

Chapter 2



CHAPTER TWO

Agency Activities

The Texas Commission on Environmental Quality has a range of responsibilities as broad as the state itself, all keyed to various aspects of environmental protection.

This role of environmental oversight is conducted in the agency's Austin headquarters and in its 16 regional offices. Staff duties for some 2,900 employees cover a wide spectrum, from investigating an odor nuisance complaint in a small Panhandle town to conducting fence-line air quality monitoring at a large petrochemical plant on the Gulf Coast. A typical work day will find employees conducting field investigations, evaluating permit applications, holding a pollution prevention seminar, and evaluating a Superfund site.

This chapter examines some of the major programs under way at the TCEQ to address the agency's goals of protecting human health and the state's natural resources.

Enforcement

Environmental Compliance

The TCEQ enforcement process begins when a violation is discovered during an inspection at the regulated entity's location, through a review of records at agency offices, or as a result of a complaint from the public that is subsequently verified as a violation. Enforcement actions may also be triggered after submission of citizen-collected evidence.

In a typical year, an estimated 93,000 regulated entities will be investigated for compliance with environmental laws.

When environmental laws are violated, the agency has the authority in administrative cases to levy penalties up to the statutory maximum per day, per violation. The statutory maximums range from \$500 to \$10,000. Civil judicial cases carry penalties of up to \$25,000 per day, per violation, in some programs.

In fiscal 2007, the TCEQ issued 1,383 administrative

orders, which produced payments of \$8.2 million in fines and almost \$1.9 million for Supplemental Environmental Projects, or SEPs (see next subsection).

In fiscal 2008, the TCEQ issued 1,624 administrative orders, which produced payments of \$10.1 million in fines and \$4.6 million for SEPs.

The TCEQ can also refer cases to the state Attorney General. In fiscal 2007, the AG's office obtained 33 judicial orders in cases referred by the TCEQ or in which the TCEQ was a party. These orders resulted in \$1.8 million in civil penalties and another \$86,000 directed to SEPs.

In fiscal 2008, the AG's office obtained 22 judicial orders, which resulted in \$1 million in civil penalties and \$100,000 directed to SEPs.

Other enforcement statistics can be found in the agency's annual enforcement report, which is posted at www.tceq.state.tx.us/goto/enforcement.

In response to stakeholder input, the TCEQ has made concerted efforts to expedite the processing of enforcement cases. Over the last two years, there has been a 20 percent reduction in the number of cases considered backlogged. By the end of August 2008, only 378 cases were still backlogged.

Backlogged cases refer to administrative orders with pending initial settlement offers and 180 days have passed since the most recent screening, or with proposed settlement offers, but not approved, and 550 days have passed since the most recent screening.

While staff worked to reduce the backlog and process new cases, the average number of days from initiation of an enforcement action to completion (with an effective order) increased 6 percent, to 240 days.

TCEQ Enforcement Orders

Fiscal Year	Number of Orders	Penalties Paid	Orders With SEPs	SEP Funds
2007	1,383	\$8.2 million	149	\$1.9 million
2008	1,624	\$10.1 million	297	\$4.6 million

With recent enhancements, more information about enforcement cases is available online. Orders that have been approved by the Commission and have become effective are now on the agency’s Web site, as are pending orders that have not yet been presented to the commissioners.

Supplemental Environmental Projects

When the TCEQ finds a violation of environmental laws, the agency and the regulated entity often enter into an administrative order, which regularly includes the assessment of a monetary penalty. The penalties collected do not stay in the agency, but instead go to general revenue.

An option under state law, however, gives violators a chance to direct some of the penalty dollars to local improvement projects. By negotiating an agreement to perform or support a Supplemental Environmental Project (SEP)—in return for an offset of the administrative penalty—the violator can do something beneficial for the community in which the environmental offense occurred. Such a project must reduce or prevent pollution, enhance the environment, or raise public awareness of environmental concerns.

In fiscal 2007, 149 enforcement cases concluded with violators directing a portion of their penalties—totaling almost \$1.9 million—to local projects designed to improve air quality, water quality, or waste management. In fiscal 2008, there were 297 SEPs, for a total of almost \$4.6 million.

In both years, the number of participants was the highest since the SEP program began in 1991.

To increase participation, the agency drew up a list of pre-approved SEPs, which consists of projects that have already received general approval from the Commission. The list includes nonprofits that sponsor activities such as cleaning up illegal dumpsites, providing first-time adequate water or sewer service for low-income families, retrofitting or replacing school buses with cleaner emission technologies, removing hazards from bays and beaches, and improving nesting conditions for colonial water birds. Many municipalities and governmental organizations are also listed with projects such as maintaining air quality networks and insulating homes for low-income households.

Regulated entities may draw up their own SEPs as long as the project is environmentally beneficial and the result of a settlement (not an activity already scheduled before the violation occurred). Also, the SEP should go beyond what is already required by state and federal environmental laws, and cannot be used to remediate the violation or any environmental harm caused by the violation, or to correct any illegal activity that led to the enforcement action.

Compliance History

Since 2002, the agency has rated the compliance history of every owner or operator of a facility that is regulated under certain state environmental laws.

A uniform evaluation standard has been used to assign a rating to each of the 429,000 entities regulated by the TCEQ. The ratings take into consideration prior enforcement orders, court judgments, consent decrees, criminal convictions, and notices of violation, as well as investigation reports, notices, and disclosures submitted in accordance with the Texas Environmental, Health, and Safety Audit Privilege Act. Agency-approved Environmental Management Systems are also taken into account.

An entity’s classification comes into play when the agency considers matters regarding not only enforcement but also permit actions, the use of unannounced inspections, and participation in innovative programs.

Each September, regulated entities are classified or reclassified. (The ratings database can be found at www11.tceq.state.tx.us/oce/ch. Ratings below 0.10 receive a classification of “high,” which means that those entities have an “above-average compliance record” with environmental regulations. Ratings from 0.10 to 45.00 merit “average,” for having “generally complied.” And ratings of 45.01 or more result in a “poor” classification, because these entities “performed below average.”

An “average by default” classification means there was no compliance information on that entity for the last five years.

Compliance History Designations September 2008

Classifications are updated each September to reflect the previous five years.

Entity Classification	Number	Percent
High	15,578	9%
Average by default	136,019	80%
Average	17,642	10%
Poor	1,104	1%
TOTAL	170,343	100%

Dam Safety

Texas has 7,603 dams that are regulated by the TCEQ. Of these, an estimated 1,650 are classified as high- and significant-hazard dams. While dam owners are ultimately responsible for the safety of the structures, the TCEQ’s Dam Safety Program has oversight of the construction, maintenance, and repair of dams.

In a May 2008 audit report, the State Auditor's Office concluded that the TCEQ had not been fulfilling its statutory mandate in dam safety by failing to perform timely inspections of all high- and significant-hazard dams or to ensure that the deficiencies identified in inspection reports were corrected. The report contained a number of recommendations to upgrade the program.

At the same time, the State Auditor did recognize that the TCEQ Dam Safety Program has been actively working on improvements during the last four years. Staffing was up to eight employees (and two contractors) by the end of August 2008, and by October five new inspectors had been added. The agency plans to request funding for additional inspectors.

The staff performs safety inspections of existing dams, reviews plans for dam construction and major rehabilitation work, makes periodic inspections of construction work, and approves emergency action plans.

In the last two years, the program issued inspection reports on 430 dams, and staff held nine educational workshops around the state, giving presentations to more than 500 dam owners/operators and engineers.

In July 2008, the TCEQ proposed revising its dam safety rules to provide additional guidance to owners of existing dams and the owners and engineers of proposed dams. The changes will also allow the agency to increase its oversight of high- and significant-hazard dams.

Accredited Laboratories

Starting July 1, 2008, the TCEQ only accepts regulatory data from labs accredited according to standards set by the National Environmental Laboratory Accreditation Program (NELAP) or from labs that are exempt from accreditation, such as in-house labs.

The mandate originated with legislation passed after the TCEQ sunset review. Laboratories were allowed a three-year phase-in, ending in mid-2008, to become accredited.

The new accreditation program places environmental laboratories analyzing air, water, and waste under the same type of scrutiny that previously applied only to labs analyzing drinking water.

All labs accredited by the TCEQ are now held to the same quality control and quality assurance standards. The analytical data produced by these facilities is used in TCEQ decisions relating to permits, authorizations, compliance actions, enforcement actions, and corrective actions, as well as in characterizations and assessments of environmental processes or conditions.

Leading up to the July 2008 application deadline, the TCEQ conducted an outreach and educational program through letters, postcards, articles in trade association publications, and conference presenta-

tions. The agency held 11 workshops, drawing more than 400 attendees.

TCEQ laboratory accreditations are now recognized by other states using NELAP standards and by some states that do not operate accreditation programs of their own.

Through August 2008, the TCEQ had issued accreditation certificates to 248 labs. That included commercial labs (in-state and out-of-state) and government labs, including the TCEQ's own air and water labs.

Occupational Licensing

Revised rules for occupational licenses and registrations took effect in early 2008. The changes affected all 10 occupations that are licensed by the TCEQ (see table).

Among the chief revisions are:

- Licenses and registrations are now valid for three years, instead of two. This change makes for more efficient operations at the agency.
- Fees bump up slightly—\$2 per year—to pay for online renewals. Eligible licensees who have completed their continuing education can renew their licenses through Texas Online at www.tceq.state.tx.us/goto/renew. Electronic renewals take only a matter of days rather than weeks.

Both of these provisions apply to licenses or registrations that expired on or after January 1, 2008.

The Compliance Support Division issues occupational licenses to qualified individuals in 10 environmental professions. There are more than 50,000 active licenses statewide.

TCEQ Licensing Programs	Active Licenses
Backflow Prevention Assembly Testers	4,694
Customer Service Inspectors	1,748
Landscape Irrigators	6,230
Leaking Petroleum Storage Tank Corrective Action Specialists and Project Managers	1,366
Municipal Solid Waste Facility Supervisors	1,200
On-Site Sewage Facility Installers, Designated Representatives, Site Evaluators, Maintenance Providers, and Apprentices	7,359
Underground Storage Tank Contractors and Supervisors	1,433
Public Water System Operators and Operations Companies	14,808
Water Treatment Specialists	581
Wastewater System Operators and Operations Companies	10,807
Total	50,226

Complaints Received

The TCEQ receives hundreds of environmental complaints each year, mainly through its 16 regional offices. Staff investigates each complaint and makes a report available to the complainant and the public.

The agency is required by statute to prepare an annual compilation that includes analyses of complaints by environmental media (air, waste, and water), priority classification, region, Commission response, enforcement action, and trends. The analysis also assesses the impact of changes in complaint-handling policies and procedures approved by the Commission.

An analysis of the complaints received in the last two years can be found in Appendix A.

Air Quality

Ozone Standard to Get Tougher

The federal Clean Air Act requires the Environmental Protection Agency (EPA) to review the standard for each criteria pollutant every five years to ensure that the standard provides the required level of health and environmental protection.

The current 8-hour standard, announced in 1997, calls for communities to have a three-year average of 0.08 parts per million (ppm) or less over an 8-hour period.

In the spring of 2008, the EPA announced a shift in the 8-hour standard for ground-level ozone to a more stringent level of 0.075 ppm. In announcing the change, the EPA cited new scientific evidence about ozone and its effects on public health and the environment.

Under the tougher standard of 0.075 ppm, Texas will likely see substantial change in its air quality designations, as the number of counties monitoring over the standard grows. The TCEQ will review criteria for a total of 45 counties before making recommendations to the governor's office.

All states have until March 12, 2009, to make their designation recommendations to the EPA. These recommendations will be based on monitoring data over a three-year period. EPA's default approach will be to include the entire metropolitan statistical area.

