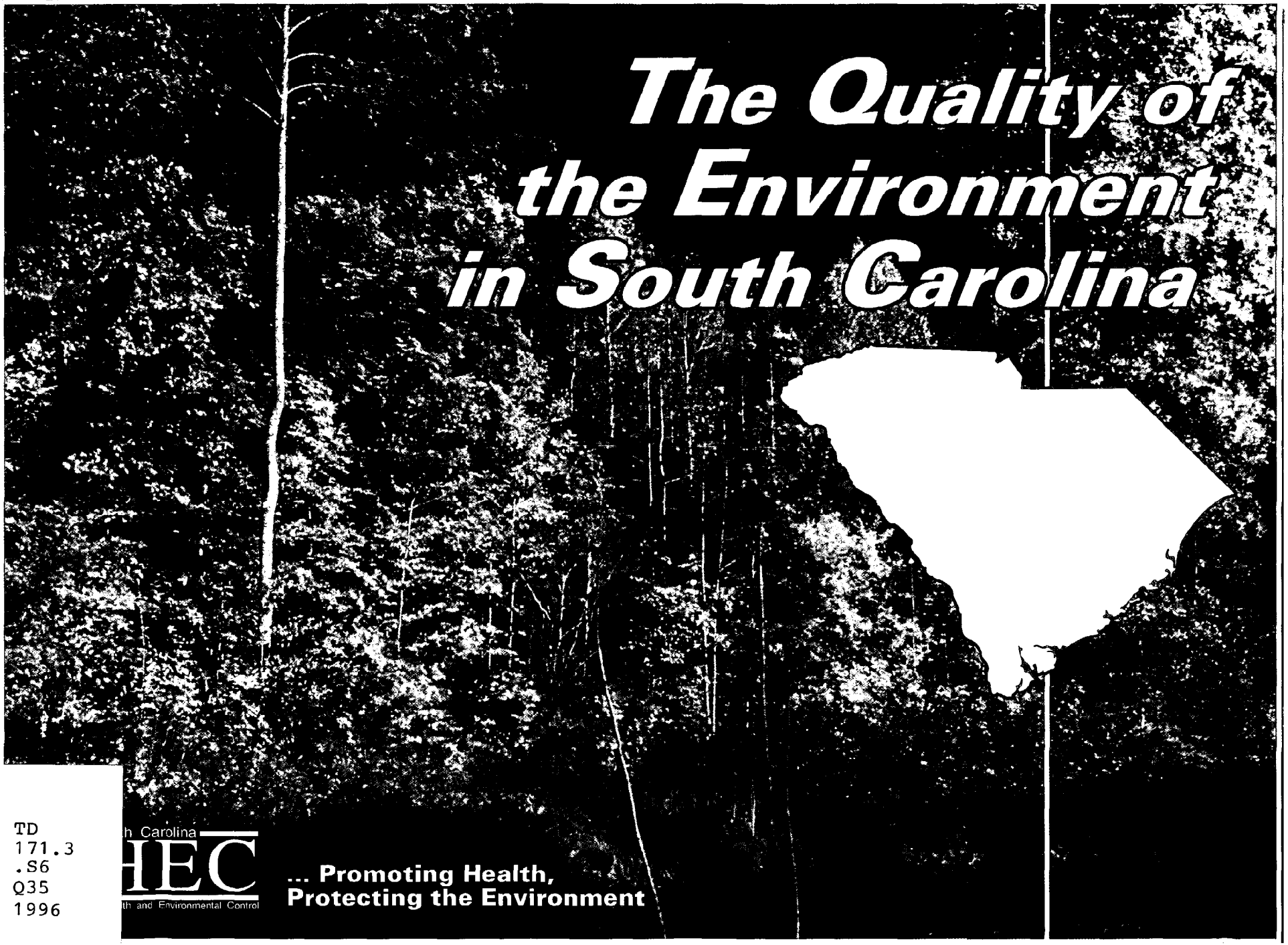

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... Promoting Health, Protecting the Environment

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A Message from the Commissioner

Under the leadership of Governor David Beasley and former Governor Carroll Campbell, South Carolina has made progressive strides toward meeting its long-term goals of preserving our environment, protecting public health and promoting strong economic development through well-managed growth.

To improve the focus of environmental protection efforts, the S.C. General Assembly, through its public mandate to restructure state government, combined the regulatory programs of the Land and Water Resources commissions and the former Coastal Council into the S.C. Department of Health and Environmental Control. Since this effort began in July 1994, DHEC has made significant advances in more efficiently providing environmental services.

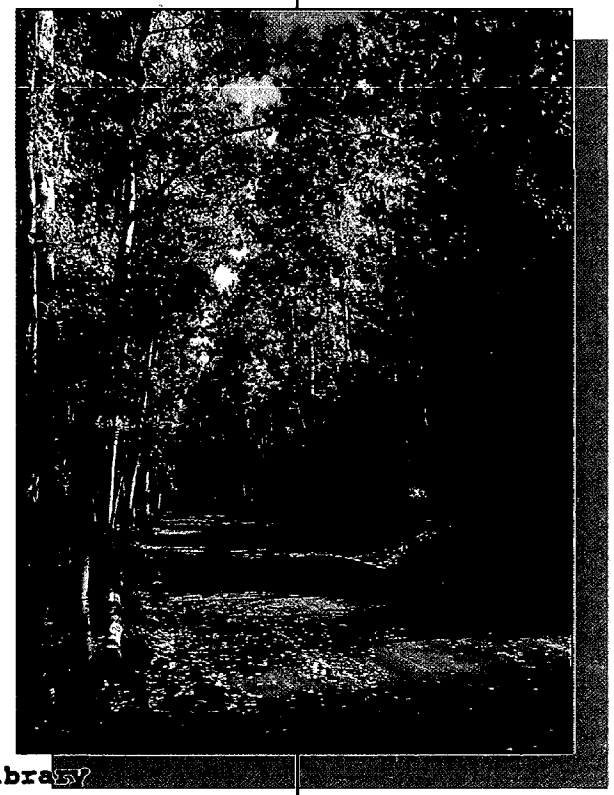
As part of an extensive self-examination, we developed a strategic plan to guide us on a unified road to improved services. Our strategic plan contains:

- values to guide us on our mission toward improved customer service, increased teamwork and efficient use of applied scientific knowledge for decision making;
- visions toward becoming more culturally competent, being a model of excellence in government and encouraging local solutions to local problems; and
- critical issues, including better communications, ensuring continued core public health services during health care reform, preventing environmental and health problems, continuing to refine the permitting process, and unifying DHEC as an agency.

This publication is the first state-of-the-environment report issued by the new DHEC. Through similar reports to the Governor, General Assembly and the people of South Carolina, we intend to continue documenting our progress in protecting the state's vital natural resources and the health of its people while assisting South Carolina's economy.

Douglas E. Bryant
Commissioner
SC DHEC

"...we intend to continue documenting our progress in protecting the state's vital natural resources and the health of its people."



"We promote and protect the health of the public and the environment."

— DHEC Mission Statement

South Carolina
DHEC
Department of Health and Environmental Control

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Department of Health and Environmental Control

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Acknowledgements

"The Quality of the Environment" reflects the hard work of all Environmental Quality Control staff whose jobs result in the high level of environmental protection we enjoy in South Carolina. Thanks go to all the front-line staff who collect the data that allow us to peruse trends and pursue policy to preserve the state for future generations.

Specific thanks go to a committee of people in DHEC and the Bureaus of Environmental Quality Control who collected, compiled and wrote the information that appears in this report. Thanks also go to all those who answered last-minute questions, proofread and made suggestions that improved the usefulness of this report.

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The Quality of the Environment in South Carolina

More than a decade of growing environmental awareness, sometimes as the result of costly tragedies, has made South Carolinians more conscious and conscientious about environmental issues than ever before. Chernobyl, Love Canal, Times Beach, Three Mile Island, *Exxon Valdez* — all of these are household names because of our exposure to environmental issues through the media. And, as a result, it is easy to become distracted by one event and forget that our environment needs attention every day.

Environmental Quality Control — the DHEC deputy area that houses air, land and water programs — has the primary responsibility of protecting the environment both when accidents occur and more often when they don't. EQC:

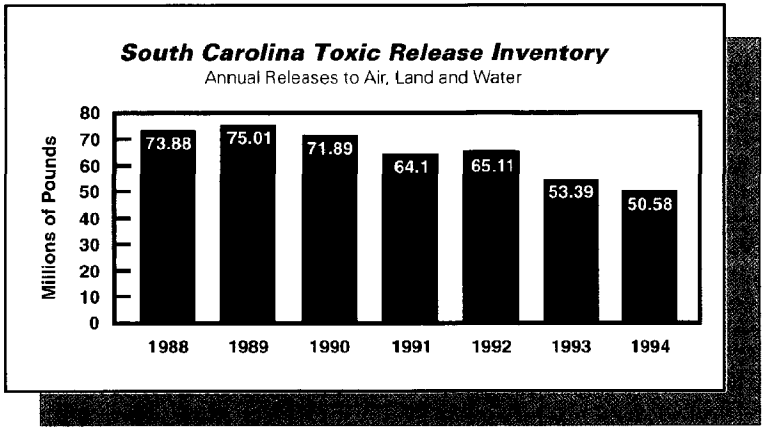
- develops regulations that protect public health and the environment;
- issues permits to facilities to ensure safe operations;
- maintains and operates an extensive sampling network that collects and examines the quality of our air and water;
- inspects facilities to assure compliance; and
- offers technical assistance to local governments, industry, consultants, small businesses and individuals.

EQC's efforts prevent the Chernobyls and the Love Canals from happening in our state. The data collected by the various program areas under EQC over the years is the best proof of the successes of citizens, industry and government in improving the quality of our environment.

No longer do we rely on end-of-pipe, command and control technology; DHEC, industry and the public work together to develop and promote pollution prevention methods that reduce or eliminate the production of wastes, lower costly treatment and disposal charges, and reduce the drain on natural resources. Examples of state and federal legislative initiatives that guide us in these prevention measures include the federal Clean Water Act and Clean Air Act Amendments of 1990, the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act and, at the state level, the S.C. Solid Waste Policy and Management Act.

The pollution prevention philosophy accounts for some reductions in total toxic emissions in the state. In 1994, the state saw a 5.3 percent drop in toxic compounds released by major facilities over the previous year.

