

A Report to the 74th Texas Legislature:

**POLLUTION
PREVENTION
and
WASTE
REDUCTION
IN TEXAS**



March 1, 1995

**Texas Natural Resource Conservation Commission
Office of Pollution Prevention and Recycling**



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Prepared by the
Office of Pollution Prevention and Recycling

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Texas Natural Resource Conservation Commission

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Executive Summary

Thirty-one Texas industrial facilities have improved their economic and environmental performance by implementing recommendations made by the Office of Pollution Prevention and Recycling's (OPPR) Site Assistance Visit (SAV) program. The "bottom-line" results for these companies: over \$15 million in savings - an average of \$500,000 per facility; hazardous waste/toxic release reductions of 50 million pounds - an average of 1.6 million pounds per facility; water use reductions of 105 million gallons; and the reduction of 16,000 tons of nonhazardous waste generation. These facilities serve as case studies for other industries and businesses in Texas and are examples of what is being accomplished in Texas.

Programs like SAV have been created by the Texas Natural Resource Conservation Commission (TNRCC) to work in partnership with Texas businesses, local governments, and individuals to prevent pollution and reduce waste. These programs were developed in response to state and federal mandates and are unified in their approach - emphasizing cooperation, voluntary reduction and partnerships as an efficient and effective alternative to regulation.

With a directive from the Legislature to create a pollution prevention and waste reduction program, TNRCC created CLEAN TEXAS 2000 as a unifying theme and brought many of these mandated programs together into the TNRCC's Office of Pollution Prevention and Recycling (OPPR). The goals of CLEAN TEXAS 2000 are to reduce pollution and waste in Texas by 50% by the year 2000 and to educate Texans about practical things they can do to improve the environment.

The core programs of OPPR are:

- ◆ Pollution Prevention and Conservation,
- ◆ Recycling,
- ◆ Small Business Technical Assistance, and
- ◆ CLEAN TEXAS 2000 Partnerships

These programs are clustered in OPPR because they share the common goal of facilitating voluntary pollution reduction partnerships between the state, private businesses, local governments and individual citizens. Each of these programs utilizes a non-regulatory approach to environmental management and strives to make the traditional regulatory framework more flexible. OPPR programs include the range of environmental media (air, water, and land), stressing the economic benefits of pollution prevention and waste reduction and helping industry and local government find solutions to environmental problems that are not only good for the environment, but can also help them save money. Ultimately, pollution prevention programs will help avoid costly enforcement actions and cleanup costs.

OPPR programs have been designed to use the most effective methods possible to reach the decision makers, government and industry professionals and individual citizens who can make pollution prevention and waste reduction happen. Each of these programs uses a combination of tools, including research, technical assistance, "how-to" publications, workshops, site visits, program measurement and evaluation, data analysis, grant assistance, incentives and public recognition.

The programs of the Office of Pollution Prevention and Recycling have been created in response to a number of laws, including:

- ◆ **Federal Emergency Planning 6i Community Right-to-Know Act of 1986,**
- ◆ **Senate Bill 1517 (1989),**
- ◆ **Senate Bill 1519 (1989),**
- ◆ **Federal Clean Air Act Amendments of 1990,**
- ◆ **Senate Bill 1099 (Waste Reduction Policy Act of 1991),**
- ◆ **Senate Bill 1340 (1991 Omnibus Recycling Bill), and**
- ◆ **Senate Bill 1051 (1993 Omnibus Recycling Bill).**

In the last two years, some significant reductions in pollution have been reported:

- ◆ From 1987 to 1993, Texas industries reduced on-site releases and off-site treatment/disposal of pollutants to air, land, and water by 23%, as reported by the Toxic Release Inventory (TRI) Program.
 - 0 In 1993, Texas reported a 9.5% reduction in the amount of pollution released to the environment, the largest one year reduction since the Toxic Release Inventory Program started in 1987.
- ◆ From 1992 to 1993, CLEAN INDUSTRIES 2000 members reported a reduction in their generation of hazardous waste by 11.5 million tons and TRI reportable pollutants by 39 million pounds as a result of their voluntary pollution prevention commitments.
- ◆ The 200 largest industrial facilities in Texas reporting under Senate Bill 1099 (Waste Reduction Policy Act) have indicated that their pollution prevention efforts through 1997 will avoid the generation of an additional 36 million tons of hazardous waste.
- ◆ Overall, Texans now recycle about 14% of their municipal solid waste. Over 60 percent of all Texas cities offer residents some type of recycling.

With cooperation and guidance from a wide range of businesses, government and environmental leaders, OPPR has designed its programs to meet the needs of Texas. Advisory committees such as the Waste Reduction Advisory Committee, the Municipal Solid Waste Management and Resource Recovery Advisory Council, the Compost AD Hoc Committee and the 30% Task Force have provided valuable input and feedback on the direction that OPPR's pollution prevention and waste reduction programs should take. The OPPR also has completed four major surveys to businesses, local government, and the public to determine what services they need, what programs they will support, and what problems they experience in implementing reduction programs.

Much of the success of the voluntary CLEAN TEXAS 2000 programs like CLEAN INDUSTRIES 2000 is due, in large measure, to the willingness of cities, industries, and the public to voluntarily reduce waste in lieu of mandates. In response, Texas' volunteer-based approach is being recognized by the federal government and other states as a leader in the effort to reduce pollution without new regulations.

As a result of this cooperative approach, Texas industries, local governments, and individual citizens have responded to OPPR's programs:

- ◆ Since the inception of CLEAN INDUSTRIES 2000 in 1992, 132 major industries have committed to reduce their generation of hazardous waste by 57% (29 million tons) and the release of Toxic Release Inventory emissions by 64% (268 million pounds) by the year 2000.
- ◆ Under the CLEAN CITIES 2000 Program, 32 Texas communities have pledged to develop comprehensive environmental programs by the year 2000, including a 50% reduction in their per capita solid waste generation.
- ◆ The new Texas Country Clean Up Program, sponsored by the TNRCC Agricultural and Rural Assistance Division and supported by CLEAN TEXAS 2000, held 49 cleanups in 1994 in rural areas of the state involving more than 2,051 Texans. Volunteers recycled 77,814 empty pesticide containers; 27,804 tires; 36,072 gallons of used oil; 41,913 used oil filters and 6,188 automotive batteries.
- ◆ The number of registered public and private used oil collection centers has grown from 589 in 1992 to 1,348 in 1995. These centers reported collecting over 1.3 million gallons of used oil in 1994 - nearly doubling the reported amount collected in 1993.
- ◆ In the last two years, TNRCC has provided state grant funds for the establishment or expansion of 344 recycling or composting programs in local communities.
- ◆ Over 25,000 Texans participated in the voluntary CLEAN TEXAS 2000 Lakes and Rivers Cleanup Program, collecting 500 tons of debris.
- ◆ The Small Business Technical Assistance Program has provided environmental compliance technical assistance and training to over 5,600 Texas small businesses.
- ◆ On the first statewide Texas Recycles Day, thousands of citizens, businesses, civic organizations and schools participated in more than 160 recycling events across the state and nearly 4,000 Texans pledged to start or expand recycling programs.
- ◆ In 1994, 31,000 Texans called the TNRCC's toll-free environmental hotline to request information on things they can do to improve environmental quality.

Despite these significant accomplishments, additional efforts are necessary to improve the environment in the state. Nationally, Texas continues to rank number one in the generation of hazardous wastes and second in the nation on the TRI state ranking list. Texas industries generate approximately 180 million tons of hazardous waste annually and release 472 million pounds of TRI reportable pollutants every year. And, despite significant recycling achievements, Texans continue to dispose nearly 6.5 pounds of solid waste per person every day.

With a large industrial base that is home to 60 percent of the nation's petrochemical production and 25 percent of its refining capacity, along with a rapidly expanding population base that is outpacing nearly all

other states, pollution prevention and solid waste reduction issues will continue to be a focus for Texas into the next century.

Over the past two years, the Office of Pollution Prevention & Recycling has created a foundation for an effective state-level program to assist businesses and local government in their efforts to reduce waste and prevent pollution. As part of this program, reduction goals have been established, voluntary programs were created technical materials have been prepared, and workshops have been conducted. Despite the successes experienced by many businesses and local governments in reducing waste, many have not yet taken advantage of the resources available to implement programs.

This report recommends ways to extend the services of OPPR over the next two years to those businesses and local governments by improving access to the technical services, removing barriers to participation, and offering new incentives for participation. The recommendations range from the creation of a new voluntary reduction program targeting commercial and industrial nonhazardous solid waste to removal of regulatory barriers that discourage the recycling of certain types of waste materials.

This report describes the status of the TNRCC's pollution prevention and waste reduction programs as well as the program results and the progress being made toward reducing pollution in Texas. This report is submitted to the Texas Legislature as required by Section 361.510 of the Texas Health and Safety Code.

For more information on technical assistance, workshops, grant funding, publications, and voluntary reduction programs please contact the:

Office of Pollution Prevention & Recycling
Texas Natural Resource Conservation Commission
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I. INTRODUCTION

“It is the policy of the state to reduce pollution at its source and to minimize the impact of pollution in order to reduce risk to public health and the environment and continue to enhance the quality of air, land, and water of the state where feasible.” -72nd Texas Legislature, 1991.

Since 1991, the Texas Legislature has made it clear that it is interested in finding alternatives to enforcement and regulation as the means to environmental improvement. In conjunction with leaders from industry and the environmental community, the Legislature recognized that long-term significant pollution reduction could be reached through an approach based on flexibility, creativity and accountability. These leaders established a common vision for the future of pollution prevention and waste reduction in Texas by focusing on proactive reduction of pollution at its source.

In 1991, with support from both industry and environmental leaders, the 72nd Texas Legislature passed two landmark bills, the Waste Reduction Policy Act and the Omnibus Recycling Act, which mandated the establishment of state programs to encourage the reduction of hazardous waste, toxic emissions and municipal solid waste. These new laws used the innovative approach of giving business and government the flexibility to design pollution prevention programs without prescriptive government regulation.