Attainment deadlines for the strengthened ozone standard are expected to range from 2013 to 2030, depending on the severity of the ozone exceedances in each nonattainment area. For now, the 1997 8-hour ozone standard of 0.08 ppm remains in place.

In the summer of 2008, the TCEQ held public briefings on the 0.075 ppm standard in these locations and asked for community comments: Austin, Beaumont-Port Arthur, Dallas-Fort Worth, El Paso, Houston-Galveston-Brazoria, San Antonio, and Tyler-Longview-Marshall.

As the TCEQ develops proposals to deal with ozone issues, the revisions will be submitted to the EPA in the form of the State Implementation Plan (SIP), which is a blueprint for dealing with air quality issues—region by region.

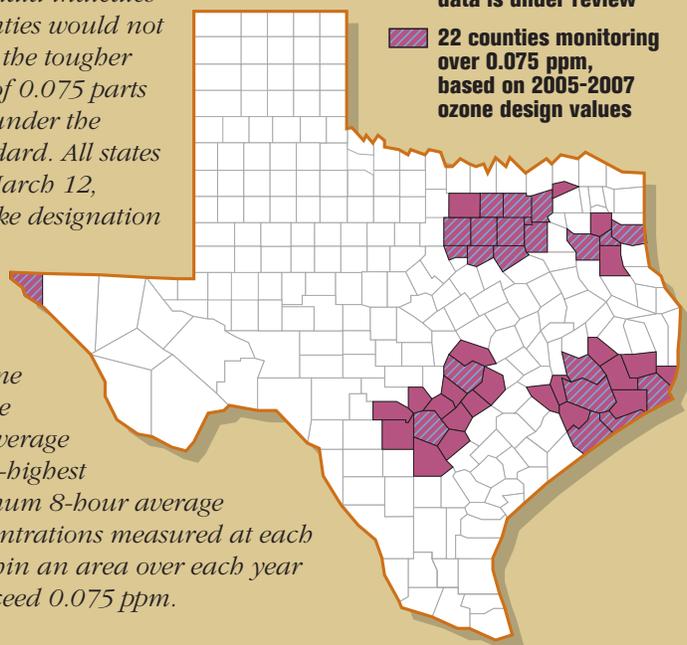
Ground-level ozone, a component of smog, is not emitted directly into the air but forms through a reaction of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. The major sources of NO_x and VOCs are industrial facilities, electric utilities, car and truck exhaust, gasoline vapors, and chemical solvents.

Air Quality Map in Flux

Prior to recommending nonattainment designations to the governor, the TCEQ is reviewing air quality criteria for 45 counties. Monitoring data indicates that 22 counties would not comply with the tougher ozone level of 0.075 parts per million under the 8-hour standard. All states have until March 12, 2009, to make designation recommendations to the EPA.

Under the new ozone standard, the three-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.

- 45 counties for which air monitoring data is under review
- 22 counties monitoring over 0.075 ppm, based on 2005-2007 ozone design values



Types of Sources

Emissions that affect air quality can be characterized by their sources.

Point sources: industrial facilities such as refineries and cement kilns

Area sources: industrial fuel use, surface coating, and painting

On-road mobile sources: cars and trucks

Nonroad mobile sources: construction equipment and engines such as locomotives

Houston-Galveston-Brazoria

Mobile sources (on-road and nonroad) make up 62 percent of the nitrogen oxide (NO_x) emissions for the eight-county nonattainment area in and around Houston. Point and area sources contribute the remaining 38 percent, based on a 2005 modeling emissions inventory. While the state has jurisdiction over point and area source emissions, it must rely on the federal government to help reduce emissions from mobile sources.

This urban area had been classified as “moderate” nonattainment of the 1997 8-hour ozone standard, with an attainment date of June 15, 2010.

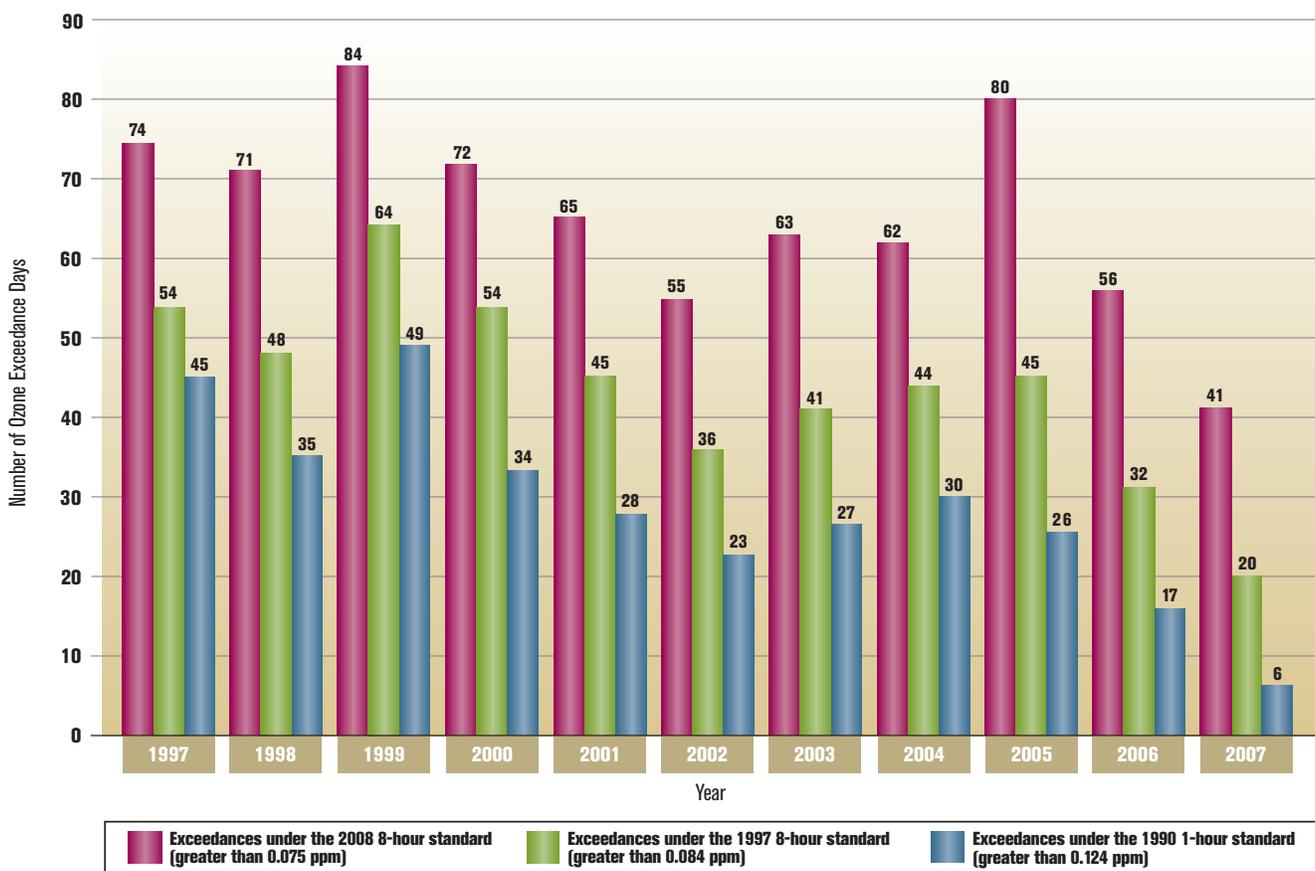
In June 2007, the TCEQ sent SIP revisions to the EPA, along with Governor Rick Perry’s request that Houston’s ozone designation be reclassified as “severe,” with an attainment date that is “as expeditious as practicable” but no later than June 15, 2019.

In September 2008, the EPA granted the request to voluntarily reclassify the Houston area as “severe,” and gave the state until April 15, 2010, to submit a revised SIP addressing the new requirements under the federal Clean Air Act. Attainment for the 1997 8-hour ozone standard is to be accomplished “as expeditiously as practicable but no later than June 15, 2019.”

One SIP revision documented compliance with EPA’s reasonable-further-progress requirement to cut emissions by 15 percent from the inventory baseline, from 2002 to 2008. Another revision was submitted as the first step in addressing the 8-hour ozone attainment demonstration requirements, including commitments by the Houston-Galveston Area Council for voluntary mobile source emission reductions, rules on storage and

Ozone Exceedance Days

Houston-Galveston-Brazoria Area, 1997-2007



degassing operations, and Texas Low Emission Diesel (TxLED) rules for marine fuels.

Meanwhile, the TCEQ is developing three principal components for the 8-hour attainment demonstration: a photochemical modeling demonstration, control strategy development, and the stakeholder process. Further, development of a new reasonable-further-progress demonstration will be completed along with the attainment demonstration.

Identifying control measures that are reasonable, as well as technologically and economically feasible, presents a challenge for the TCEQ, considering the magnitude of emission reductions already achieved under the 1990 1-hour ozone standard. Meeting the ozone standard in the Houston area is also complicated due to unique meteorological conditions along the Gulf Coast and the complex chemistry of ozone formation.

Control strategies include requirements for point sources to reduce NO_x emissions by an average of 80 percent, and an annual cap-and-trade program to reduce emissions of highly reactive volatile organic compounds (VOCs) from process vents, flares, and cooling-tower heat exchangers.

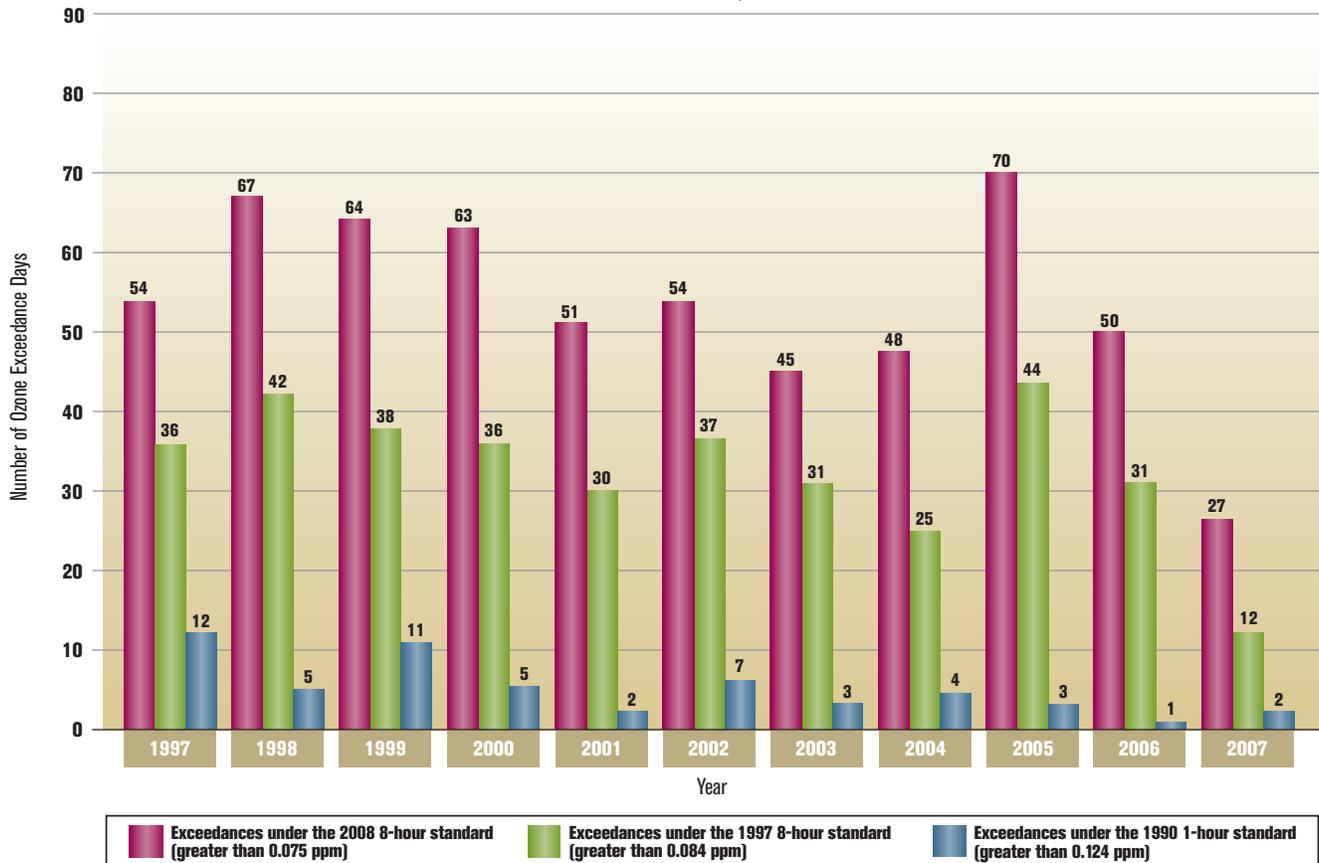
Dallas-Fort Worth

In the nine-county nonattainment area of Dallas-Fort Worth, about 73 percent of NO_x emissions are emitted from on-road and nonroad mobile sources that remain under federal jurisdiction. However, the state has initiated substantial NO_x reductions through regulation of point and area source emissions, which make up the remaining 27 percent of NO_x emission sources.