We are committed to using rational methods and scientific knowledge to provide answers and guide our professional judgments. As our population grows, we must continue to look for methods to better define the state's public health and environmental issues and to set priorities. We strive to communicate scientific information to the public and to commit sufficient resources to support scientific disciplines within the agency. Our continuous self-evaluations and public input help ensure the continued improvement of our programs.

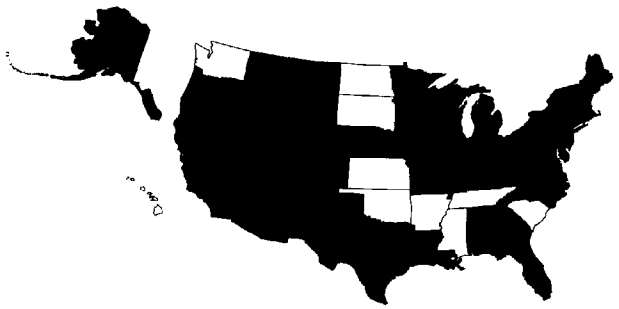


Air

South Carolina enjoys some of the best air quality in the United States. We are one of a few states that currently meet all National Ambient Air Quality Standards (NAAQS). Meeting the standards is important to South Carolinians since clean air has a direct impact on our health, quality of life and the state's economy. Air pollutants covered by these standards include: ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM), carbon monoxide (CO) and lead (Pb).

Sulfur dioxide represents almost half the total tonnage of air gaseous emissions released per year by industry. The amount of lead emissions in the state is insignificant when compared to the remaining air emissions. Volatile organic compounds (VOCs) emitted from all sources comprise a significant portion of total air emissions.

National Ambient Air Quality Standards



States in white meet all federal air quality standards

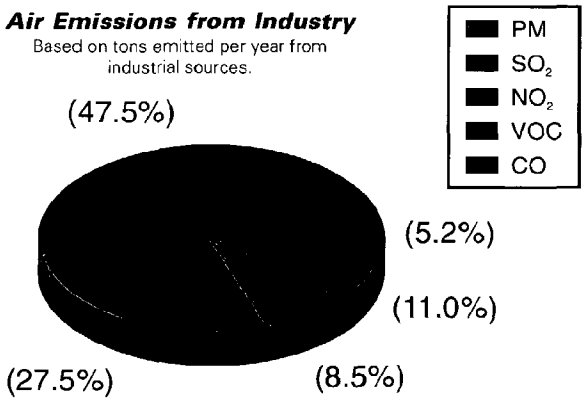
Ozone

The most prevalent air pollutant in the nation is ground-level ozone. Ground-level ozone, which can be transported over great distances, forms when gaseous emissions of VOCs and nitrogen oxides (NOx) interact in the presence of sunlight. Motor vehicle exhaust accounts for one-third to one-half of all ozone-forming pollution generated by human activities.

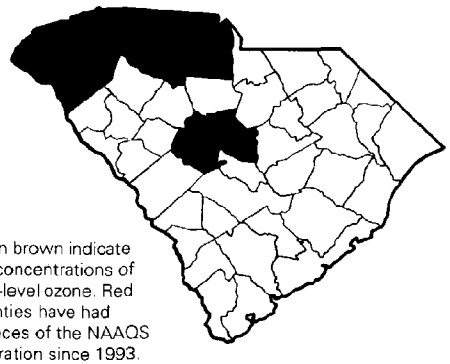
The concentration of vehicles in our urban areas is a major contributor to elevated ozone levels. The total miles traveled in South Carolina in automobiles and trucks has increased 65 percent from 1980 to 1994 while the state population has increased by only 19 percent. The impact of increased vehicle emissions and our hot, sunny summers has contributed to several violations of the national ozone standard in the last few years. Each of these violations represents an exceedance of the NAAQS for one hour. The average number of violations per year is still less than the air quality standard, but this occasional detection of an elevated concentration is a reminder of the need for continued efforts by DHEC and the citizens of the state.

Air Emissions from Industry

Based on tons emitted per year from industrial sources.



Ground-level Ozone in South Carolina



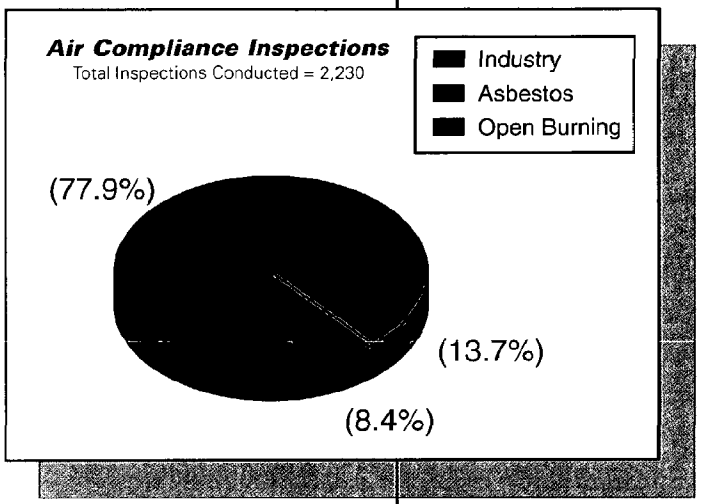
Areas in brown indicate higher concentrations of ground-level ozone. Red counties have had exceedances of the NAAQS concentration since 1993.

Air Quality

Pollution control measures required by federal and state regulations enacted during the past 20 years have contributed to dramatic reductions in pollution concentrations in our air, most notably particulates (smoke and dust) and lead. Administration of federal air regulations has been delegated to South Carolina.

The efforts of facilities to limit emissions have generally been very successful. More than 96 percent of the facilities are meeting or exceeding requirements. Three-quarters of inspections are of permitted facilities. Inspections of open burning, most often prompted by citizen complaints, have the highest percentage of violations. Improper open burning primarily adds to particulate concentrations. The asbestos inspections noted are of buildings where the asbestos is being removed or contained.

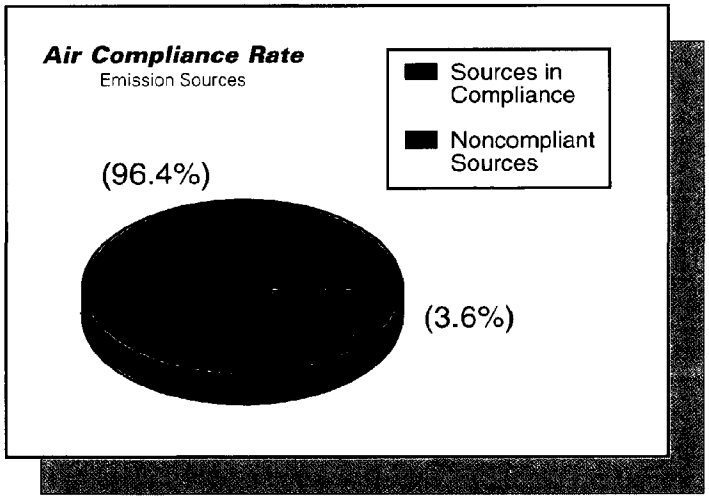
Air quality is directly influenced by pollutant emissions, pollutant transport and weather conditions. Episodes of stagnant air masses, which can concentrate pollutants over a large area, are common in the southeast coastal plain centered in our state. Since these weather conditions are beyond our control, continuing to maintain good air quality in the state will depend in part on the willingness of South Carolinians to change the ways in which we live, work and play.

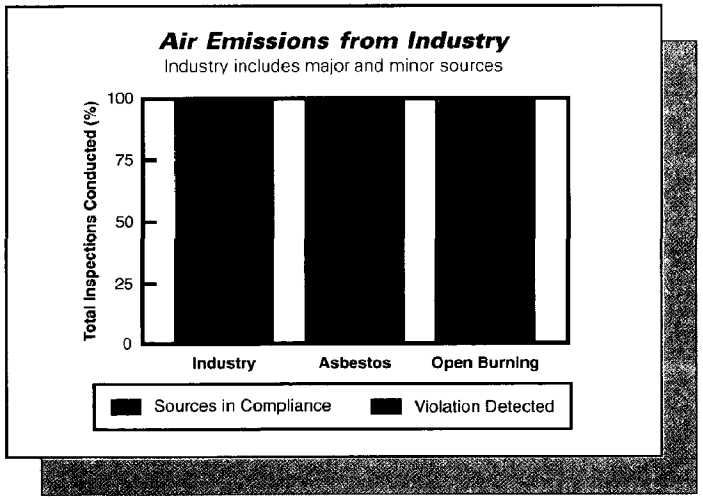


Tips to Prevent Air Pollution

Here are some no-cost, voluntary steps people can take to keep ozone levels down:

- Refuel vehicles after 6 p.m.
- Avoid topping off gas tanks when refueling.
- Make sure all vehicles, including lawn equipment and recreational vehicles, are well maintained and work properly.
- When possible, combine all business, errand and recreational trips.
- Try to take vehicle routes that reduce stop-and-go traffic.





Land

Land is plentiful in South Carolina, but the increasing need to use it for waste disposal has prompted a greater call to reduce, reuse and recycle. Every day we generate and discard from our homes and workplaces large amounts of materials that need safe disposal. This volume includes solid waste created at home and in businesses; hazardous wastes produced during industrial activities; infectious waste produced by hospitals and during medical procedures; and radioactive wastes produced by industries and power plants.

Underground storage tanks are also having an impact on the environment as more and more older tanks are found to be leaking. Mining also impacts land use and must be regulated to assure the land is restored after mining activities are completed.

Landfill Types

39 Municipal Solid Waste Landfills
(8 of these landfills meet new, more stringent design requirements)

105 Construction and Demolition Landfills

60 Industrial Waste Landfills

30 Local Government-Owned Landfills

9 Private Landfills

Solid Waste

The largest volume of waste produced is household solid waste. On average, each South Carolinian is responsible for the creation of eight pounds of solid waste a day. About five-and-one-quarter pounds of this is municipal solid waste. The rest includes commercial, industrial, institutional and residential material.