The programs in the Office of Pollution Prevention and Recycling have been created in response to a number of state and federal laws, including:

- ◆ **Federal Emergency Planning & Community Right-to-Know Act of 1986,**
- ◆ **Senate Bill 1517 (1989),**
- ◆ **Senate Bill 1519 (1989),**
- ◆ **Federal Clean Air Act Amendments of 1990,**
- ◆ **Senate Bill 1099 (Waste Reduction Policy Act of 1991),**
- ◆ **Senate Bill 1340 (1991 Omnibus Recycling Bill), and**
- ◆ **Senate Bill 1051 (1993 Omnibus Recycling Bill).**

Through this legislation, the TNRCC was required to develop programs that would work with Texas businesses, governments, and individual citizens to reduce pollution and waste. These programs are housed in the Office of Pollution Prevention and Recycling (OPPR) and come together under the unifying theme of CLEAN TEXAS 2000. The goals of CLEAN TEXAS 2000 are to reduce pollution and waste in Texas by 50% by the year 2000 and to educate Texans about practical things they can do to improve the environment. The results of these efforts and the achievements that have been attained by each of these programs over the past two years are described in this report.

Why Pollution Prevention and Waste Reduction?

Each year, more and more Texans are realizing that pollution prevention and waste reduction programs not only make environmental sense, but make economic sense, as well. Businesses across the state are realizing the significant cost savings that can accompany reduction programs. Examples range from a major chemical

company saving \$50,000 a day through a simple process redesign that also reduces air emissions, to a hospital in Houston that saved \$40,000 in one year as a result of its recycling and reuse program.

Much of the success of the voluntary CLEAN TEXAS 2000 programs like CLEAN INDUSTRIES 2000 is due, in large measure, to the willingness of Texas industries and the public to voluntarily reduce waste. As a result, Texas' approach is being positively recognized by the federal government and other states as a leader in the effort to reduce pollution without new regulations.

Likewise, Texas cities are turning to waste reduction as a means of managing their recyclable or compostable solid waste. With limited resources, landfill disposal costs that are predicted to rise, and a public that sees recycling as something positive they can do to protect the environment, communities across the state are making the investment in recycling. For example, the City of Houston has contracted with local companies to process, rather than landfill, their residential bulky wood waste at no additional cost. As a result of this program, as much as 40,000 tons (ten percent of the residential waste stream that is collected by the city) could be diverted from the landfill.

In response to these waste reduction activities, a new industry has started to develop across the state. New businesses are locating in Texas to handle the increased levels of waste being diverted, and established Texas businesses are increasing their capacity to use recyclable materials in their products. For example, collected newsprint that cities couldn't give away two years ago, can now be sold for up to \$80 per ton because of the increased demand. The private sector is developing the foundation for waste reduction activities in Texas from which the public and local governments can benefit. By creating new jobs and investing millions of dollars into the state economy, these businesses are demonstrating a financial commitment to improving the state's environmental quality.

This report describes the status of the TNRCC pollution prevention and waste reduction programs as well as the program results and the progress being made toward reducing pollution in Texas. This report is submitted to the Texas Legislature as required by Section 361.510 of the Texas Health and Safety Code.

For more information on technical assistance, workshops, grant funding, publications, and voluntary reduction programs please contact the Office of Pollution Prevention & Recycling, Texas Natural Resource Conservation Commission, P.O. Box 13087, Austin, Texas 78711-3087, (512) 2393100.

II. THE CHALLENGE: POLLUTION IN TEXAS

Texas has one of the strongest state economies due to its large industrial base. The state is home to 60 percent of the nation's petrochemical production and 25 percent of its refining capacity. And with a population of 18 million and rising, Texas is one of the fastest growing states in the nation. As a result, Texas is also one of the nation's largest generators of hazardous waste, toxic emissions, and municipal solid waste.

Hazardous Waste Generation

- ◆ Preliminary data show that Texas generated over 180 million tons of hazardous waste in 1993. Historically, Texas has ranked first in the nation for total hazardous waste generated. This ranking is the result of large quantities of aqueous wastes associated with certain industries that is usually treated on-site to remove toxicity.

Toxic Emissions

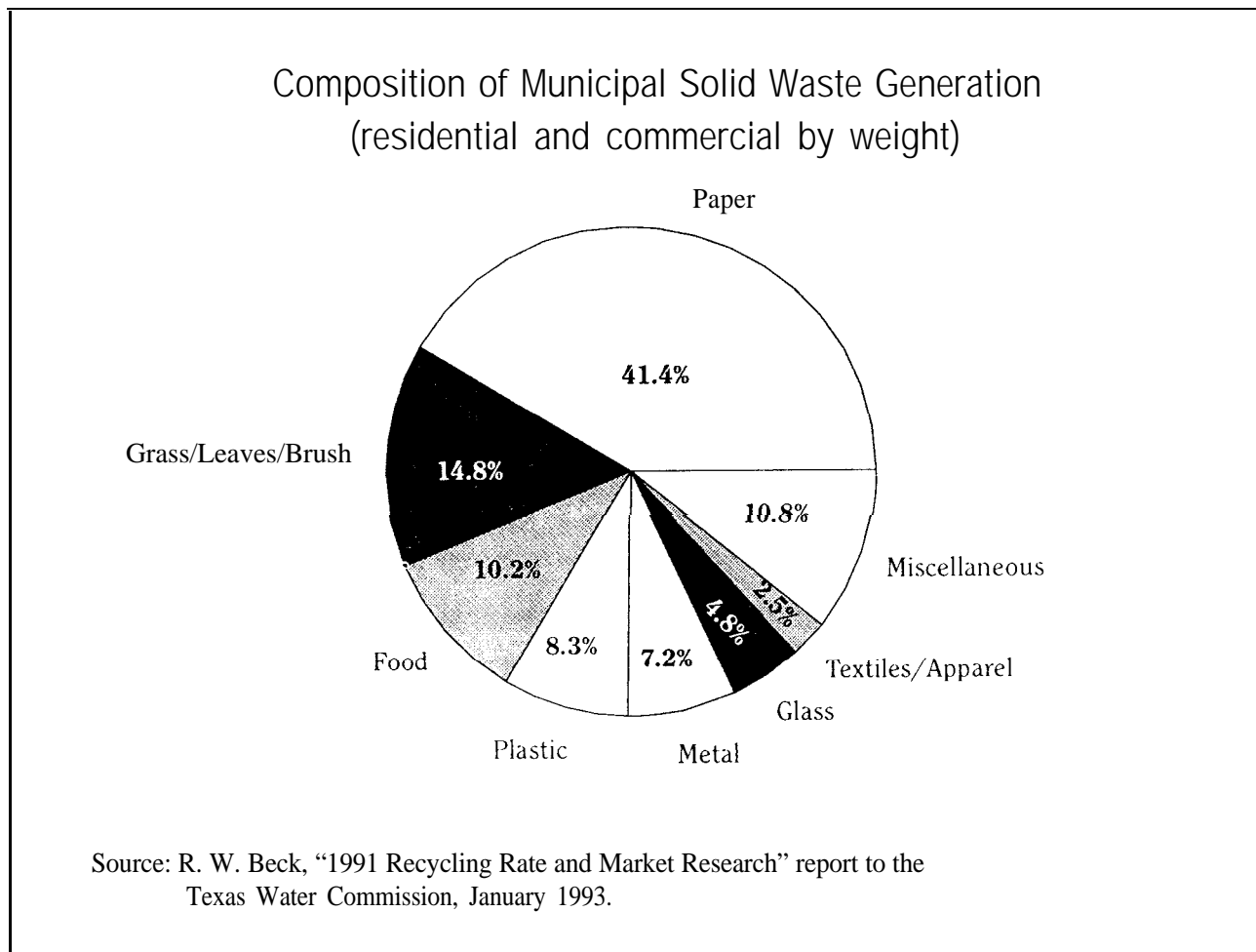
- ◆ According to the latest data provided by the U.S. Environmental Protection Agency, Texas ranks second in the nation for on-site releases of toxics to air, land and water reported to the Toxic Release Inventory (TRI). Only Louisiana ranks above Texas.
- ◆ In 1993, a total of 472 million pounds of toxics to all media were reported to TRI for on-site releases and off-site disposal/treatment by approximately 1,250 Texas manufacturing facilities, including:
 - ◇ Texas ranks first in the nation in total toxic air emissions with a total of 142 million pounds reported to the TRI in 1993.
 - ◇ In 1993, 2 million pounds of TRI chemicals were reported as discharges to Texas' streams, rivers, lakes, and bays.
 - ◇ In 1993, approximately 17 million pounds of toxic chemicals were reported to the TRI for land releases, including landfilling, land treatment, surface impoundments, and other land disposal.
 - ◇ In 1993, a total of 220 million pounds of toxics were deep-well injected in Texas.
 - ◇ In 1993, over 91 million pounds of toxics were sent off-site from facilities for treatment or disposal.
- ◆ Texas has four non-attainment areas, and five regional areas that are considered to be near non-attainment areas under the federal Clean Air Act.
- ◆ Automobiles, trucks, motorcycles and other off-road vehicles contribute almost 630 tons per day of volatile organic compounds (VOCs) in Texas' four non-attainment areas.

Pollution Cleanup Costs

- ◆ There are 40 state proposed or listed Superfund Sites and 30 federal Superfund sites in Texas. Approximately \$264 million has been spent or awarded to clean up the federal sites and up to \$300 million more will be spent under the state program by the year 2000.

Municipal Solid Waste

- ◆ In 1994, 21.5 million tons of solid waste were sent to Texas landfills. That's over one ton per Texan per year or 6.5 pounds per person per day. Yet, many experts agree that up to 80 percent of all municipal solid waste (MSW) could be recycled or composted.
- ◆ Over half of the MSW disposed in Texas landfills comes from the commercial sector.
- ◆ Each Texas household produces about 15 pounds of household hazardous waste each year.
- ◆ Texans dispose of more than 15 million scrap tires each year. In addition, do-it-yourselfers who change their own motor oil generate 18 million gallons of used oil and 18 million used oil filters annually.



III. THE RESPONSE: PROGRAMS AND ACCOMPLISHMENTS

Beginning in 1991 with the passage of the Waste Reduction Policy Act and the Omnibus Recycling Act, the Texas Legislature directed the TNRCC to create programs that would help facilitate voluntary pollution reductions, including technical assistance programs, pollution reduction incentives, and a statewide public education and awareness campaign. To manage these initiatives, the Legislature required TNRCC to establish an office of recycling and waste minimization and an office of pollution prevention and conservation. In response to these mandates, the TNRCC created CLEAN TEXAS 2000 to bring these mandated programs under one unifying theme and housed these mandated programs in the Office of Pollution Prevention and Recycling (OPPR).

