

Agency Activities

On an ongoing basis, the Texas Commission on Environmental Quality deals with serious environmental challenges. Most Texans are affected one way or another by the agency's major responsibilities—air quality, water quality, water supply, waste management, and pollution prevention. Public health is a leading concern for the 2,700 agency personnel.

Staff members perform compliance investigations, supervise air and water monitoring stations, evaluate permit applications, and oversee cleanup of contaminated properties. To encourage environmental stewardship, the agency conducts environmental education programs, provides technical assistance, and promotes recycling and conservation.

This chapter addresses how the TCEQ fulfills its major responsibilities through the many programs designed around environmental protection. All of these programs are ongoing and continue to build on experiences gleaned from previous years.

For the most part, this chapter examines activities that occurred during fiscal 2013 and 2014, a period starting September 1, 2012, and ending August 31, 2014.

Enforcement

Environmental Compliance

The TCEQ enforcement process begins when a violation is discovered during an investigation 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, the agency will conduct about 105,000 routine investigations and investigate about 4,000 complaints to assess 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 maximum range is as high as \$25,000. Civil

judicial cases carry penalties up to \$25,000 per day, per violation, in some programs.

In fiscal 2013, the TCEQ issued 2,182 administrative orders, which required payments of \$12.7 million in penalties and about \$2.7 million for Supplemental Environmental Projects, or SEPs. The average number of days from initiation of an enforcement action to completion (order approved by the commission) was 235.

In fiscal 2014, the TCEQ issued 1,708 administrative orders, which required payments of \$10.1 million in penalties and \$2.6 million for SEPs. The average number of days from initiation of an enforcement action to completion (order approved by the commission) was 235 days.

The TCEQ can also refer cases to the state attorney general. In fiscal 2013, the AG's office obtained 43 judicial orders in cases referred by the TCEQ or in which the TCEQ was a party. These orders resulted in more than \$10.8 million in civil penalties and another \$138,750 for SEPs. In fiscal 2014, the AG's office obtained 23 judicial orders, which resulted in \$6.1 million in civil penalties. Since the beginning of fiscal 2014, the AG's office no longer approves SEPs.

Additional enforcement statistics can be found in the agency's annual enforcement report (<<http://www.tceq.texas.gov/enforcement/reports/AER/annenfreport.html>>).

Orders that have been approved by the commission and have become effective are posted on the agency's website, as are pending orders not yet presented to the commission.

Supplemental Environmental Projects

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

One option under state law, however, gives regulated entities a chance to direct some of the penalty dollars to local improvement projects. By agreeing that penalty amounts can be used for a Supplemental Environmental Project, 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.

The agency has a list of preapproved SEPs, which consists of projects that have already received general approval from the commission. The list includes nonprofits and governmental agencies that sponsor activities such as cleaning up illegal dump sites, 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.

A regulated entity that meets program requirements may propose its own custom SEP if the proposed project is environmentally beneficial and the party performing the SEP was not already obligated or planning to perform the SEP activity before the violation occurred. Additionally, the activity covered by a SEP must go beyond what is already required by state and federal environmental laws.

The Texas Water Code gives the TCEQ the discretion to allow local governments cited in enforcement actions to use SEP money to achieve compliance with environmental laws or to remediate the harm caused by the violations in the case. This compliance SEP may be offered to governmental entities such as school districts, counties, municipalities, junior-college districts, river authorities, or water districts.

Other than compliance SEPs, an SEP cannot be used to remediate a violation or any environmental harm caused by a violation, or to correct any illegal activity that led to an enforcement action.

TCEQ Enforcement Orders

	Number of Orders	Penalties Paid	Orders with SEPs	SEP Funds
FY2013	2,182	\$12.7 million	153	\$2.7 million
FY2014	1,708	\$10.1 million	135	\$2.6 million

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.

An evaluation standard has been used to assign a rating to more than 300,000 entities regulated by the TCEQ that are subject to the compliance history rules. The ratings take into consideration prior enforcement orders, court judgments, consent decrees, criminal convictions,

Compliance History Designations

Classifications	September 2013		September 2014	
	Number of Entities Subject to Compliance Rules	Percent	Number of Entities Subject to Compliance Rules	Percent
High	37,429	12.46	40,974	11.02
Satisfactory	9,794	3.26	10,552	2.84
Unsatisfactory	1,558	0.52	1,394	0.37
Unclassified	251,693	83.76	318,827	85.77
Total	300,474	100	371,747	100.00

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 and participation in agency-approved voluntary pollution-reduction programs are also taken into account.

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

Each September, regulated entities are classified or reclassified to reflect the previous five years. Ratings below 0.10 receive a classification of "high," which means those entities have an "above-satisfactory compliance record" with environmental regulations. Ratings from

0.10 to 55.00 merit “satisfactory” for having “generally complied.” Ratings greater than 55.00 result in an “unsatisfactory” classification because these entities “performed below minimal acceptable performance standards.”

An entity with no compliance information for the last five years will not receive a classification and is therefore “unclassified.”

Critical Infrastructure

In 2011, the TCEQ created the Critical Infrastructure Division within the Office of Compliance and Enforcement. This division combines elements from the OCE that are critical to the agency’s responsibilities under the Texas Homeland Security Strategic Plan. The division seeks to ensure compliance with environmental regulations and, during disaster conditions, to support regulated critical infrastructures that are essential to the state and its residents. This duty includes not only responding to disasters but also aiding in recovery from them.

The division’s programs are Homeland Security, Dam Safety, and Emergency Management Support.

Homeland Security

The Homeland Security Section coordinates communications during disaster response with federal, state, and local partners; conducts threat assessments to the state’s critical infrastructure; participates in the state’s counterterrorism task forces; and coordinates the BioWatch program in Texas. The latter is a federally funded initiative aimed at early detection of bioterrorism agents.

The Homeland Security Section is also responsible for compliance at the disposal site for low-level radioactive waste in Andrews County. The operator of the disposal site is Waste Control Specialists, Inc. (radioactive-material license R04100). The site’s compact waste facility was authorized to accept waste in April 2012.

The Homeland Security Section maintains two full-time resident inspectors at the low-level radioactive waste site to accept, survey, and approve the disposal of each shipment. Each disposal is documented in an investigation report. The following shipments of low-level radioactive waste were inspected and successfully disposed in the compact waste facility:

- fiscal 2012: 35 shipments
- fiscal 2013: 121 shipments
- fiscal 2014: 124 shipments

Dam Safety

The Dam Safety Program monitors and regulates private and public dams in Texas. The program periodically inspects dams that pose a high or significant hazard and issues recommendations and reports to the dam owners to help them maintain safe facilities. The program ensures that these facilities are constructed, maintained, repaired, or removed safely.

High- or significant-hazard dams are those at which loss of life could occur if the dam should fail.

On September 1, 2013, a new state law exempted a large number of dams from the Dam Safety Program. These dams had to meet all of the following criteria:

- be privately owned;
- be classified either low or significant hazard;
- have a maximum capacity less than 500 acre-feet;
- be located within a county with a population of less than 350,000; and
- be located outside city limits.

As a result, the law permanently exempted 3,198 dams. In 2014, Texas had 3,989 state-regulated dams; of those 1,097 were high-hazard dams and 470 were significant-hazard dams. The remaining dams were classified as low hazard.

As of August 2014, 95.8 percent of all high- and significant-hazard dams had been inspected during the past five years. About half of the inspected dams are in either “fair” or “poor” condition. The majority of owners have begun making repairs, as funds are available.

In addition to inspections, the Dam Safety Program conducts workshops—primarily for dam owners and engineers—on emergency action plans and dam maintenance. Emergency management personnel also attend. Three workshops were conducted in fiscal 2013, followed by three more in fiscal 2014.

Emergency Management Support

In a state the size of Texas with its geographic and economic diversity, natural disasters or emergencies caused by human activities occur almost daily. Disasters, by nature, can have a widespread impact, while significant emergencies might occur at the same time but in different areas.

In an emergency or disaster, the TCEQ is the lead state agency for hazardous materials and oil-spill response. As such, it supports several other state emergency-management functions.

The TCEQ's responsibilities in a disaster align with the agency's mission—to protect human health and the environment. Those responsibilities also apply to the critical infrastructure facilities regulated by the agency, such as public water systems, wastewater-treatment plants, dams, and chemical and refining facilities.

The TCEQ's 16 regional offices form the basis of the agency's support for local jurisdictions addressing emergency and disaster situations. For that reason, disaster-response Strike Teams, organized in each regional office, serve as the TCEQ's initial and primary responding entity during a disaster within the respective regions. Team members come from various disciplines and have been trained in the National Incident Management System, Incident Command System, and TCEQ disaster-response protocols.

The agency's Emergency Management Support Team, based in Austin, was created to build greater disaster-response capabilities within each TCEQ region and to support the regions when necessary. The EMST will join the regional strike teams during a disaster response.

The EMST is also responsible for maintaining preparedness, assisting with the development of the strike teams in each region by providing enhanced disaster preparedness training, and maintaining sufficiently trained personnel so that response staff can rotate during long-term emergency events.

In addition, the EMST maintains enhanced disaster response equipment that can be deployed to any of the regions. This enables responders to conduct environmental monitoring, communicate with other responding jurisdictions or disciplines, and restore continuity of operations at any regional office hampered by a disaster.

For non-disaster emergencies, each region has an established rotation of personnel to respond to emergencies or, in some cases, dedicated emergency response teams.

Accredited Laboratories

The TCEQ only accepts regulatory data from laboratories accredited according to standards set by the National Environmental Laboratory Accreditation Program (NELAP) or from laboratories that are exempt from accreditation, such as a facility's in-house laboratory.

All laboratories accredited by the TCEQ are held to the same quality-control and quality-assurance standards. The analytical data produced by these laboratories are 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.

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

In August 2014, the number of laboratories accredited by the TCEQ was 281.

Houston Laboratory

The TCEQ Houston Laboratory, which is NELAP-accredited, serves the agency's 16 regional field offices. The laboratory performs routine analyses that support the environmental-monitoring programs of the TCEQ, river authorities, and other environmental partners.

The Houston Laboratory supports monitoring operations for the TCEQ's air, water, and waste programs through laboratory analysis of surface water, wastewater, sediments, sludge samples, and airborne particulate matter for a variety of environmental contaminants.

The Houston Laboratory also analyzes samples collected as part of investigations conducted by the agency's Office of Compliance and Enforcement. The laboratory develops analytical procedures and performance measures for accuracy and precision, and maintains a highly qualified team of analytical chemists, laboratory technicians, and technical support personnel.

The laboratory generates scientifically valid and legally defensible test results under its NELAP-accredited quality system. Analytical data is produced using methods approved by the Environmental Protection Agency. The laboratory standards used for these methods are traceable to national standards, such as the National Institute of Standards and Technology and the American Type Culture Collection.

With the rapid transmission of electronic data, the TCEQ can upload results directly to program databases.

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 regulated portion of the aquifer crosses eight counties in south central Texas, serving as the primary source of drinking water for more than 2 million people in the San Antonio area. This replenishable system also supplies water for farming and ranching, manufacturing, generation of electric power using steam, 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 an Edwards Aquifer protection 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 stormwater in the regulated areas.

Each year, the TCEQ receives hundreds of plans to be reviewed by the Austin and San Antonio regional offices. Since 2012, the agency has experienced a dramatic increase in the number of plans submitted for review as a result of increased development in both regions. The TCEQ reviewed an estimated 630 plans in fiscal 2013 and 750 plans in fiscal 2014.

In addition to reviewing plans for development within the regulated areas, agency personnel conduct compliance investigations to ensure that best management practices are appropriately used and maintained. The staff also performs site assessments before the start of regulated activities to ensure that aquifer-recharge features are adequately identified for protection.

