	6,659,609	8,505,401
FRANKLIN	84,406	85,553	32,780	500	104,092
GASTON	3,855,420	3,339,484	3,759,724	4,308,328	6,435,451
GRAHAM	322,269	214,512	195,723	29,903	128,443
GRANVILLE	530,970	530,193	869,441	1,222,180	1,346,732
GUILFORD	2,832,825	3,392,219	4,008,414	4,400,894	4,580,168
HALIFAX	727,662	880,697	798,192	1,058,773	2,720,422
HARNETT	188,520	187,920	217,309	339,058	297,066
HAYWOOD	4,132,257	3,812,473	2,877,305	4,131,228	5,436,671
HENDERSON	601,210	749,318	941,222	1,182,209	1,064,462
HERTFORD	341,704	30,433	140,668	58,701	2,279
HOKE	11,246	58,638	22,282	63,670	96,019
IREDELL	592,740	815,017	1,324,421	945,851	1,473,079
JACKSON	38,396	33,906	46,594	89,534	133,206
JOHNSTON	249,251	191,613	325,019	425,822	444,449
LEE	232,534	424,118	79,897	302,910	267,710
LENOIR	1,492,412	1,347,845	994,754	1,152,087	783,221
LINCOLN	509,084	442,679	448,560	509,355	428,066
MACON	132,009	69,275	95,293	0	116,730
MADISON	388	387	6,985	29,200	37,569
MARTIN	2,408,346	2,195,485	1,610,395	1,691,612	1,666,047
MC DOWELL	914,549	1,729,367	2,045,485	747,291	1,368,082

COUNTY	1992**	1991**	1990	1989	1988*
MECKLENBURG	3,012,647	3,432,309	4,744,971	4,727,279	8,070,885
MITCHELL	507,831	452,293	470,173	482,526	616,210
MONTGOMERY	18,380	26,499	35,840	49,300	302,229
MOORE	372,362	438,345	351,908	192,808	178,962
NASH	404,632	427,436	720,810	2,922,182	4,292,651
NEW HANOVER	13,427,304	13,730,470	11,735,442	15,624,043	13,651,077
NORTHAMPTON	118,626	113,820	107,540	101,269	93,096
ONSLOW	66,332	123,652	236,010	255,760	182,967
ORANGE	49,433	81,193	93,777	156,134	75,217
PASQUOTANK	1,530	155,852	172,129	245,117	148,252
PENDER	34,050	1,500	2,641	0	750
PERSON	160,403	156,510	372,620	370,814	441,374
PITT	1,634,993	1,502,836	2,028,586	2,133,259	2,515,587
POLK	250	250	255	250	4,000
RANDOLPH	3,261,652	2,591,466	3,062,340	3,237,842	3,704,999
RIÇHMOND	330,694	287,333	280,402	253,950	542,480
ROBESON	273,314	573,048	580,015	663,855	861,972
ROCKINGHAM	1,276,512	1,199,482	920,775	846,393	606,141
ROWAN	4,253,705	3,955,064	4,274,962	2,185,201	2,077,665
RUTHERFORD	1,364,472	2,215,387	2,058,689	2,036,785	2,965,282
SAMPSON	316,777	473,650	468,769	563,551	223,222
SCOTLAND	745,206	1,066,386	1,349,225	1,283,577	1,291,995
STANLY	489,052	327,030	268,549	399,835	6,541,156
STOKES	2,137	89,902	178,997	54,046	238,460
SURRY	1,402,049	1,469,007	1,551,636	1,922,914	1,883,931
TRANSYLVANIA	514,937	669,571	1,026,804	909718	713,333
UNION	329,564	611,377	441,122	630,250	1,116,625
VANCE	49,797	55,081	47,910	47,063	2,317
WAKE	1,538,107	2,096,814	2,731,045	2,735,032	2,903,794
WARREN	71,721	48,990	93,538	65,400	44,982
WASHINGTON	462	555	613	5,394	17,216
WATAUGA	272,550	217,705	325,865	218,920	431,228
WAYNE	402,233	395,370	105,999	106,296	451,874
WILKES	1,124,272	926,622	867,095	1,031,357	1,378,885
WILSON	526,903	724,114	736,586	771,053	828,232
YANCEY	1,800	2,850	108,743	164,130	215,944
Total	120,343,882	126,667,683	141,817,356	144,684,709	166,400,045