The Office of Pollution Prevention and Recycling (OPPR) Each of the OPPR's four programs were created in response to state and federal mandates. These programs are:

- ◆ Pollution Prevention and Conservation,
- ◆ Recycling,
- ◆ Small Business Technical Assistance, and
- ◆ CLEAN TEXAS 2000 Partnerships

These programs are clustered in OPPR because they share the common goal of facilitating voluntary pollution reduction partnerships between the state, private businesses, local governments, and individual citizens. Each of these programs utilizes a non-regulatory approach to environmental management and strives to make the traditional regulatory framework more flexible. All OPPR programs include the range of environmental media (air, water, and land), stressing the economic benefits of pollution prevention and waste reduction and helping industry and local government find solutions to environmental problems that are not only good for the environment, but can also help them save money. Ultimately, pollution prevention programs are intended to avoid costly enforcement actions and cleanup costs.

Each of OPPR's programs uses a combination of tools to meet the legislative directives, including research, technical assistance, "how-to" publications, workshops, site visits, program measurement and evaluation, data analysis, grant assistance, incentives and public recognition. OPPR programs are designed to use the most effective methods and appropriate combinations of these tools as possible to reach the decision makers, government officials, industry professionals and individual citizens who can make pollution prevention and waste reduction happen.

The mission of the Office of Pollution Prevention and Recycling (OPPR) is:

- ◆ **“To provide leadership and create incentives for businesses, government, and individual Texans to achieve significant reductions in pollution, which combined with a strong regulatory program, produce economic benefits and tangible improvements in our air, land and water.”**

OPPR has sought on-going cooperation and guidance from a wide range of business, government and environmental leaders to design programs that will meet the needs of Texas. Advisory committees such as the Waste Reduction Advisory Committee, the Municipal Solid Waste and Resource Recovery Advisory Council, the Compost Ad Hoc Committee and the 40% Task Force have provided valuable input and feedback on the direction that OPPR's pollution prevention and waste reduction programs should take. The OPPR also has completed four major surveys to businesses, local governments, and the public to determine what services they need, what programs they will support, and what problems they experience in implementing reduction programs.

As a result of this cooperative approach the following activities have occurred:

- ◆ One hundred thirty-two CLEAN INDUSTRIES 2000 members have committed to reduce their generation of hazardous waste by 57% (29 million tons) and their release of toxic emissions by 64% (268 million pounds) by the year 2000.
- ◆ Thirty-two Texas communities have joined the CLEAN CITIES 2000 Program and have pledged to develop comprehensive environmental programs, including efforts to reduce solid waste going to landfills by 50 percent by the year 2000.
- ◆ Since 1993, 31 Texas organizations, industrial facilities, cities and individuals have received Governor's Awards for Environmental Excellence in recognition of their environmental accomplishments.
- ◆ The 300 largest industrial facilities in Texas reporting under the Waste Reduction Policy Act report that their pollution prevention efforts through 1997 will avoid the generation of 36 million tons of hazardous waste and that they will recycle or minimize another 250 million tons of waste.

Thirty-one Texas facilities have received technical assistance from OPPR's site assistance visit (SAV) program as case studies for other facilities. As a result of the visits, these facilities have reduced their generation of hazardous waste by 50 million pounds, decreased industrial water use by 105 million gallons, and saved over 15 million dollars.

Using RENEW, the TNRCC's waste exchange service, businesses have made 140 exchanges, recycling or reusing 430 million pounds of materials and saving \$679,000 in avoided disposal costs.

- ◆ Curbside recycling programs have grown by 20% in two years and now serve more than 2.5 million Texans.
- ◆ A total of 60 percent of all Texas cities offer their residents some form of recycling opportunity
- ◆ For the first time ever, demand exceeds supply for recyclable materials. New industry is locating in Texas and several plant expansions are underway to increase capacity.
- ◆ The new Texas Country Clean Up Program, sponsored by the TNRCC Agricultural and Rural Assistance Division and supported by CLEAN TEXAS 2000, held 49 cleanups in rural areas of Texas in 1994 involving more than 2,051 Texans. Volunteers recycled 77,814 empty pesticide containers; 27,804 tires; 36,072 gallons of used oil; 41,913 used oil filters and 6,188 automotive batteries.

- ◆ On November 15, 1994, thousands of citizens, businesses, civic organizations and schools celebrated the first Texas Recycles Day at more than 160 events across the state. Nearly 4,000 Texans sent in postcards pledging to start or expand recycling programs.
- ◆ Approximately 1,500 individuals, schools, businesses, and other organizations have joined the CLEAN TEXAS 2000 Program as “Environmental Partners.”
- ◆ The number of registered public or private used oil collection centers has grown from 589 in 1992 to 1,348 in 1995. These centers reported collecting more than 1.3 million gallons of used oil during 1994 - nearly doubling the reported amount collected in 1993.
- ◆ Officials with Mexico’s new environmental agency, the Secretariat for the Environment, Natural Resources, and Fisheries and the environmental agencies of four Mexican border states have offered to work cooperatively with the TNRCC on future pollution prevention, recycling, and waste reduction training and technical assistance projects.
- ◆ A total of 32 Supplemental Environmental Projects were undertaken to fund \$2.7 million for environmental projects in Texas.
- ◆ The Small Business Technical Assistance Program has provided environmental compliance technical assistance and training to over 5,600 Texas small businesses.
- ◆ The Recycling Program responds to more than 8,500 telephone calls each year from local governments, businesses and the public requesting technical assistance on recycling and composting.
- ◆ In the last two years the TNRCC has provided state grant funds for the establishment or expansion of 344 recycling or composting programs in local communities.
- ◆ In 1994, 31,000 Texans called the TNRCC’s toll-free environmental hotline to request information on things they can do to improve environmental quality.
- ◆ In 1994, 39 household hazardous waste collection events were held across the state with over 19,118 participants disposing or recycling 659,989 pounds of hazardous waste, 578,325 pounds of hazardous paint, 24,917 pounds of recycled paint, 4,768 automotive batteries, 1,882 gallons of used antifreeze and 25,885 gallons of used oil.
- ◆ Over 670 tons of banned or unused agricultural waste have been collected since 1992
- ◆ OPPR sponsored approximately 100 workshops last year, reaching more than 2,000 local government and business leaders with specific technical information on how they could prevent pollution and reduce waste.
- ◆ In FY 1994, 22 water supply entities participated in the voluntary Wellhead Protection Program, thus protecting groundwater supplies for over 195,000 Texans.
- ◆ Over 5,000 Texas Watch volunteers have been trained by the TNRCC to collect quality-assured information which can be used to complement professional monitoring data.

The following is a description of each of OPPR's mandated programs, including the results that each program has achieved.

POLLUTION PREVENTION AND CONSERVATION PROGRAM

The Pollution Prevention and Conservation program was developed in 1992 in response to a number of mandates from the Texas Legislature in Senate Bill 1099. The office was created to direct and coordinate all source reduction and waste minimization activities at the commission and to focus on achieving statewide pollution reduction. The key initiatives of the pollution prevention and conservation program follow:

CLEAN INDUSTRIES 2000

CLEAN INDUSTRIES 2000 has become a national model for government/industry/public cooperation in the environmental arena. This voluntary program is open to any company in Texas that agrees to reduce hazardous waste and/or toxic emissions to the environment by 50 percent by the year 2000. Member facilities also must maintain an internal environmental management program, sponsor one or more community environmental projects, and establish a citizen communication program. A complete list of the 132 CLEAN INDUSTRIES 2000 members is provided in the appendix.

In the past two years, CLEAN INDUSTRY 2000 member facilities have made commitments to the state that will result in:

- ◆ Reduction of 268 million pounds (64%) of toxic chemicals released to the environment by the year 2000;
- ◆ Reduction of 29 million tons (57%) in hazardous waste generation by the year 2000;
- ◆ A total of 267 community environmental programs and 142 citizen communication programs sponsored by CLEAN INDUSTRIES 2000 members.

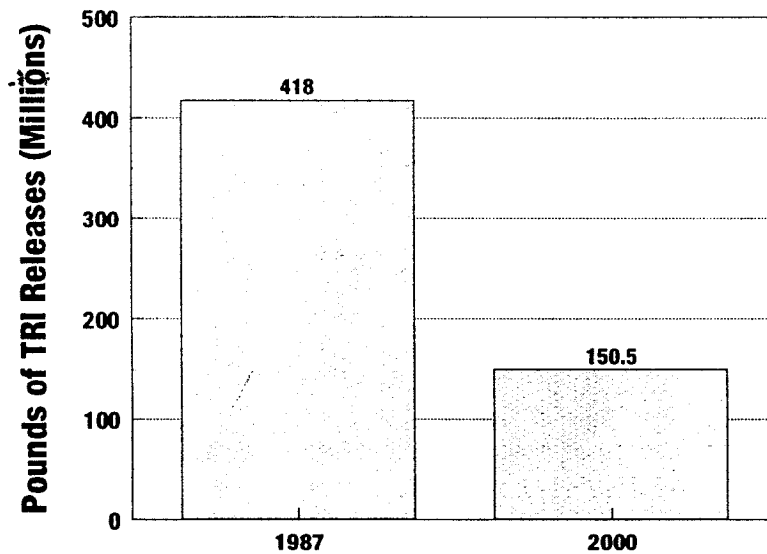
CLEAN INDUSTRIES 2000 Team

The CLEAN INDUSTRIES 2000 Team, composed of representatives of several key industries, was formed in April 1994 to help recruit new members, to provide information and support for CLEAN INDUSTRIES 2000 members, and to identify and help sponsor significant environmental projects. In 1994, the CLEAN INDUSTRIES 2000 Team conducted a membership survey, produced a pollution prevention video and assisted the TNRCC in recruiting new CLEAN INDUSTRY 2000 members.

Site Assistance Visits

Site Assistance Visit (SAV) staff provide on-site cost saving recommendations and non-regulatory environmental assistance to industrial facilities that are willing to act as a model for other industries. The program has helped participating companies save money on raw materials, worked with companies to lessen environmental regulatory burdens and reduced hazardous waste and toxic emissions.