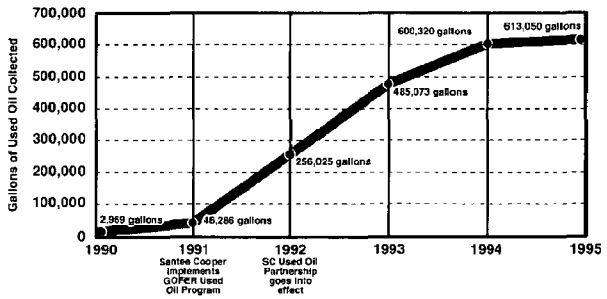
In the past, almost every county owned and operated its own municipal solid waste landfill. Now the implementation of new laws has increased the financial commitment required of communities to improve environmental protection features, monitoring and operations of landfills. Almost half of the county-owned or -operated landfills are now closed. The other half might close because of a 1993 law that requires landfills to have state-of-the-art design features to prevent environmental contamination. New laws are helping curb the flow of waste into landfills, laws that prevent things like appliances, whole tires, and construction and yard debris from being buried in landfills and that encourage recycling and reuse of material. The state has set a mandate of reducing waste by 30 percent and recycling 25 percent of all waste by 1997.

Top Five Recycled Items Collected in South Carolina during 1994

1. **Yard Waste** (141,111 tons)
2. **Construction & Demolition** (50,073 tons)
3. **White Goods/ Scrap Metal** (43,805 tons)
4. **Industrial Waste** (40,623 tons)
5. **Newspapers** (28,210 tons)

For information on recycling opportunities, contact the Office of Solid Waste Reduction and Recycling at: 1-800-768-7348.

Used Oil Collected in South Carolina



Reduce, Reuse, Recycle

Recycling programs are growing in number and quality. In 1995, more than 1.1 million tons of waste were recycled in South Carolina, more than double the 435,000 tons recycled in 1994. In 1993, only 87,557 tons were recycled. This continuing increase in the amount of material being recycled can slow down the need for more land disposal space.

One reason recycling rates have increased is that more households have been offered recycling collection. Thirty-six counties offer some curbside collection to more than 646,000 households. In addition, 41 counties have established almost 350 drop-off sites for more than 847,000 households.

DHEC offers two grant programs to encourage waste reduction at schools and colleges:

- The Environmental Education Grant Program supports public and private school waste reduction programs and education activities. In fiscal year 1995, 43 grants were awarded to 21 school districts and two private schools.

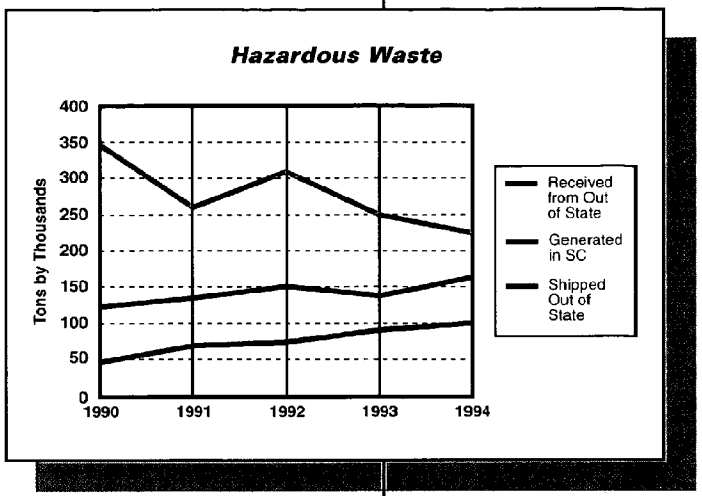
- The Colleges and Universities Grant Program assists higher education institutions in establishing or expanding recycling collection or education programs. Seven grants were awarded last year to colleges and universities.

Hazardous Waste

Waste is a byproduct of society that can pose a threat to human health or the environment if it's not managed properly. About 10 to 15 percent of all waste generated in the United States is hazardous. Many home products create hazardous waste, including paint and paint thinners, car batteries, cleaners — even mothballs.

Anyone who creates, transports, treats, stores or disposes of more than 220 pounds of hazardous waste a month in the state must notify DHEC, which maintains a tracking system of companies and the amounts and types of waste generated. The agency also must authorize any waste transports into or within the state.

There are slightly more than 4,000 hazardous waste generators in South Carolina that produced 170,000 tons of waste (excluding wastewater) in fiscal year 1994. DHEC also maintains records on 366 permitted hazardous waste transporters carrying material to waste facilities. In South Carolina these facilities include Laidlaw Environmental's Pinewood hazardous waste landfill, incinerators in York (which closed in November 1995) and Spartanburg counties, cement kilns in Orangeburg and Dorchester counties, and one of seven treatment or recycling centers.



Superfund

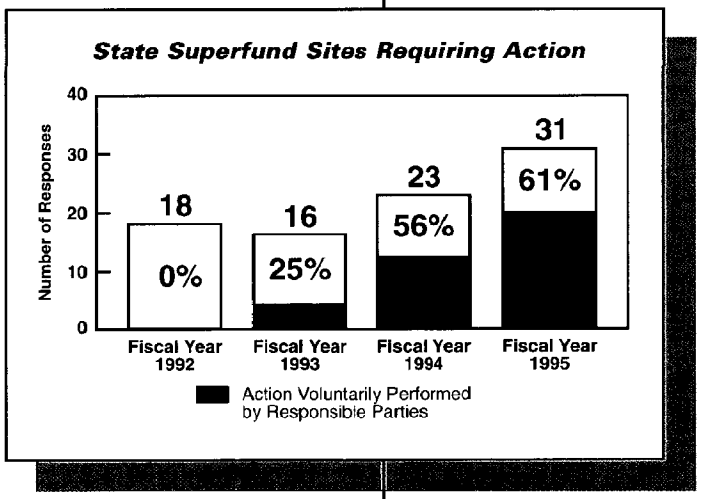
Decades ago it was common practice to dispose of hazardous materials in unlined and uncontrolled landfills or simply on the ground out back. Today those practices still haunt us with hazardous groundwater and soil contamination.

Now we must locate these old dump sites and assess the damage that has been done or the potential risk to the environment and public health. The worst ones get most of our attention and resources.

In addition to the U.S. Environmental Protection Agency's Superfund, South Carolina has a contingency fund used to clean up abandoned sites and to match federal funds for cleanup of sites on the federal priority list. The state fund is financed from fees on waste buried at Laidlaw's Pinewood landfill.

A Superfund cleanup is a time-consuming and complex process. It can take years and thousands of dollars to investigate, assess, rank, search for potentially responsible parties and determine a safe and proper course of cleanup.

A site will make the federal Superfund list if it ranks among those with the highest potential of human health or environmental risk. The state contributes 10 percent of the cleanup costs if there is no potentially responsible party conducting the cleanup. An increasing number of responsible parties, however, are performing cleanup at Superfund sites, reducing the drain on state and federal funds.



More than 500 sites in South Carolina are awaiting or undergoing evaluation for inclusion on the federal or state list.

Slightly more than $916,000 in contingency funds were spent in fiscal year 1995, up from $635,342 spent in fiscal year 1994. The number of state Superfund sites requiring investigation or cleanup increased from 18 in fiscal year 1992 to a cumulative total of 31 in 1995.

Mine Reclamation

Mining companies use a variety of reclamation practices that protect and restore the environment for useful purposes. Mined land is reclaimed as grassland, pastureland, ponds and lakes, woodlands, wildlife habitats, recreational areas and commercial developments. To ensure the completion of the reclamation following mining, DHEC currently has more than $19 million in reclamation bonds on file.

- More than half the 8,000 acres of mined land that has been reclaimed in South Carolina is now grassland.
- Reclamation of mined land can be influenced by regional and local geology. About 90 percent of mining operations in the lower coastal plain are reclaimed to ponds and lakes because of the high water table.
- One kaolin mine was reclaimed as a municipal landfill. After the landfill was closed, wells were drilled to recover methane, a gas produced by decomposing organic matter. The recovered methane is used as a fuel source to operate a kaolin processing plant.
- J.M. Huber Corporation's Richardson Kaolin Mine in Aiken County received the first National Mine Land Reclamation Award presented by the Interstate Mining Compact Commission in 1987 *(project photograph on back cover).*

Emergency Response

Accidents involving hazardous and nonhazardous materials occur on the state's highways, at industrial sites and in the state's waterways. DHEC's Emergency Response Section provides on-site consultation and monitoring of these events. The section also maintains a 24-hour emergency reporting system, oversees the emergency response contract at state Superfund sites, serves as the state source for Toxic Release Inventory information, investigates fish kills and makes sure the state's 490 registered terminal facilities have Spill Prevention, Control and Countermeasure plans in place.

In fiscal year '95, the section received 1,730 calls on the 24-hour line, the majority of which were to report petroleum spills. The unit received 1,676 calls in fiscal year 1994. This was an increase of 54 calls over the previous year. One-third of the year's responses were to petroleum spills, and 23 fish kills were investigated.

Infectious Waste

Infectious wastes are materials generated in the health care community in the diagnosis, treatment, immunization or care of human beings, or during autopsies or research. The Division of Infectious Waste oversees facilities that generate and dispose of infectious waste. In 1995, 4,200 generators reported producing 18,860 tons a year (or 1,571 tons a month) of infectious waste. Most of it was disposed of at a North Carolina incinerator under contract that year to the S.C. Hospital Association. The rest was disposed of in eight hospital incinerators throughout the state or went to other commercial incinerators including Chambers Medical Technologies' Hampton County facility. Chambers burned 882 tons of in-state wastes in 1994, the most current year's figures available. About 23,000 tons of out-of-state waste were incinerated at the facility that year.

Mining and Reclamation

The mining industry in South Carolina produced 14 mineral commodities during fiscal year 1995 with a total value estimated at $479 million (according to the U.S. Bureau of Mines). South Carolina ranked first nationally in the production and sales of vermiculite and second in kaolin. Overall, South Carolina ranks in the top 30 nationally in the value of all nonfuel mineral commodities produced.

The Mining and Reclamation Division coordinates with 280 mining companies involved with 489 active mine sites. During the fiscal year, the division evaluated 37 applications for mining permits, issued 38 new mining permits, conducted 31 environmental appraisals and 999 mine inspections. A total of 8,077 acres of mined land has been reclaimed for other uses since the start of the Mining and Reclamation program. Approximately 70,000 acres are under permit throughout South Carolina.

Gold mining returned to South Carolina in 1985 with the opening of the Haile Mine in Lancaster County. From 1985 through 1991, four gold mines were established in South Carolina. Production from these mines through 1995 has exceeded 1 million ounces of gold. Currently, one mine remains in production. The remaining three mines are undergoing closure and reclamation activities to restore the mined land to other productive uses and to protect the environment and human health and safety.