Air Quality

Changes to Criteria-Pollutant Standards

The federal Clean Air Act requires the EPA to review the standard for each criteria pollutant every five years to ensure that it provides the required level of health and environmental protection. Federal clean air standards, or the National Ambient Air Quality Standards (NAAQS), cover six air pollutants: ozone, particulate matter, carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide.

Over the years, attaining the ozone standard has been the biggest air quality challenge in Texas.

As Texas develops proposals—region by region—to address air quality issues, the revisions are submitted to the EPA in the State Implementation Plan.

Ozone Compliance Status

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 VOC emissions are industrial facilities, electric utilities, car and truck exhaust, and chemical solvents. Identifying control measures that are reasonable—as well as technologically and economically feasible—has presented a challenge for the TCEQ, considering the magnitude of emission reductions already achieved under the 1990 one-hour and the 1997 eight-hour ozone standards.

In 2010, the EPA proposed a reconsideration of the 2008 eight-hour ozone standard of 0.075 parts per million to lower the proposed ozone standard within a range of 0.060–0.070 ppm. The following year, President Obama announced he had requested that the EPA withdraw the proposed reconsidered ozone standard. In a subsequent memo, the EPA announced it would proceed with initial area designations under the 2008 eight-hour ozone standard, starting with the recommendations states made in 2009 and updating them with the most current, certified air quality data (2008 through 2010).

2008 Eight-Hour Ozone Standard

In 2012, the EPA published final designations and classifications for the 2008 eight-hour ozone standard. The consequences for Texas were as follows:

- The Dallas–Fort Worth area was designated a nonattainment area with a “moderate” classification.

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: dry cleaners, gasoline stations, and residential heating

On-road mobile sources: cars and trucks

Nonroad mobile sources: construction equipment and engines, such as locomotives

- The Houston-Galveston-Brazoria area was designated a nonattainment area with a “marginal” classification.
- Matagorda and Hood counties were designated “attainment/unclassifiable.”
- Wise County was designated nonattainment with a “moderate” classification; the county then became part of the Dallas-Fort Worth nonattainment area.

The attainment demonstration and reasonable further progress SIP revisions for the Dallas-Fort Worth 2008 eight-hour ozone nonattainment area are scheduled to be proposed for public comment on December 10, 2014, and adopted in June 2015. Both SIP revisions are due to the EPA on July 20, 2015. The Dallas-Fort Worth area is required to attain the 2008 eight-hour ozone standard by December 31, 2018. The Houston-Galveston-Brazoria area is required to attain the 2008 eight-hour ozone standard by December 31, 2015. An attainment demonstration and “reasonable further progress” SIP revisions are not required for the Houston-Galveston-Brazoria area because of its “marginal” classification. The commission is litigating the matter of including Wise County in the Dallas-Fort Worth 2008 ozone nonattainment area.

In the summer of 2014, the EPA was reviewing the 2008 ozone standard. By the end of 2014, the federal agency is expected to propose an eight-hour ozone standard between 0.060 and 0.070 ppm.

November 15, 2007. Although the EPA had revoked the one-hour standard in 2005, states must continue to meet the one-hour ozone anti-backsliding requirements when triggered by a finding of “failure to attain” by the attainment date. The requirements are contingency measures that are already being met, in addition to the federal Clean Air Act’s penalty-fee program. However, ambient air monitoring data for 2011, 2012, and 2013 indicated that the Houston-Galveston-Brazoria area was meeting the one-hour ozone standard. In May 2013, the commission adopted rules to implement the penalty fee provision.

In June 2013, the EPA published proposed rulemaking to implement the 2008 ozone standard. Included in the proposed rulemaking is a mechanism for lifting anti-backsliding obligations under a revoked one-hour ozone standard. According to the EPA’s proposal, a state can provide a showing, termed a “redesignation substitute,” based on the Clean Air Act redesignation criteria to demonstrate that an area qualifies for lifting anti-backsliding obligations under a revoked standard. The EPA’s approval of the showing would have the same effect on the area’s nonattainment anti-backsliding obligations as a redesignation to attainment for the revoked standard.

To recognize the improvement in the Houston-Galveston-Brazoria area one-hour ozone levels and to ensure timely termination of the penalty-fee requirement, the TCEQ

Ozone Compliance Status

Area of Texas	Attainment Status			
	1997 Eight-Hour Ozone	Attainment Deadline	2008 Eight-Hour Ozone	Attainment Deadline
Houston-Galveston-Brazoria	Severe	6/15/2019	Marginal	12/31/2015
Dallas-Fort Worth	Serious	6/15/2013	Moderate	12/31/2018
Beaumont-Port Arthur, El Paso, Austin, Corpus Christi, Victoria, San Antonio, East Texas, Waco	Attainment	n/a	Attainment	n/a

Note: The Houston-Galveston-Brazoria area includes the counties of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The Dallas-Fort Worth area includes the counties of Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant; also Wise for the 2008 eight-hour ozone standard.

One-Hour Ozone Standard in the Houston-Galveston-Brazoria Area

In 2012, the EPA published its final rule to determine that the Houston-Galveston-Brazoria area did not attain the one-hour ozone standard by the attainment date of

moved on two fronts. First, in accordance with the EPA’s proposed rulemaking to implement the 2008 ozone standard, the TCEQ in July 2014 submitted a report that meets the substance of the Clean Air Act redesignation criteria.

The TCEQ plans to follow this submission to the EPA with a SIP revision, which contains the same elements

included in the report, but also includes the most current emissions-inventory data, based on the EPA's updated mobile source emissions-inventory model. The SIP revision was scheduled to be proposed in November 2014 and adopted in July 2015.

2010 Sulfur Dioxide Standard

The EPA strengthened the sulfur dioxide (SO₂) primary NAAQS in 2010 with a new one-hour standard, met when the 99th percentile daily maximum one-hour SO₂ concentration, averaged over three years, does not exceed 75 parts per billion. The rule was challenged in federal court by Texas and other states, and dismissed in 2012 by the U.S. Court of Appeals for the District of Columbia Circuit.

In February 2013, the EPA issued a new strategy paper indicating its intention to afford flexibility for each air agency to determine the appropriate approach for characterizing air quality in its jurisdiction—through monitoring, modeling, or a mix of both. The EPA plans to set emissions thresholds for states' use in determining where further monitoring or modeling are needed to assess compliance with the NAAQS. The EPA published proposed details of this strategy in its Data Requirements Rule in May 2014. Under the proposal, states must either deploy source-oriented ambient air monitors by January 1, 2017, or submit air-quality-modeling results for each source by January 13, 2017. The remaining area designations will be made in 2017 or 2020, based on states' decisions about modeling and monitoring SO₂ sources.

No areas in Texas are designated nonattainment for SO₂. Areas that states identify as exceeding the NAAQS based on modeling are expected to be designated nonattainment by the EPA in 2017. Attainment demonstration SIP revisions for these areas are expected to be due to the EPA in 2019.

In May 2014, the EPA filed a proposed consent decree with environmental groups related to litigation over the agency's failure to designate all areas of the country for the 2010 SO₂ standard by the Clean Air Act deadline. A stay in the litigation was granted until August 1, 2014, to allow the EPA to receive public comment on the consent decree.

The proposed consent decree requires the EPA to propose designations within 16 months for undesignated areas that monitored violations of the standard based on three full years of monitored data, or contain sources that emitted greater than 16,000 tons in 2012 or 2,600

tons with an emission rate of 0.45 lbs/mmBtu or higher in 2012. The proposed consent decree also requires that, by December 1, 2017, the EPA must propose designations for undesignated areas that did not install and begin operating SO₂ monitors by the January 1, 2017, deployment deadline. In addition, by December 1, 2020, the EPA must propose designations for all other undesignated areas.

2010 Nitrogen Dioxide Standard

In 2010, the EPA published the final rule to strengthen the primary standard for nitrogen dioxide (NO₂) by establishing a new one-hour standard at 100 ppb. The new standard focuses on short-term exposures to NO₂, which are generally greater on and near major roads. No area in Texas has monitored above the 100 ppb standard. The EPA retained the current annual average NO₂ standard of 53 ppb, but changed the monitoring-network requirements to capture both peak NO₂ concentrations that occur near roadways and community-wide NO₂ concentrations.

In 2012, the EPA also published the initial designations identifying all areas in the United States as unclassifiable or in attainment. The EPA's latest monitoring-placement schedule addresses delays due to funding limitations. Near-road NO₂ monitors are operating in the San Antonio, Austin–Round Rock, Dallas–Fort Worth, and Houston–Galveston–Brazoria areas. Second near-road monitors in the Dallas–Fort Worth and Houston–Galveston–Brazoria areas are scheduled to be operational by January 1, 2015. Near-road monitors in El Paso and Edinburg–Mission–McAllen are due to be working by January 1, 2017. Once the expanded network of NO₂ monitors is fully deployed and has collected three years of air quality data, the EPA intends to redesignate areas, based on data from the near-road monitoring network.

2008 Lead Standard

In 2008, the EPA revised the primary standard for lead from 1.5 to 0.15 micrograms per cubic meter (µg/m³), measured in total suspended particulate matter. Effective in late 2010, a portion of Collin County—surrounding the Exide Technologies facility for recycling lead-acid batteries in Frisco—was designated “nonattainment” for the 2008 lead standard.

After the commission adopted the Collin County Attainment Demonstration SIP Revision and Exide's agreed order, Exide elected to permanently close operations at its Frisco

Battery Recycling Center. Most structures at the site have been demolished.

Based on recommendations from the Clean Air Scientific Advisory Committee, the EPA was expected to propose no change to the 2008 lead NAAQS in 2014.

Particulate-Matter Standards

The federal standard for particulate matter was revised in late 2012. For PM with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$), the EPA strengthened the annual primary $PM_{2.5}$ standard to $12 \mu\text{g}/\text{m}^3$ and retained the current 24-hour primary $PM_{2.5}$ standard of $35 \mu\text{g}/\text{m}^3$ using a three-year annual average. No Texas counties are designated in nonattainment for $PM_{2.5}$ standards.

Texas' designation recommendation stated there are no counties monitoring nonattainment of the $PM_{2.5}$ standard, based on 2010–12 monitoring data. Texas recommended that all counties in the state with applicable $PM_{2.5}$ monitoring data be designated as attainment, and all other counties be designated as unclassifiable or in attainment. In an August 2014 letter, the EPA notified the governor of its intent to modify the recommendation by designating all areas of the state as unclassifiable/attainment.

The EPA's final designations are expected by December 12, 2014. The designations will be based on 2011–13 monitoring data or the latest certified data available. SIP revisions demonstrating attainment of the PM standard are due to the EPA three years after designations, or about 2018. A recent court ruling, however, is expected to force the EPA to implement the 2012 $PM_{2.5}$ standard under Subchapter I, Part D, Subpart 4 of the Clean Air Act, rather than under Subchapter I, Part D, Subpart 1, as originally planned. Implementation of the standard under Subpart 4 would mean that attainment-demonstration SIP revisions would be due 18 months from final designations by the EPA, or about mid-June 2016.

There are also new federal requirements for near-road monitors for $PM_{2.5}$. Data from the new near-road monitors will not be available in time for use in making initial attainment and nonattainment designations for the revised primary annual $PM_{2.5}$ standard. Near-road monitors are expected to be operational in the Dallas–Fort Worth and Houston–Galveston–Brazoria areas on January 1, 2015; monitors in the Austin–Round Rock and San Antonio areas are due to be working on January 1, 2017.