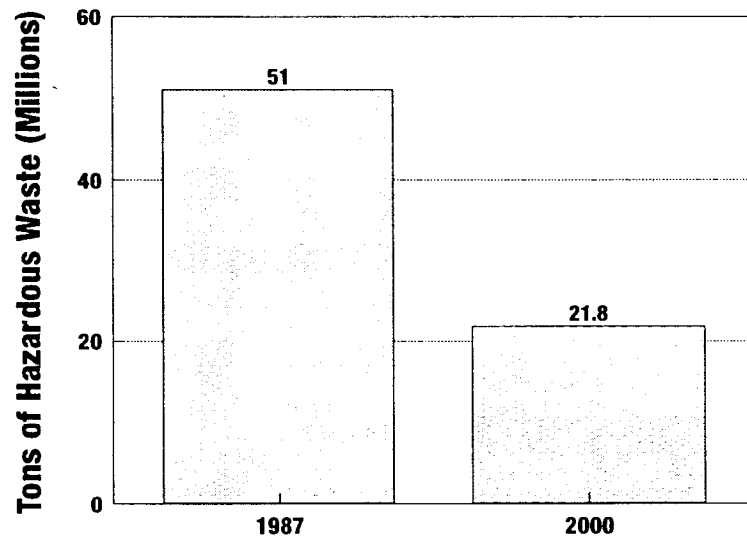
CLEAN INDUSTRIES 2000 Toxic Release Pollution Prevention Goals



◆ A reduction of 268 million pounds of toxic chemicals released to the environment by the year 2000.

64% reduction by the year 2000

CLEAN INDUSTRIES 2000 Hazardous Waste Pollution Prevention Goals



◆ A reduction of 29 million tons in hazardous waste generation by the year 2000.

57.1% reduction by the year 2000

During the past year, 31 facilities, ranging from small businesses to major industrial facilities, have implemented TNRCC recommendations to reduce pollution, which has resulted in:

- ◆ \$15 million in savings, an average of \$500,000 per facility;
- ◆ Hazardous waste/toxic emission reductions totalling 50 million pounds;
- ◆ Water use reductions totaling 105 million gallons; and
- ◆ Non-hazardous waste reductions totaling 16,000 tons.

SITE ASSISTANCE VISIT PROGRAM RESULTS

- ◆ ***Betaco, San Benito, Texas:* Following the TNRCC's recommendations on alternative cleaning and solvent substitution, plant management saved thousands of dollars in waste disposal and paperwork costs, resulting in the company being reclassified as a conditionally exempt small quantity generator.**
- ◆ ***Chem-Pruf Doors, Brownsville, Texas:* A 1994 Governor's Award Winner for Environmental Excellence, this manufacturer of fiberglass doors and windows participated in a site visit which resulted in improvements in the reuse of scrap fiberglass into the production process and reduced waste volume by 80%, saving the company thousands of dollars.**
- ◆ ***Witco, Marshall, Texas:* This facility participated in a site visit which resulted in a water reduction and reuse program, saving 3 million gallons and reducing the generation of hazardous wastewater, saving the company \$100,000 a year.**

Pollution Prevention Planning

As part of the pollution prevention requirements of the Waste Reduction Policy Act of 1991, an estimated 10,000 industrial facilities operating in Texas will prepare pollution prevention plans by 1997 that will include reduction goals and detailed plans on how to achieve them. Although the plans are required by state law, they are designed to be flexible, allowing companies to develop plans that meet their individualized needs.

In developing these plans, many companies are recognizing that pollution prevention planning can help them identify ways to save money potentially avoid the costly and lengthy permitting process, and ultimately reduce long-term compliance costs while protecting environmental quality.

For example, an East Texas company estimated that through careful and thorough preparation of their pollution prevention plan, they were able to identify ways to reduce air emissions, gain four months of productive time and labor by avoiding an unnecessary permit, and directly improve the surrounding environment. In

addition, both the company and the state will save money in avoided future compliance and inspection costs, pollution cleanups, and potential environmental liabilities.

Texas is one of 29 states that have passed pollution prevention legislation to reduce hazardous waste and toxic emissions. of which 60% have pollution prevention planning requirements.

The 600-largest companies that generate and release the most hazardous waste and toxics in Texas have completed their pollution prevention plans; projecting that over 36 million tons of hazardous wastes will not be generated by 1997 because of source reduction activities. These companies also are projecting that more than 250 million tons of hazardous waste will be recycled or treated to destroy hazardous characteristics by 1997.

Permanent Pollution Prevention Program

The Permanent Pollution Prevention Program (P4) uses a regional approach to solving environmental problems. This voluntary program brings together industrial facilities, providing them with training and on-site technical assistance to identify opportunities for waste reduction. In addition, P4 helps facilities create a framework from which they can develop sustainable pollution prevention programs and identify and implement future reduction opportunities. By helping facilities identify ways to reduce waste, P4 also gives participating industries a foundation for developing a plan that meets Texas' pollution prevention planning requirements. Through this program, many companies find that they can go beyond compliance and satisfy the waste reduction requirements necessary to become a member of CLEAN INDUSTRIES 2000.

Over the past year, the TNRCC has trained more than 122 companies in the P4 Program in El Paso, Longview-Tyler-Marshall, Central Texas, and Corpus Christi areas.

THE TYLER-LONGVIEW-MARSHALL P4 TEAM

- ◆ **The TNRCC is working with businesses and local government officials from the Tyler-Longview-Marshall area to help keep the region from becoming a non-attainment area, as defined by the federal Clean Air Act. Large and small facilities are working together to develop sustainable pollution prevention programs, identify future reduction opportunities and provide technology transfer. For example, Texas Eastman of Longview - a CLEAN INDUSTRIES 2000 member - has offered its pollution prevention technical expertise to other industries in an effort to share information and real-life experiences. Over seventy facilities are participating in the East Texas P4 project documenting a cost savings of \$600,000 to date, and significantly reducing waste generation.**

Border Pollution Prevention Program

A rider to Senate Bill 5 (State Appropriations Act, 73rd Legislature, Section 141) directed the TNRCC to work to reduce pollution along the Texas/Mexico Border by 50 percent by the year 2000.

In response, the OPPR has developed a comprehensive border strategy and conducted numerous pollution prevention training and technical assistance projects along the Texas/Mexico Border in the past two years with cooperation and funding from the U.S. Environmental Protection Agency, including:

- ◆ technical workshops and training to over 500 individuals, maquiladora associations, and Mexican officials;
- ◆ the first on-site pollution prevention assistance visits at maquiladoras;
- ◆ new partnerships with Mexico's state and local governments on recycling and solid waste management; and
- ◆ a major border conference in October 1994 on accessing NAFTA and World Bank funding for border infrastructure projects and developing local and regional environmental partnerships.

The cordial working relationship the TNRCC has developed with its Mexican counterparts will continue into the future. Officials of the new Secretariat for the Environment, Natural Resources, and Fisheries (formerly SEDESOL) and the environmental agencies of four Mexican border states have offered to work cooperatively with the TNRCC on future pollution prevention, recycling and waste reduction training and technical assistance projects.

BORDER COMPANY ELIMINATES WASTE

- ◆ **CMI, a foundry in Nuevo Laredo, has implemented more than 60 TNRCC pollution prevention suggestions including the substitution of a new cleaning system and ultrafiltration process for wastewater treatment. This resulted in the elimination of over one million gallons of deep well injected wastewater and a savings of over \$1 million a year. The project will be featured by the United Nations Cleaner Production Program in an upcoming technical manual to be distributed internationally.**

Office of Waste Exchange

Senate Bill 1051 created the Office of Waste Exchange (OWE) to "facilitate the exchange of solid waste, recyclable or compostable materials, and other secondary materials among persons that generate, recycle, compost, or reuse those materials." Building on existing programs, the TNRCC established the OWE in September 1994.

As part of the OWE, the Resource Exchange Network for Eliminating Waste (RENEW), the state's waste exchange, matches wastes generated by industrial facilities with other facilities that can reuse or recycle the waste as feedstocks. Since the program's creation in 1989, RENEW has successfully:

- ◆ diverted 430 million pounds of materials for reuse or recycling by industry, and

- ◆ saved government and industry \$679,000 in costs avoided by keeping waste materials out of landfills and disposal facilities.

RENEW MAKES SENSE

- ◆ **Using RENEW, a Houston company is now recycling 72,000 gallons of ethylene glycol that was formerly disposed. By taking this simple step, the firm is generating \$32,000 in additional income from the sale of the material, and avoiding \$110,000 in disposal costs.**

Supplemental Environmental Projects

Supplemental Environmental Projects, or SEPs, are becoming an important tool to further pollution prevention and waste reduction initiatives through the TNRCC's compliance and enforcement programs. SEPs offer an alternative to traditional enforcement by allowing a company to defer a portion of the penalty. In exchange, they agree to fund a project providing environmental benefits which are beyond any requirement of rule or statute. The SEP program was authorized with the passage of House Bill 2429 in 1993.

The response has been encouraging. In the past two years, 32 SEPs have been approved, channeling \$2.7 million into environmental projects.

SUPPLEMENTAL ENVIRONMENTAL PROJECTS

- ◆ **One recently approved pollution prevention SEP involved the installation of seals on a product tank at a refinery in an ozone non-attainment area. The tank seals were not required at this time under existing regulations. This project will result in VOC reductions of 56 tons per year, and is estimated to cost the company \$123,000, four times the amount of the penalty reduction. Thus, this project will result in a cost-effective and substantial emission reduction and air quality benefit for the community.**

CLEAN TEXAS 2000 Environmental Trade Fair

Each year the TNRCC's Environmental Training Division sponsors the CLEAN TEXAS 2000 Environmental Trade Fair in Austin, which provides comprehensive environmental training by agency staff to the regulated community on more than 150 topics, including environmental compliance, permitting, pollution prevention, and other environmental programs. Held in conjunction with the Governor's Awards for Environmental Excellence, this event draws more than 2,500 registrants and more than 200 firms displaying their products and services.

RECYCLING AND WASTE REDUCTION PROGRAMS

Although recycling and composting are age-old practices, the need for increased waste reduction in the modern era is the cornerstone of a comprehensive solid waste management program. Driven by concerns about limited natural resources and increasing disposal costs due to strict federal landfill regulations, along with a public that wants to recycle, Texas cities are recognizing recycling and composting as sustainable components of their local waste management program. Consider the following trends:

- ◆ Last year, Texans recycled approximately 14% of their municipal solid waste (MSW).
- ◆ A recent survey showed that 60% of all Texas cities offer some type of recycling program to their residents.
- ◆ The number of municipal curbside recycling programs has risen by 20% in the past two years, now serving more than 2.5 million Texans.
- ◆ The per capita amount of garbage being sent to Texas landfills has decreased by 4.3% since 1992 despite increased economic activity.
- ◆ In the last two years, TNRCC has provided funds for the establishment or expansion of 344 recycling or composting programs in local communities.