Mining in South Carolina

Commodity	No. of Mines
Sand	185
Sand/Clay Fill	110
Vermiculite	37
Granite	34
Kaolin	34
Clay	25
Limestone	19
Shale	12
Sand & Gravel	16
Sericite	6
Manganese Schist	4
Gold	5
Peat	1
Fuller's Earth	1
Total	**489**

Water

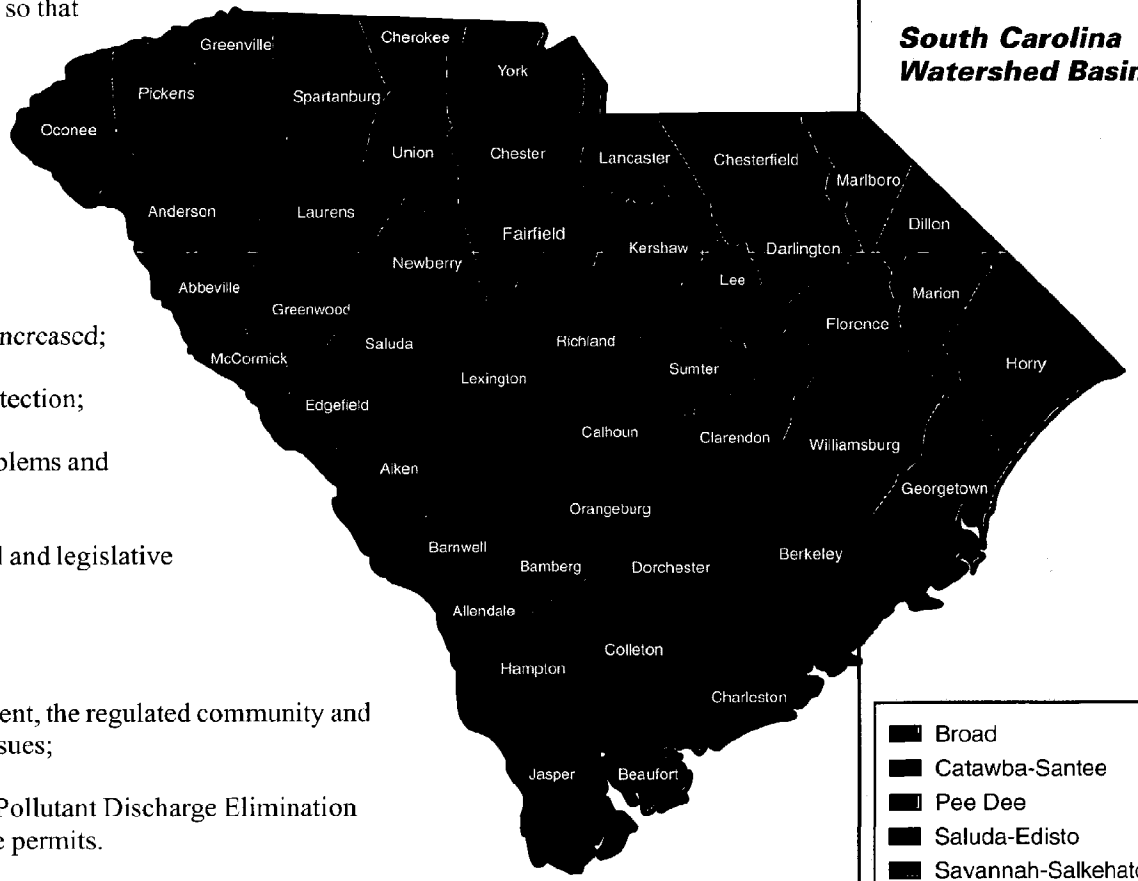
South Carolina's waters are not only a magnet for recreation, but may be the most vital of our natural resources. The condition of water in our lakes, streams and coastal estuaries is a strong indicator of the environment's health. Clean water supports a diverse and vibrant plant and animal community below, on the surface and in adjoining land areas. Unseen but no less important are the underground aquifers that provide much of our drinking water. The impact of our activities on surface and groundwater affects our ability to safely use the waters for recreation, industry, agriculture and as a food and water source.

DHEC protects and manages these water resources and allocates and coordinates water quality activities using a watershed-based approach. A watershed is a geographic area into which the surrounding waters, sediments and dissolved materials drain. Its boundaries extend along surrounding topographic ridges. The state is divided into five major drainage basins — Savannah-Salkehatchie, Saluda-Edisto, Catawba-Santee, Pee Dee and Broad. The management strategy for one basin is reviewed each year so that no plan is older than five years.

Each basin requires a year of water quality monitoring followed by a year of data assessment and three years of implementation, including permitting activities allowed in the basin. Water quality problems detected in the basin will be prioritized and addressed.

This watershed approach is effective because:

- Local level participation in watershed quality is increased;
- Water use plans are focused on water quality protection;
- The emphasis is on identifying water quality problems and prevention;
- It allows the department to address congressional and legislative mandates in a coordinated manner;
- It allows DHEC to better use current resources;
- It improves communication between the department, the regulated community and the public on existing and future water quality issues;
- It allows for more efficient issuance of National Pollutant Discharge Elimination System (NPDES) and state wastewater discharge permits.



South Carolina Watershed Basins

- Broad
- Catawba-Santee
- Pee Dee
- Saluda-Edisto
- Savannah-Salkehatchie

Fish Consumption Advisories

Toxic substances such as mercury and polychlorinated biphenyls (PCBs) persist in the environment and can accumulate in fish. When these pollutants are detected at concentrations that should concern consumers, an advisory is issued. Forty-six states have fish consumption advisories in effect.

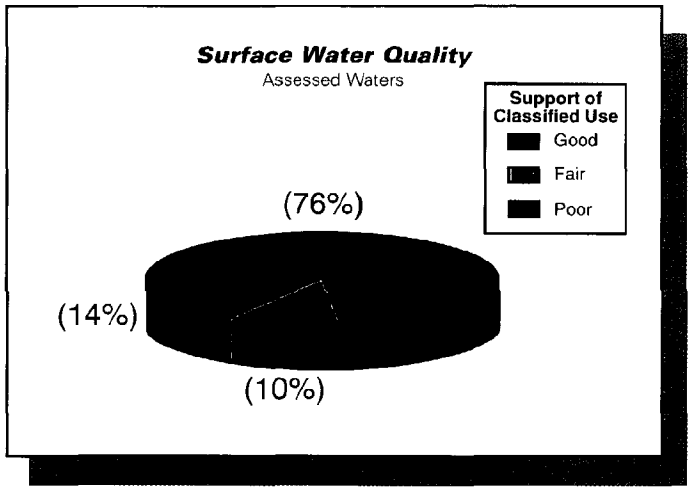
Mercury — In South Carolina, fish from 18 rivers and nine lakes and ponds contain mercury at levels high enough to prompt human health warnings and consumption advisories. If ingested in large enough amounts, mercury can cause brain damage in adults and can damage the brains of developing fetuses. Thirty-nine states, including most of those in the Southeast and along the Atlantic Coast, have issued consumption advisories for mercury. The source of the mercury is not known but research is being conducted throughout the Eastern United States. The amount of deposition through precipitation or from the air is being investigated by DHEC.

PCBs — The advisories issued for Lake Hartwell in 1976 and for Langley Pond in Aiken County in 1986 remain in effect.

Surface Water

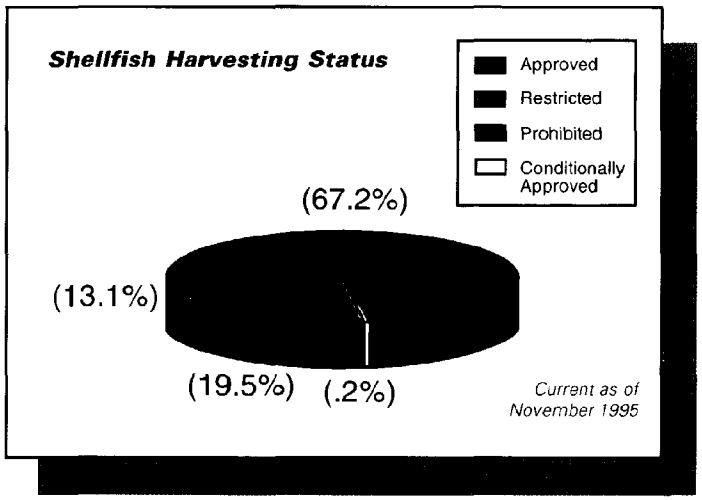
South Carolina has approximately 35,000 miles of rivers, 525,000 acres of lakes, and 950 square miles of estuaries. These waters are classified to define the uses that must be protected and the minimum water quality standards. Of all assessed waters — those that are routinely monitored — approximately 76 percent fully supported those uses (60 percent of rivers and streams, 99 percent of lakes, and 71 percent of estuaries). Uses include support of fish and wildlife, domestic or industrial water supply, recreation, agriculture and navigation.

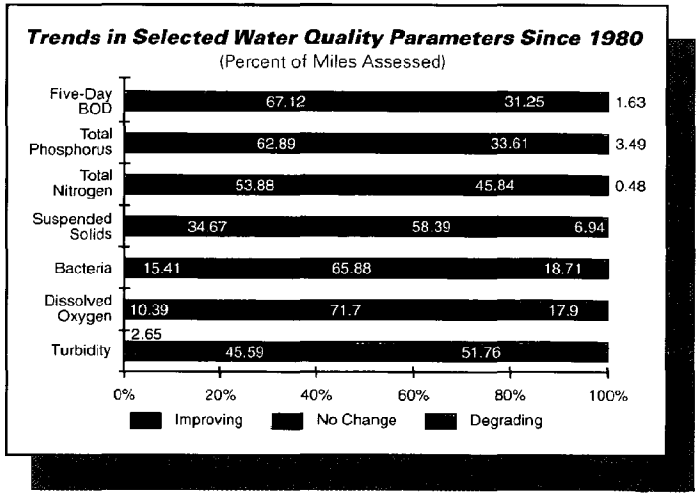
The most commonly detected deficiency in rivers and streams is the amount of fecal coliform bacteria; in lakes the concentration of heavy metals, and in estuaries a lack of dissolved oxygen. The most common source of pollution is runoff that contains contaminants and sediment.