In July 2008, the EPA proposed conditional approval of a SIP revision that demonstrates Dallas-Fort Worth's attainment of the 1997 8-hour ozone standard by June 15, 2010. The stringent control measures to reduce NO_x emissions, together with strategies from previous air quality plans, provide for reducing total ozone precursors by about 409 tons per day.

Control strategies adopted by the TCEQ include strict air pollution rules requiring NO_x reductions from power plants; major industrial, commercial, and institutional (ICI) sources; minor ICI sources; and cement kilns. Rules also require NO_x reductions from stationary rich-burn, gas-fired internal combustion engines in 33 attainment counties east and southeast of the nine-county area.

Ozone Exceedance Days
Dallas-Fort Worth Area, 1997-2007



The EPA's review of public comments and final action on the SIP proposal is expected by 2009. EPA's final approval is conditioned on regulatory action to limit the use of pollution credits in the nine-county area and is contingent upon adoption of a statutorily required contingency plan.

When the EPA proposed conditional approval for the SIP revision, it also proposed a determination that the area had attained the former 1-hour ozone standard, based on 2004-2006 data.

The EPA also proposed approval actions on regulations for cement kilns and other stationary sources. The reasonable-further-progress revision of the SIP, which demonstrates a 15 percent total reduction in NO_x and VOC emissions from 2002 to 2008, was submitted to the EPA in mid-2007, along with the Dallas-Fort Worth attainment demonstration and accompanying rules.

Beaumont-Port Arthur

In 2004, the TCEQ adopted an attainment demonstration for both the 1-hour and the 8-hour ozone standards in the three-county Beaumont-Port Arthur area. The EPA revoked the 1-hour standard the following year. However, control strategies applied under the 1-hour standard remain in place, and in 2005 the Commission adopted a revised 8-hour attainment demonstration for the SIP.

The EPA set a deadline of June 15, 2007, for the area to attain the 8-hour standard or face reclassification to "moderate" nonattainment. The area did not monitor attainment of the 8-hour standard by the deadline (based on data from 2004 to 2006), so the EPA proceeded with the reclassification of "moderate" nonattainment.

However, subsequent data for 2005 to 2007 indicated that Beaumont-Port Arthur is monitoring attainment. As a result, the TCEQ in mid-2008 proposed a redesignation request and maintenance plan SIP revision for the area. The SIP revision is due to the EPA by January 2009.

El Paso

After implementing air quality programs for 15 years, El Paso achieved major reductions in the previously high levels of ozone, carbon monoxide (CO), and particulate matter (PM₁₀).

El Paso has been monitoring attainment of the 1-hour ozone standard since 2001. The TCEQ did not officially request redesignation to attainment because the 1-hour ozone standard was replaced by the more restrictive 8-hour ozone standard. The EPA announced in 2004 that El Paso would be classified as in attainment of the 8-hour standard.

In 2007, the Commission adopted a request seeking attainment status for El Paso for CO. At the same time, the Commission adopted maintenance plans for 8-hour ozone and CO to ensure that the area stays in attainment of those standards. EPA's approval is all that remains for the redesignation of CO attainment to become official.

El Paso's success can be credited to a number of control strategies, including vehicle inspection and maintenance, low Reid vapor pressure gasoline (summer) and oxygenated fuels (winter), Stage I and II vapor recovery system requirements for gasoline-handling facilities, and restrictions on industrial and wood burning.

In addition, the TCEQ upgraded the vehicle inspection and maintenance program, effective January 2007, to better identify high-polluting vehicles.

Analysis of monitoring data shows that El Paso would be in attainment of the PM₁₀ standard if not for natural events, such as dust storms. So the TCEQ developed a natural-events action plan to flag exceedance days that occur due to natural events. Flagging allows the EPA to discard those days when determining the area's compliance with the PM₁₀ standard. The Commission adopted the natural-events action plan in February 2007, placing the state in a better position to seek El Paso's redesignation to attainment for PM₁₀ and to develop a viable maintenance plan.

Looking ahead to the revised 8-hour ozone standard of 0.075 ppm, El Paso will be in nonattainment, according to preliminary data.

Early Action Compacts

Three areas of Texas reached an important milestone in December 2007 by meeting their air quality goals. The areas of San Antonio, Austin-Round Rock, and Northeast Texas had voluntarily implemented a variety of clean-air strategies to comply with the 1997 8-hour ozone standard.

The voluntary agreement with the TCEQ was called an Early Action Compact (EAC). When an urban area agrees to an EAC, it retains the ability to design and implement its own action plan for improving air quality.

The idea of EACs was conceived in Texas and approved by the EPA. San Antonio was the first to participate, followed by Austin-Round Rock and Northeast Texas (Longview-Marshall-Tyler). At the time, the 8-hour ozone standard was soon to take effect, and all three areas were monitoring exceedances.

Because of the San Antonio area's participation in the EAC, it was designated nonattainment-deferred by the EPA for the 8-hour ozone standard. The counties of Bexar, Comal, and Guadalupe had a date for

reaching attainment; if the date was missed, the more stringent nonattainment requirements would take effect. Neighboring Wilson County also agreed to take part in the EAC.

From 2004 to 2007, each EAC area filed six-month progress reports detailing the latest monitoring results and the status of their clean-air programs. By the end of 2007, preliminary data showed each area to be in attainment with the 1997 ozone standard.

The voluntary local initiatives that achieved results included the Alamo Clean Air Partnership in San Antonio, which encouraged voluntary emission reduction measures in the business and government sectors; Travis and Williamson counties' participation in the state's annual vehicle inspection and maintenance program; and Longview, Marshall, and Tyler's joining the Department of Energy's Clean Cities Program, which helps municipalities reduce emissions from on-road vehicles.

More ESLs Updated

TCEQ toxicologists have continued working to update health screening values for several air pollutants that are closely tracked by air quality monitors and/or frequently permitted by the agency. Among these are toxic air pollutants such as benzene and other chemicals of concern. At sufficiently high doses, these pollutants are known or suspected to cause cancer or other serious health problems.

The toxicology project is part of an ambitious re-examination of the agency's "effects screening levels," or ESLs. ESLs are chemical-specific air concentration limits established to protect the health and welfare of the general public.

The TCEQ completed new guidelines for developing ESLs in 2006, and adopted an excess cancer risk level of 1 in 100,000, which represents the midpoint in EPA's acceptable excess risk range of 1 in 10,000 to 1 in 1,000,000.

The levels developed under the new guidelines are for air pollutants that are not regulated by federal ambient air quality standards but play a leading role when the agency evaluates air monitoring data and sets emission limits in air permits. The development of ESLs under new guidelines incorporates the highest scientific standards, public comment, and non-TCEQ scientific peer review.

By the end of fiscal 2008, toxicologists had finalized ESLs for 18 chemicals, including benzene, 1,3-butadiene, and formaldehyde. Once published, the new ESLs take effect immediately. An updated published list of more than 4,600 ESL values used in the air permitting process was also made available in fiscal 2008.

ESL development is ongoing; the published list is updated about every six months.

Air Pollutant Watch List

The agency relies on ESLs and state regulatory standards to designate areas for the Air Pollutant Watch List and to set enforceable industrial air permit limits.

When an air quality monitor measures trends that exceed applicable health-based ambient air comparison values, the TCEQ places the immediate area on the Watch List for stricter inspections, monitoring, enforcement, and permitting reviews.

If monitored levels fail to subside, the agency takes additional steps, such as aggressive use of state-of-the-art monitoring equipment, to find and implement controls on previously underestimated or unknown emissions.

The Watch List shows 14 locations in which specific pollutants have been measured at levels that could cause adverse short-term or long-term health problems or nuisance odor conditions. Of the 14, five are in Harris, Galveston, and Brazoria counties. The remaining sites are in the counties of Bastrop, Bowie, Cass, Dallas, El Paso, Jasper, Jefferson, and Nueces.

CAMR and CAIR

In 2005, the EPA issued two new rules that were designed to significantly reduce emissions for new and existing electric generating units.

The Clean Air Mercury Rule (CAMR) would permanently cap and reduce mercury emissions from new and existing coal-fired power plants for the first time. This rule promised to make the United States the first country to regulate mercury emissions from electric generating utilities. The TCEQ approved rulemaking to implement the CAMR trading program for mercury in 2006.

The other measure, the Clean Air Interstate Rule (CAIR), was intended to help states with nonattainment areas for ozone and particulate matter of less than 2.5 microns (PM_{2.5}) to control NO_x and sulfur dioxide (SO₂) emissions from new and existing electric generating utilities. The TCEQ approved rulemaking to implement the CAIR trading program for NO_x and SO₂ in 2006 and incorporated the provisions of Texas House Bill 2481, passed in 2005.

Both programs were overturned in 2008. A federal appellate court vacated CAMR and, in a later decision, vacated CAIR. As of early September 2008, the EPA was reviewing both court decisions, which are subject to appeal to the U.S. Supreme Court.

Fuel Requirements

In another strategy to lower levels of NO_x and VOCs from mobile sources, either the TCEQ or the EPA has requirements in place to use various fuel mixtures in different parts of the state, as follows:

- Reformulated gasoline year-round in the eight-county Houston-Galveston-Brazoria area and the four-county Dallas-Fort Worth area (a federal requirement).
- Low Reid vapor pressure gasoline—May 1 to October 1—in 95 counties in East and Central Texas.
- Low Reid vapor pressure gasoline—May 1 to September 15—in the three-county Beaumont-Port Arthur area (a federal requirement).
- Low Reid vapor pressure gasoline—May 1 to September 16—in El Paso County.
- Oxygenated gasoline—October 1 to March 31—in El Paso (to lower carbon monoxide).
- Low-emission diesel fuel year-round in 110 counties in East and Central Texas, including Houston-Galveston, Dallas-Fort Worth, and Beaumont-Port Arthur.

The Texas Low Emission Diesel (TxLED) rule applies to diesel fuel producers, importers, common carriers, distributors, transporters, bulk-terminal operators, and retailers. The goal is to lower the emissions of NO_x and other pollutants from diesel-powered motor vehicles and nonroad equipment in the eastern portion of the state.

Diesel fuel produced for delivery and ultimate sale—for both highway and non-highway use—in the affected counties must contain less than 10 percent by volume of aromatic hydrocarbons and have a cetane number of 48 or greater. Compliance alternatives are allowed, such as TCEQ-approved alternative diesel-fuel formulations, California Air Resource Board-certified alternative diesel-fuel formulations, and TCEQ-approved alternative emission reduction plans. Compliance for producers and importers was required on October 31, 2005; for bulk plant distribution facilities, December 15, 2005; for retail fuel dispensing outlets, wholesale bulk purchasers, and consumer facilities, January 31, 2006.