Recognizing the need for state-level assistance, the Texas Legislature created an office of recycling and waste minimization to provide leadership and support for local recycling and composting programs. At that time, the Legislature also established a 40% source reduction and recycling goal to be met by January 1, 1994.

Responding to these directives, the Recycling Program has worked with business and community leaders through groups like the Municipal Solid Waste and Resource Recovery Advisory Council and the 40% Task Force to identify the most effective methods for helping Texans reduce waste. As a result of this cooperative effort, the Recycling Program has reached local governments, schools, businesses and individual citizens with the technical or financial assistance they need to implement successful recycling and composting programs.

HELPING TEXAS RECYCLE

- ◆ **Over the past two years, the Recycling Program has trained more than 600 community leaders, from school administrators to solid waste directors, on how to establish or expand local waste reduction programs through technical assistance workshops.**
- ◆ **The Recycling Program responds to more than 8,500 telephone calls each year from local governments, businesses and the public requesting technical information on recycling and composting.**

Over the past two years, the Recycling Program also has developed comprehensive training manuals, videos, and other technical documents in both English and Spanish that can help communities and businesses establish successful recycling and composting programs. In addition, money from the Municipal Solid Waste Fund has been returned to local governments and other public entities to help establish local recycling and composting model programs that can demonstrate methods to cities and businesses that can help Texas reach the 40% goal.

Workplace Recycling

Because waste from the workplace makes up over half of what is disposed in landfills, the OPPR Recycling Program has placed a special focus on helping businesses develop in-house recycling programs that not only benefit the environment, but also help them save money. Since most businesses pay to dispose their waste by the dumpster, any reduction in the amount of waste being generated can mean actual cost savings.

The Workplace Recycling Program has held seven Workplace Recycling Breakfasts in the past two years in partnership with Texas Citizens for the Environment and the AT&T Foundation. Through this program, over 1,500 business and community leaders have received information about the environmental and economic benefits of recycling at work. In addition, more than 300 company representatives attended follow-up workshops that were designed to train company employees on how to establish a workplace recycling program.

SAVING MONEY THROUGH RECYCLING

- ◆ **3M in Austin saved over \$21,000 in disposal costs during 1993 as a result of their aggressive workplace recycling program. Besides collecting the usual recyclables like paper, cardboard, aluminum and pallets, 3M also recycles metals, plastic film, printed circuit boards, fluorescent lamps, computer reel tape, plastic resins, packing materials and electronic equipment.**

In 1991 the Legislature required all schools in Texas to develop recycling programs by September 1, 1993. To help schools meet this challenge, the Workplace Program has developed technical training materials and sponsored workshops across the state. In just the past year, the Workplace Recycling Program has reached nearly 250 school administrators and district and campus recycling coordinators through these workshops.

Finally, according to the results of the 1993 newsprint survey of Texas newspaper publishers conducted by the Workplace Recycling Program, at least 22 percent of all newsprint bought in Texas contained a minimum amount of recycled material. This means that Texas newspaper publishers have more than doubled the amount necessary to meet the 10 percent goal established by the Legislature in 1991.

Recycling Market Development

For the first time in Texas, the markets for many recyclable materials have outgrown supply. In fact, in the state's urban areas, the users of recyclable materials cannot locate sufficient supplies and are being forced to compete with other recyclers to obtain the quantities they need. In rural areas, where markets have tradition-

ally been weak, the markets are gradually expanding and communities are finding that by pooling their materials they can create demand for their collected recyclables.

Businesses have invested millions of dollars in recycling facilities across the state; from Champion International investing over \$100 million in a paper deinking plant in Houston, to Corrugated Services investing \$60 million to expand their 100% recycled-content linerboard mill located in Forney. In addition, new recycling industries are expected to continue to locate in Texas as the number of recycling programs and the amount of available materials in the state grows.

Working with direction from the Recycling Market Development Board, made up of representatives from the Texas Department of Commerce, the General Land Office, the General Services Commission and the TNRCC, the Recycling Market Development Program initiated the Strategic Market Development Plan to outline a comprehensive strategy for marketing recyclable materials in Texas. Based on the recommendations included in the Plan, the Recycling Market Development Board has focused its efforts on facilitating information exchanges and providing technical assistance to cities and businesses who are either locating materials or trying to find markets for their recyclables.

RECYCLING MARKET DEVELOPMENT

By bringing materials generators together with end-users, the Market Development Program helps ensure that recycling is coming full circle in Texas. For example:

- ◆ **The City of Euless recently renegotiated its contract for curbside recycling to include old magazines after working with TNRCC market development staff who located several local paper dealers who would accept their old magazines for recycling.**
- ◆ **The City of Brownsville has recycled 450 tons of glass containers and 300 tons of mixed paper since learning in April 1994 of specific market contacts for these materials from TNRCC's Recycling Market Development Program.**

The Market Development Program also has published a Community Compost Marketing Manual to help communities identify and develop local markets for compost and mulch produced at municipally-operated centralized facilities.

Composting

Yard trimmings make up 15% of all municipal solid waste generated in Texas, most of which can be composted or mulched. By diverting yard trimmings from the landfill, cities can save millions of dollars in avoided disposal costs and can establish for their citizens a sustainable method of reusing organic materials.

Recognizing this, the Texas Legislature directed the TNRCC to create a program that could stimulate significant statewide composting activities. In response, TNRCC developed a composting program that promotes the voluntary diversion of yard trimmings on the individual level and also works with cities to develop centralized composting facilities that can handle large quantities of organic materials.

COMPOSTING SAVES MONEY FOR CITIES

- ◆ **By offering separate collection of yard trimmings to just 12,000 homes (four percent of the residential area serviced by the city), the City of Houston has diverted 3,708 tons of yard trimmings from the landfill and has avoided \$81,822 in disposal costs.**

To meet the directions of the Legislature, the Composting Program has:

- ◆ Sponsored Master Composter regional training events, reaching over 30 cities. These events are designed to recruit and train local volunteers who will promote backyard composting throughout their communities.
- ◆ Started development of comprehensive regulations that would establish quality standards for compost and would encourage increased composting and beneficial reuse of organic materials.
- ◆ Launched a pilot program, in cooperation with the Soil and Conservation Service and local communities, to determine the effects of land application of yard trimmings on Texas agricultural land.
- ◆ Started development of a centralized composting training course to train communities how to establish a large-scale composting operation.

Used Oil Recycling

In 1991, the Texas Legislature passed the Used Oil Collection, Management, and Recycling Act, which banned both landfilling and dumping of used motor oil and created a state program to encourage used oil collection and recycling. This program was designed to educate the public about proper used oil management and to support the development of both public and private programs to collect used oil from the public. To date, the Used Oil Recycling Program has documented that:

- ◆ The number of registered public or private used oil collection centers has grown from 589 in 1992 to 1,348 in 1995. About 65% of these centers also accept used oil filters.
- ◆ Over 1.3 million gallons of used oil were collected at registered collection sites reporting in 1994 - nearly twice the amount of collected used oil reported in 1993.

The Used Oil Recycling program's four major activities include:

- ◆ recruitment and registration of used oil collection centers,
- ◆ administration of grants to local governments,
- ◆ public education on the environmental hazards of dumping used oil, and
- ◆ technical assistance on used oil collection and management.

To bring this message to the public, the agency launched an extensive statewide effort that included radio, television, billboards, printed materials and special events that were centered on the slogans "Only a Dipstick Would Dump Motor Oil on Texas" and "You Dump It, You Drink It." These themes have made used oil collection an issue that all citizens can relate to and have been so successful that several states have asked permission to use them for their own collection campaigns.

To solicit public-sector involvement in this collection effort, the Legislature mandated a program of used oil grants to local governments. From 1992 through 1994, TNRCC has awarded grants to local governments from the Used Oil Fund totalling \$3,737,020. These funds have supported the development of 720 publicly operated used oil collection centers which will all be in operation by the end of 1995. An additional \$1.4 million was available for grants in FY94 and \$900,257 is available in 1995.

The Used Oil Recycling program is also responsible for implementation of the ban on used oil filters that went into effect statewide in April 1994. The program is working to encourage all oil collection facilities to accept filters, and with 795 registered collection centers now accepting filters, it appears that a collection infrastructure is developing rapidly.

USED OIL RECYCLING SUCCESSES

The number of public used oil collection centers has grown from 589 in 1992 to 1,348 in 1995. The amount of oil collected has nearly doubled from 1993 to 1994.

Texas Country Cleanups

The Texas Country Clean Up Program is a rural recycling campaign coordinated by TNRCC's Agricultural and Rural Assistance Division and co-sponsored by the Texas Department of Agriculture and the Texas Agricultural Extension Service with support from CLEAN TEXAS 2000's public education program. The campaign is designed to give rural residents the opportunity to recycle materials free of charge, including empty pt~sli-tide containers, used oil, used oil filters and lead-acid batteries and tires.

The response to the Texas Country Clean Ups has exceeded the TNRCC's expectations. In 1994 there were 49 cleanups held across the state with over 2,051 participants.