The majority of the state's 1,100 square miles of coastal shellfish growing waters are unconditionally approved for safe shellfish harvesting. When water quality is acceptable, an additional 215 square miles can be opened. Typically, only 2 percent (21 square miles) of potential harvesting areas are closed due to nearby marinas or discharges.

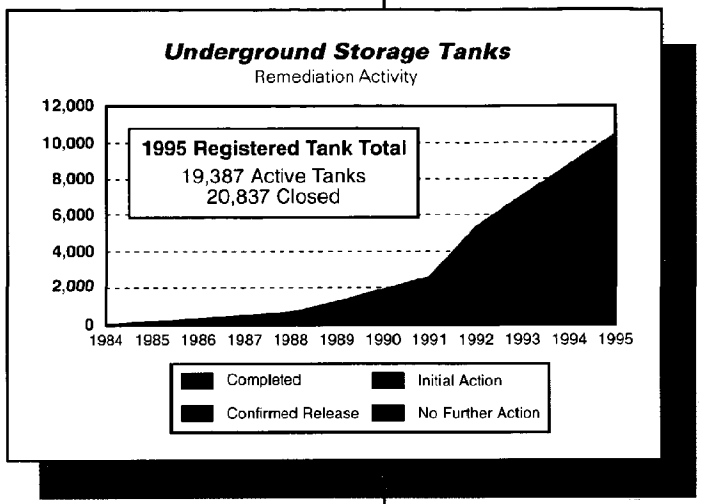
Long-term trends in many important water quality indicators show that water quality has been protected or improved for the majority of South Carolina's waters. Significant reductions in BOD (biochemical oxygen demand), nitrogen and phosphorus have been achieved through DHEC's NPDES (National Pollution Discharge Elimination System) permitting efforts. The phosphate detergent ban, instituted by the SC Legislature in 1992, has also contributed greatly to the reduction in phosphorus. Changes in land use development have led to increased runoff and a decrease in the clarity of our waters. More than half the waters assessed have shown increased turbidity.





Groundwater

An emphasis on assessing potential sources of groundwater contamination over the past few years has led to the discovery of more than 2,500 contaminated sites by 1995 compared to only 60 known in 1980. The increased awareness of the unique nature and value of our groundwater resources has led to requirements to better monitor the 19,000 registered underground storage tanks in the state. Lengthy and expensive remediation efforts are required for the contaminated areas posing the greatest risk. Although underground storage tanks pose the greatest risk, many activities can lead to contamination. Accidents, leaking lagoons or pits and landfills all contributed to contamination detected in 1994. Most instances of contamination involve petroleum products, primarily gasoline. Nonvolatile organic compounds or metals were involved in 15 percent of the sites. Contamination was most often found in the populated and industrialized areas, primarily in the coastal counties (80 cases), the Columbia area (326 cases) and in the I-85 corridor (403 cases).



Underground Storage Tanks

DHEC no longer requires that all groundwater cleanups be performed to drinking water standards. Each release is evaluated to determine the level of risk it poses to human health and the environment. After each evaluation, the agency and the underground storage tank owner or operator can agree on site-specific cleanup levels.

Many petroleum releases represent little or no threat, and no further action will be required. Some releases need to be monitored over time to verify the assumed risk and to confirm that the petroleum is breaking down naturally. A registry of all release assessment projects that have been concluded is being developed.

This risk-based philosophy allows DHEC to focus its limited resources from the State Underground Petroleum Environmental Response Bank (SUPERB) account on cleaning up those releases that pose a significant threat to humans or the environment.

Drinking Water

Of the state's 2,700 public drinking water systems, about 750 are community water systems that serve 78 percent or approximately 2.8 million residents in cities, subdivisions, apartments and mobile homes. About 20 percent of state residents have private wells.

There are 2,514 public water systems that draw groundwater as the sole source of water. Surface water — above-ground water such as in lakes and rivers — supply 56 public water systems. Eight public systems use a combination of the two, and 204 systems buy water from other systems.

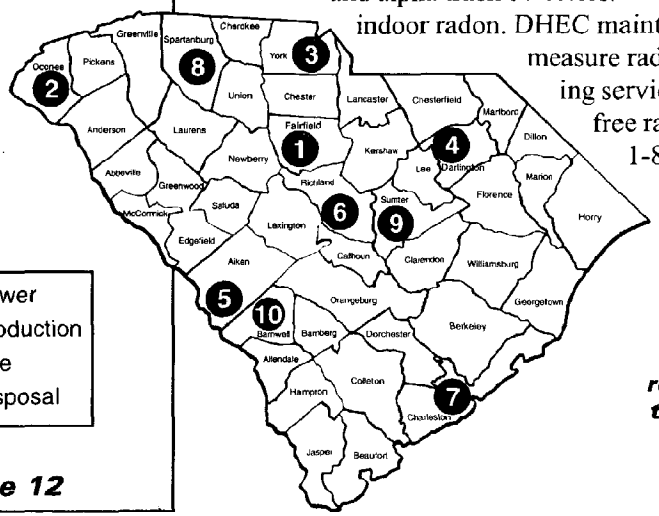
DHEC monitors public water systems for a variety of contaminants, including coliform bacteria that must be removed from surface water drinking sources and petroleum products that can reach groundwater from leaking underground storage tanks.

Drinking water quality in South Carolina is exceptionally high. Of the state's 753 community systems, only 11 violations of federal standards were recorded during fiscal year 1994–95. Four were for nitrates and seven for fluoride.

Radiation

Monitored Facilities

1. V.C. Summer Nuclear Power Plant
2. Oconee Nuclear Power Plant
3. Catawba Nuclear Power Plant
4. H.B. Robinson Nuclear Power Plant
5. Savannah River Site
6. Westinghouse Nuclear Fuel Fabrication
7. Charleston Naval Shipyard, NS Savannah
8. Westinghouse Decon Facility, Isomedix, Bausch & Lomb
9. Becton Dickinson, Sumter
10. Chem-Nuclear & Carolina Metals



The use of radioactive materials affects the lives of South Carolinians every day. From medical use of x-rays to the power produced at our four nuclear power plants, the responsible use and safe disposal of radioactive material is important today and in the future.

The operations at 10 major facilities in the state range from production and fabrication to use for sterilization and power production and on to final disposal. The potential for impact on air, land and water quality prompts the continual monitoring of all possible pathways. Samples of air, water, soil, vegetation, fish and milk are collected throughout the state. Complicating the analysis of these samples for the very low levels present are the traces of naturally occurring radioactive elements found in South Carolina's soil.

Less than .1 percent of the more than 22,000 analyses performed last year detected radiation above any limits or guidelines, and none of those were due to man-made isotopes. Naturally occurring radon and radium were responsible in those few samples.

Radon

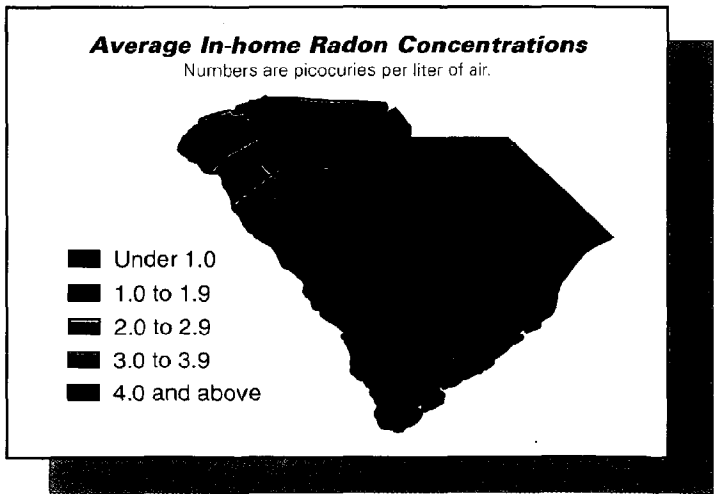
Radon, a naturally occurring radioactive gas, is the second leading cause of all lung cancers and the leading cause of lung cancer among non-smokers. Indoor radon levels depend on many factors including how much radon is in the soil, how buildings are constructed, how well they are ventilated and even weather conditions.

DHEC and the U.S. Environmental Protection Agency have worked closely with Clemson University to develop a statewide radon program and a preliminary database of indoor radon levels. Two surveys determined that the highest concentrations of radon in the state are in Greenville and the surrounding counties.

Generally, there are higher levels in the Upstate because there is more granite in the soil. While the Coastal Plain normally has the lowest levels, Charleston is an exception. The potential for higher radon concentrations there is due to a larger proportion of phosphate in the soil.

Testing for radon can be simple and inexpensive. The two most common commercially available kits are charcoal canisters and alpha track detectors. Firms can also measure indoor radon. DHEC maintains a list of firms that measure radon or provide consulting services. The statewide toll-free radon hotline number is 1-800-768-0362 (in Columbia 803-734-4631).

EPA recommends reduction measures be taken if 4.0 picocuries or greater is detected in your home.



Environmental Quality Control

Environmental Quality Control (EQC) is one of five deputy areas in DHEC. EQC's role in support of DHEC's stated mission, ***"To promote and protect the health of the public and the environment,"*** is the administration and application of the methods provided in law and regulation to preserve and improve the quality of our environment while supporting continued economic development.

EQC's actions are primarily in the permitting and inspection of facilities, the monitoring of industrial and facility activity and ambient concentrations of pollutants, resolving permit requirement violations through compliance and enforcement, and responding to potential health threats from natural or man-made events. These activities are conducted to ensure that any human activity that can have a significant impact on the quality of our air, land and water is carried out so that the impact is minimized. Other duties include issuing licenses, certifications, registrations, promoting environmental quality initiatives and reporting the results of statewide environmental quality efforts.

It is EQC's responsibility to ensure that facilities operating in the state do so in a manner that is protective of our health and environment. South Carolina's future economic viability and natural resource protection depend on continued attention to comprehensive and integrated planning with scientifically justifiable reasons for permit requirements and compliance and enforcement decisions.