The EPA retained the current standard for particles with an aerodynamic diameter less than or equal to a nominal

10 micrometers (PM_{10}). The El Paso area is classified as moderately in nonattainment of the PM_{10} standard. In 2012, the commission adopted a SIP revision to incorporate a revised memorandum of agreement between the TCEQ and the City of El Paso to reflect a concurrent rulemaking to amend the PM-control measures.

Evaluating Health Effects

The TCEQ relies on health- and welfare-protective values developed by its toxicologists to ensure that airborne concentrations of pollutants stay below levels of concern (see Chapter One, “The Important Role of Toxicology”).

In 2012, after two rounds of public comment and an external scientific peer review by experts in assessing human-health risk, the TCEQ finalized the updated state-of-the-science guidelines for developing safe levels of chemicals in air.

Draft development-support documents outlining the scientific procedures used to develop chemical-specific effects screening levels and air-monitoring comparison values are subject to a 90-day public comment period before becoming final. In addition, some development-support documents have undergone a technical review or independent external peer review by subject experts. Updated toxicity assessments were completed for 20 chemicals using this process in fiscal 2013–14, and proposed development-support documents for three chemicals were opened for public comment in fiscal 2014.

For its toxicity assessments, Texas has received compliments from the Agency for Toxic Substances and Disease Registry, the Center for Advancing Risk Assessment Science and Policy, the National Fisheries Institute, and the National Center for Environmental Assessment.

After the EPA recommended review of Texas' guideline levels, Georgia, Louisiana, Michigan, North Carolina, Wisconsin, and Minnesota are closely following Texas' values. In addition, some countries now use Texas' values, including Australia, Canada (Ontario, British Columbia, Calgary), Israel, Taiwan, China, Austria, Belgium, Mexico, and the Netherlands.

Air Pollutant Watch List

Air toxics are pollutants known or suspected to cause cancer or other serious health effects. The TCEQ routinely reviews and conducts health-effects evaluations of ambient air monitoring data from across the state by comparing air-toxic concentrations to their respective air-monitoring

comparison values (AMCVs) or state standards. The TCEQ evaluates areas for inclusion on the Air Pollutant Watch List where monitored concentrations of air toxics are persistently measured above AMCVs or state standards.

The purpose of the watch list is to reduce air-toxic concentrations below levels of concern by focusing TCEQ resources and heightening awareness for interested parties in areas of concern.

The TCEQ also uses the watch list to identify companies with the potential of contributing to elevated ambient air-toxic concentrations and to then develop strategic actions to reduce emissions. An area's inclusion on the watch list results in more stringent permitting, priority in investigations, and in some cases increased monitoring.

Eight areas of the state are on the watch list at <www.tceq.texas.gov/goto/airwatch>.

In 2014, the TCEQ removed the Port Arthur and Lynchburg Ferry areas from the watch list. The agency was also in the process of delisting the Texas City area and is evaluating two additional areas (Galena Park and Dallas) to determine whether the improvements in air quality are expected to be maintained, so the areas can be delisted. No new areas have been added to the watch list since 2007.

Oil and Gas: Boom of Shale Plays

The early activities associated with the Barnett Shale formation in the Dallas–Fort Worth area presented an unusual challenge for the TCEQ, considering this was the first time that a significant number of natural gas production and storage facilities were built and operated in Texas within heavily populated areas. In response, the TCEQ initiated improved emissions data collection from oil and gas production areas.

As discussed in Chapter One, “Challenges in the Eagle Ford Shale,” the TCEQ conducts in-depth measurements at all shale formations to evaluate the potential effects. Since August 2009, the TCEQ has surveyed more than 3,500 oil and gas sites using infrared camera technology and other monitoring instruments.

The monitoring, on-site investigations, and enforcement activities in the shale areas also complement increased air permitting activities. The additional field activities include additional stationary monitors, increased collections of ambient air canister samples, flyovers using infrared imaging, targeted mobile monitoring, and investigations (routine and complaint-driven).

A shale play is a defined geographic area containing an organic-rich, fine-grained sedimentary rock with specific characteristics. The shale forms from the compaction of silt and clay-size mineral particles commonly called “mud.”

One vital aspect in responding to shale-play activities is the need for abundant and timely communications with all interested parties. The TCEQ has relied on community open houses, meetings with county judges and other elected officials, workshops for local governments and industry, town hall meetings, legislative briefings, and guidance documents. The agency also maintains a multimedia website (see <www.TexasOilandGasHelp.org>) with links to rules, monitoring data, environmental complaint procedures, regulatory guidance, and frequently asked questions.

The TCEQ continues to evaluate its statewide air quality monitoring network and, when needed, will expand those operations. Fifteen automatic gas chromatograph (Auto GC) monitors operate in the Barnett Shale area, along with numerous other instruments that monitor for criteria pollutants. In addition, 16 VOC canister samplers (taking samples every sixth day) are located throughout TCEQ Region 3 (Abilene) and Region 4 (Dallas–Fort Worth).

In South Texas, the agency has established a precursor ozone monitoring station in Floresville (Wilson County), which is north of the Eagle Ford Shale. Data from this new station will help determine whether the shale oil and gas play is contributing to ozone formation in the San Antonio area.

To further address the ozone question, the TCEQ contracted with the University of Texas at Austin for mobile monitoring. UT has monitored both upwind and downwind of the Eagle Ford Shale area to test for significant increases in ozone precursors downwind of the shale play. This data will also be used to evaluate whether the existing Wilson County monitor provides data representative of a large area downwind of the Eagle Ford Shale play, or whether additional monitors are needed.

Existing statewide monitors located within oil and gas plays show no indications that these emissions are of sufficient concentration or duration to be harmful to residents.

Infrastructure and Transport and the SIP

The federal Clean Air Act requires that each state develop and submit an infrastructure SIP revision demonstrating how the state provides for the implementation, maintenance, and enforcement of a new or revised NAAQS within three years following promulgation of the standards. One of the key infrastructure provisions requires that a state's SIP include adequate provisions to prohibit emissions within the state from contributing significantly to nonattainment in any other state or interfering with maintenance in any other state.

The EPA promulgated a cap-and-trade program in 2005 called the Clean Air Interstate Rule. In accordance with the Clean Air Act transport requirements, CAIR was designed to aid nonattainment areas in downwind states in complying with the 1997 24-hour and annual $PM_{2.5}$ standards and 1997 eight-hour ozone standard. Twenty-eight eastern states and the District of Columbia are subject to CAIR for contributing to downwind $PM_{2.5}$ or ozone. CAIR applies specific budgets to subject states for annual SO_2 , annual NO_x , and ozone-season NO_x , depending on the determination of a state's downwind contribution.

Texas was found to contribute to downwind $PM_{2.5}$ nonattainment in Illinois and was required by a federal implementation plan to comply with annual NO_x and SO_2 budgets. CAIR was subsequently challenged in federal court, and in 2008 the rule was remanded to the EPA by the D.C. Circuit Court of Appeals for reconsideration. In 2011, the EPA finalized the Cross-State Air Pollution Rule as the replacement for CAIR.

In 2012, the D.C. Circuit Court vacated the CSAPR and ordered the EPA to continue to administer CAIR while it works on a replacement transport rule. The EPA and various environmental groups petitioned the U.S. Supreme Court to review the D.C. Circuit Court's decision. In April 2014, the Supreme Court issued a ruling in favor of the EPA, reversing the D.C. Circuit Court's decision on the CSAPR. However, the Supreme Court remanded the case to the D.C. Circuit Court for further proceedings, so the stay of CSAPR remains in effect. The EPA has asked the D.C. Circuit Court to lift the stay, and briefs have been filed with the court. But with no decision issued, the dispo-

sition of the CSAPR is pending. As a result, CAIR remains in place until a replacement is implemented.

The TCEQ has submitted infrastructure and transport SIP revisions to the EPA for these standards: 1997 ozone, 1997 $PM_{2.5}$, 2006 $PM_{2.5}$, 2008 ozone, 2008 lead, 2010 NO_2 , and 2010 SO_2 . An infrastructure-and-transport SIP revision for the 2012 $PM_{2.5}$ standard is due to the EPA in December 2015.

Regional Haze

Guadalupe and Big Bend national parks are Class I areas of Texas identified by the federal government as needing visibility protection, along with 154 other national parks and wilderness areas within the country. The regional haze program is a long-term air quality program that requires states to establish goals and strategies to reduce visibility-impacting pollutants in the Class I areas and to meet a national visibility goal by 2064.

In Texas, the pollutants potentially influencing visibility are primarily NO_x , SO_2 , and PM. Requirements of the regional haze program include reports due to the EPA in 2014, and every five years thereafter, demonstrating progress toward the visibility goal. Another regional-haze SIP revision will be due in 2018 and every 10 years thereafter to 2064.

The initial Texas regional haze SIP revision was adopted by the commission and submitted to the EPA in 2009. This visibility improvement plan relied primarily on CAIR emission reductions that the EPA previously determined sufficient to satisfy best available retrofit technology requirements for electric generating units. The regional haze SIP revision projects that Texas Class I areas will not meet the 2064 federal goal for visibility due to emissions from the Ohio River Valley and international sources. Big Bend National Park will meet the federal visibility goal in 2155 (91 years after 2064) and the Guadalupe National Park will meet the federal visibility goal in 2081 (17 years after 2064).

In February 2014, the commission adopted the 2014 Five-Year Regional Haze SIP Revision. This SIP revision is a required progress report that contains a summary of the following:

- emissions reduced
- an assessment of visibility conditions and changes for each Class I area in Texas and other Class I areas that Texas may affect
- an analysis of emissions reductions by pollutant

- a review of Texas' visibility monitoring strategy and any necessary modifications

The EPA's final action on the 2009 regional haze SIP is expected in September 2015.

Major Incentive Programs

The TCEQ has three incentive programs aimed at reducing emissions in various ways: the Texas Emissions Reduction Plan, Drive a Clean Machine, and the Texas Clean School Bus Program.

Texas Emissions Reduction Plan

The Texas Emissions Reduction Plan gives financial incentives to owners and operators of heavy-duty vehicles and equipment for projects that will lower NO_x emissions. Because NO_x is a leading contributor to the formation of ground-level ozone, reducing these emissions is key to achieving compliance with the federal ozone standard.

Recently added incentive programs also support the increase in the use of alternative fuels for transportation in Texas.