1994 Texas Country Clean Up Results				
Containers (pesticide)	Tires	Oil (gallons)	Oil Filters	Automotive Batteries
77,814	27,804	36,072	41,913	6,188

Household Hazardous Waste Program

The Household Hazardous Waste Program has regulatory authority over household hazardous waste collection events and provides technical assistance to local governments interested in organizing and implementing a collection event. In 1994, 39 events were held across the state with over 19,118 participants providing the following household materials for disposal and recycling:

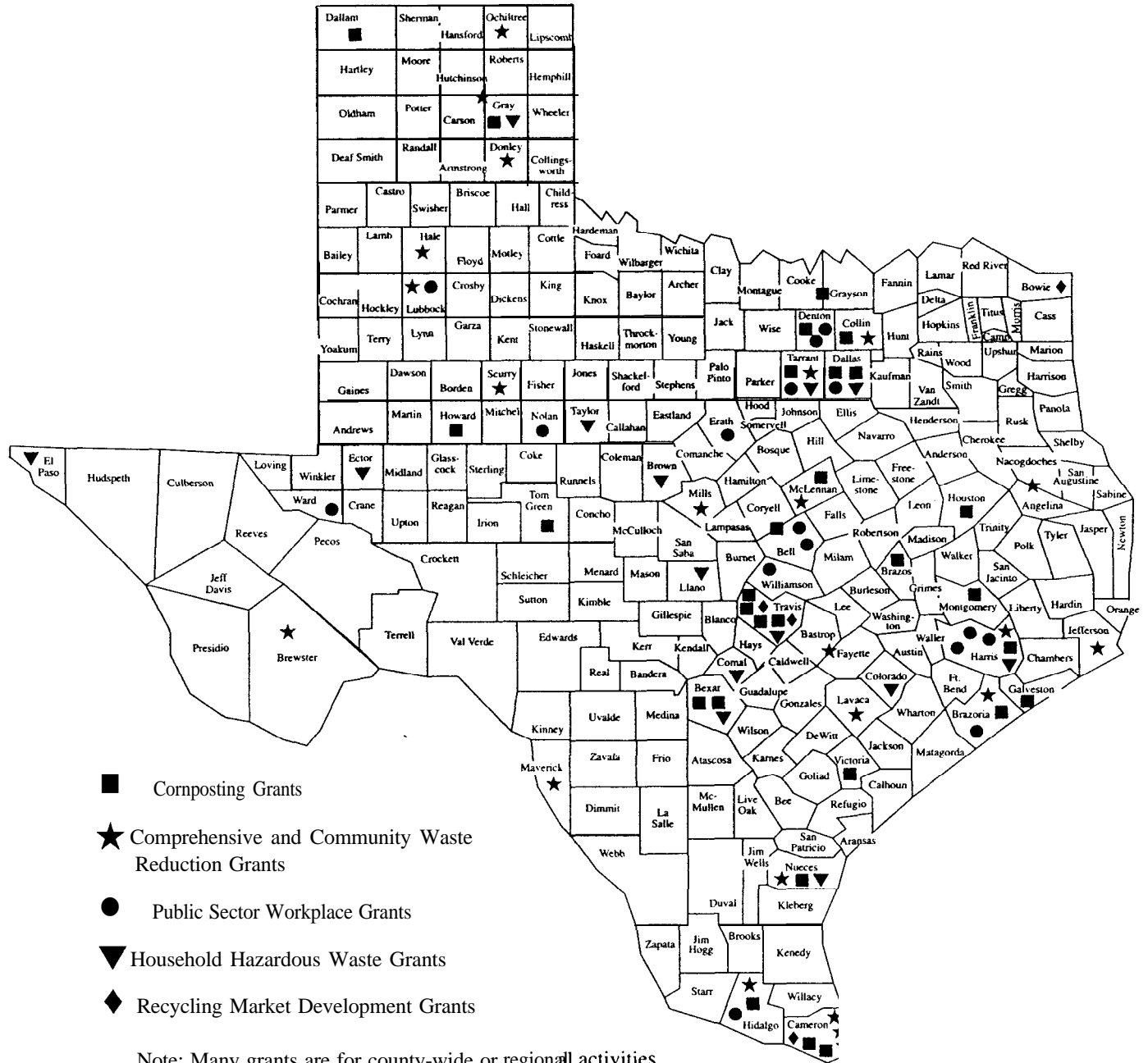
- ◆ 659,989 pounds of hazardous waste
- ◆ 578,325 pounds of hazardous paint
- ◆ 24,917 pounds of recycled paint
- ◆ 4,768 automotive batteries
- ◆ 1,882 gallons of used antifreeze
- ◆ 25,885 gallons of used oil

Municipal Solid Waste Fund Grants

In 1989 the Legislature imposed a \$.50 per ton surcharge on all municipal solid waste disposed in Texas. This amount was increased by the Legislature to \$1.50 in 1991 and then lowered in 1993 to its present \$1.25 per ton. The money from this surcharge is deposited in the Municipal Solid Waste (MSW) Fund and is used in part to support the TNRCC solid waste management activities. Money from the Fund also is returned to local governments and other public entities through grants designed in part to help Texas reach the 40% goal and to establish local recycling and composting model programs.

The TNRCC has employed two mechanisms for the distribution of grant funds. It has made direct grants to local governments through a competitive grant process and it has made block grants to the 24 regional councils of government (COGs) for distribution to local governments. Direct grant categories have included compost, comprehensive community waste reduction, recycling market development, public entity workplace recycling, household hazardous waste collection and local enforcement for illegal dumping. Combining direct and block grant totals, a total of \$39.4 million dollars (42% of the total municipal solid waste budget) has been awarded in municipal solid waste grants over the past five fiscal years. In 1993 and 1994, TNRCC grants were awarded to fund the establishment or expansion of 344 recycling or composting programs across the state.

CLEAN TEXAS 2000 Municipal Solid Waste Direct Grants FY 1993 - FY 1994



Note: Many grants are for county-wide or regional activities. The Comprehensive and Community Waste Reduction Grants category includes the CLEAN CITIES 2000 Grants awarded in FY 1993.

SMALL BUSINESS TECHNICAL ASSISTANCE PROGRAM

In Texas, over 60,000 small businesses face the sometimes daunting task of complying with the complex requirements of the federal Clean Air Act and other state and federal environmental regulations.

Many small businesses lack the resources necessary to deal with these environmental regulations that can be complicated and confusing. Recognizing this, the TNRCC developed the Small Business Technical Assistance Program (SBTAP) to provide free and confidential assistance to small businesses to help them cut through the red tape of permitting and compliance.

Through technical assistance, workshops, confidential non-regulatory compliance audits and easy-to-read publications, SBTAP works with small business on a one-on-one basis to help them understand environmental regulations, like the federal Clean Air Act Amendments, and to assist them in obtaining permits and authorizations, completing report forms and preventing on-site pollution. In addition to distributing over 10,000 regulation and pollution prevention assistance packets, SBTAP staff have trained more than 5,600 small business operators on pollution prevention techniques and regulatory compliance.

SMALL BUSINESS TECHNICAL ASSISTANCE PROGRAM - YOUR ONE STOP SHOP FOR ENVIRONMENTAL ASSISTANCE

- ◆ **One example of how the Small Business Technical Assistance Program is providing “one-stop shopping” is the recently published *Environmental Guide for Autobody Shops*. This user-friendly booklet condensed down over two inches of complex state and federal regulations into an easy-to-use manual on complying with environmental regulations and implementing pollution prevention programs.**

CLEAN TEXAS 2000 PARTNERSHIPS

CLEAN TEXAS 2000 Partnerships is an effort to involve all Texans - from elementary school students to major petrochemical corporations - in a comprehensive effort to reduce pollution through public education, voluntary reduction programs, pollution cleanups and public recognition.

Public Education

The CLEAN TEXAS 2000 public education program was launched in 1992 to help the state meet the goals established in 1991 by Senate Bill 1340 and to promote pollution prevention as required by Senate Bill 1099. Subsequently, through Senate Bill 1051, the Legislature specifically required the TNRCC to develop a media campaign designed to establish broad public understanding and compliance with the state's waste reduction and recycling goal. The legislation made it clear that a public awareness program that includes a media campaign is important to the state's waste reduction effort. This directive to target a specific message to the public was appropriate since large volumes of pollution and waste such as auto emissions, solid waste and hazardous household waste, result from individual actions.

The CLEAN TEXAS 2000 public education program uses a variety of strategies, from consumer-oriented public service announcements, paid media and printed materials, to special events like Texas Recycles Day, to show Texans practical everyday steps they can take at home and at work to reduce waste and prevent pollution. A special focus of CLEAN TEXAS 2000 is to demonstrate the economic as well as environmental benefits of waste reduction.

Public education campaigns in 1994 were conducted for used oil, composting, air quality, Texas Recycles Day, and Texas Country Cleanups. In addition, five million copies of the "Home and Carden Guide" were distributed to residences across the state. Materials were produced in English and Spanish.

Public education results:

- ◆ Every dollar spent on the CLEAN TEXAS 2000 public education program has been matched with at least one dollar in pro bono services and value-added media.
- ◆ In two years, the CLEAN TEXAS 2000 public education program has reached an estimated 85 percent of the Texas population.
- ◆ In 1994, more than 31,000 calls were placed to the TNRCC's environmental hotline (1-800-64-TEXAS) from citizens asking for information on what they can do to protect the environment, including information on recycling, composting, and locations of used oil collection centers.

CLEAN CITIES 2000

To give recognition and incentives to encourage local governments to develop comprehensive waste reduction programs, OPR created the CLEAN CITIES 2000 program. CLEAN CITIES 2000 promotes the voluntary development of environmental programs and cooperative initiatives at the local level.

To join CLEAN CITIES 2000, communities commit to implementing comprehensive recycling and source reduction programs that will reduce their solid waste disposal by 50% by the year 2000. These programs include community and backyard composting, residential recycling, workplace recycling, recycling market development, used oil and scrap tire collection, "Buy Recycled" programs and local public education. In addition, cities with more than 50,000 residents are required to implement annual local water and air quality projects. A complete list of the 32 CLEAN CITIES 2000 members can be found in the Appendix.

PANHANDLE REGIONAL PARTNERSHIP

CLEAN CITIES 2000 members Fritch, Borger, Pampa, Panhandle and Stinnett have joined forces as the "Panhandle Regional Partnership" to establish recycling in their region. By working in partnership and pooling recyclable materials, these five cities have established drop-off and buyback centers that accept glass, steel, plastic, and aluminum and also operate a successful centralized yard trimmings composting facility in the city of Pampa. In addition, the Partnership's used oil collection program accepted more than 11,884 gallons of used oil in 1994.

Governor's Awards for Environmental Excellence

Providing recognition for extraordinary environmental achievements is one of the responsibilities of CLEAN TEXAS 2000. With direction from SB 1099, the TNRCC initiated the Governor's Awards for Environmental Excellence in 1993 to honor the most outstanding environmental projects across the state. Over 350 applications were received this year for the 1995 awards. The top 10 to 15 of these are recognized by the Governor at the Governor's Awards Banquet for Environmental Excellence, which also honors CLEAN INDUSTRIES 2000 and CLEAN CITIES 2000 members in recognition for their commitment to pollution prevention and waste reduction. A complete list of previous Governor's Awards winners is located in the appendix.

lake and River Cleanup Program

OPPR helps community organizations start or enhance lake and river cleanup programs through the Lake & River Cleanup Program. The goals of the program are to get Texans involved in voluntary cleanup activities, to educate Texans about the dangers of water pollution, to involve citizens in water quality issues and to encourage them to develop local solutions to pollution problems. The program conducts more than 50 cleanups each year with more than 25,000 volunteers collecting 500 tons of waterway debris.