In addition, the TxLED rule applies to marine distillate fuels used in the Houston-Galveston-Brazoria ozone nonattainment area. Compliance for producers and importers of marine distillate fuels was required on October 1, 2007; for bulk plant distribution facilities, November 15, 2007; and for retail fuel dispensing outlets, wholesale bulk purchasers, and consumer facilities, January 1, 2008.

As of August 2008, 102 producers and importers had registered to supply TxLED to counties in East and Central Texas.

Major Incentive Programs

Two of the TCEQ's most important programs for reducing emissions that contribute to ozone are voluntary, and the incentives offered by both are in high demand.

As stated in Chapter 1, the Texas Emissions Reduction Plan (TERP) provides financial incentives to own-

ers and operators of heavy-duty diesel vehicles and equipment for projects that will lower NO_x emissions.

TERP grants and activities during the last two years are detailed in a separate report, *The Texas Emissions Reduction Plan: Biennial Report to the Texas Legislature* (SFR-079/08).

Also, with the expansion of vouchers, AirCheckTexas Drive a Clean Machine is expediting the removal of older, high-emitting cars and trucks in 16 urban counties, as discussed in Chapter 1. Since December 2007, the program has replaced almost 15,000 older, polluting vehicles with newer, cleaner vehicles.

For income-eligible motorists, the program continues to assist with the repair of vehicles that fail the annual emissions test. By issuing vouchers of up to \$600, AirCheckTexas helped pay for correcting emission problems on about 9,800 vehicles in the last two years.

Operated by the Texas Department of Public Safety in conjunction with the TCEQ, the repair program relies on privately owned inspection stations to test gasoline-powered cars and trucks that are 2 to 24 years old. (Passing both the emissions and safety portions of the annual inspection is required for issuance of a state inspection sticker.)

More details on AirCheckTexas are available in Chapter 3.

Environmental Research and Development

The TCEQ continues to support some of the leading air quality research in the country. Most recently, the agency worked to take the findings of the Texas Air Quality Study II (TexAQS II), which was conducted in 2005 and 2006, and incorporate them into the design of effective control strategies.

To this end, the TCEQ supported a team of researchers to create a coherent summary of the preliminary findings of the field study, so that these findings could play an immediate role in air quality planning. This summary—or synthesis—was created by a consensus of the participants in the TexAQS II study. The cost was about \$211,500 spanning the 2006 and 2007 fiscal years.

The Rapid Science Synthesis Team included 52 of the scientists who participated in the TexAQS II, and focused on conclusions that could be supported by their data. Their first report was issued in October 2006, only 16 days after the field study ended. The final report was issued in August 2007. Typically, the results of a field study are not available for months or years after a study's completion due to the pace of scientific publishing. But with these preliminary results assembled so quickly, the TCEQ was able to use them in air quality modeling, which forms the basis for designing control strategies.

Researchers addressed questions relevant to the eastern half of the state, such as “what are the processes that lead to ozone formation and accumulation in Houston, Dallas, and the eastern half of Texas” and “what role does the transport of ozone and its precursors from distant sources play during high ozone days?”

Some preliminary findings from the TexAQS II are:

- The highest ozone concentrations observed in Houston are still linked to emissions from the petrochemical industry (as was the case in the TexAQS I 2000 field study).
- The efficiency of ozone formation, however, has decreased since 2000, as have maximum ozone concentrations. Ozone production efficiency is the ratio between the amount of ozone produced and the amount of NO_x reacted. The new findings determined that it now takes more NO_x to make the same amount of ozone; hence, the decrease in efficiency of ozone formation.
- Ozone plumes from urban areas—including Houston, Beaumont, and Dallas-Fort Worth—strongly affect the amount of ozone observed in the rural areas of the eastern half of the state.
- On average, about 50-60 parts per billion of ozone was transported from Houston into eastern Texas on a typical day during August to October 2006. (The new 8-hour ozone standard will be 0.075 ppm.)
- Emissions of ozone precursors have decreased in Houston since 2000. NO_x emissions from industrial point sources have fallen dramatically—down by 30 percent to 80 percent. The emissions of ethane, a highly reactive VOC, were down by about 40 percent.
- NO_x emissions from shipping can rival power-plant emissions in magnitude in the Houston region.
- Emissions of highly reactive VOCs continue to be substantially under-reported in some industrial areas.
- Nitryl chloride (ClNO₂) is formed at night, according to observations, when NO_x emissions and sea salt aerosol are both present. The presence of ClNO₂ can lead to earlier and more rapid ozone production.

To take advantage of these findings, the TCEQ has collaborated with scientists from the National Oceanic and Atmospheric Administration, Texas A&M University, the University of Houston, Rice University, and the University of Texas, as well as ENVIRON, the University of Colorado, the University of Alabama at Huntsville, and other institutions to improve the scientific tools used to develop air quality plans. These new techniques will allow TCEQ technical staff to perform computer simulations of air pollution episodes with greater accuracy. By leveraging the TexAQS II findings

into the air quality planning process, the TCEQ can ensure its planning is consistent with the current state of the science.

A number of air quality projects have been conducted through the TCEQ’s funding of the Texas Environmental Research Consortium (TERC), which was created in 2002 to improve ozone science and air quality modeling in the Houston-Galveston area. TCEQ funding, which began in 2004, has reached a total of about \$14.2 million. That includes \$2.2 million in fiscal 2007 and \$3.5 million in fiscal 2008.

TERC projects have included:

- Model-improvement studies
- Emissions-inventory improvements for VOCs and NO_x through innovative methodologies
- TexAQS II data collection and analysis
- Houston Exposure to Air Toxics Study

Expanding on research performed two years earlier, the TCEQ in 2007 funded aerial surveys of industrial and oil and gas sites along the Gulf Coast and in North Central Texas.

These surveys were conducted with the GasFindIR camera, a specialized passive infrared camera capable of imaging hydrocarbon plumes. While this project did identify some industrial sources with visible plumes, the number of sources and magnitude of the emission plumes appeared to have decreased significantly since 2005. When potentially significant emissions were identified at some upstream oil and gas sites in the Houston and Dallas-Fort Worth areas, the TCEQ pursued follow-up investigations and outreach. The aerial surveys cost \$185,000.

In another project, the TCEQ continued to advance the science of determining emissions from industrial sources by performing a five-week emissions monitoring study in 2007 in the Texas City area.

This project marked the first time that a U.S. regulatory agency used differential absorption lidar (DIAL) remote sensing technology to measure emissions from individual industrial sources. The study focused on gathering data from industrial sources that are difficult to measure using conventional sampling techniques. The resulting scientific data will help guide future research efforts and could result in additional control measures, refined emissions models for common sources, and improved emissions inventories. The DIAL study cost \$583,000, which included a \$200,000 EPA grant.

Water Quality

Addressing Surface Water

Every two years, the TCEQ assesses water quality to determine which water bodies meet the standards for their designated uses, such as contact recreation, support of

aquatic life, or drinking water supply. The assessment is published on the TCEQ Web site as the Texas Water Quality Inventory and Clean Water Act 303(d) List.

The inventory evaluates conditions during the assessment period and identifies the status of the state's surface waters in relation to the Texas Surface Water Quality Standards. The 303(d) List identifies waters that do not regularly attain one or more of the standards and may require action by the agency to restore water quality.

Because of its large number of river miles, Texas can assess only a portion of its surface water bodies. The most important river segments and those considered to be at highest risk for pollution are assessed regularly.

For the 2008 statewide assessment, water quality data was collected at 3,470 sites, half of which are routinely visited several times a year. That assessment identified 386 water bodies with a total of 515 impairments (any single water body can have impairments for more than one standard).

Overall, water quality in the state remains good, with most water bodies meeting their standards.

The TCEQ continues to expand its network of continuous water quality monitoring sites on priority water bodies (see Chapter 1). At these 60 sites, remote instruments measure basic water quality conditions every 15 minutes. Several sites also monitor nutrient concentrations every six hours.

The data is used for a number of purposes, such as characterizing baseline conditions; identifying water quality trends; assessing pollution events; characterizing conditions leading to harmful algal blooms; and developing monitoring technology, applications, and methodology.

Restoring Water Quality

The Total Maximum Daily Load (TMDL) Program is one of the agency's primary means of improving the quality of impaired surface waters. It works closely with the Wastewater Permitting and Nonpoint Source programs, as well as other governmental agencies and regional stakeholders during development and implementation of TMDLs.

A TMDL is like a budget for pollution—it estimates the amount of a pollutant that a water body can assimilate daily and still remain clean enough to meet water quality standards. The budget, or load, is divided among the sources of pollution in the watershed. Then an implementation plan to reduce pollutant loads is developed.

A TMDL sets the target for reaching attainment. Fully restoring water quality is a long-term project that can take several years.

Since 1998, the TCEQ has been developing TMDLs to improve the quality of impaired water bodies on

the 303(d) List, which identifies surface waters that do not meet one or more quality standards. In all, the program has adopted 101 TMDLs for 60 water bodies in the state.

As of August 2008, the TMDL program had restored water quality to attain standards for 21 impairments to surface waters. Overall, the program restored fishing uses, conditions for aquatic life, and proper salinity to 323 stream miles; made water suitable as a source of drinking water for 3,958 reservoir acres; and restored conditions for aquatic life in 12 estuary square miles.

From August 2006 to August 2008, the Commission adopted 11 TMDL reports (37 impairments) for the following projects: the Colorado River Below E.V. Spence Reservoir (salinity), Gilleland Creek (bacteria), the Guadalupe River Above Canyon Lake (bacteria), the Lower San Antonio River (bacteria), Nueces Bay (zinc in oyster tissue), Oso Bay (bacteria), Orange County Watersheds (bacteria, dissolved oxygen, and pH), Petronila Creek Above Tidal (salinity), the Upper San Antonio River (bacteria), Upper Oyster Creek (bacteria), and Upper Gulf Coast Oyster Waters (commercial oyster harvesting).

In the same period, the Commission approved seven implementation plans for 11 other TMDL projects. In all, these plans aim to restore 162 stream miles, 22,260 lake acres, and 29 square miles of estuary for support of a healthy aquatic community, the safety of fish consumption and oyster harvesting for commercial use, and general water quality.

Bacteria TMDLs. Bacteria from human and animal wastes can indicate the presence of disease-causing microorganisms that pose a threat to public health. People who swim or wade in waterways with high concentrations of bacteria might be at risk of contacting gastrointestinal illnesses. High bacteria concentrations can also affect the safety of oyster harvesting and consumption.

Of the 515 impairments listed for surface waters in Texas, about half are for bacteria impairments to recreational uses. TMDLs are under way or are scheduled for about 40 percent of the bacteria impairments.

For the remainder, the TCEQ must collect additional data to determine whether a TMDL or a revision to the standards is needed. The agency is undergoing review and revisions of the water quality standards to evaluate and more accurately assign appropriate recreational uses of the state's water bodies. If the standard for a segment is changed as a result of these revisions, this could affect the scheduling of some bacteria TMDLs and the placement of segments on the 303(d) List.

Identification of bacteria sources is critical for the success of plans to reduce bacteria in impaired waterways. Bacterial source tracking methods are used to identify the origins of pathogens in ambient surface waters.

Environmental Progress through TMDL Implementation Plans

As of August 2008, the TCEQ had approved TMDL implementation plans for the following streams, reservoirs, and estuaries. Each project is identified by water body, basin and segment number of the impaired water body, the designated use that has been affected, and the geographic extent of the impairment.