- The **Diesel Emissions Reduction Incentive Program** has been the primary incentive program since the TERP was established in 2001. The DERI incentives have been focused largely on the ozone nonattainment areas of Dallas-Fort Worth and Houston-Galveston-Brazoria. Funding has also been awarded to projects in the Tyler-Longview-Marshall, San Antonio, Beaumont-Port Arthur, Austin, Corpus Christi, El Paso, and Victoria areas. From 2001 through August 2014, the DERI program awarded more than \$905 million for the upgrade or replacement of 15,623 heavy-duty vehicles, locomotives, marine vessels, and pieces of equipment. Over the life of these projects, 160,836 tons of NO_x are projected to be reduced, which in 2014 equated to 53.8 tons per day. The next grant-application period was scheduled to open after September 2014 for total available funding of \$68 million.
- The **Texas Clean Fleet Program** provides funding for replacement of diesel vehicles with alternative-fuel or hybrid vehicles. From 2009 through August 2014, 12 grants were funded to replace 305 vehicles for a total of \$23.6 million. These projects included a range of alternative-fuel vehicles, including propane school buses, natural gas garbage trucks, hybrid delivery vehicles and garbage trucks, and electric vehicles. These projects are projected to reduce more than 314 tons of NO_x over the life of the projects. The most recent grant-application period opened in July 2014 for a funding amount of almost \$7.8 million, with grant awards planned for fall of 2014.
- The **Texas Natural Gas Vehicle Grants Program** provides grants for the replacement or repower of heavy-duty or medium-duty diesel- or gasoline-powered vehicles with natural gas-powered vehicles and engines. Eligible vehicles must be operated in the counties designated under the Clean Transportation Triangle Program. From 2009 through August 2014, the program funded 57 grants to replace 714 vehicles for a total of \$32.1 million. These projects are projected to reduce more than 1,137 tons of NO_x over the life of the projects. The program has an additional \$12.4 million available for fiscal 2015 grants. All available funding is expected to be awarded, based on the applications received.
- The **Clean Transportation Triangle Program** provides grants to support the development of a network of natural gas vehicle-fueling stations. The program was originally aimed at fueling stations along the interstate highways connecting the Houston, Dallas, Fort Worth, and San Antonio areas. The eligible areas were expanded by the Legislature in 2013 to include counties within the triangle formed by those interstate highways, as well as other areas also eligible under the DERI program. From 2012 through August 2013, the CTP funded 18 grants for a total of \$3.9 million. Grant selections for 2014 were made in June 2014 to fund an additional 19 projects for \$7.76 million. The final award of these grants was pending negotiations of the grant contracts with the selected recipients.
- The **Alternative Fueling Facilities Program** provides grants for the construction, reconstruction, or acquisition of facilities to store, compress, or dispense alternative fuels in areas of Texas designated as "nonattainment." From 2012 through August 2013, the program funded four grants for a total of \$1.8 million. Grant selections were made in June 2014 to fund an additional 21 projects for \$7.76 million. The final award of the grants was pending negotiations of the grant contracts with the selected recipients.

- The **New Technology Implementation Grant Program** funds incremental costs of reducing emissions of regulated pollutants from facilities and other stationary sources in Texas. Two grants were awarded in 2011 for a total of almost \$6.2 million. However, one of those two projects was subsequently canceled by the grant recipient. The remaining project involves a system to capture and store energy from wind-powered generation sources. The latest grant-application period closed June 2014. The grant selections for a funding amount of \$4.6 million were expected to be completed by early fiscal 2015.

In addition, two additional TERP incentive programs were established by the Legislature in 2013.

- The **Light-Duty Purchase or Lease Incentive Program** provides an incentive up to \$2,500 for the purchase of a light-duty vehicle operating on natural gas, liquefied petroleum gas, or plug-in electric drive. The program is allocated \$7.8 million through fiscal 2015 when its authority expires. As of August 2014, 317 grants had been awarded for a total of \$675,625. An additional \$7.07 million will be available to award in fiscal 2015.
- The **Drayage Truck Incentive Program** was established to provide incentive funding to replace drayage trucks operating at seaports and railyards in Texas nonattainment areas with newer, less-polluting drayage trucks. The program rules were adopted in April 2014, followed by adoption of program guidelines in August. The first grant application period was expected to open in September 2014 with total funding of \$3.1 million.

TERP grants and activities are further detailed in a separate report, *TERP Biennial Report to the Texas Legislature* (TCEQ publication SFR-079/14).

Drive a Clean Machine

The Drive a Clean Machine program (see <www.driveacleanmachine.org>) was established in 2007 as part of the Low Income Repair Assistance, Retrofit, and Accelerated Vehicle Retirement Program (LIRAP) to remove older, polluting cars and trucks and replace them with newer, cleaner-running vehicles.

The Drive a Clean Machine program is available in the areas of Houston-Galveston-Brazoria, Dallas-Fort Worth, and Austin-Round Rock. The counties in these areas conduct annual inspections of vehicle emissions.

From the program's debut in December 2007 through May 2014, more than \$177 million was provided to qualifying vehicle owners. This funding helped replace a total of 53,196 vehicles and repair an additional 33,545 vehicles.

In 2014, Collin County requested to no longer collect the \$6 per emissions test that supports the program and to discontinue participation in LIRAP. Fulfilling this request will require action on the agency's part. The TCEQ has begun working on rule amendments to allow this option for any participating county.

Texas Clean School Bus Program

The Texas Clean School Bus Program provides grants for technologies that reduce diesel-exhaust emissions inside the cabin of a school bus. In addition to grant funding, the program offers educational materials to school districts on other ways to reduce emissions, such as idling reduction.

From 2008 to August 2014, the Texas Clean School Bus Program used state and federal funds to reimburse approximately \$25.9 million in grants to 188 public school districts or charter schools to retrofit about 7,100 school buses in Texas. In just the last two fiscal years, the program used state and federal funds to reimburse approximately \$5.6 million in grants to nine public school districts or charter schools to retrofit 291 buses in Texas.

Environmental Research and Development

The TCEQ supports cutting-edge scientific research into the causes of air pollution in Texas. Most recently, the agency's Air Quality Research Program (AQRP) has been engaged in a range of projects, which built upon the air quality scientific research studies from the previous biennium.

One recent research activity was the field study called DISCOVER-AQ (Deriving Information on Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality).

During the summer of 2013, NASA aircraft conducted a series of flights with scientific instruments on board to measure gaseous and particulate pollution in the Houston area. NASA strives to improve the use of satellites to monitor air quality for public health and environmental benefit.

To complement the NASA flight-based measurements and to lever the extensive measurements being funded by NASA to better understand factors that control air quality in Texas, ground-based air quality measurements were made simultaneously by researchers from collaborating

organizations. Multiple ground sites were expanded or established to accommodate the instrumentation brought to Houston by research collaborators. This project centralized and coordinated the site infrastructure preparation for the ground sites identified for expansion to support DISCOVER-AQ Houston 2013. The data and information collected during the study will be analyzed through AQRP participants and TCEQ staff, and are expected to provide additional insights into the complex air quality concerns in the Houston area.

Other important air quality research carried out through the AQRP has included:

- chamber studies to improve mechanisms to model ozone formation from highly reactive VOCs
- investigations of regional background ozone and transport
- investigations of SO₂ measurements in the Houston Ship Channel area using previously collected data
- deployment of ozone sonde equipment to better understand the recirculation of ozone over Galveston and Trinity bays
- investigations of the effects of fire emissions estimates and transport, and their impacts on ozone and particulate matter
- a study to improve the state-of-the-art meteorological models used in SIP development

In addition to research carried out through the AQRP, the TCEQ used grants and contracts to support ongoing air quality research. Some notable projects have included:

- A study to obtain important baseline measurements of VOC species that result from oil and gas activity in the Eagle Ford Shale area.
- Continued sampling and analysis of particulate-matter chemical speciation that is used to support documentation of exceptional impact at the Clinton Drive monitor in Houston.
- A review and analysis of wildfires and the potential impacts on air quality in Texas to support exceptional-event technical demonstrations.
- A special monitoring project to help identify sources contributing to high SO₂ concentrations in the Corpus Christi area.
- Aerial surveys using forward-looking infrared-camera technology to evaluate specific areas or types of emissions.

- Investigations of tools for ozone-forecast modeling.
- A joint project by the TCEQ and University of Texas at Austin to create Web-based training modules for supplemental flare operations. These modules are intended to supplement plant-specific training by informing plant personnel about variables affecting flare performance from the 2010 TCEQ Flare Study and more recently completed flare projects. This free online training became available to the public in 2013.

The latest findings from these research projects should help the state to understand and appropriately address some of the persistent air quality issues faced by Texans. Challenges remain, however, as the revised air quality standards proposed by the EPA will be difficult to meet.

Water Quality

Developing Surface Water Quality Standards

Texas Surface Water Quality Standards

Under the federal Clean Water Act, every three years the TCEQ is required to review and, if appropriate, revise the Texas Surface Water Quality Standards. These standards are the basis for establishing discharge limits in wastewater permits, setting instream water quality goals for total maximum daily loads and providing criteria to assess instream attainment of water quality.

Water quality standards are set for major streams and rivers, reservoirs, and estuaries based on their specific uses: aquatic life, recreation, drinking water, fish consumption, and general. The standards establish water quality criteria such as temperature, pH, dissolved oxygen, salts, bacterial indicators for recreational suitability, and a number of toxic substances.

The commission adopted revised water quality standards in fiscal 2014. Major revisions included:

- Addition of Primary Contact Recreation 2 as a category of contact recreational use to more appropriately assign site-specific contact recreation uses and criteria.
- Addition of industrial cooling areas and revisions to mixing zone provisions to aid implementation of thermal water quality standards in wastewater permitting.
- Revisions to toxicity criteria to incorporate new data on toxicity effects and local water quality characteristics that affect toxicity.

- Numerous revisions and additions to the uses and criteria of individual water bodies to incorporate new data and the results of recent use-attainability analyses.

The revised standards must be approved by the EPA before being applied to activities related to the Clean Water Act. The EPA acted on most of the 2010 revisions by July 2013. Although portions of the 2010 standards have yet to finish federal review, the TCEQ proceeded with its triennial review of the Texas Surface Water Quality Standards. None of the 2014 revisions had been acted upon by the EPA as of August 2014.

Use-Attainability Analyses

The Surface Water Quality Standards Program also coordinates and conducts use-attainability analyses (UAAs) to develop site-specific uses for aquatic life and recreation. The UAA assessment is often used to reevaluate designated or presumed uses when the existing standards might be inappropriate for water bodies. As a result of aquatic-life UAAs, site-specific aquatic life uses or dissolved-oxygen criteria were adopted in the 2014 revision of water quality standards for more than 16 individual water bodies.

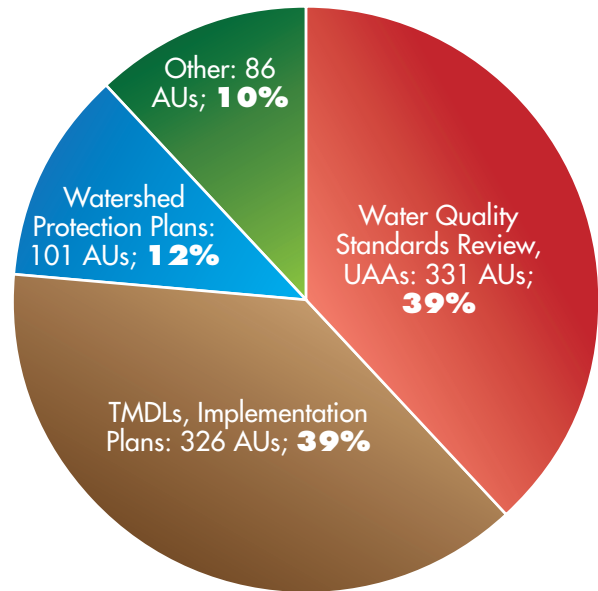
A use-attainability analysis (UAA) is a scientific assessment of the physical, chemical, biological, or recreational characteristics of a water body.

In 2009, the TCEQ developed recreational UAA procedures to evaluate and more accurately assign levels of protection for water recreation activities such as swimming and fishing. Since then, the agency has initiated more than 100 recreational UAAs to evaluate recreational uses of water bodies that have not attained their existing criteria.

Using results from recreation UAAs, the TCEQ adopted site-specific contact recreation criteria for 11 individual water bodies in the 2014 Texas Surface Water Quality Standards revision. Additional site-specific contact-recreation criteria will be included in future revisions to the standards.

Management Strategies for Restoring Water Quality

An assessment unit (AU) is the smallest geographic area used when evaluating surface water quality.



Total AUs with an assigned restoration strategy: 844

The TCEQ can address water impairments in a variety of ways. Selection of an appropriate restoration strategy is coordinated with stakeholders through watershed action planning.

Source: 2010 Texas Integrated Report

Clean Rivers Program

The Texas Clean Rivers Program is a unique state-fee-funded water quality monitoring, assessment, and public outreach program. Fifteen regional water agencies (primarily river authorities) perform monitoring, assessment, and outreach. The program affords the opportunity to approach water quality issues within a watershed or river basin at the local and regional levels through coordinated efforts among diverse organizations.