The Wellhead Protection Program

The Wellhead Protection Program in the Agriculture and Rural Assistance Division assists communities, water supply districts and corporations in protecting the state's groundwater supplies. The program is strictly a voluntary program designed to protect local groundwater sources from contamination.

In FY 1994, 22 water supply entities participated in the program thus protecting groundwater supplies for over 195,000 Texans. Since the program started, 225 water supply entities have participated in protecting groundwater supplies for over 4.5 million Texans.

Texas Watch Volunteer Environmental Monitoring Program

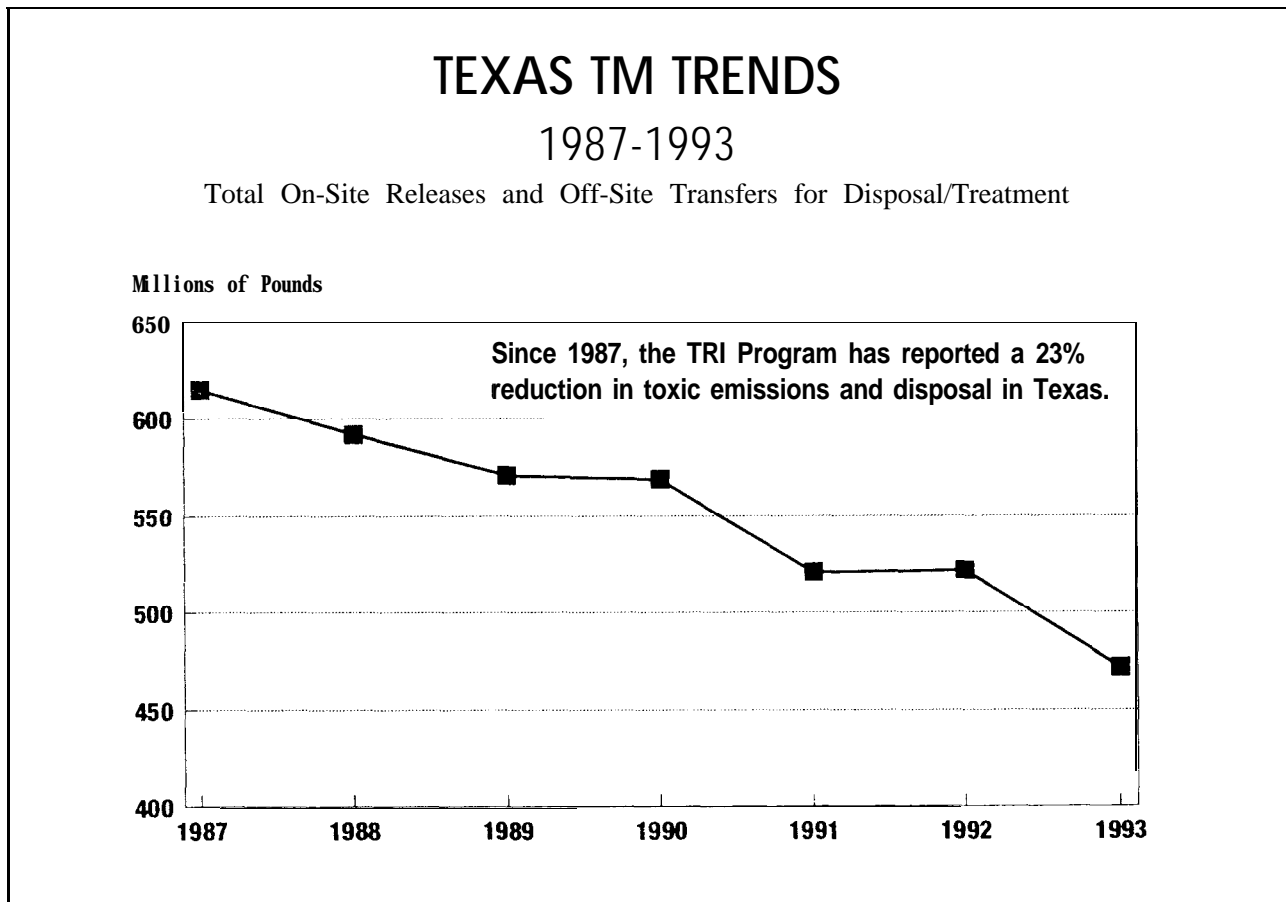
Texas Watch is a network of trained volunteers and program partners working together to help the TNRCC protect natural resources. Through Texas Watch, citizens are trained to collect quality-assured information which can be used to complement professional monitoring data. There are currently over 5,000 Texas Watch volunteers throughout Texas supported by grants provided under the federal Clean Water Act and a limited amount of state General Revenue.

IV. THE RESULTS: POLLUTION PREVENTION AND WASTE REDUCTION TRENDS

How is Texas doing in the challenge to reduce pollution? The primary index to track pollution reduction is the Toxic Release Inventory (TRI), a publicly available database that contains toxic release and transfer information from manufacturing facilities in Texas. These companies report annually on more than 300 chemicals and their pollution prevention efforts at their facility to the U.S. EPA and the TNRCC.

The most recent TRI data shows the continuous reductions in TRI reportable pollutants in Texas:

- ◆ From 1987 to 1993, Texas industries reduced on-site releases and off-site treatment/disposal of pollutants to air, land, and water by 23%, as reported by the Toxic Release Inventory (TRI) Program.
- ◆ From 1992 to 1993, these same companies reported a 9.5% pollution reduction, the largest one year reduction since the program started in 1987.



Even though significant progress has been made in reducing toxic releases to the environment since 1987, TRI facilities reported generating 2.15 million tons of waste in 1993, ranking Texas first in the nation. By continuing to focus on pollution prevention, even greater environmental benefits are expected, but it will require a commitment by industry, government, and the public to achieve desired results.

In addition, because of future changes planned for the TRI program in 1995, including the addition of 300 new-chemicals, new federal facility reporting, revised threshold requirements, and possible new reporting facilities, the amounts reported to TRI may increase or decrease significantly and revisions to future trend analysis may be necessary to demonstrate accurate comparisons to data from previous years.

Although the CLEAN INDUSTRIES 2000 program is only two years old, significant progress is being made through voluntary commitments. A preliminary analysis of CLEAN INDUSTRIES 2000 for 1993 reveals:

- ◆ CLEAN INDUSTRIES 2000 members who set hazardous waste reduction goals have reduced their generation of hazardous waste by approximately 11.5 million tons - a 15% reduction in one year.
- ◆ CLEAN INDUSTRIES 2000 members with toxic release reduction goals reported a reduction of total releases and transfers of 39 million pounds - a 10% reduction overall.

Municipal Solid Waste Reduction

There are three significant numbers that are calculated to measure waste reduction in Texas: the recycling rate, the waste reduction rate, and the total source reduction and recycling rate.

Recycling Rate

The recycling rate, which TNRCC estimated to be approximately 14% for 1994, is based on the volumes of materials actually recycled. The recycling rate for Texas was originally estimated in 1991 through a study conducted by R.W. Beck, a national consulting firm. Each year the Recycling Program adjusts the statewide recycling rate based on the growth or decline in recycling and composting activities throughout the state, as reported in an annual voluntary survey.

Waste Reduction Rate

The per capita waste reduction rate, which was calculated to be 4.3% for 1994, using 1992 as a base year, is a simple calculation of the reduction in the amount of waste going to landfills. To calculate the waste reduction rate, TNRCC compared the total tonnages of waste disposed in landfills in 1992 to the amount of waste disposed in 1994, adjusting for population increases. The actual tons disposed increased from 20 million tons in 1991 to 21.7 million tons in 1992, but decreased slightly in 1994 to 21.5 million tons.

Total Source Reduction and Recycling Rate

Both of these numbers, or rates, are used to calculate a combined source reduction and recycling rate, which the Legislature requires TNRCC to use to measure the state's progress toward the 40% goal. While recycling has increased, so has the total amount of waste generated due, in part, to a growing state economy. As a result, the total source reduction and recycling rate, which accounts for both recycling and waste disposal reduction, is 8.18% - higher than the waste reduction rate, but lower than the recycling rate.

These rates are calculated based on disposal tonnages reported annually by landfills and on voluntary reporting on recycling activities from local governments, recycling businesses and non-profit organizations. Although this data is the best available, it may be incomplete and, in many cases, based on estimations, since most landfills in Texas do not have scales and reporting on recycled materials is not mandatory.

V. THE FUTURE: New Recommendations

Over the last two years, the Office of Pollution Prevention & Recycling has created a foundation for helping businesses and local governments reduce waste and prevent pollution in Texas. Reduction goals have been established, voluntary programs created, technical materials have been prepared, and training workshops conducted.

Despite the success of many businesses and local governments in reducing waste, others have not yet used the resources available to implement programs.

In the next two years, the goals of OPPR are to expand its services to those businesses and local governments by improving access to technical services, removing barriers to participation, and offering new incentives for participation,

The following recommendations are made to move pollution prevention and waste reduction into the next stage of development:

- ◆ Develop a long-term strategic plan for pollution prevention and waste reduction programs, both internal and external to the TNRCC, that encompasses all legislative mandates and factors in available resources.
- ◆ Integrate pollution prevention into other agency programs by:
 - ◆ Incorporating pollution prevention & recycling services into regional office responsibilities.
 - ◆ Creating flexibility in the permit process for projects which can demonstrate significant source reduction.
- ◆ Remove regulatory barriers to pollution prevention by:
 - ◆ Reviewing proposed state and federal rules to insure that they do not impose new regulatory barriers to pollution prevention or waste reduction.
 - ◆ Removing barriers that prevent the reuse and recycling of certain types of waste materials.
- ◆ Seek flexibility from the EPA in media grants to allow the agency the discretion to use funds for pollution prevention.
- ◆ Improve data analysis, measurement and accountability within each OPPR program in order to measure progress, waste reduction goals and program effectiveness more accurately.
- ◆ Target public education toward activities that will result in the greatest reduction of waste or that pose danger to environmental quality, i.e., used oil collection, workplace recycling, and composting.