Implementation Plan	Basin & Segment(s)	Use Affected	Year Begun	Status	Area of Impairment
Aquilla Reservoir: atrazine	Brazos River; 1253	Source for drinking water	2002	Goals met	3,943 lake acres
Arroyo Colorado: legacy pollutants and organics	Nueces-Rio Grande Coastal; 2202, 2202A	Safety of fish consumption	2001	Under way	504 stream miles; 333 lake acres
Clear Creek: chlordane	San Jacinto-Brazos Coastal; 1101, 1102	Safety of fish consumption	2001	Goals met	42 stream miles
Clear Creek: dissolved solids	San Jacinto-Brazos Coastal; 1102	General (not tied to a specific use)	2006	Under way	60 stream miles
Clear Creek: volatile organic compounds	San Jacinto-Brazos Coastal; 1101, 1102	Safety of fish consumption	2001	Goals met	84 stream miles
Colorado River below E.V. Spence Reservoir: dissolved solids	Colorado River; 1426	General (not tied to a specific use)	2007	Under way	56 stream miles
Dallas and Tarrant county waterways: legacy pollutants	Trinity River; 0805, 0841, 0841A	Safety of fish consumption	2001	Under way	18,970 lake acres; 127 stream miles
E.V. Spence Reservoir: dissolved solids	Colorado River; 1411	General (not tied to a specific use)	2001	Under way	29,000 lake acres
Fort Worth waterways: legacy pollutants	Trinity River; 0806, 0806A, 0806B, 0829, 0829A	Safety of fish consumption	2001	Under way; some goals met	101 lake acres; 47 stream miles
Houston Ship Channel: nickel	San Jacinto River and Bays; 1001, 1005, 1006, 1007, 1013, 1014, 1016, 1017, 2426, 2427, 2428, 2429, 2430, 2430, 2436	Support of aquatic life	2001	Goals met	164 stream miles; 12 bay square miles
Lake Austin: low dissolved oxygen	Colorado River; 1403	Support of aquatic life	2001	Under way	1,830 lake acres
Lake O' the Pines: low dissolved oxygen	Cypress Creek; 0409	Support of aquatic life	2006	Under way	18,700 lake acres
Lake Worth: PCBs	Trinity River; 0807	Safety of fish consumption	2006	Under way	3,560 lake acres
Lower Sabinal River: nitrate-nitrogen	Nueces River; 2110	Source for drinking water	2006	Under way	27 stream miles
North Bosque River: soluble reactive phosphorus	Brazos River; 1226, 1255	General (not tied to a specific use)	2002	Under way	121 stream miles
Nueces Bay: zinc in oyster tissues	Bays and estuaries; 2482	Safety of commercial oyster harvesting	2007	Under way	73 estuary square miles
Petronila Creek above Tidal: dissolved solids	Nueces-Rio Grande Coastal; 2204	General (not tied to a specific use)	2007	Under way	44 stream miles

Note: Legacy pollutants are chemicals that persist in the environment long after their use has been banned or severely restricted.

Bacteria-source tracking can identify broad source categories, such as humans, domestic animals, or wildlife, that might be contributing to an impairment. This source information can then be used in association with land use data to develop implementation strategies.

Because of the complexity of bacteria TMDLs and the number of people and facilities they could affect, the TCEQ and the Texas State Soil and Water Conservation Board (TSSWCB) formed a task force in 2006 to recommend methods, including source-tracking and best management practices to the Commission. The task force included experts from state universities and research organizations.

The result was a report, which was adopted by the Commission in June 2007. The report suggested the following three-tier approach, which is being implemented, to fully identify sources: (1) involve stakeholders, and collect and analyze existing geographic and water quality data; (2) collect additional data, conduct library-independent research on bacteria sources, and produce more complex models of water quality scenarios; and (3) implement more extensive targeted monitoring, conduct library-dependent source analysis, and develop a detailed hydrologic water-quality model for the watershed. The report also included recommendations for effective use of bacteria source-tracking methods and models, summarized research needed to strengthen the scientific tools available for TMDL development, and included references to relevant scientific literature and studies.

Based on the task force recommendations, TCEQ and TSSWCB staff are updating the state's guide for developing TMDLs, which will be published in fiscal 2009.

Mercury impairments. Texas has 17 water bodies that are impaired due to mercury in fish tissue. Reducing the mercury concentrations in fish tissue is not readily accomplished through a standard TMDL process. Much of the mercury is airborne and can originate outside the state. Also, the physical and chemical processes that affect bioaccumulation of mercury in fish are not fully understood. At the direction of the Commission, the TCEQ formed the Mercury-Impaired Waters Advisory Group in 2008. The group's recommendations on how to best approach the state's mercury impairments are expected to go before the Commission in mid-2009.

Bay and Estuary Programs

Plans for comprehensive conservation management of Galveston Bay and the Coastal Bend bays were established in the 1990s, and included a broad-based group of stakeholders and bay user groups. Two different organizations implement these plans.

The Galveston Bay Estuary Program (GBEP) is managed by TCEQ staff, while the Coastal Bend Bays and Estuaries Program (CBBEP) is managed by a non-

profit entity established for that purpose. The TCEQ funds both programs.

The GBEP provides ecosystem-based management that strives to balance economic and human needs with available natural resources in Galveston Bay and its watershed. Toward this goal, the program fosters cross-jurisdictional coordination among federal, state, and local agencies and groups, and cultivates diverse, public-private partnerships to implement projects and build public stewardship.

Priorities include conserving wetlands and other valuable coastal habitats, addressing nonpoint sources of pollution, managing invasive species, and protecting public health by monitoring the consumption safety of bay seafood.

The GBEP completed 30 projects in the last two years, leveraging more than \$16 million in private, local, and federal partner contributions. These projects included three major habitat conservation projects to protect and restore 6,300 acres of wetlands and important coastal habitats. Staff also coordinated several stakeholder-based watershed protection planning efforts to help address impaired and threatened water bodies; and completed two risk assessments, notably a baywide seafood safety consumption risk assessment (in conjunction with the Texas Department of State Health Services) that extended a consumption advisory for speckled trout to include the entire Galveston Bay system.

The program is active in public outreach, giving presentations to civic groups, nonprofit organizations, schools, and governmental organizations and holding a State of the Bay symposium every two years.

In the last two years, the CBBEP implemented 50 projects, including habitat restoration and protection in areas totaling 1,600 acres, and secured more than \$5 million in additional funds to leverage TCEQ funding. Based in the Corpus Christi area, the program has built many partnerships with local governments and state and federal agencies.

The CBBEP continues to focus on impaired water bodies and TMDL projects—specifically Oso Bay, Oso Creek, and Copano Bay—and is investigating an area of low dissolved oxygen in Corpus Christi Bay. Working with the Port of Corpus Christi Authority and the Army Corps of Engineers, the CBBEP was able to direct the beneficial use of dredge material to expand an important colonial waterbird rookery island.

North Bosque Cleanup

The TCEQ is meeting most of its goals in the North Bosque River watershed as various cleanup strategies are being implemented.

High levels of nutrients there have contributed to an overabundance of algae and other aquatic plants. Excessive growth of algae can lead to taste and odor

problems in drinking water and to low dissolved oxygen, which can kill fish. The primary targeted pollutant has been phosphorus, a nutrient found in animal waste and in discharges from wastewater treatment plants.

The North Bosque River empties into Lake Waco, which is the main source of drinking water for about 200,000 people in and around Waco. The upper half of the watershed is a hub of commercial dairy operations, with an estimated 55,000 dairy cows.

In 2001, the TCEQ developed a TMDL project for each segment of the North Bosque River to ultimately lower phosphorus levels. An implementation plan, containing both regulatory and voluntary measures, mapped out a course of action, as follows:

- Stephenville and Clifton upgraded their wastewater treatment plants, reducing the concentration of phosphorus in wastewater effluent that empties into the river.
- A compost program met its goal of removing at least half the solid cattle manure from dairy CAFOs (concentrated animal feeding operations with 200 or more head of cattle). Incentives were offered for companies to turn cow manure into compost, which was then sold to landscapers. About 650,000 tons of dairy manure was collected from the North Bosque watershed from 2002 to 2006, when the incentives expired. Of that amount, 329,000 tons was exported in the form of compost, representing the removal of 740 tons of phosphorus. Even without the incentives, five of the nine original facilities are still composting and removing manure from the watershed.
- The TCEQ expanded its Environmental Monitoring Response System (EMRS), which performs continuous water quality monitoring, to include seven locations in the watershed. The EMRS alerts regional staff when phosphorus concentrations rise to a designated level, requiring immediate investigation. The EMRS also began targeting “microwatersheds” so that investigators have smaller areas to check when alerts are issued (see Continuous Water Quality Monitoring, page 5).
- The TCEQ boosted enforcement and efforts to ensure compliance. The agency’s Stephenville office now conducts annual inspections of each CAFO and is available seven days a week to respond to pollution complaints.
- The TCEQ developed rules requiring individual permits for CAFOs in the watershed. These require comprehensive nutrient management plans, which range from feed management to land application of animal waste, and include enhanced inspection, testing, and recordkeeping. Dairy CAFOs must have larger retention control structures to capture rainfall from their production areas. The CAFOs also must satisfy certain education requirements to ensure that operators and staffers are trained in dairy waste management.

Meanwhile, the agency and its partners monitor water quality every two weeks to obtain information before and after pollution-reduction measures are put in place. Also, the TCEQ hired researchers to refine the TMDL models used to simulate conditions in the river. The model refinement involves reviewing conditions in the watershed to determine whether existing cleanup plans are satisfactory.

The TCEQ is now working with stakeholders on the first TMDL project for the adjoining Leon River watershed, which exhibits similar water quality problems.

Edwards Aquifer Protection Program

As a karst aquifer, the Edwards Aquifer is one of the most permeable and productive groundwater systems in the United States. The aquifer crosses eight counties in south central Texas, serving as the primary source of drinking water for about 1.7 million people. This replenishable structure also supplies water for segments such as farming and ranching, manufacturing, steam electric power generation, mining, and recreation.

The aquifer’s pure spring water also supports a unique ecosystem of aquatic life, including a number of threatened and endangered species.

Because of the unusual nature of the aquifer’s geology and biology, and its role as a primary water source, the TCEQ requires a water pollution abatement plan for any regulated activity proposed within the recharge, contributing, or transition zones. Regulated activities include construction, clearing, excavation, or anything that alters the surface or possibly contaminates the aquifer and its surface streams. Best management practices must be used during and after construction to treat storm water in the regulated areas.

Legislation in 2007 authorized higher fees for the review of water pollution abatement plans, which the TCEQ implemented in May 2008. In place of the previous \$5,000 cap, fees for building in sensitive areas over the aquifer may go as high as \$10,000, depending on the project size.

Each fiscal year, the TCEQ receives about 700 plans for review, which is conducted by staff in the Austin and San Antonio offices. To keep pace with the development along the Interstate Highway 35 corridor, the agency increased the number of investigators assigned to Edwards Aquifer activities from 10 to 17. In addition, the agency goal for staff technical review of each aquifer protection plan was reduced from 90 to 60 days. To expedite the review, the TCEQ requires that all plans be administratively complete before staff begins reviewing the technical requirements.

With tremendous economic growth in the aquifer region comes greater potential for significant enforcement violations. This led the TCEQ to raise the penalties for any regulated activities that begin before the agency

grants authorization. Such penalties can be increased for disregarding state laws protecting the aquifer.

Streamlining aquifer protection was aided in September 2007 when the TCEQ and the U.S. Fish and Wildlife Service published the second installment of their agreement to eliminate duplicate approval requirements for activities in the aquifer region. The federal agency agreed that the voluntary use of additional enhanced measures in the TCEQ's Edwards Aquifer Protection Program can protect water quality and provide safeguards for karst cave dwelling invertebrate species that are listed as endangered or threatened. This additional agreement complements the prior agreement between the TCEQ and Fish and Wildlife, published in 2005 with the intent to protect aquatic species.