Accomplishments include doubling the water quality data available for TCEQ decision making and increasing public awareness of water quality issues at the local level.

Water Quality Monitoring

Surface water quality is monitored across the state in relation to human-health concerns, ecological conditions, and

designated uses. The resulting data form a basis for policies that promote the protection and restoration of surface water in Texas.

Coordinated Routine Monitoring

Each spring, TCEQ employees meet with various water quality organizations to coordinate their monitoring efforts for the upcoming fiscal year. The TCEQ prepares the guidance and reference materials, and the Texas Clean Rivers Program partners assist with the local meetings. The available information is used by participants to select stations and parameters that will enhance the overall coverage of water quality monitoring, eliminate duplication of effort, and address basin priorities.

The coordinated monitoring network, which is made up of about 1,800 active stations, is one of the most extensive in the country. Coordinating the monitoring among the various participants ensures that available resources are used as efficiently as possible.

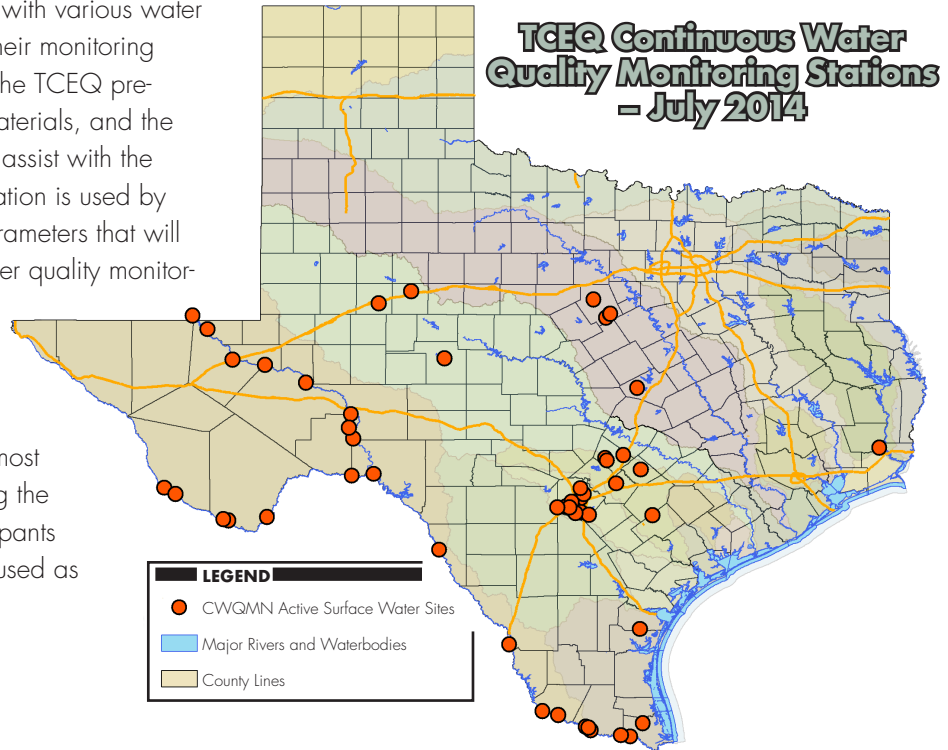
Continuous Water Quality Monitoring

The TCEQ has developed—and continues to refine—a network of continuous water quality monitoring sites on priority water bodies. The agency maintains 50 to 60 sites in its Continuous Water Quality Monitoring Network. At these sites, instruments measure basic water quality conditions every 15 minutes.

CWQMN monitoring data may be used by the TCEQ or other organizations to make water-resource management decisions, target field investigations, evaluate the effectiveness of water quality management programs such as TMDL implementation plans and watershed-protection plans, characterize existing conditions, and evaluate spatial and temporal trends. The data are posted at <www.texaswaterdata.org>.

The CWQMN is used daily to guide decisions on how to better protect certain segments of rivers or lakes. For example, from 2004 to 2014 the TCEQ developed a network of 14 CWQMN sites on the Rio Grande and the Pecos Rivers. The primary purpose of these CWQMN sites is to monitor levels of dissolved salts to protect the water supply in the Amistad Reservoir. The Pecos River CWQMN stations also supply information on the effectiveness of the Pecos River Watershed Protection Plan. These stations are

operated and maintained by the U.S. Geological Survey through cooperative agreements with the TCEQ and the Texas State Soil and Water Conservation Board. Other uses of such data include developing of water quality models.



In the summer of 2014, the TCEQ had 52 active stations around the state as part of the Continuous Water Quality Monitoring Network. Instruments at these sites measure basic water quality conditions every 15 minutes. The data is used to make decisions about managing water resources and water quality. The number and locations of sites may vary from year to year.



Assessing Surface Water Data

Every even-numbered year, the TCEQ assesses water quality to determine which water bodies meet the surface water quality standards for their designated uses, such as contact recreation, support of aquatic life, or drinking water supply. Data associated with 200 different water quality parameters are reviewed to conduct the assessment. These parameters include physical and chemical constituents, as well as biological communities.

The assessment is published on the TCEQ website and submitted as a draft to the EPA as the *Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d)*

(found at <www.tceq.texas.gov/waterquality/assessment/waterquality/assessment/12twqi/twqi12>).

The report 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. Waters that do not regularly attain one or more of the standards may require action by the TCEQ and are placed on the 303(d) List of Impaired Water Bodies for Texas (part of the *Integrated Report*). The EPA must approve this list before its implementation by the TCEQ's water quality management programs.

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 at highest risk for pollution are assessed regularly. The *2012 Integrated Report* was approved by the EPA in May 2013. In developing the report, water quality data was evaluated from 5,518 sites on 1,360 water bodies. The draft *2014 Integrated Report* is under development and expected to be completed by spring 2015.

Restoring Water Quality

Watershed Action Planning

Water quality planning programs in Texas have responded to the challenges of maintaining and improving water quality by developing new approaches to addressing water quality issues in the state. Watershed action planning is a process for coordinating, documenting, and tracking the actions necessary to protect and improve the quality of the state's streams, lakes, and estuaries. The major objectives are:

- To fully engage stakeholders in determining the most appropriate action to protect or restore water quality.
- To improve access to state agencies' water quality management decisions and increase the transparency of that decision making.
- To improve the accountability of state agencies responsible for protecting and improving water quality.

Leading the watershed action planning process are the TCEQ, the Texas State Soil and Water Conservation Board, and the Texas Clean Rivers Program. Involving stakeholders, especially at the watershed level, is key to the success of the watershed action planning process.

Total Maximum Daily Load Program

The Total Maximum Daily Load Program is one of the agency's mechanisms for improving the quality of impaired

surface waters. A TMDL is like a budget for pollution in that the TMDL determines the extent to which pollutant concentrations must be reduced to meet quality standards. A scientifically rigorous process is used to arrive at practicable targets for the pollutant reductions in TMDLs.

This program works with the agency's water quality programs, other governmental agencies, and watershed stakeholders during the development of TMDLs and related implementation plans.

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 have an increased risk of contracting gastrointestinal illnesses. High bacteria concentrations can also affect the safety of oyster harvesting and consumption.

Of the 568 impairments listed for surface water segments in Texas, about half are for bacterial impairments to recreational water uses.

In the last two years, the TCEQ adopted 13 TMDLs for bacteria, and 35 more are under way. Stakeholders developed implementation plans, called I-Plans, for 159 contact recreation impairments, which the commission approved. The TCEQ is coordinating with stakeholders on development of I-Plans for an additional 43 recreation impairments. The timeframes for completing I-Plans are affected by stakeholder resources and reaching consensus. These additional I-Plans are expected to be completed by the end of 2016.

The TMDL Program has developed an effective strategy for developing TMDLs that protects recreational safety. The strategy, which relies on the engagement and consensus of the communities in the affected watersheds, has been initiated for 25 water bodies in three different river basins. Other actions are also taken to address bacteria impairments, such as recreational use-attainability analyses that ensure that the appropriate contact-recreation use is in place, as well as watershed-protection plans developed by stakeholders and primarily directed at nonpoint sources.

Implementation Plans

While a TMDL analysis is being completed, stakeholders are engaged in the development of an I-Plan, which identifies the steps necessary to improve water quality. I-Plans outline a three- to five-year plan of activities indicating who

will carry out the activities, when they will be done, and how improvement will be gauged. Each plan contains a commitment by the stakeholders to meet periodically to review progress. Then they revise the plan to adjust to changing conditions.

Community Engagement

An example of successful community engagement is the Bacteria Implementation Group for the Houston-Galveston area. The BIG has 31 members and alternates who represent government, private industry, agricultural interests, conservation organizations, watershed groups, and the public. The BIG convened in 2009 to develop a single implementation plan for 72 bacterial impairments in the Houston-Galveston area. The commission approved the BIG I-Plan in 2013. The watersheds covered by the plan cover 2,200 square miles, including all or part of 10 counties and more than 55 municipalities. The BIG is still engaged in improving water quality throughout the area and will remain active during implementation of the plan. The BIG is also collaborating with other regional groups to bring implementation of similar bacteria TMDLs under the umbrella of BIG's strategy.

Programmatic and Environmental Success

Since 1998, the TCEQ has been developing TMDLs to improve the quality of impaired water bodies on the federal 303(d) List, which identifies surface waters that do not meet one or more quality standards. In all, the agency has adopted 239 TMDLs for 151 water bodies in the state.

Based on the *2012 Integrated Report*, the TMDL Program has restored water quality to attain standards for 28 impairments to surface waters. These actions have:

- restored fishing uses, conditions for aquatic life, and proper salinity in assessment units corresponding to 558 stream miles;
- made water suitable as a source of drinking water for 3,004 acres of reservoir; and
- restored conditions for aquatic life in 11 square miles of estuary.

From August 2012 to August 2014, the commission adopted one TMDL report (13 impairments) for the Lower West Fork Trinity River Watershed in the Dallas area, where bacteria had impaired the contact-recreation use. During that time, the commission also approved four I-Plans (159 impairments): three for the Houston-Galveston area and one for the Dallas-Fort Worth area.

Nonpoint Source Program

The Nonpoint Source Program administers the provisions of Section 319 of the federal Clean Water Act. Section 319 authorizes grant funding for states to develop projects and implement NPS management strategies.

The TCEQ, with the Texas State Soil and Water Conservation Board, manages NPS grants to implement the goals identified in the Texas NPS Management Program, which must be approved by the TCEQ, the TSSWCB, the governor, and the EPA. The governor submitted an updated NPS Management Program to the EPA in June 2012, and approval was granted in August. The NPS Program annual report documents progress in meeting the long- and short-term goals of the management program.

The NPS Program annually applies for funding from the EPA. The award is split between the following: the TCEQ to address urban and non-agricultural NPS pollution, and the TSSWCB to address agricultural and silvicultural NPS pollution. The TCEQ receives \$3 million to \$4 million annually, with approximately \$1 million dedicated to the TCEQ performance partnership grant. About 60 percent of overall project costs are federally reimbursable; the remaining 40 percent comes from state or local match. In fiscal 2014, \$3.5 million was matched with \$2.3 million, for a total of \$5.8 million.

The TCEQ solicits applications to develop projects that contribute to the NPS Program management plan. Typically, 10 to 20 applications are received, reviewed, and ranked each year. Because the number of projects funded depends on the amount of each contract, the number fluctuates. Nine projects were selected in fiscal 2013, and 11 in fiscal 2014. Half of the federal funds awarded must be used for the implementation of watershed-based plans.