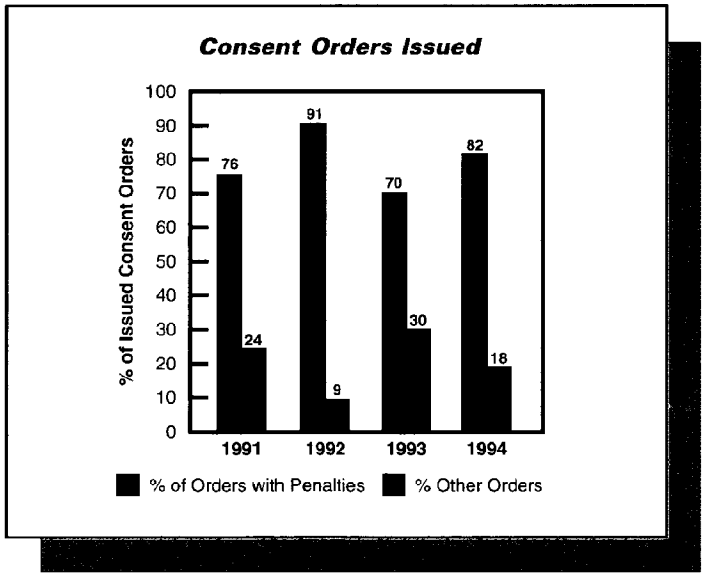
Permitting

A business may have to obtain a permit from the state to construct and/or operate a facility. The permit is an agreement that binds the owner and operator to specific design requirements and to minimum performance standards and procedures. Permits are used to assure that impact from human activity on health and the environment is minimal.

DHEC is working to streamline its permit process to avoid unnecessary duplication of requirements and to more effectively and efficiently use staff and resources to concentrate on environmental protection. The agency now uses general permits for industries with little-to-no environmental impact.

The agency has also combined several permit requirements for coastal counties and has worked to reduce the number of contacts an applicant will have with the agency. These efforts have been aided by the restructuring that merged DHEC with the former Coastal Council and the regulatory sections of the Land Resources Commission and the Water Resources Commission.

DHEC issues 25 different permits to cover the variety of activities with the potential to have an impact on public health and the environment. A permit is issued if an applicant meets all the technical requirements for the operation of a facility. The primary responsibility of DHEC as the regulatory body is to apply regulations to each particular situation. It is not EQC's role to decide where a particular facility should be located. Local governments can best determine if the community is served by the construction and operation of a new or expanded facility. The expertise in EQC is available to assist with those decisions and support local solutions to local problems.



Number of Permitted Facilities by Program in 1995

(a facility can hold more than one permit)

National Pollution Discharge Elimination System (NPDES) 1,727

Drinking Water Protection (includes spas, pools, underground storage tanks) 12,473

Bureau of Air Quality 1,810

Resource Conservation Recovery Act 4,358

Comprehensive Environmental Response, Compensation and Liability Act ..... 364 (Superfund)

Infectious waste 25

Radiological waste 553

Solid waste landfills .. 199

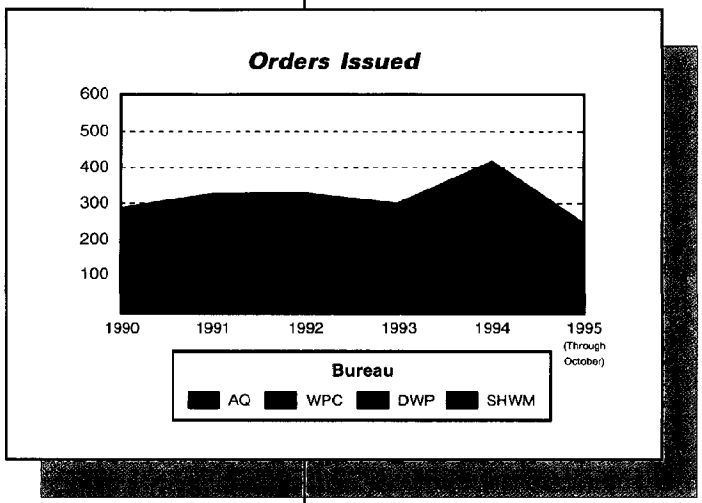
Mining and Reclamation 489

In general, a company seeking a permit must provide plans, specifications and descriptions of pollutant-emitting processes. Other information may be required, depending on the type of permit needed.

A fee is assessed to help fund environmental programs. In 1995 the General Assembly passed the Environmental Protection Fees regulation, which establishes a program for assessing and collecting fees, and also sets schedules for timely action on permit applications. This regulation requires the department to return application fees if the schedules for timely review are not met.

If a permit is denied, the applicant has the right to an appeal, which will be heard before an administrative judge. The judge's decision can be appealed to the Board of Health and Environmental Control. Appeals of coastal permits are heard before the Coastal Appellate Panel, and mining permit appeals are heard before the SC Mining Council. Board appeals are heard in circuit court.

Often a facility will be subject to requirements administered by several program areas. It is recommended that early contact with SC DHEC through the appropriate bureau or liaison (see page 18) be incorporated into the planning stage of each project.

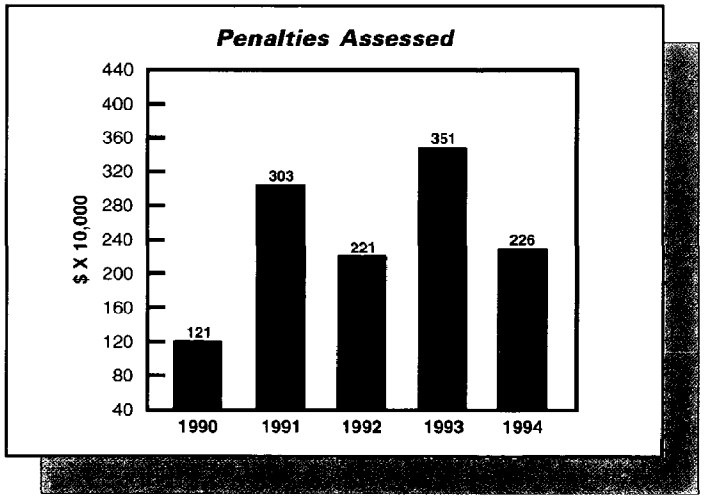


Compliance

After a facility has its permit to operate, the focus shifts to ensuring that operation and emissions are in compliance with regulations and permit requirements. EQC's compliance staff is part of a team of specialists with scientific, technical and management skills located at local EQC district offices and in Columbia. These professionals monitor and inspect facility operations to ensure that pollution control equipment continues to be operated as designed.

Where noncompliance is detected, EQC staff efforts are directed first toward returning the process to compliance. That, coupled with a consistent and reasonable enforcement process when responding to noncompliance, helps ensure protection of the health of the citizens of South Carolina and the environment.

A large majority of the facilities permitted by EQC are in compliance. The compliance rate for the air program is typical of other programs, with more than 96 percent of permitted facilities meeting all requirements. More often than not, noncompliance does not involve releases to the environment, but a failure to meet all procedural requirements.



Facility Monitoring

The owners or operators of a facility may be required by the permit to sample, record and report the concentrations of the pollutants they release. Groundwater monitoring and sampling may also be required. Environmental monitoring provides the data necessary to confirm the performance of required controls and can help determine the impact of the facility on the local environment.

Enforcement

Once a violation of regulation or permit is detected and documented, a Notice of Violation (NOV) is issued to the responsible party. An enforcement conference is scheduled to discuss the violation. (If the responsible party fails to respond to the notice, DHEC may pursue the violation through court or by an administrative order requiring the company to comply with the law.)

After the enforcement conference, DHEC may issue a consent order in which the responsible party and DHEC agree on necessary actions to correct the violation. DHEC also may issue a civil penalty based on guidelines in the agency's Uniform Enforcement Policy. Civil penalties are not kept by DHEC, but are returned to the general fund and are assessed based on one or more of the following factors:

- Degree or potential degree of harm;
- Extent of deviation from the requirements, frequency or duration of violation;
- Economic benefit gained from noncompliance;
- Cost of restoration;
- Past performance record;
- Degree of willfulness and/or neglect;
- Other pertinent factors that measure the seriousness or frequency of the violation or the conduct of the responsible party.

Planning

The State Implementation Plan for Air Quality and the Watershed Management Plan are only two of the resource management documents that describe the efforts to guarantee the protection of our resources, guide permit, compliance and enforcement activity, and allow continued economic development. Guided by these plans, cooperative efforts are underway with neighboring states to preserve common resources.

Other Requirements

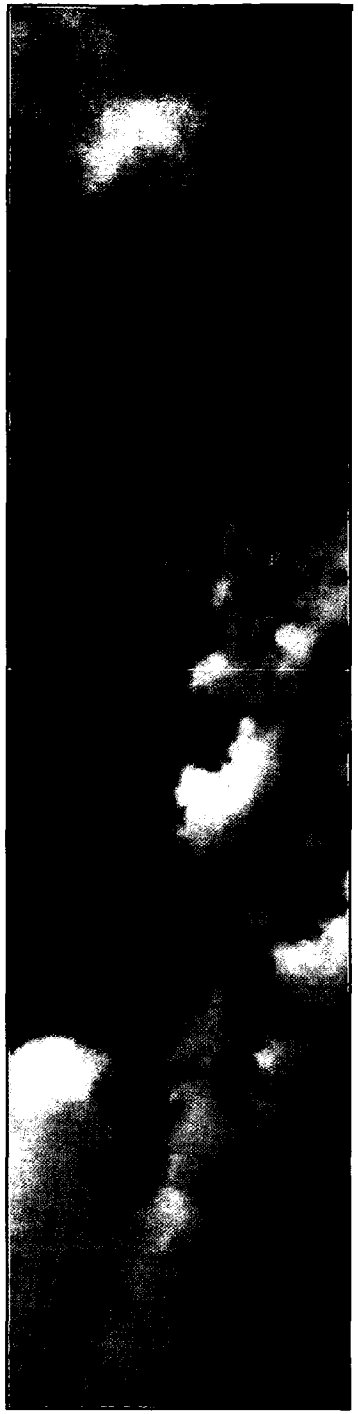
Licensing: Individuals who perform certain tasks in a business or industry may have to hold a license. In some instances, this is in addition to the permit(s) required for the construction and/or operation of the facility itself.

Registration: Owners or operators may have to provide notification and a description of their facility that is in operation at the time a new regulation becomes effective.

Certification: Businesses or industries may be required to document or provide affidavits showing that they are in compliance with a regulation or standard, or have constructed a facility in a certain way. This documentation is typically required to be signed by a notary, professional engineer, professional geologist and/or a registered land surveyor. In all instances, these individuals must be registered to practice their profession in the State of South Carolina. In some instances certification may need to be obtained from the agency for the proposed activity. Laboratories performing environmental analyses reported to EQC are required to be certified, demonstrating proficiency before results can be accepted.