- ◆ Implement a comprehensive recycling initiative for commercial and industrial non-hazardous solid waste that includes technical assistance, public education and a voluntary reduction program, with special emphasis on construction and demolition materials.
- ◆ Provide specific technical assistance targeted to local and state governments that emphasizes the significant cost savings to taxpayers that can result from waste reduction.
- ◆ Target additional OPPR activities to the Texas-Mexico Border area to take advantage of the window of opportunity that now exists to develop cooperative agreements and institutional relationships with both the state and federal government in Mexico.
- ◆ Target technical services to medium and small businesses and work cooperatively with trade associations and local governments.
- ◆ Improve TNRCC electronic reporting capabilities, consolidate data systems, and increase the electronic availability of OPPR publications, databases, and pollution prevention and waste reduction information.

Appendix

The GOVERNOR'S AWARDS FOR ENVIRONMENTAL EXCELLENCE WINNERS

Large Business - Technical

Longview

McKinney

Dallas

Brownsville

Rio Grande Valley

Media

1993 - TSM Television/Radio - El Paso

1994 - WFAA-TV, Dallas/Fort Worth -
Don Wall, Environmental Reporter

Agriculture

1993 - Arrowhead Mills - Hereford

1994 - Seco Creek Water Quality
Demonstration Project - Hondo

Individual

1993 - Toni Lundgren - Cameron

1994 - J. David Bamberger,
Bamberger Ranch - Blanco County

Special Award Winners

1993 - AT&T Microelectronics, Inc. - Mesquite
BP Chemicals/Green Lake Facility -
Port Lavaca

La Porte Post Office - La Porte

Becker Elementary - Austin

Jim Kennedy, E.I. DuPont - Houston

Ken Kramer, Lone Star Chapter

Sierra Club - Austin

1994 - Champion International Corporation -
Sheldon

Keep 5 Alive - Houston

Project Del Rio - Rio Grande Border
Region

Kristi Wiseman - Fort Worth

Texas Instruments - Statewide



CLEAN INDUSTRIES 2000 FACILITIES GROUPED BY AREA

El Paso

Asarco, Inc., El Paso

North Texas

AT&T Power Systems, Mesquite
Alcatel Network Systems, Inc., Richardson
Bell Helicopter Textron Inc., Fort Worth
Boeing Defense & Space, Irving
Chaparral Steel Company, Midlothian
Composite Technology, Fort Worth
Fisher Controls International, McKinney
GNB Technologies Inc., Dallas
Jetco, Corsicana
Lockheed, Fort Worth
SACHEM, Cleburne
SGS-Thomson Microelectronics, Inc., Carrollton
Sherwin-Williams Company, Garland
Texas Instruments, Inc., Dallas
Texas Instruments, Inc., Dallas-Forest Lane
Texas Instruments, Inc., Dallas-Lemmon Avenue
Texas Instruments, Inc., Lewisville
Texas Instruments, Inc., Sherman
Texas Instruments, Inc., McKinney
Valspar Corporation, Garland
Vought Aircraft Company, Dallas

Corpus Christi Area

American Chrome & Chemicals Inc.,

Citgo Refining & Chemicals Inc., Corpus Christi
E.I. Du Pont De Nemours, Corpus Christi

Hoechst Celanese Chemical Corporation,
Corpus Christi Technical Center

Occidental Chemical Corporation, Ingleside
Oxy Petrochemicals, Corpus Christi

U.S. Naval Air Station, Corpus Christi
Valero Refining Company, Corpus Christi

BP Chemicals, Inc., Green Lake Facility
Carbide/Graphite Croup, Inc., Seadrift

Occidental Chemical Corporation, Matagorda
Occidental Chemical Corporation, Victoria

Wichita Falls Area

Rhone-Poulenc Specialty Chemicals Company,
Inc., Vernon
Graham Magnetics, Inc., Graham

San Antonio Area

Kelly A.F.B., San Antonio
Sony Microelectronics, San Antonio
Structural Metals, Inc., Seguin

Waco-Temple Area

Mobil Chemical Company, Temple

Abilene Area

3M Corporation, Brownwood

Carrier Corporation, Tyler

International Paper, Texarkana

Texas Eastman, Longview

Union Pacific Railroad, Palestine

Texas Instruments, Inc., Midland

West Texas/Panhandle Area

Excel Corporation, Friona
Excel Corporation, Plainview
Hoechst Celanese Chemical Corporation, Pampa
Phillips 66 Company, Borger

Houston Area
Air Products Manufacturing Corporation,
Pasadena
Akzo Chemicals, Inc., Deer Park
Albemarle Corporation, Pasadena
Amoco Chemical Company, Chocolate Bayou
Amoco Chemical Company, Texas City
ARCO Chemical, Channelview
BASF Corporation, Freeport
Catalyst Resources, Inc., Pasadena
DOW U.S.A., Freeport
DOW Chemical Company, La Porte
Drilling Specialties Company - Alamo Plant,
Conroe
E.I. Du Pont De Nemours, La Porte
ECP Fuels Company, La Porte
Elf Atochem North America, Crosby
Enron Methanol Company, Pasadena
Ethyl Corporation, Houston
Exxon Chemical Company, Baytown Olefins Plant
Exxon Chemical Company, Baytown Chemical
Plant
Exxon Chemical Company, Mont Belvieu
FMC Corporation, Bayport
Geon Company, La Porte
Gulf Chemical and Metallurgical, Freeport
Himont U.S.A., Pasadena
Hoechst Celanese Chemical Croup, Inc.,
Bay City Plant
Hoechst Celanese Chemical Corporation,
Clear Lake Plant
Howell Hydrocarbons & Chemicals, Inc.,
Channelview
ISK Biotech Corporation, Houston
ISP Technologies, Inc., Texas City
Lubrizol Corporation, Deer Park
Lubrizol Corporation, Pasadena
Lyondell Petrochemical Company, Pasadena
Marathon Oil Company, Texas City
Miles, Inc. Baytown
Miles, Inc. Houston
Monsanto, Chocolate Bayou
Nalco Chemical Company, Freeport
Nalco Chemical Company, Sugar Land
Occidental Chemical Corporation, Houston
Chemical Complex (Battleground & Deer Park)

Occidental Chemical Corporation, Bayport
Occidental Chemical Corporation, Pasadena
Occidental Chemical - Houston Ammonia
Terminal, Pasadena
Oxychem Pipeline, Pearland
Oxychem, Chocolate Bayou
Phillips 66 Company, Houston Chemical Complex
Phillips Petroleum Company, Sweeny Refinery &
Petrochemical Complex
Quantum, LaPorte
Rhone-Poulenc Basic Chemical Company, Houston
Rhone-Poulenc, Inc., Freeport
Rohm & Haas Texas, Inc., Deer Park
Schenectady International, Inc., Freeport
Shell Oil Company, Deer Park
Shintech Inc., Freeport
Solvay Polymers, Inc., Deer Park
Sterling Chemicals, Inc., Texas City
Stolt-Nielsen, Inc., Houston
Texaco Chemical Company, Conroe
Texas Instruments, Inc., Houston
Texas Petrochemicals Corporation, Houston
Union Carbide Chemicals & Plastics Company,
Inc., Texas City

Beaumont-Port Arthur-Orange Area
E.I. Du Pont De Nemours, Beaumont
E.I. Du Pont De Nemours, Sabine River Works
Goodyear Tire & Rubber Company, Beaumont
Chemical Plant
OxyChem - PD Glycol Plant, Beaumont
Quantum Chemical Corporation, Port Arthur
Texaco Chemical Company, Port Arthur

Austin Area
Advanced Micro Devices, Inc., Austin
IBM Corporation, Austin
Lower Colorado River Authority, Sim Gideon
Power Plant, Bastrop
Lower Colorado River Authority, Fayette Power
Project, La Grange
Lower Colorado River Authority, T.C. Ferguson
Power Plant, Marble Falls
Motorola - Ed Bluestein, Austin
Motorola - Oak Hill, Austin
Kaspar Wire Works, Inc., Shiner
Texas Instruments, Inc., Austin



1994 CLEAN CITIES 2000 Members:

Austin
College Station
Cuero
Garland
Georgetown
Goliad
Gonzales
Hallettsville
Plan0
Victoria
Waco

Charter CLEAN CITIES 2000 Members:

Brazoria County Cluster
Clute
Lake Jackson
Quintana
Surfside Beach
Sweeny

Central Texas Cluster
Bastrop
La Grange
Schuleburg
Smithville

Panhandle Cluster
Borger
Fritch
Pampa
Panhandle
Stinnett

Deep East Texas Cluster
Lufkin
Nacogdoches

Large Cities
Beaumont
Corpus Christi
Fort Worth
Harlingen
Lubbock

PUBLICATIONS

Publications are an important tool in reaching the largest audience possible. These manuals, videos, and newsletters serve a critical role providing technology transfer, cost savings information, the sharing of successes and failures, pilot projects results, and the economic benefits of pollution prevention and recycling. Each year the OPPR distributes thousands of publications and videos to industry, government, and the public. Some of these include:

Recycle Texas

Case Studies on Source Reduction and Waste Minimization

RENEW Catalog

How to Develop Comprehensive Municipal Recycling Programs

Texas School Recycling Guide

School Recycling Tips

School Recycling Video Tape - The ARCs of School Recycling

Workplace Recycling Manual

Workplace Waste Reduction Tips

Workplace Recycling Video Tape - Recycling! Reducing the Bottom Line

Guide to Establishing a Community Used Oil Program

Master Composter Program Planning Guide

Master Composter Training Manual

A Green Guide to Yard Care

Texas Municipal Compost Marketing Manual

1991 Recycling Rate and Market Research Report

TNRCC Media Catalog

Promotional Package for Source Reduction Programs

“Market News” Newsletter

Texas Recycler Newsletter

Texas Oil Recycler

Texas Directory of Recycling Resources

Small Business Educational Information Packages

TNRCC On-Line Bulletin Board System

Small Business Assistance Guidance Manuals

Office of Pollution Prevention & Recycling Program Guide

Household Hazardous Waste Guidance Document

Environmental Bulletin Series

Reducing the Hazard Videc Tape