The NPS Program also administers provisions of Section 604(b) of the federal Clean Water Act. These funds are derived from State Revolving Fund appropriations under Title VI of the act. Using a legislatively mandated formula, money is passed through to councils of governments for planning purposes. In fiscal 2013, the program received \$666,919 in funding from the EPA; in fiscal 2014, \$616,000.

Bay and Estuary Programs

The estuary programs are non-regulatory, community-based programs focused on conserving the sustainable use of bays and estuaries in the Houston-Galveston and Coastal Bend Bays regions through implementation of locally developed comprehensive conservation management

plans. Plans for Galveston Bay and the Coastal Bend bays were established in the 1990s by a broad-based group of stakeholders and bay user groups. These plans strive to balance the economic and human needs of the regions.

The plans are implemented by two different organizations: the Galveston Bay Estuary Program, which is a program of the TCEQ, and the Coastal Bend Bays and Estuaries Program, which is managed by a nonprofit authority established for that purpose. The TCEQ partially funds the CBBEP.

Additional coastal activities at the TCEQ include:

- Participating in the Gulf of Mexico Alliance, a partnership linking Alabama, Florida, Louisiana, Mississippi, and Texas. The TCEQ contributes staff time to implement the Governors' Action Plan, focusing on several water quality concerns (pathogens, nutrients, and mercury, and improved comparability of data collection among the states), as well as education and outreach.
- Serving on the Coastal Coordination Advisory Committee and participating in the implementation of the state's Coastal Management Program to improve the management of coastal natural resource areas and to ensure long-term ecological and economic productivity of the coast.
- Directing, along with the General Land Office and the Railroad Commission of Texas, the allocation of funds from the Coastal Impact Assistance Program.
- Working with the General Land Office to gain full approval of the Coastal Nonpoint Source Program, which is required under the Coastal Zone Act Reauthorization Amendments.

Galveston Bay Estuary Program

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.

GBEP priorities include:

- coastal habitat conservation
- public awareness and stewardship
- water conservation
- stormwater quality improvement
- monitoring and research

During fiscal 2013 and 2014, the GBEP worked to preserve wetlands and important coastal habitats that will protect the long-term health and productivity of Galveston Bay. To inform resources managers, the program provided ecosystem-based monitoring and research, and worked with partners to fill data gaps. The GBEP collaborated with local stakeholders to create watershed-protection plans and to implement water quality projects. Its staff also continued to develop the Back to the Bay campaign, which strives to increase public awareness and stakeholder involvement and to reinforce the priorities of the Galveston Bay Plan.

In fiscal 2013 and 2014, about 2,878 acres of coastal wetlands and other important habitats were protected, restored, and enhanced. Since 2000, the GBEP and its partners have protected, restored, and enhanced a total of 24,268 acres of important coastal habitats.

Through collaborative partnerships established by the program, \$7.26 in private, local, and federal contributions was leveraged for every \$1 the program dedicated to these projects.

Coastal Bend Bays and Estuaries Program

During fiscal 2013 and 2014, the CBBEP implemented 65 projects, including habitat restoration and protection in areas totaling 6,675 acres. Based in the Corpus Christi area, the CBBEP is a voluntary partnership that works with industry, environmental groups, bay users, local governments, and resource managers to improve the health of the bay system. In addition to receiving program funds from local governments, private industry, the TCEQ, and the EPA, the CBBEP seeks funding from private grants and other governmental agencies. In the last two years, the CBBEP secured more than \$8.5 million in additional funds to leverage TCEQ funding.

CBBEP priority issues focus on human uses, freshwater inflows, maritime commerce, habitat loss, water and sediment quality, and education and outreach. The CBBEP has also become active in water and sediment quality issues. CBBEP's goal is to address 303(d) listed segments so they meet state water quality standards.

Other areas of focus:

- Restoring the Nueces River Delta for the benefit of fisheries and wildlife habitat.
- Environmental education and awareness for more than 8,000 students and teachers annually at the CBBEP Nueces Delta Preserve, delivering educational experiences and learning through discovery, as well as scientific activities.

- Enhancement of colonial-waterbird rookery islands by implementing predator control, habitat management, and other actions to help stem the declining populations of nesting coastal birds.
- The San Antonio Bay Partnership in which CBBEP assists local stakeholders to better characterize the San Antonio Bay system and develop plans to protect and restore wetlands and wildlife habitats.

Drinking Water Standards

Of the 6,729 public water systems in Texas, about 4,640 are community water systems, mostly operated by cities. These systems serve about 96 percent of Texans. The rest are non-community water systems—such as those at schools, churches, factories, businesses, and state parks.

The TCEQ makes data tools available online so the public can find information on the quality of locally produced drinking water. The Texas Drinking Water Watch (<http://dww.tceq.texas.gov/DWW/>) provides analytical results from the compliance sampling of public water systems. In addition, the Source Water Assessment Viewer (www.tceq.texas.gov/gis/swaview) shows the location of the sources of drinking water. The viewer also allows the public to see any potential sources of contamination, such as an underground storage tank.

All public water systems are required to monitor the levels of contaminants present in treated water and to verify that each contaminant does not exceed its maximum contaminant level, action level, or maximum residual disinfection level—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 most significant microorganism is coliform bacteria, particularly fecal coliform. The most common chemicals of concern in Texas are disinfection by-products, arsenic, fluoride, and nitrate.

More than 47,000 water samples are analyzed each year just for chemical compliance. Most of the chemical samples are collected by contractors and then submitted to a certified laboratory. The analytical results are sent to the TCEQ and the public water systems.

Each year, the TCEQ holds a free symposium on public drinking water, which typically draws about 800 participants. The agency also provides technical assistance to public water systems to ensure that consumer confidence reports are developed correctly.

Any public system that fails to have its water tested or reports test results incorrectly faces 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.

Violations of Drinking-Water Regulations

	FY2013	FY2014
Enforcement Orders	250	391
Assessed Penalties	\$498,503	\$527,148
Offsets by SEPs	\$12,838	\$6,601

Note: The numbers of public water supply orders reflect enforcement actions from all sources in the agency.

The EPA developed the Enforcement Response Policy and the Enforcement Targeting Tool for enforcement targeting under the Safe Drinking Water Act. The TCEQ uses the Enforcement Targeting Tool to identify public water systems with the most serious health-based or repeated violations and those that show a history of violations across multiple rules. This strategy brings the systems with the most significant violations to the top of the list for enforcement action, with the goal of returning those systems to compliance as quickly as possible.

More than 95 percent of the state’s population is served by public water systems producing water that meets or exceeds the National Primary Drinking Water Standards.

Engineering Plan and Specification Reviews

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 2013, the TCEQ completed compliance reviews of 2,003 engineering plans for public water systems. In fiscal 2014, the agency performed 1,696 such reviews.

Investor-owned utilities and water supply corporations are required to obtain certificates of convenience and necessity (CCNs) before providing service. A CCN is a state-issued TCEQ authorization that allows a retail public utility to furnish 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.

Until August 31, 2014, the TCEQ had original jurisdiction over the rates and services of investor-owned utilities; had appellate jurisdiction over the rates of water-supply corporations, water districts, and out-of-city customers of municipally owned retail public utilities; and had jurisdiction to issue, amend, or cancel a CCN.

On September 1, 2014, the TCEQ transferred responsibility for the water utility rate; the sale, transfer, and merger program; and the CCN programs to the Public Utility Commission of Texas. This transfer was required by the PUC's 2013 Sunset legislation (House Bill 1600, as summarized in Chapter Three). Rulemaking at the TCEQ will be required to delete most of Title 30, Texas Administrative Code, Chapter 291, with most of the water and wastewater utility jurisdiction being transferred to the PUC.

After the transfer, the TCEQ's remaining utility regulation is limited primarily to temporary management and receiverships of public water systems and water-availability determinations.

In fiscal 2013, the agency completed 162 CCN-related application reviews and 98 rate-related application reviews. In fiscal 2014, it completed 186 CCN-related application reviews and 181 rate-related application reviews.

The agency strives to ensure that all water and sewer systems have the capability to operate successfully. The TCEQ contracts with the Texas Rural Water Association to assist utilities with financial, managerial, and technical expertise. About 570 assignments for assistance to utilities were made through this contract in fiscal 2013, as were 591 assignments in fiscal 2014.

In addition to contractor assistance, the TCEQ certifies utilities as regional providers. With this certification, utilities are eligible for tax-exempt status for system construction and improvements. More than 400 utilities had been certified as regional providers, as of August 2014.

After September 1, 2014, the TCEQ retained its jurisdiction over the creation of, and bond reviews for, water districts such as municipal utility districts, water control and improvement districts, and freshwater supply districts.

The agency reviews the creation of applications for general-law water districts and bond applications for water districts to fund water, sewer, and drainage projects. In fiscal 2013, the agency reviewed 417 water-district applications; in fiscal 2014, 415 water-district applications.

Stormwater Permitting

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 stormwater permits.

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

The TCEQ receives thousands of applications a year for coverage under TPDES stormwater general permits. To handle the growing workload, the agency has incrementally introduced online applications for some of these permitting and reporting functions. The agency has also outsourced the management of incoming paper notices of intent (NOIs), notices of termination (NOTs), and no-exposure certifications (NECs) for some of these general permits.

Stormwater permits are issued under the categories of industrial, construction, and municipal.

Industry

The multi-sector general permit regulates stormwater 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 stormwater pollution prevention plan, conduct regular monitoring, and use best management practices to reduce the discharge of pollutants in stormwater. The permit also contains limitations for certain discharges—specific pollutants and concentrations that cannot be exceeded. The TCEQ receives about 160 NOIs, NECs, and NOTs a month for industrial facilities. This general permit was renewed and amended in August 2011.

Construction

The construction general permit was developed for stormwater 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 or sale covering more than one acre. 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 864 NOIs and 300 NOTs a month for large construction activities. This general permit was reissued in March 2013. After reissuance, the TCEQ received about 4,300 NOIs for renewal and 3,200 NOIs for new authorizations.

permit requires a regulated MS4 operator to develop and implement a stormwater management plan that includes minimum requirements for public education, outreach and involvement; minimum control measures for illicit-discharge detection and elimination; control of construction stormwater runoff; post-construction stormwater management; and pollution prevention and good housekeeping. In addition, MS4s serving a population of more than 100,000 need to address industrial sources. After reissuance of the permit, about 680 NOIs (new authorizations and renewals) and 60 applications for waivers were received.

Stormwater Permits

	Number Affected (issued)		Applications Received (mo. ave.)		Applications Received (total)	
	Fiscal 2013	Fiscal 2014	Fiscal 2013	Fiscal 2014	Fiscal 2013	Fiscal 2014
Industrial (facilities) ^a	1,637	1,323	134	110	1,611	1,318
Construction (large sites) ^b	12,272	7,577	1,012	636	12,144	7,635
MS4s (public entities) ^c	0	1	0	43	0	516

^a Includes No Exposure Certifications (NECs).

^b The Construction General Permit numbers reflect the permit renewal that was conducted in fiscal 2013.

^c The Phase II Municipal Separate Storm Sewer System (MS4) General Permit was renewed in December 2013. The renewal period ended on June 11, 2014. Applications received from January—August 2014 and will be issued in fiscal 2015. This includes waivers that were submitted.

Municipal

The TCEQ also regulates discharges from municipal separate storm-sewer systems (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 controls for 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 authorities, such as the Texas Department of Transportation, in areas in which the 1990 U.S. Census showed a count of 100,000 people or more. Thirty-three municipalities and other public authorities fall into this category. The TCEQ has issued 26 individual MS4 permits to medium and large MS4s. Some of these entities are permitted together under one permit.