Drinking Water Standards

For more than a decade, the EPA has been instituting major changes that require public water systems to remove disease-causing microorganisms from surface waters, reduce arsenic and radionuclides from groundwater aquifers, and enact stricter controls regarding the chemical by-products created when chlorine is used to disinfect water. These new standards have been integrated into rules by the TCEQ and passed on to public water systems.

Of the 6,807 public water systems in Texas, about 4,672 are community water systems, mostly operated by cities. The remainder are noncommunity water systems—such as those at schools, churches, factories, businesses, rest stops, and state parks.

The number of public water systems meeting the state's drinking water standards totals 6,291. These systems serve about 96 percent of Texans.

All public water systems are required to monitor the levels of contaminants present in the treated water and to verify that each contaminant does not exceed its maximum contaminant level (MCL) established by the EPA. Based on EPA's risk assessments, the MCL is the highest level at which a contaminant is considered acceptable in drinking water for the protection of public health.

In all, the EPA has set standards for 102 contaminants in the major categories of microorganisms, disinfection by-products, disinfectants, organic and inorganic chemicals, and radionuclides. The microorganism that is of most importance is coliform bacteria, particularly fecal coliform. For Texas, the most common chemicals of concern are disinfection by-products, arsenic, fluoride, and nitrate.

In early 2008, the TCEQ adopted the requirements of the federal Long-Term Stage 2 Enhanced Surface Water Treatment Rule, which addresses *Cryptosporidium* removal and inactivation in surface water, and the Groundwater Rule, which addresses viruses in groundwater.

At the same time, the Commission also adopted the federal Stage 2 Disinfectants and Disinfection By-products Rule. Disinfection by-products are potentially

carcinogenic chemicals formed when a disinfectant such as chlorine reacts with naturally occurring organic carbon. About 125 systems in Texas are out of compliance with Stage 1 of the Disinfection By-products Rule, and the TCEQ estimates that perhaps twice this number will have difficulty complying with the Stage 2 rule.

New federal rules also apply to arsenic, an element that dissolves from rocks into water supplies. Citing studies that link long-term arsenic exposure to cancer, the EPA established a standard of 10 parts per billion, which replaced the old standard of 50 ppb. About 99 water systems in Texas continue to have difficulty complying with the arsenic standard, which took effect in 2006.

Implementing new regulations has been difficult and often costly, especially for smaller systems. The TCEQ has been proactive by alerting water systems to the new rules and their impact on water systems. The agency also manages an expense-reimbursement grant that reimburses costs for operator licenses and training at systems serving fewer than 3,300 people.

To deal with the new federal regulations, the TCEQ has turned to outsourcing. More than 41,000 water samples are analyzed each year just for chemical compliance. Most of the chemical samples are collected by contractors, then submitted to a certified laboratory. The analytical results are sent to the TCEQ and the public water systems.

The agency also hires university students to help with customer service and data review.

For educational purposes, the TCEQ holds a free annual symposium on public drinking water. The Austin conference draws about 900 attendees.

If a public system's drinking water has levels of contaminants that exceed the regulatory MCLs or treatment technique requirements, the system must notify its customers. Community public water systems are required to provide consumers with an annual report on the quality of their drinking water. These Consumer Confidence Reports (CCRs) offer basic information, such as the type and source of water used by the local system, and an update of the system's compliance status with drinking water regulations. The EPA has determined that failure to deliver any CCR is a significant instance of noncompliance, subject to fines and penalties. About 180 community systems are projected to receive enforcement actions because of this determination alone in calendar 2008.

Drinking Water Violations

	FY 2007	FY 2008
Enforcement Orders	152	210
Fines	\$347,453	\$435,083
Contributions to Supplemental Environmental Projects	\$32,777	\$190,897

If a public system fails to have its water tested or fails to report test results correctly to the TCEQ, this constitutes a monitoring or reporting violation. When a public water system has significant or repeated violations of state regulations, the case is referred to the TCEQ's enforcement program.

Utility Services

Public water systems are required to submit engineering plans and specifications for new water systems or for improvements to existing systems. The plans must be reviewed by the TCEQ before construction can begin. In fiscal 2007 and 2008, the agency performed compliance reviews of 3,957 engineering plans for public water systems.

Investor-owned utilities and water supply corporations are also required to obtain certificates of convenience and necessity (CCNs) before providing service. A CCN is a TCEQ authorization that allows a retail public utility to furnish adequate retail water or sewer utility service to a specified geographic area. Investor-owned utilities must also have an approved tariff that includes a rate schedule, service rules, an extension policy, and a drought contingency plan.

The TCEQ has original jurisdiction over the rates and services of investor-owned utilities, and has appellate jurisdiction over the rates of water supply corporations, water districts, and out-of-city customers.

In the last two years, the TCEQ completed reviews of 298 CCN-related applications and 116 rate-related applications.

The agency strives to ensure that all water and sewer utility systems have the capability to operate successfully. The TCEQ contracts with the Texas Rural Water Association (TRWA) to assist utilities with financial, managerial, and technical expertise. An estimated 458 utilities were referred for this assistance. The TCEQ also contracts with the Bureau of Economic Geology at the University of Texas to provide a higher level of assistance to certain water systems experiencing compliance problems.

To further maximize resources, the agency encourages water and sewer systems to regionalize. The consolidation of two or more systems can lead to better utility service and lower rates. The TCEQ and the TRWA conducted 28 consolidation regionalization assessments to encourage consolidations and mergers of water and sewer utility systems.

With this certification, utilities are eligible for tax-exempt status for utility-system construction and improvements. There have been 356 utilities certified as regional providers.

The TCEQ also has jurisdiction over the creation of, and bond reviews for, water districts—such as municip-

pal utility districts, water control and improvement districts, and fresh water supply districts.

The agency reviews creations of general law water districts and bond applications for water districts to fund water, sewer, and drainage projects. In the last two years, the TCEQ reviewed about 635 major and 950 minor water district applications, which included more than \$1.74 billion in water district infrastructure improvements.

Storm Water Program

The Texas Pollutant Discharge Elimination System (TPDES) was created in 1998 when the EPA transferred authority of the National Pollutant Discharge Elimination System for water quality permits in the state to Texas. This included storm water permits.

As the permitting authority, the TCEQ has renewed the federal permits as they expired and developed new storm water permits to conform to updated federal and state requirements. A permittee can obtain authorization for storm water discharges through an individual or general permit.

The TCEQ receives thousands of applications a year for coverage under TPDES storm water general permits. With the growing workload, the agency has applied e-Permitting (see page 7) to some of these permitting and reporting functions, and has outsourced the management of incoming paper Notices of Intent (NOIs), Notices of Termination (NOTs), and No Exposure Certifications (NECs).

Permits are issued under the categories of industrial, construction, and municipalities.

Industry. The multi-sector general permit, developed in 2001, regulates storm water discharges from industrial facilities. The permit groups similar industrial activities into sectors, with requirements specific to each of 29 sectors. Facilities must develop and implement a storm water pollution-prevention plan, conduct regular monitoring, and use best management practices to reduce the discharge of pollutants in storm water. The permit also contains limitations for certain discharges—specific pollutants and concentrations that cannot be exceeded. The TCEQ receives about 140 NOIs and NOTs a month for industrial facilities. This general permit was renewed and amended in August 2006.

Construction. The construction general permit was developed in 2003 for storm water runoff associated with construction activities, which includes clearing, grading, or excavating land at building projects such as homes, schools, roads, and businesses. The size of a construction project determines the level of regulation. Construction disturbing five or more acres is labeled a "large" activity, while construction disturbing one to five acres is termed "small." Smaller projects are also regulated if they are a part of a larger common plan of development that is more than one acre in size.

Construction operators at large sites are required to apply for coverage under the general permit by filing an NOI. Operators at small sites must meet permit requirements but are not required to submit an NOI. The TCEQ receives about 800 NOIs and 650 NOTs a month for large construction activities. This general permit was re-issued in February 2008.

Municipal. The TCEQ also regulates discharges from municipal separate storm sewer systems, or MS4s. This category applies to a citywide system of ditches, curbs, gutters, and storm sewers that collect runoff. It also includes other publicly owned systems, such as drainage from state roadways.

The TCEQ is responsible for renewing previously issued individual federal permits for discharges from medium and large MS4s. These systems are operated by cities and other public entities, such as the Texas Department of Transportation, in areas in which the 1990 census recorded 100,000 people or more. Thirty-three municipalities and other public entities fall into this category.

In August 2007, the TCEQ issued a general permit regulating small MS4s (populations of less than 100,000 in 1990) in urbanized areas. This permit requires a regulated MS4 operator to develop and implement a storm water management program that includes minimum plan requirements for public education and public participation, as well as minimum control measures for illicit discharge detection and elimination, construction storm water runoff control, post-construction storm water management, and pollution prevention/good house-keeping. There are 418 small cities, districts, and other public entities that have submitted NOIs for authorization or waivers under this general permit.

Storm Water Permits

Activity	Number Affected		Applications Received (monthly average)	
	FY 2007	FY 2008	FY 2007	FY 2008
Industrial (facilities)	9,267	10,986	842*	160*
Construction (large sites)	22,177	13,500**	900**	1,225**
MS4s (public entities)	NA	418	NA	418***

* The multi-sector general permit was renewed in 2007, and all active industrial facilities were required to submit an NOI or NEC. Fiscal 2008 numbers reflect only new facilities, transfers of operational control, and previously unpermitted facilities.

** The construction general permit was renewed in February 2008. All active large construction sites were required to submit an NOI or a waiver. Fiscal 2007 numbers reflect only new facilities, transfers of operational control, and previously unpermitted facilities.

*** MS4 applications and waivers were due in February 2008 for coverage until August 2011. The TCEQ expects to receive few applications until this permit is renewed in 2011.

Water Availability

International Treaty

Water availability is critical in the border region of Texas and its neighboring Mexican states. It is essential for supporting a growing population and sustaining economic development.

For 1,254 miles, the Rio Grande serves as the international boundary. The river has major tributaries in both the United States and Mexico.

International agreements reached in 1906 and 1944 apportioned the waters of the Rio Grande between Mexico and the U.S. and created the International Boundary and Water Commission to verify water distribution between the two countries. The TCEQ's Rio Grande watermaster allocates U.S. waters to Texas water-right holders from Fort Quitman in Hudspeth County to the Gulf of Mexico; upstream, the Rio Grande Compact Commission ensures water for Texas in the El Paso area.

Two large international dams—Amistad and Falcon—are upstream of Del Rio and Roma, respectively. While valued for recreation and related economic development, their primary uses are as water supply and for flood control. The two dams have a combined reservoir storage capacity of about 6 million acre-feet of water; a little more than half belongs to the U.S.

During the regional drought from 1995 to 2002, both reservoirs dropped to their lowest levels since the 1950s. Many farmers and communities in the border region attributed their water woes to fewer releases from reservoirs in Mexico.

The main source for the Amistad and Falcon reservoirs is Mexico's Río Conchos, the tributary that drains much of Chihuahua before entering the Rio Grande at Ojinaga and Presidio. Under the 1944 treaty, one-third of the water of the Conchos and five other Mexican tributaries (not less than 350,000 acre-feet annually) is to be provided to the U.S., delivered as average amounts in five-year cycles.

Starting with the five-year cycle that ended in 1997, Mexico incurred a water debt of 1.5 million acre-feet by not providing water to the U.S. in accordance with the treaty. The water debt created bilateral problems for many years, with deliberations reaching the highest levels of government in both countries. Adding to the difficulties was the fact that the 1944 treaty does not clearly define "extraordinary drought," which Mexico was claiming as the reason for delaying the water transfers.

In October 2007, Mexico finally transferred Rio Grande reservoir water to the U.S., ensuring closure of a treaty cycle without a deficit—for the first time in 15 years. At the time, the combined water levels in the Amistad-Falcon reservoir systems were the highest in more than a decade.