Reporting: Owners and/or operators may be required to report such information as it relates to the operation of certain types of equipment, units, emissions of specific pollutants, or storage and the use of toxic substances.

Monitoring: Owners and/or operators may be required to sample and record levels of emissions, including air pollutants, wastewater and dust. The monitoring activity may also include groundwater. Monitoring data submitted to the department must be conducted by a lab certified by EQC.



Environmental Monitoring

Information about our environment is collected by people who operate the state's ambient monitoring networks. The monitoring and analysis provide the quality data that guide decisions of environmental quality professionals in government and industry and informs the public. The monitoring and sampling networks are operated to support several main objectives:

Assess Environmental Quality — Determining the current state of the air or water quality and tracking trends can provide information to support decisions and planning.

Support Regulatory Activities — Information on ambient conditions is needed to be able to set environmental quality-based permit requirements and assess compliance with the permits issued.

Evaluate Environmental Quality Programs — The effectiveness of the varied approaches to environmental protection can be evaluated and the programs improved by measuring the ultimate effect on the environment.

Ambient Monitoring Networks

Monitoring the condition of the environment requires the talents and skills of microbiologists, chemists, geologists, technicians and managers working in the field and in laboratories. Sampling is performed throughout the year at designated sites to support DHEC's activities and, when necessary, in response to emergencies, unusual conditions or complaints.

Ambient monitoring networks are designed to determine current air and water quality and long-term trends. In addition, sampling may be performed to help answer specific questions.

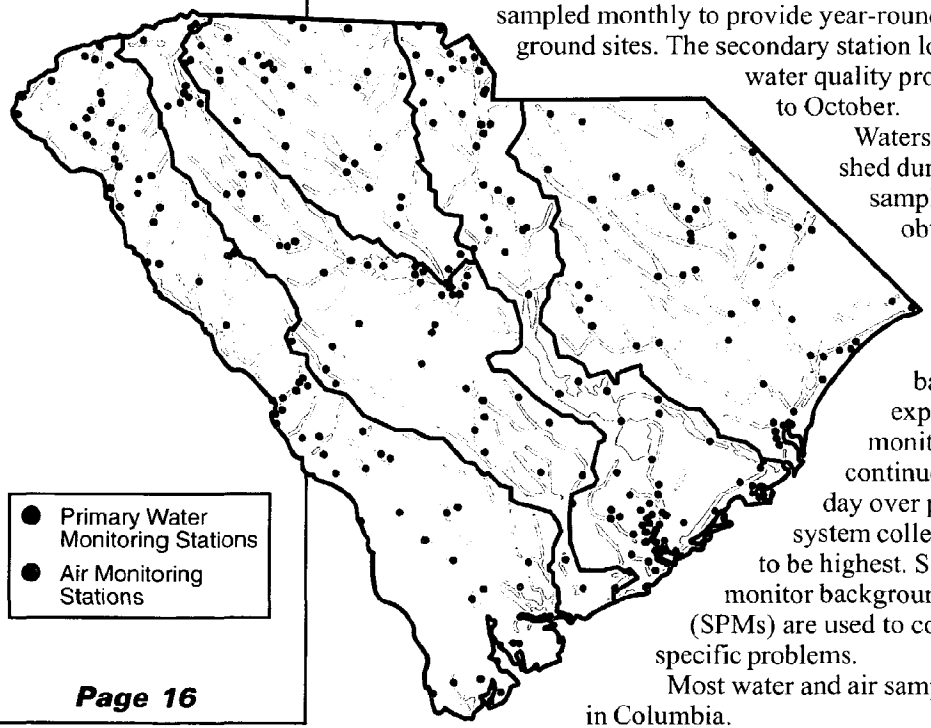
The ambient surface water monitoring network has three station types. A statewide primary station network is sampled monthly to provide year-round data for the widest variety of parameters at high-use areas and at background sites. The secondary station locations are more flexible and are focused toward point sources and known water quality problems. These sites may be changed as necessary and are sampled from May to October.

Watershed stations provide more complete and representative coverage of a watershed during the first year of the watershed management rotation. They may be sampled every month or only during the summer sampling period as required to obtain a comprehensive picture of the watershed.

Sources for public drinking water systems and the treated water are sampled and analyzed regularly to ensure safe water supplies. Water from private wells can be analyzed for contaminants by request.

Like water, air quality data is collected using three networks that monitor background concentrations, areas where the population is at greatest risk of exposure, and where source impact on air quality may be significant. Most air monitoring is concentrated in and around our major urban areas and is done continuously, with sampling taking place 24 hours a day and the data recovered each day over phone lines. National Air Monitoring Sites (NAMS) are part of a nationwide system collecting data where pollutant concentration and population exposure is expected to be highest. Supplementing these are State and Local Monitoring Sites (SLAMS) that monitor background, source impact and population exposure. Special Purpose Monitors (SPMs) are used to collect data about state standard concentrations and to answer questions about specific problems.

Most water and air samples are analyzed at the Environmental Quality Control Laboratories located in Columbia.



Future Challenges

Regional Approach to Landfilling

New federal and state requirements for landfill design and operation reinforce the importance of regional approaches to providing services. Solid waste landfills face up to $500,000 an acre in design and operation costs to meet standards effective Oct. 1, 1998. The requirements are designed primarily to protect groundwater. Fifteen of the state's 39 municipal landfills have confirmed groundwater contamination.

Many local governments have reached their landfill capacity and don't have the resources to build facilities and clean up contamination around existing landfills. Regional systems must be explored along with new ways to reduce the amounts of waste going into landfills.

Ozone

Occasional violations of the one-hour ozone standard detected in the Upstate and Midlands is an indicator of the increasing impact of urbanization on air quality. The reaction of sunlight and the ozone precursors (VOCs and NOx) generated in population centers affects areas downwind. The determination that an area is not attaining the standard would result in more requirements to control emissions from vehicles and industries. Motor vehicle emissions in some parts of the state may account for as much as 80 percent of all ozone-forming pollution generated by human activities.

EPA's Re-evaluation of Air Standards

The EPA is considering modifying the National Ambient Air Quality Standards for particulate matter (PM), Sulfur Dioxide (SO_2) and ozone. EPA is expected to establish a standard for PM less than 2.5 microns in diameter. The proposed SO_2 standard revision is aimed toward very short (5 minute) exposures. The proposed changes in the ozone standard lower the allowable concentration and lengthen the averaging time. Some areas of the state that meet the current NAAQS will be in danger of being designated "nonattainment" under the new standard.

Brownfields Initiative

Brownfields are abandoned, idled or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. The state and federal goal is to assist in economic redevelopment by working together in a timely manner to assess, safely clean up and sustainably reuse brownfields. An assessment will determine how many of these sites there are in the state.

Nonpoint Sources

Most people blame water pollution on large industries, but much pollution comes from "nonpoint," or runoff, sources. Rainwater collects contaminants as it flows toward lakes and rivers. Nutrients, dissolved metals, bacteria and pesticides also damage water quality. Industry and the public must reduce the use of potential pollutants, use environmentally friendly products, and avoid washing pollutants into creeks and streams.

Hazardous Air Pollutants

The Clean Air Act Amendments establish requirements for 174 types of industries that emit hazardous air pollutants. The EPA is establishing Maximum Achievable Control Technology (MACT) standards for each type. South Carolina has authority to implement the MACT requirements. Efforts are being made to identify and assist affected industries.

Toxic Chemical Releases

Although the total amount of toxic material released each year tracked in the Toxic Release Inventory has steadily decreased, the reduction is not as large as in many other states. Between 1988 and 1993, South Carolina facilities reduced the amount released by 20 percent compared to the national average of 37 percent. The state has risen from 23rd to 12th in rank nationally for the total amount released. More than 95 percent of the material is released into the air. Accelerating the rate of improvement will require the attention of industry, regulators and the public.

Drycleaning Trust Fund

On July 1, 1995, the state created a trust fund to assess and clean up contamination from drycleaning facilities. Funding comes from donations by each drycleaner from income tax, plus funds from a national surcharge on some of the toxic materials used.

Drycleaning facilities use hazardous and some carcinogenic solvents in their processes that possibly have migrated into groundwater. DHEC must develop regulations for conducting assessments and establishing a system to prioritize cleanups at these facilities.

DHEC Access

DHEC's Home Page on the World Wide Web contains information about the agency, including contacts and phone numbers of the experts who can answer your health and environmental questions. It can be accessed by:

http://www.state.sc.us/dhec/

Bulletin Board

The Bureau of Air Quality has an electronic bulletin board that provides current information on air programs, issues and regulations. A summary of the permit applications that have been received by DHEC will soon be available. The bulletin board can be accessed 24 hours a day and is easy to use. All you need is a computer, modem and telephone.

To access the bulletin board set the communication software to N81, then dial (803) 734-3752. To access a systems operator between 8:30am and 5pm, dial (803) 734-3728.

Information Resources

Points of Contact at the S.C. Department of Health and Environmental Control

Understanding the complexities of health and environmental issues can be a frustrating and time-consuming task for businesses, industries, cities, counties, towns and residents. In support of EQC district offices, DHEC's six liaisons provide a contact point for specific needs.

Alice Truluck serves as a contact for the regulated community, community groups and citizens regarding concerns and questions on **agency policies and regulations.** She is also director of the agency's Freedom of Information Center. She can be reached at (803) 734-4880.

Lillian Mood coordinates the **risk communication** program within Environmental Quality Control. She is a key contact for citizens who have questions or concerns about environmental activities in their communities and possible health effects. She can be reached at (803) 734-5440.

Willie J. Morgan is DHEC's **permitting** liaison. Morgan is responsible for coordinating the permits that businesses and industries need from any — or all — DHEC program areas. He serves as the primary contact and advocate for the regulated community and can be reached at (803) 734-5179.

F. Ann Ragan is responsible for coordinating activities involving **federal facilities** and is the primary contact for the Department of Energy, Department of Defense and other interested parties on cleanup, permitting and compliance issues. She can be reached at (803) 734-4721.

Robin Stephens is the state's **Small Business Ombudsman**. She serves as advocate for small businesses, providing referrals to appropriate technical staff, outreach on regulations and resolving small business problems. She can be reached at (803) 734-6487 or 1-800-819-9001.