Table D-2: Hazardous Waste Generation Trends (Mlbs)

Calendar Year	Shipped Off-Site	Total Hazardous Waste Managed	RCRA Wastes Less One-Time Cleanups	Large Generator Cleanups	Normal Operating Procedures
1988	138.9	157.6	135.3	12.2	123.1
1989	113.8	134.9	129.1	3.5	125.5
1990	204.4	224.3	210.3	82.0	128.3
1991	105.9	131.3	130.7	5.7	125.0
1992	113.6	135.8	130.8	12.2	118.6

Ten LQGs account for 32 percent of total 1992 hazardous waste generation. A list of these generators and their respective amounts of hazardous waste generation is provided in Table D-4. The top waste generating counties, representing 68 percent of total waste generated in North Carolina, are: Mecklenburg, Guilford, Gaston, Pitt, Wake, Stanly, Forsyth, Haywood, Catawba,and Cumberland. Table D-5 gives a detailed list of the amount of hazardous waste generated in each North Carolina county.

Table D-3: Top 10 1992 Hazardous Waste Generators (pounds)

Rank	Facility Name	Amount Generated
1	Burroughs Wellcome	8,967,815
2	Alcoa Badin Works	7,540,873
3	Mallinckrodt SCC Raleigh PLT	6,371,595
4	Florida Steel Corporation Steel Mill	6,265,080
5	Hoechst Celanese Sou-Tex PLT	3,011,186
6	Lilly Company, Inc.	2,253,273
7	Freightliner Corporation	2,223,043
8	Easco Hand Tools Inc.	2,197,746
9	Watts Regulator	2,091,527
10	AKZO	1,912,036
	Total	**42,834,174**

Table D-4: Amount of Hazardous Waste Generated, by County (1992)

County	Number of Generators	Amount Generated (lbs)
Alamance	6	672,864
Alexander	2	42,591
Alleghany	1	31,762
Ashe	1	94,992
Beaufort	5	584,492
Bertie	1	82,291
Bladen	3	724,199
Brunswick	6	865,971
Buncombe	16	1,832,721
Burke	14	2,377,425
Cabarrus	7	1,131,546
Caldwell	19	2,746,777
Cateret	1	12,908
Catawba	29	3,380,872
Chatham	2	116,690
Cherokee	4	597,365
Chowan	1	23,211
Cleveland	8	1,337,973
Columbus	2	385,940
Craven	6	1,978,373
Cumberland	9	3,142,651
Dare	1	30,932
Davidson	26	2,984,489
Davie	4	186,403
Durham	19	1,976,222
Edgecombe	3	317,706
Forsyth	21	6,129,473
Gaston	19	10,464,938
Graham	1	32,289

County	Number of Generators	Amount Generated (lbs)
Granville	5	789,081
Guilford	50	15,519,281
Halifax	1	727,310
Harnett	1	51,290
Haywood	4	4,403,620
Henderson	8	1,408,275
Hertford	1	924,530
Hoke	1	443,421
Iredell	13	1,338,325
Jackson	1	73,468
Johnston	9	1,373,127
Lee	6	1,328,371
Lenoir	4	585,775
Lincoln	3	280,040
Macon	1	57,937
Martin	2	196,967
McDowell	5	336,687
Mecklenburg	64	18,621,604
Mitchell	1	598,478
Moore	4	1,376,424
Nash	8	762,139
New Hanover	12	2,159,205
Onslow	4	506,387
Orange	4	259,313
Pasquotank	3	179,832
Person	2	307,228
Pitt	5	9,817,659
Randolph	3	383,465
Robeson	3	1,112,030

County	Number of Generators	Amount Generated (lbs)
Rockingham	3	85,860
Rowan	6	1,154,354
Rutherford	7	2,829,326
Sampson	4	231,917
Scotland	4	338,877
Stanly	6	8,103,376
Stokes	1	38,520
Surry	2	284,333
Transylvania	2	398,634
Union	8	1,929,798
Wake	30	9,099,115
Washington	1	19,195
Watauga	1	193,847
Wayne	4	136,505
Wilkes	4	367,714
Wilson	7	123,601
Yancey	2	248,772
Total	**577**	**135,791,079**

Waste Minimization Efforts

Between 1991 and 1992, industry initiated new recycling and source reduction activities that reduced hazardous waste generation by greater than 9.9 Mlbs (see Table D-6). Based on the 1992 Hazardous Waste Annual Report, 338 generators began or expanded source reduction activities, 178 began or expanded recycling activities, and 417 conducted a waste minimization opportunity assessment. If these practices had not been conducted, the amount of hazardous waste generated would have been approximately 8 percent higher. The top five waste minimization activities reported were:

- Raw materials substitution;
- Modified equipment, layout or piping;

- Improved maintenance scheduling, recordkeeping or procedures;
- Segregation of hazardous and nonhazardous waste; and
- Changed to aqueous cleaners.