The general permit regulating small MS4s located in urbanized areas was reissued in December 2013. The

Water Availability

Drought Persists

Texas has experienced a historical drought in recent years, with the drought of 2011 being a record breaker. By mid-2014, almost 45 percent of the state remained in severe, extreme, or exceptional drought.

As the state agency charged with managing surface water rights, the TCEQ carries out this responsibility primarily through issuing and enforcing water-right permits. Among permitted water-right holders, the permit holders that got their authorization first (senior water rights) are entitled to receive their water before water-right holders that got their authorization later (junior water rights). Water-right holders not getting their entitled water can call on the TCEQ to enforce the priority doctrine—a priority call.

In recent years, the TCEQ has received multiple priority calls on surface water from municipal, industrial, irrigation,

and domestic and livestock users in the Brazos, Guadalupe, Colorado, Sabine, and Neches river basins. These priority calls have resulted in the suspension or curtailment of more than 1,000 water rights. When drought conditions abated, these priority calls were rescinded and suspensions lifted, allowing junior water-right holders the opportunity to use and store water.

During times of drought, TCEQ field personnel enforce curtailments through ground-level and aerial investigations. They also conduct streamflow monitoring to aid agency decisions regarding curtailments and management of priority calls.

Agency Response

The TCEQ has engaged in proactive steps to respond to extreme drought. It communicates information about drought conditions and permit suspensions to state leadership, legislative officials, county judges, county extension agents, holders of water-right permits, and the media.

This response is coordinated through the TCEQ's Drought Team, a multidisciplinary agency group that began meeting in 2010. The team issues updates on the status of drought conditions and agency response activities. Agencies invited to team meetings are partners such as the Texas Department of Emergency Management, Texas Department of Agriculture, and Texas Water Development Board.

The TCEQ has conducted a number of outreach and assistance activities—specifically targeting public water systems—to help prevent systems from running out of water. The agency also contacted public water suppliers to urge implementation of drought contingency plans. Personnel offered assistance to any public water systems experiencing critical conditions (see Chapter One, “Drought Fosters New Approaches”).

The agency intensively monitors a targeted list of public water systems that have a limited or an unknown supply of water remaining. Employees offer those systems financial, managerial, and technical assistance, such as identifying alternative water sources, coordinating emergency drinking-water planning, and finding possible funding for alternative sources of water.

Since 2011, the TCEQ has given technical assistance to more than 100 public water systems by expediting reviews for plans and specifications for drilling additional wells, moving surface water intakes to deeper waters, and finding interconnections with adjacent water systems without compromising the drinking-water quality and capacity

needs for other systems. Technical assistance is prioritized for at-risk drought-affected public water systems seeking alternative water sources and regional water planning through interconnections with other systems.

In addition, since 2011 the TCEQ has performed an estimated 250 drought-related emergency reviews for plans and specifications and exceptions to TCEQ rules.

As of August 2014, 788 public water systems in Texas had activated mandatory water restrictions, while another 391 relied on voluntary measures to cut back on water use. For the complete list, see <www.tceq.texas.gov/goto/pws-restrictions>.

Alternative Treatment

As drought conditions around the state persisted into the spring and summer of 2014, public water systems reported to the TCEQ when their mandatory water restrictions were implemented.

In the search to find alternate water sources, desalination has been gaining attention as some communities seek to treat saline groundwater to make it potable. In response, the TCEQ took action to streamline the approval process for these facilities. In 2013, the agency implemented a process that allows the use of computer modeling as an alternative to on-site pilot studies for the approval of groundwater desalination systems.

The agency also initiated rulemaking to streamline construction approval for public water systems asking to conduct brackish-water desalination.

In addition, the TCEQ began reviewing a number of innovative water-supply projects. Ongoing drought conditions have required some public water systems to explore one strategy not previously considered—using raw water sources. One alternative involves not just reclaiming effluent from municipal wastewater treatment plants for non-potable uses such as irrigation and industry, but also additional treatment to remove chemical and microbiological contaminants found in effluent. With this process, the treated water becomes safe for human consumption.

Water Rights

Water flowing in Texas creeks, rivers, lakes, and bays is state water. The right to use water may be acquired through appropriation via the permitting processes established in state law. Permit applications for new water are reviewed by the TCEQ for administrative and technical requirements related to conservation, water availability, and the environment.

In fiscal 2013 and 2014, the agency processed a total of 702 water-rights actions, including new permits and amendments, water-supply contracts, and ownership transfers. In addition, the TCEQ engaged in extensive outreach efforts to help water-right holders remain in compliance with water-use reporting requirements mandated by statute.

Because of limited water availability, some cities, governments, businesses, and individuals have begun turning to indirect reuse or groundwater as a source of supply. With indirect reuse or groundwater, an authority or individual may discharge effluent or groundwater into a stream, subsequently divert the effluent or groundwater, and use (or reuse) it for irrigation or some other purpose. These types of projects require a bed-and-banks permit. A total of eight indirect reuse authorizations were issued in fiscal 2013 and 2014.

Environmental Flows

In 2007, the Legislature passed two landmark measures relating to the development, management, and preservation of water resources, including the protection of in-stream flows and freshwater inflows. House Bill 3 and Senate Bill 3 changed the process by which the state would decide the flow that needs to be preserved in the watercourse for the environment, requiring the consideration of both environmental and other public interests. This change required the TCEQ to adopt rules for environmental-flow standards for Texas' rivers and bays.

Adoption of the third and final rulemaking for the environmental-flow standards was completed in February 2014. The TCEQ's ongoing goal is to protect the flow standards—along with the interests of senior water-rights holders—in the agency's water-rights permitting process for new appropriations and amendments that increase the amount of water to be taken, stored, or diverted.

Texas Instream Flow Program

The Texas Instream Flow Program, established in 2001, is a cooperative effort by the TCEQ, Texas Water Development Board, and Texas Parks and Wildlife Department to perform scientific studies to determine flow conditions necessary for supporting a sound ecological environment in river basins.

Texas Instream Flow Program studies are ongoing in the San Antonio, Brazos, Trinity, and Guadalupe river basins, and are scheduled to be completed by the end of 2016.

Groundwater Management

The TCEQ is responsible for delineating and designating priority groundwater management areas and creating groundwater conservation districts in response to landowner petitions or through the PGMA creation process.

In 2015, the TCEQ and the Texas Water Development Board will submit a joint legislative report that details fiscal 2013–14 activities relating to priority groundwater management areas and the creation and operation of groundwater conservation districts.

Groundwater conservation districts are the state's preferred method of groundwater management. Each district is governed by a locally selected board of directors. Under the Texas Water Code, GCDs are authorized and required to permit water wells, develop a management plan, and adopt rules to implement the management plan.

By quantifying and evaluating the groundwater resource on an ongoing basis, GCDs help groundwater users understand the aquifer located in their area, the combined demands on the aquifer, and the need for conservation of the aquifer. A GCD uses aquifer data and public input to develop a plan to manage and conserve groundwater resources. A locally developed management plan outlines goals to conserve and protect the groundwater resources within the aquifers. A GCD implements rules and programs to achieve the plan's goals through monitoring, registration and permitting, and educational outreach.

A GCD management plan and the "desired future conditions" for a groundwater management area must be readopted and approved at least once every five years. The state's GCDs have completed the first round of groundwater management area planning in order to adopt desired future conditions for their groundwater. The TWDB has sent the estimates of "modeled available groundwater" to the GCDs for their next management plans and to the regional water planning groups for their 2016 plans.

The TCEQ actively monitors and ensures GCD compliance to meet management-plan adoption and readoption requirements. The agency also takes action in the following instances:

- when the State Auditor's Office determines that a GCD is not operational in achieving the objectives of its management plan, or
- in response to a petition from an affected party requesting an inquiry into the management-plan implementation actions of a GCD.

Evaluations of River Basins without a Watermaster

Under the Texas Water Code, the TCEQ is required every five years to evaluate river basins that do not have a watermaster program to determine whether a watermaster should be appointed. Agency staff is directed to report its findings and make recommendations to the commission.

In 2011, the TCEQ developed a schedule for conducting these evaluations, as well as criteria for developing recommendations. Several basins are to be evaluated each calendar year and findings presented to the commission. The first year of evaluation, conducted in 2012, included the Brazos and Colorado River basins, along with the Brazos-Colorado and Colorado-Lavaca coastal basins.

In 2013, evaluations were conducted for the Trinity and San Jacinto river basins and the Trinity–San Jacinto and San Jacinto–Brazos coastal basins. For 2014, the third evaluation year, the TCEQ evaluated the Sabine and Neches river basins and the Neches-Trinity coastal basin.

For more information, see Appendix D, Evaluation of Water Basins in Texas without a Watermaster.

Brazos Watermaster

In April 2014, the TCEQ directed that a watermaster be appointed for the Upper Brazos River Basin, which includes Possum Kingdom Lake and below. This directive was in response to a petition by 35 water-right holders in the Brazos River Basin.

The petitioner's request was referred to the State Office of Administrative Hearings, and the final order establishing the watermaster position was approved. After hosting a series of public meetings and setting up an advisory committee, the agency expects the Brazos River Watermaster program to be fully established by early fiscal 2016.

Texas Interstate River Compacts

Texas is a party to five interstate river compacts. These compacts apportion the waters of the Canadian, Pecos, Red, and Sabine rivers and the Rio Grande between the appropriate states. Interstate compacts form a legal foundation for the equitable division of the water of an interstate stream with the intent of settling each state's claim to the water.

Rio Grande Compact

The Rio Grande Compact, ratified in 1939, divided the waters of the Rio Grande among the signatory states of Colorado, New Mexico, and Texas from its source in Colorado to Fort Quitman, Texas. The compact did not contain specific language regarding the apportionment of water in and below Elephant Butte Reservoir. However, the compact was drafted and signed against the backdrop of the 1915 Rio Grande Project and a 1938 U.S. Bureau of Reclamation contract that referred to a division of 57 percent to New Mexico and 43 percent to Texas. The compact contains references and terms that were crafted to ensure that sufficient water was provided to the Rio Grande Project.

Rio Grande Watershed



The Project serves the Las Cruces and El Paso areas and includes Elephant Butte Reservoir, along with canals and diversion works in New Mexico and Texas. The Project water was to be allocated by the 57:43 percent division, based on the relative amounts of Project acreage originally identified in each state. Two districts receive Project water: Elephant Butte Irrigation District in New Mexico and El Paso County Water Improvement District No. 1 in Texas. The latter supplies the city of El Paso with about half of its water.

In 2008, after 20 years of negotiations, the two districts and the Bureau of Reclamation completed an operating agreement for the Rio Grande Project. The agreement acknowledged the 57:43 percent division of water and established a means of accounting for the allocation. The agreement was a compromise to resolve major issues regarding the impact of large amounts of groundwater development and pumping in New Mexico that affected water deliveries to Texas.

But significant compliance issues continue regarding New Mexico's water use associated with the Rio Grande Compact. In 2011, New Mexico took action in federal district court to invalidate the 2008 operating agreement. In response to the lawsuit and in coordination with the Legislative Budget Board and the Attorney General's Office, the TCEQ hired outside counsel and technical experts with specialized experience in interstate water litigation to protect Texas' share of water.

In January 2013, Texas filed litigation with the U.S. Supreme Court. A year later, the Supreme Court granted Texas' motion and accepted the case. Subsequently, the United States filed a motion to intervene as a plaintiff on Texas' side, which was granted.

As Texas develops factual information to support its position, evidence grows that New Mexico's actions have significantly affected, and will continue to affect, water deliveries to Texas. As of August 2014, all parties were awaiting further procedural rulings from the Supreme Court.