William R. "Bill" Krecker is the state's **enforcement** liaison. He coordinates enforcement activities involving the state's regulated community and assists with planning and development of legislation. He can be reached at (803) 734-5279.

The Center for Waste Minimization

Reducing the amount of waste we create is an important goal in preserving our environment. We must incorporate waste reduction and recycling into our daily lives, and the same is true for industry and business.

Waste minimization or pollution prevention occurs by turning to alternative manufacturing methods that use less toxic or non-toxic materials. This helps reduce costs, treatment and disposal liabilities, saves raw materials and energy, improves the industry's public image and promotes compliance.

DHEC developed the Center for Waste Minimization in 1990 to help industries reduce and recycle wastes. The center's technical specialists have experience in industry and are familiar with current waste minimization technologies and strategies for specific operations.

Each year the center assists about 300 callers and performs about 60 free, non-regulatory waste assessments. The center's clients have reported more than $1 million in savings per year in waste management expenses and a reduction of more than 180,000 gallons of oil and solvent waste.

The center also maintains a network with regional and national information centers on waste minimization and a library of waste minimization information. Speakers are also available to discuss waste reduction methods with industry trade associations.

The center's representatives can be reached by calling (803) 734-4715.

Bureau Responsibilities

Bureau of Air Quality ..... (803) 734-4750
- Designs, implements emission control regulations
- Construction and operation permits
- Compliance inspections

Bureau of Drinking Water Protection ..... (803) 734-5310
- Reviews new water systems plans
- Inspects water systems during and after construction
- Conducts routine monitoring program
- Inspects public swimming areas and pools

Bureau of Solid and Hazardous Waste Management ..... (803) 896-4000
- Issues permits for hazardous, infectious, radiological and solid waste programs
- Monitors for compliance
- Collects environmental samples
- Assures proper waste disposal
- Responds to emergencies

Bureau of Water Pollution Control ..... (803) 734-5300
- Ensures dischargers have proper wastewater treatment systems
- Monitors for compliance
- Ensures shellfish sanitation
- Collects samples for water quality problems

Bureau of District Services ..... (803) 734-5383
- Performs inspections
- Responds to emergencies
- Investigates citizen complaints
- Collects environmental samples

Bureau of EQC Laboratories ..... (803) 935-7031
- Certifies environmental laboratories
- Performs ambient air monitoring
- Analyzes waste and water samples
- Performs radiological monitoring

DHEC Publications, Reports

South Carolina Nuclear Facility Environmental Radiation Monitoring, 1994 Annual Report

Statewide Water Quality Assessment, FY 1992-1993 [305(b)]

Nonpoint Source Management Program, July 1995 (Draft)

Used Oil Collection and Recycling in South Carolina, 1994 Annual Report

Watershed Water Quality Management Strategy in South Carolina, Program Description

Environmental Permitting in South Carolina

South Carolina Superfund Annual Report, July 1, 1993 - June 30, 1994

Hazardous Waste Activities Reported in South Carolina for 1993

1993 South Carolina Air Quality Annual Report, Vol. XII

Watershed Water Quality Management Strategy, Savannah-Salkehatchie Basin (Executive Summary)

Watershed Water Quality Management Strategy, Saluda-Edisto Basin (Executive Summary)

South Carolina Ground-Water Contamination Inventory 1995

The Bureau of Drinking Water Protection Annual Report for Fiscal Year 1995

(Some documents are available in limited quantities and may require a copying charge.)

Small Business Assistance Program

DHEC established the Small Business Assistance Program (SBAP) in 1994 to assist small business owners with the complex Clean Air Act Amendments. The amendments require some small businesses with emissions to obtain permits, which they previously did not have to do.

More than 200 small businesses have contacted the state Small Business Ombudsman with questions about how regulations affect them and, when necessary, how to get a permit. The program helps them determine sources of emissions and what type of permit they need. Additionally, the program has helped new businesses during startup. The types of companies helped include drycleaners, sandblasters, foundries, sawmills, small textile companies and companies with paint booths.

For more information, call SBAP:

(803) 734-6487
or
1-800-819-9001

Environmental Quality Control Districts

**** Indicates District Office Location***

1. *Appalachia I*
(Anderson, Oconee)
(864) 260-5569

2. *Appalachia II*
(Greenville, Pickens)
(864) 241-1090

3. *Appalachia III*
(Cherokee, Spartanburg, Union)
(864) 596-3800

4. *Catawba*
(Chester, Lancaster, York)
(803) 285-7461

5. *Central Midlands*
(Fairfield, Lexington, Newberry, Richland)
(803) 935-7015

6. *Low Country*
(Beaufort, Colleton, Hampton, Jasper)
(803) 522-9097

7. *Lower Savannah*
(Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg)
(803) 641-7670

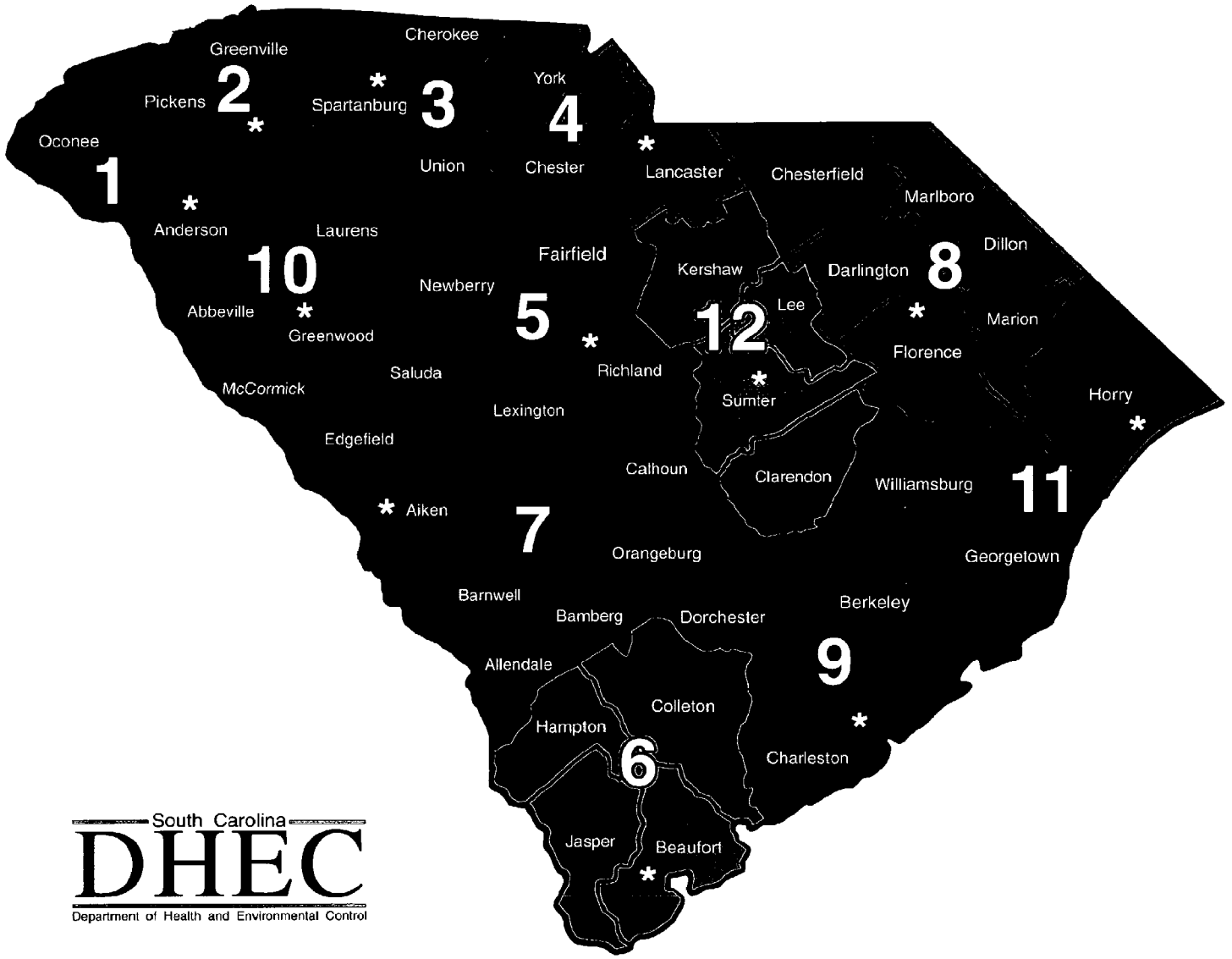
8. *Pee Dee*
(Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro)
(803) 661-4825

9. *Trident*
(Berkeley, Charleston, Dorchester)
(803) 740-1590

10. *Upper Savannah*
(Abbeville, Edgefield, Greenwood, Laurens, McCormick, Saluda)
(864) 223-0333

11. *Waccamaw*
(Georgetown, Horry, Williamsburg)
(803) 448-1902

12. *Wateree*
(Clarendon, Kershaw, Lee, Sumter)
(803) 778-1531



South Carolina
DHEC
Department of Health and Environmental Control

Other DHEC Publications

SC DHEC publishes a variety of documents that contain environmental data. Please check any publications below you would like to receive and return card to:

SC DHEC
DIVISION OF MEDIA RELATIONS
2600 BULL ST.
COLUMBIA SC 29201

(Availability of some publications is limited and could require a cost. You will be notified before your order is filled if there is a cost associated with your request.)

- ☐ *Environmental Permitting in S.C.*
- ☐ *Statewide Water Quality Assessment*
- ☐ *Nonpoint Source Management Program*
- ☐ *Watershed Water Quality Management – Program Description*
- ☐ *Watershed Strategy, Savannah-Salkehatchie (Executive Summary)*
- ☐ *Watershed Strategy, Saluda-Edisto (Executive Summary)*
- ☐ *Hazardous Waste Activities Reported in S.C. - 1993*

Annual Reports on:

- ☐ *Nuclear Facility Radiation Monitoring*
- ☐ *Used Oil Collection and Recycling*
- ☐ *S.C. Superfund*
- ☐ *Air Quality*
- ☐ *Drinking Water*

Name_____ Daytime Phone_____

Address_____

City, State, Zip_____

What do you think?

We'd like your comments on *The Quality of the Environment in South Carolina*

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