Table D-5: New Waste Minimization Activities

Waste Minimization Activity	Amount (Pounds)
New Source Reduction	8,612,170
New Recycling	1,346,564
Total New Minimization	**9,958,734**

APPENDIX E

UNRESOLVED ISSUE: TECHNICAL ASSISTANCE GRANTS

The Council spent a considerable amount of time discussing the development of a technical assistance grant program to assist communities concerned with commercial hazardous waste permitting or State inactive site remediation decisions. However, the Council was unable to achieve consensus on this issue and has therefore not included a recommendation on this subject in its final report. The issue is presented in this Appendix so that people interested in the Council's work will be aware of the debate that occurred on this important topic. Provided below is a summary of the response by members of the Council for and against the recommendation.

Council Members For The Recommendation

Members of the Council who supported State-funded TAG grants believe that such grants would enhance the permit or remediation decision-making process in several ways. First, such grants would result in additional technical information being submitted to the State for its consideration during the permitting or remediation process. Second, community organizations considering a proposed facility, remediation plan, or other activity frequently lack the technical expertise and therefore may be unable to contribute to the process beyond making comments driven by emotion rather than technically-founded concerns. In addition, affected citizens frequently distrust both the State and the permit applicant. Enabling citizens to work with an independent technical advisor that they find credible would contribute to the possibility of a constructive, rather than a destructive, dialogue. In sum, proponents of TAG grants believe they would promote a more inclusive decision-making process which is likely to yield decisions which are sounder both in technical and political terms.

Council Members Against The Recommendation

The Council's industry representatives strongly disagreed with any proposal that would fund nonprofit organizations or community groups to review commercial hazardous waste or State inactive site remediation decisions. Industry does not believe that state government should serve as a financial catalyst for community groups to organize around permit or remediation decisions.

Industry further contended that there was no room for compromising the principle that DEHNR, through its permitting process, exists to protect the human health and the environment of <u>all</u> North Carolinians regardless of political or socioeconomic distinctions, and that this responsibility should not be abdicated nor abandoned by providing funds to special interest community groups.

Industry views DEHNR's role as providing accurate information to all parties (including both the permit applicant and community groups) and facilitating information

sharing on permit or remediation decisions. Industry believes that if DEHNR properly performs its responsibilities, funding any group would be unnecessary. Additionally, funding citizen groups to be involved in permit or remediation decisions conflicts with the concept of the regulator, the permit applicant, and the community working together. Industry firmly believes that TAG grants would create unnecessary conflict, and would unnecessarily prolong the decision making process.

APPENDIX F

List of Acronyms

AOC	Administrative Order on Consent
CAP	Capacity Assurance Plan
CERCLA	Comprehensive, Environmental, Response, Compensation, and Liability Act
CESQG	Conditionally Exempt Small Quantity Generator
DEHNR	Department of Environment, Health, and Natural Resources
DEM	Division of Environmental Management
DOC	Department of Commerce
DPI	Department of Public Instruction
DSWM	Division of Solid Waste Management
EPCRA	Emergency Planning and Community Right-to-Know Act
HHW	Household Hazardous Waste
HID	High-Intensity Discharge
LQG	Large Quantity Generator
NCOSHA	North Carolina Occupational Safety and Health Administration
NPL	National Priority List
OWR	Office of Waste Reduction
PPAC	Pollution Prevention Advisory Council
PPC	Pollution Prevention Committee
RCRA	Resource, Conservation, and Recovery Act
RIP	Resident Inspector Program
SEP	Supplemental Environmental Project
SIC	Standard Industrial Classification
SIU	Significant Industrial User
SQG	Small Quantity Generator
TCLP	Toxicity Characteristic Leaching Procedure
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, or Disposal
USEPA	United States Environmental Protection Agency