In addition, the 10 U.S.-Mexico governors agreed in 2007 to define the term “extraordinary drought” for the Rio Grande basin, which will aid treaty compliance in future five-year accounting cycles. The Border Governors Conference is working on the definition, which will be shared with federal agencies of both countries.

Dealing with Drought

The punishing effects of the 2006 statewide drought had an impact on the following year. Even though many regions received generous rainfall in 2007, a total of 288 public water systems had water restrictions on the books—many carried over from 2006.

In 2008, rain deficits continued to plague the southern half of Texas and reduce flows in many major rivers. In June, the TCEQ suspended temporary-use water rights to state surface water in South Texas and the Hill Country. The Edwards Aquifer Authority called for 20 percent cutbacks on monthly water pumping for much of Central Texas, including San Antonio. By summer’s end, the conditions had eased.

The recurrence of moderate to extreme dry spells is the reason the TCEQ reviews drought-contingency plans every five years. Water suppliers must show that they are prepared to reduce peak demand and extend supplies in times of hardship.

The current review got under way in May 2005, when some 1,200 drought-contingency plans were due. Of the plans submitted by retail and wholesale providers, fewer than 40 remained administratively incomplete by August 2008. Rejected plans must be revised and resubmitted. Utilities failing to comply could face enforcement penalties.

The next round of reviews begins in May 2009, which is a year early. The deadline was moved to coincide with regional water planning activities at the Texas Water Development Board.

Water Rights

Water flowing in Texas creeks, rivers, lakes, and bays is state water. The right to use it may be acquired through appropriation via the permitting processes established in state law.

Each permit application is reviewed by the TCEQ for administrative and technical requirements to evaluate the proposed project’s likely impact on matters such as other water rights, fish and wildlife habitat, conservation, water availability, and public welfare.

In fiscal 2007 and 2008, the agency processed 1,089 water-rights actions, including new permits and amendments, water supply contracts, and ownership transfers.

As more surface water rights are issued, available water supplies diminish. As a result, some cities are turning to indirect reuse of water as a source of supply. With indirect reuse, a city takes effluent that has been discharged into a stream, rediverts the wastewater, and reuses it for some purpose, such as irrigation.

This type of project requires a bed-and-banks permit. In the last two years, the TCEQ issued six bed-and-banks permits for indirect reuse. An example is the Tarrant Regional Water District, which rediverts and reuses 195,000 acre-feet a year from the Trinity River.

In a related matter, the TCEQ has participated for several years in instream flow studies in select river basins. The data is used to improve the scientific basis for special conditions placed in water-right permits to maintain instream uses and habitats.

The current focus is on the new, stakeholder-driven process to establish instream flow and freshwater inflow standards for each basin. (See Chapter 3 for more information on environmental flows.)

Groundwater Management

Almost 60 percent of the water used in Texas comes from groundwater. The state’s preferred method of managing this resource is through groundwater conservation districts (GCDs).

GCDs are authorized to adopt rules and permit water wells as part of their overall charge to manage and

Drought Planning Comes into Play

The TCEQ maintains a database to record the annual number of public water systems enacting drought contingency plans. By August 31, 2008, 80 systems had activated mandatory water restrictions, while 33 relied on voluntary measures, for a total of 113 systems.	Year	Number of Systems Activating Drought Plans
	1996	352
	1997	1
	1998	317
	1999	57
	2000	252
	2001	144
	2002	51
	2003	64
	2004	61
2005	49	
2006	284	
2007	288	
2008	113 <i>(as of August 31)</i>	

protect the groundwater in their jurisdiction by providing for conservation, recharge, and waste prevention. Most GCDs are created by special acts of the Legislature, but two other avenues exist: Landowners may petition the TCEQ to create a GCD, or may petition an existing GCD to add property.

In fiscal 2007 and 2008, Texas gained seven GCDs—encompassing 11 counties. This raised the statewide total to 93 GCDs, covering all or part of 145 counties. An additional four legislatively created GCDs (each a single county) had not been confirmed by voters by August 2008.

GCDs are created within priority groundwater management areas (PGMAs). The TCEQ issues the PGMA designation when an area is experiencing critical groundwater problems or is expected to do so within 25 years. These problems include shortages of surface water or groundwater, land subsidence resulting from groundwater withdrawal, or contamination of groundwater supplies.

Once an area is designated a PGMA, landowners have two years to get a GCD created. Otherwise, the TCEQ is required to create a GCD or to recommend that the area be added to an existing district.

The agency completed two PGMA update studies. After an evaluation of the Trinity and Woodbine aquifers in North Central Texas, the Executive Director recommended a PGMA designation for the counties of Collin, Cooke, Dallas, Denton, Ellis, Fannin, Grayson, Hood, Johnson, Montague, Parker, Tarrant, and Wise. GCDs were subsequently created in five of the 13 counties. For the remaining counties, the Executive Director further recommended an eight-county, fee-funded GCD.

After an evaluation of the portion of the Trinity Aquifer in Central Texas, the Executive Director recommended a PGMA designation for the counties of Bosque, Coryell, Hill, McLennan, and Somervell, and that a regional GCD, funded by a combination fee and ad valorem tax, be created for the five-county area.

The State Office of Administrative Hearings (SOAH) recommended approval of both PGMAs. SOAH's recommendations will be considered by the Commission.

The Executive Director also initiated GCD creation within two PGMAs that were designated in 1990: parts of the Dallam County PGMA and parts of Comal and Travis counties in the Hill Country PGMA.

Waste Management

Low-Level Radioactive Waste Disposal

The TCEQ has been engaged in a license application review to determine whether a proposed low-level radioactive waste disposal facility can be sited and operated in a manner that is safe to the public, facility

workers, and the environment. Filed in 2004 by Waste Control Specialists, LLC, of Dallas, the application seeks authorization to construct and operate a low-level radioactive waste disposal facility in Andrews County in West Texas.

The TCEQ set in motion a series of application reviews and analyses to determine whether the proposed facility meets the complex and stringent environmental, safety, and public health standards established by law and agency rules. Under state and federal laws, the licensed Texas disposal facility is proposed to accept commercial low-level radioactive waste generated in Texas and Vermont, both members of a waste disposal compact.

A license issued by the TCEQ may also approve the operation of a separate, adjacent facility that accepts low-level radioactive waste and mixed waste (waste that contains both a hazardous and a radioactive constituent) from federal facilities.

Waste envisioned for the Texas "compact" facility generally includes discarded paper, plastic, glass, and metals that have been contaminated by or contain radionuclides. These materials are commonly generated by nuclear power plants, diagnostic and therapeutic nuclear medical facilities, industry, universities, and government. Waste sent to the proposed adjacent federal facility could include contaminated soil and debris from federal facilities engaged in nuclear weapons research and production.

Neither disposal facility would be licensed to accept high-level radioactive wastes, such as spent nuclear fuel rods or weapons-grade plutonium.

After the application was determined to be administratively complete in February 2005, a public meeting was held in Andrews County to discuss the application. The agency's technical review began in May of that year.

The following year, the applicant asked to extend the submission of application revisions to May 31, 2007, to fully respond to outstanding technical issues. The Executive Director granted an extension to May 1, 2007, subject to any legislative direction on the period for completing the review.

In August 2008, the agency filed a preliminary license decision, a draft license, and an environmental assessment with the Office of the Chief Clerk, summarizing staff conclusions of its technical review of the application. A notice was mailed to the applicant, landowners, and other interested parties. The following month, TCEQ staff held a public meeting in Andrews on the draft license and assessment.

The public notice of a proposed draft license allows affected parties to request a contested case hearing by the State Office of Administrative Hearings. The issue of whether to grant the license will then go before the Commission.

Superfund Program

Superfund is the name given to the federal program that enables state and federal environmental agencies to take care of properties contaminated by hazardous substances. Under the program, the EPA has the legal power and resources to clean up sites where contamination poses the greatest threat to human health and the environment.

Texas either takes the lead or supports the EPA in the cleanup of sites in the state that are on the National Priorities List (NPL), which is EPA's ranking of the most serious Superfund sites.

In addition, Texas has a state Superfund program to deal with sites that are ineligible for the federal program. This program is the state's safety net for dealing with contaminated sites. The TCEQ uses state funds for cleanup operations at sites on the state Superfund registry if no responsible parties can or will perform the cleanup. The TCEQ also takes legal steps to recover the money spent.

After a site is proposed for the state Superfund program, the responsible party or the TCEQ proceeds with a remedial investigation, during which the agency collects information to determine the extent and nature of the contamination. A feasibility study follows to identify possible cleanup remedies. A public meeting is held locally to explain the proposed remedy and to take comments. After reviewing the public comments, the TCEQ selects a remedial action.

Projects entering the Superfund program are prioritized by risk, with the most hazardous placed at the top of the list. Locating the responsible parties and resolving legal matters, such as access to the site, consumes time and resources. It can take several years for sites to be fully investigated and cleaned up, though the TCEQ will expedite its response when necessary.

In fiscal 2007, Texas had a total of 98 sites in the state and federal Superfund programs, including sites

proposed for the state and federal Superfund registries in Bexar, Ector, Nacogdoches, and Shelby counties.

In fiscal 2008, additional sites were proposed in the counties of Ector, Harris, Hidalgo, Hunt, and Midland. At the same time, two completed sites were deleted from the state and federal registries, leaving a total of 101 sites. Cleanup at two federal NPL sites and at two state registry sites was completed in 2008.

Petroleum Storage Tanks

The contamination of groundwater and soil due to leaking petroleum storage tanks (PSTs) is an environmental problem known statewide. The TCEQ oversees PST cleanups and reimburses eligible parties who have met all statutory deadlines for reimbursement.

Since the program began in 1987, the TCEQ has received reports of more than 25,000 leaking PST sites—primarily at gasoline stations. Of these, cleanup had been completed at 22,401 sites by the end of fiscal 2008, and corrective action was under way at another 2,968 sites.

Of the total reported PST releases, about one-third have affected groundwater.

Often, leaking PSTs are discovered when a tank owner or operator upgrades or removes tanks, when an adjacent property owner is affected, or when the tank leak-detection system signals a problem. Sometimes leaks are detected during construction or utility maintenance. Most tank systems that begin leaking do so because they have corroded, were installed incorrectly, or were damaged during construction or repairs. Contamination can also result from repeated spills when vehicles are overfilled with fuel.

Tank owners and operators are required to clean up releases from leaking PSTs, beginning with a site assessment, which may include drilling monitoring wells and taking soil and groundwater samples. The TCEQ oversees the remediation until cleanup is completed.

The PST Remediation Fund has paid for the vast majority of PST cleanups, with expenditures topping \$1 billion. Revenue comes from a fee on the delivery of petroleum products removed from bulk storage facilities.

Under state law, leaking tanks discovered and reported after December 23, 1998, are not covered under the remediation fund. These subsequent cleanups are paid for by the owners' environmental liability insurance or other financial assurance mechanisms, or from their own funds.

To avoid releases, tank owners and operators are required to properly operate and monitor their storage tank systems, install leak-detection equipment and corrosion protection, and take spill and overflow prevention measures. This applies to active and inactive PSTs.

The PST State Lead Program continues to clean up sites at which the responsible party is unknown, or is

State and Federal Superfund Projects

The number of Superfund projects in Texas changes from year to year as projects are completed and new ones are added. Operations and maintenance can be long-term.

Stages of Remediation	FY 2007	FY 2008
New (proposed) sites	4	5
Evaluations/Cleanup	48	49
Cleanup completed	5	4
Operations/Maintenance	41	43
Total	98	101

unwilling or financially unable to do the work. State and federal funds are used to pay for the corrective actions. State statutes allow cost recovery from the current owner or any previous responsible owner.

The reimbursement program, which was extended in 2007, will not be available after September 1, 2011.

Leading up to that sunset deadline, several milestones must be met for a responsible party to remain eligible. The agency requires implementation of a corrective action plan or groundwater monitoring to demonstrate progress toward site closure. Eligible parties not completing all corrective actions by the deadline can apply to have their sites placed in the State Lead Program.

After the reimbursement program expires, the PST regulatory program will continue.

PST releases reported on or after September 1, 2003, are subject to the Texas Risk Reduction Program, which represents a different set of assessment and cleanup standards.

Voluntary Cleanups

The Texas Voluntary Cleanup Program (VCP) provides incentives for pollution cleanup by releasing future property owners from liability once a piece of property is satisfactorily cleaned of contamination.

Since 1995, the program has provided regulatory oversight and guidance to more than 2,000 applicants and has issued more than 1,300 certificates of completion for residential, commercial, and industrial properties.

In the last two years, the program received 238 applications and issued 214 certificates. Recipients of the certificates report that it helps with property sales, including land transactions that would not have otherwise occurred for fear of environmental liability.

Sites addressed under the Texas VCP range from the small, such as corner dry cleaners, to the large, such as the mixed-use development in Austin at the former Mueller Airport and the redevelopment of a former Montgomery Ward complex in Fort Worth.

The key is the liability release afforded to future property owners once the certificate is issued. The certificate insulates future owners from potential changes in environmental conditions, such as the discovery of previously unknown contamination or even future changes in cleanup levels. Most importantly, the certificate provides finality relating to environmental issues. If new contamination were to be discovered related to previous site activities, the former property owners would be sought to perform any required cleanup.

The VCP is funded by an initial \$1,000 application fee paid by each applicant. Costs beyond the initial fee are invoiced to the applicant on a monthly basis.

The TCEQ also implements the law providing liability protection to property owners whose land has been affected by contamination that migrated to their property from off-site.

The Innocent Owner/Operator Program relieves the eligible owner or operator from performing soil and groundwater investigation or cleanup on their property. The “innocent owner certificate” is generally sought by landowners seeking to sell property.

The demonstration of innocence requires evidence of contamination on the property, verification that the contamination resulted from an off-site source, and confirmation that the applicant has not contributed to the contamination. Since 1997, the TCEQ has processed more than 600 of these applications and issued more than 400 certificates.

Dry Cleaners

The TCEQ is responsible for collecting fees for a remediation fund designed to help pay for the cleanup of contaminated dry cleaner sites. The fees come from the annual registration of facilities and drop stations, as well as from the sale of perchloroethylene and other dry cleaning solvents.

By the end of fiscal 2008, the agency had registered 1,652 dry cleaning facilities and 1,581 drop stations. In addition, there were 191 registered property owners and 30 distributors of dry cleaning solvents. About \$33 million was collected for the remediation fund.

The agency received 162 applications for ranking. Of these, 139 applications had been ranked and prioritized for corrective action. The ranking system determines scores for facilities based on factors that could affect human health or the environment.

Legislation in 2007 established registration requirements for property owners and preceding property owners who wish to claim benefits from the remediation fund, and authorized a lien against property owners and preceding property owners who fail to pay registration fees due during corrective action.

Also, the use of perchloroethylene is now prohibited at sites where the agency has completed corrective action.

Municipal Solid Waste Management

Texas has growing demands on its waste disposal facilities. That is why it is important to evaluate the statewide outlook for landfill capacity in the coming decades. The TCEQ’s responsibility also involves working to reduce the overall amount of waste generated.

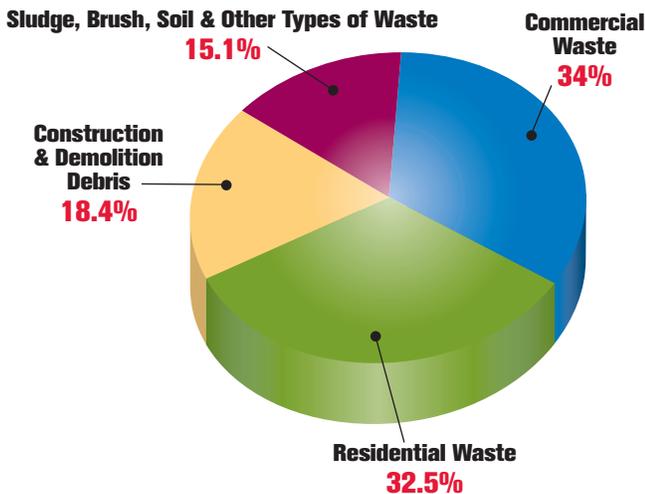
In fiscal 2007 (the latest year for which data is available), Texans disposed of 33.2 million tons of municipal solid waste, an increase of about 9 percent over the previous year.

Using EPA's definition of municipal solid waste, which excludes construction and demolition debris and treatment-plant sludge, the per capita landfill disposal rate in Texas was almost 7.6 pounds per day. (Before 2004, TCEQ reports used a definition of solid waste that included construction and demolition debris and municipal sludge. Excluding these types allows for consistent comparisons with other states and the EPA.)

Of the municipal waste delivered to landfills in 2007, the greatest volume was in commercial waste, with 11.3 million tons; followed by residential waste, 10.8 tons; and construction and demolition debris, 6.1 tons. Sludge, brush, soil, and other types of waste constituted the remaining 5 tons. The increase in commercial waste stemmed, in large part, from the Trinity River Corridor Project in Dallas County. The large urban development project generated 800,000 cubic yards of construction and demolition debris by the time hauling concluded in early 2007.

Municipal Waste Disposal

In 2007, Texas had 188 landfills actively accepting waste, collecting a total of 33.2 tons for the year.



By the end of fiscal 2007, municipal solid waste capacity in the state stood overall at about 1.4 billion tons, representing about 42 years of disposal capacity. The resulting net increase from the statewide 2005 capacity was about 185.7 million tons (roughly 550 million cubic yards). These landfill expansions indicate a trend toward more regional landfills serving larger areas.

Texas had 249 municipal solid waste landfills, which included 216 that were open, or holding permits. Of that group, 188 were actively accepting waste. Nine active landfills received permit amendments to expand.

Most parts of the state—as defined by the regional boundaries of the 24 councils of governments (COGs)—appear to have adequate disposal capacity for the coming decades. However, capacity by region

can vary substantially, with some lagging far behind the statewide average of 42 years. The Brazos Valley COG, for example, has less than 10 years of disposal capacity. Facilities in this region have filed new or amended municipal solid waste permits that will expand capacity.

To address solid waste issues, particularly in critical areas, the TCEQ manages a statewide planning program to ensure adequate landfill space for the state. Regional plans, developed by the COGs to assess landfill capacity, are updated every two years.

To help the COGs, the TCEQ issues grants, which are funded by municipal solid waste disposal fees paid to the state. For the grant period of 2006 to 2007, about \$14.7 million in grants funded 495 local and regional projects. These projects included collection stations in underserved areas, recycling and organic waste management projects, education programs, and programs to enforce illegal dumping laws. Project priority is established using the regional plans.

Environmental Assistance

Voluntary Programs

The TCEQ uses technical assistance, education, and voluntary programs to encourage actions that result in environmental improvements. In recent years, the Small Business and Environmental Assistance Division has taken many of these programs in a new direction to better focus on agency priorities and to more closely align with agency regulatory systems.

Following are some examples:

- Shifting the focus of pollution prevention toward site assistance visits, which helps companies identify ways to reduce environmental risks and save money.
- Encouraging Texans, through the Take Care of Texas campaign, to take personal responsibility for the environment (see Chapter 1).
- Increasing technical assistance resources for small businesses.
- Aligning the focus of the agricultural waste collections and pollution-prevention efforts with areas having impaired water bodies.
- Revising the Clean Texas program to generate more meaningful participation. This leadership and recognition program encourages members to focus on environmental issues important to their communities.

The agency also concentrated technical assistance, education, and voluntary pollution-prevention programs in the Houston Ship Channel area. These outreach efforts included helping companies identify ways to reduce benzene emissions through innovative technologies and changes in operational practices. In workshops geared to the oil and gas industry, the agency met with repre-

sentatives to discuss how to lower VOC emissions and to demonstrate specific pollution-prevention technology.

The TCEQ assisted local governments in implementing environmental management systems, which improve environmental performance. Through a contract funded by the EPA, 11 cities received individualized coaching and subsequently applied for membership in Clean Texas.

The agency held 61 workshops to inform small businesses and local governments about changes to storm water permits and waste recordkeeping rules.

More than 500 small businesses and local governments took advantage of the Compliance Commitment Program, which allows small businesses and local governments to achieve compliance voluntarily and without fear of enforcement. More than a quarter achieved 100 percent compliance.

For larger entities, the TCEQ offered technical advice on innovative approaches for improving environmental performance, primarily through pollution-prevention planning, site assistance visits, and Clean Texas.

These efforts produced a number of achievements the last two years. Among them:

- Pollution-prevention planning helped reduce hazardous waste by almost 1.2 tons and toxic chemicals by about 116,000 tons.
- A total of 63 site assistance visits were conducted. Participating sites reported a combined savings of almost \$3.6 million and an overall reduction of 67,247 tons in wastes or emissions.
- The number of Clean Texas members with environmental management systems grew to 24. As a result of environmental improvements, Clean Texas members reported eliminating a total of 500,039 tons of emissions and waste, and saving more than \$61 million.

Renewing Old and Surplus Materials

Texas established the Resource Exchange Network for Eliminating Waste (RENEW) in 1988 to promote the re-use or recycling of industrial waste.

The materials-exchange network has assisted in the trading of millions of pounds of materials, including plastic, wood, and laboratory chemicals. These exchanges divert materials from landfills and help participants reduce waste disposal costs and receive money for their surplus materials.

In 2007, the EPA funded the expansion of RENEW as a resource for its Region 6, which includes Texas, Arkansas, Louisiana, Oklahoma, and New Mexico. Intro-

ducing the TCEQ's RENEW Web tool to Texas' neighbors broadened the reach of the waste exchange network.

The expansion gives industries, businesses, and governmental entities throughout Region 6 a central site for selling surplus materials, by-products, and wastes to users who will reclaim or reuse them.

Hosted by the Southwest Network for Zero Waste (a collaborative project of the EPA, the University of Texas at Arlington, and regional environmental agencies), RENEW is a free, easy-to-use service. The listings are grouped under "Materials Available," for anyone offering raw materials to other facilities, and "Materials Wanted," for anyone looking to find raw materials.

Through www.renewtx.org, these entities list and promote information on materials-exchange opportunities at a national and regional level. The Web site also allows users to report on successful exchanges as a result of the program.

Over the life of RENEW, an estimated 483,000 tons of material has been exchanged, representing a total savings of more than \$20 million in disposal costs. In just the last two years, a total of 25,000 tons of material was exchanged through RENEW.

Here are some recent RENEW exchanges:

- A catalyst regeneration facility transferred 37,000 pounds of isodecyl alcohol to a plastics manufacturer for use in its production process. The company saved \$1,850 in disposal costs and earned revenues of \$10,000 by selling the material rather than disposing of it.
- A chemical manufacturing plant transferred 9,000 tons of an oil by-product to a fuel-blender and distributor. The chemical company earned \$1 million in revenue for sale of the by-product, which would otherwise be stored at the facility and eventually go to a waste management facility. The by-product is blended with other liquid hydrocarbons by the distributor and sold as fuel.
- Another chemical manufacturer sold 1.9 million pounds of sulfuric acid waste. To dispose of this material, the manufacturer would have had to meet waste requirements to neutralize the acid through treatment. Instead, the acid was sold to a company that reused it in ferrous sulfate production. This saved \$120,000 in disposal costs and earned \$76,800 from the sale of the material.

RENEW Transactions

Fiscal Year	Number of Exchanges	Materials Exchanged	Savings in Disposal Costs	Earnings from Sales
2007	18	11,000 tons	\$2.1 million	\$1.6 million
2008	9	14,000 tons	\$2.2 million	\$1.4 million
TOTAL	27	25,000 tons	\$4.3 million	\$3.0 million