(Update: On Nov. 3, 2014, the Supreme Court appointed a special master in this case with authority to fix the time and conditions for the filing of additional pleadings, to direct subsequent proceedings, to summon witnesses, to issue subpoenas, and to take such evidence as may be introduced. The special master was also directed to submit Reports to the Supreme Court as he may deem appropriate.

A "special master" is appointed by the Supreme Court to carry out actions on its behalf such as the taking of evidence and making rulings. The Supreme Court can then assess the special master's ruling much as a normal appeals court would, rather than conduct the trial itself. This is necessary as trials in the U.S. almost always involve live testimony and it would be too unwieldy for nine justices to rule on evidentiary objections in real time.)

International Treaties

Two international treaties have a major impact on water supplies available to Texas. The 1906 convention between the United States and Mexico apportions the

waters of the Rio Grande Basin above Fort Quitman, Texas, while the 1944 treaty between the United States and Mexico apportions the waters of the Rio Grande basin below Fort Quitman.

Mexico continues to under-deliver water to the United States under the 1944 Treaty. Mexico does not treat the United States as a water user and only relies on significant rainfalls to make deliveries of water to north of the border. This stands in contrast to the manner in which the United States treats Mexico in regards to the Colorado River. In fact, the United States has always provided Mexico its annual allocation from the Colorado River. The Colorado River and the Rio Grande are both covered by the same 1944 water treaty. Efforts continue through the Texas congressional delegation to address this problem.

A related issue concerns the accounting of waters in the Rio Grande at Fort Quitman. While the 1906 convention clearly granted 100 percent of all waters below El Paso to Fort Quitman to the United States, the International Boundary and Water Commission has allocated the waters equally between the United States and Mexico.

Waste Management

Disposal of Low-Level Radioactive Waste

In 2009, the TCEQ issued a license to Waste Control Specialists LLC authorizing the operation of a facility for disposal of low-level radioactive waste (LLRW) in Andrews County in West Texas.

The low-level radioactive waste generated in the Texas LLRW Disposal Compact, comprising the states of Texas and Vermont, may be disposed of in the Compact Waste Disposal Facility, in addition to accepted non-compact wastes. A separate, adjacent facility, which was authorized by the same license, may accept LLRW and mixed waste (waste that contains both a hazardous and a radioactive constituent) from federal facilities. Upon eventual closure of this site, the facility will be owned by the U.S. Department of Energy.

After the TCEQ authorized commencement of operations at the Compact Waste Disposal Facility portion of the disposal site, the facility received its first waste shipment for disposal in April 2012. The TCEQ then authorized operations to begin at the Federal Waste Disposal Facility portion of the site, and the facility received its first waste shipment for disposal in June 2013. Since operations began at both sites, more than 104,000 cubic feet of waste had been safely disposed of, and \$16.4 million

in disposal and processing fees had been collected as revenue for the state through fiscal 2014.

Texas' LLRW is produced predominantly by nuclear utilities, academic and medical research institutions, hospitals, industry, and the military. LLRW typically consists of radioactively contaminated trash, such as paper, rags, plastic, glassware, syringes, protective clothing (gloves, coveralls), cardboard, packaging material, organic material, spent pharmaceuticals, used (decayed) sealed radioactive sources, and water-treatment residues. Nuclear power plants contribute the largest portion of LLRW in the form of contaminated ion-exchange resins and filters, tools, clothing, and irradiated metals and other hardware. LLRW does not include waste from nuclear-weapons manufacturing or from U.S. Navy nuclear propulsion systems.

By law, the TCEQ is responsible for setting rates for the disposal of low-level radioactive waste at the compact facility. In November 2013, the TCEQ adopted a final disposal rate by rule and published the notice in the *Texas Register*.

Disposal of Radioactive By-Product Material

Licensed in 2008, the Waste Control Specialists site has been open for by-product disposal since 2009. By-product material that can be disposed of by WCS is defined as tailings or wastes produced by, or resulting from, the extraction or concentration of uranium or thorium from ore.

Since 2009, WCS has disposed of one by-product waste stream containing 3,776 canisters of waste generated by the Department of Energy's Fernald facility in Ohio.

Underground Injection Control of Mining Wastes

The TCEQ regulates disposal of by-product wastewater material generated at *in situ* uranium mining and processing sites. This occurs through permitting and enforcement of Class I injection wells under the agency's federally authorized Underground Injection Control Program.

Each uranium mining site has one or more permitted Class I UIC wells for disposal of excess water produced from *in situ* mining and uranium recovery, as well as groundwater produced in restoration of mined aquifers.

Texas has seven uranium mining projects and two uranium processing facilities with on-site permitted Class I UIC wells. All are in South Texas.

Uranium Production

Most uranium is produced in Texas through the *in situ* leach process. Uranium is leached directly out of a

uranium-bearing formation underground and pumped in solution to the surface for processing. The conventional method for uranium production, used in the past, created leftover by-product waste disposal impoundments.

In the last two years, the TCEQ has successfully confirmed the cleanup and closure of five individual uranium production areas and released them for unrestricted use, with the concurrence of the U.S. Nuclear Regulatory Commission.

Superfund Program

Superfund is the federal program that enables state and federal environmental agencies to address properties contaminated by hazardous substances. The EPA has the legal authority 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 Texas sites that are on the National Priorities List, which is EPA's ranking of national priorities among known releases or threatened releases of hazardous substances, pollutants, or contaminants.

In addition, Texas has a state Superfund program to address 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 Texas Superfund Registry if no responsible parties can, or will, perform the cleanup. The TCEQ also takes legal steps to recover the cleanup expenses.

After a site is proposed for the state Superfund program, either the responsible party or the TCEQ proceeds with a remedial investigation, during which the agency determines the extent and nature of the contamination. A feasibility study follows to identify possible cleanup remedies. A local public meeting is held to explain the proposed remedy and to accept public comments. The TCEQ then selects an appropriate remedial action.

Projects entering the Superfund program are prioritized by risk. 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 2013, Texas had a total of 112 sites in the state and federal Superfund programs. Remedial action was completed at one National Priorities List site, which was located in Bowie County.

In fiscal 2014, one new site in Brazoria County was proposed for the Texas Superfund Registry, for a total of

113 sites. Remedial actions were completed at three Texas Superfund Registry sites, located in Brazoria, Nueces, and Tom Green counties.

Petroleum Storage Tanks

The TCEQ oversees the cleanup of contamination of groundwater and soil due to leaking petroleum storage tanks. Since the program began in 1987, the agency has received reports of 26,932 leaking PST sites—primarily at gasoline stations.

By the end of fiscal 2014, cleanup had been completed at 25,332 sites, and corrective action was under way at 1,600 sites.

Of the total reported PST releases, about half have affected groundwater.

Leaking PSTs are often 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. Some leaks are detected during construction or utility maintenance. Most tank-system leaks are due to corrosion, incorrect installation, or damage during construction or repairs.

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 measures to prevent spills and overfills.

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

Under state law, cleanups of leaking tanks that were discovered and reported after Dec. 23, 1998, are paid by the owners' environmental liability insurance or other financial assurance mechanisms, or from their own funds.

The PST State Lead Program cleans up sites at which the responsible party is unknown, unwilling, or financially unable to do the work—and in situations in which an eligible site was transferred to State Lead by July 2011. State and federal funds pay for the corrective actions. Except for the eligible sites placed in the program by the July 2011 deadline, the state allows cost recovery from the current owner or any previous responsible owner.

Voluntary Cleanups

The Texas Voluntary Cleanup Program gives incentives for pollution cleanup by releasing future property owners

from liability once a previously contaminated property is cleaned up to the appropriate risk-based standard.

Since 1995, the program has provided regulatory oversight and guidance for 2,506 applicants and has issued 1,942 certificates of completion for residential, commercial, and industrial properties.

In the last two years, the program received 157 applications and issued 169 certificates. Recipients of the certificates report that the release of liability helps with property sales, including land transactions that would not have otherwise occurred due to concerns about environmental liability. As a result, many underused or unused properties may be restored to economically beneficial or community use.

Recent sites successfully addressed under the Texas VCP range from city-owned properties being developed into beneficial community use, such as the downtown Austin public library now under construction, to mixed-use residential and commercial developments, such as the 136-acre redevelopment of a former manufacturing facility in Houston.

The key benefit 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.

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

Under the Innocent Owner/Operator Program, the TCEQ also implements the law providing liability protection to property owners whose land has been affected by contamination that migrated onto their property from an off-site source. In the last two years, the TCEQ issued 95 certificates.

Dry Cleaners

Since 2003, the TCEQ has been 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 dry-cleaning facilities and drop stations, property owners, prior property owners, and solvent fees from solvent distributors.

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

addition, the use of perchloroethylene was prohibited at sites where the agency has completed corrective action.

In fiscal 2013, there was a total of 3,171 dry cleaner registrations and more than \$3.3 million in invoiced fees; in fiscal 2014, a total of 3,144 registrations and almost \$3.26 million in invoiced fees.

Industrial and Hazardous Waste Management

The Resource Conservation Recovery Act establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal. The EPA has delegated the primary responsibility of implementing the RCRA in Texas to the TCEQ.

The TCEQ reviews and approves plans, evaluates complex analytical data, and writes new and modified Industrial and Hazardous Waste (I&HW) permits. Texas has 192 permitted industrial and hazardous waste treatment, storage, and disposal facilities.

During fiscal 2013 and 2014, the TCEQ issued 35 I&HW permit renewals and performed approximately 1,100 industrial waste stream audits.

Municipal Solid-Waste Management

With growing demands on the state’s waste-disposal facilities, the TCEQ evaluates the statewide outlook for landfill capacity and strives to reduce the overall amount of waste generated.

In fiscal 2013 (the most recent data available), the total disposal in the state’s 197 active municipal solid-waste landfills was about 30.6 million tons, representing a reduction of 6.1 percent from fiscal 2011. Per capita, the rate of landfill disposal was about 6.3 pounds per day in fiscal 2013.

By the end of fiscal 2013, overall municipal solid-waste capacity stood at about 1.9 billion tons, representing about 62 years of disposal capacity. That was a net increase of about 50 million tons, or roughly 150 million cubic yards, compared with fiscal 2011 capacity. More populous areas have seen a trend toward regional landfills serving larger areas, while less populous areas in West Texas continue to be served by small arid exempt landfills (accepting less than 40 tons per day), which are operated by municipalities.

To assist regional and local solid-waste planning initiatives, such as addressing adequate landfill capacity, the TCEQ provides solid waste planning grants to each

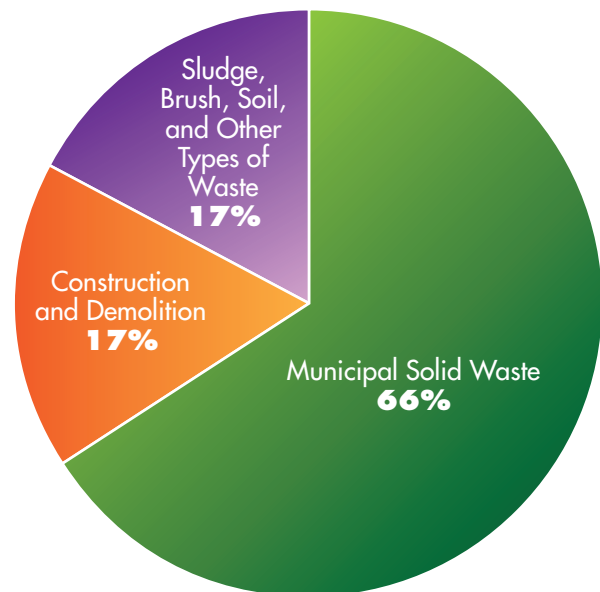
of the 24 regional councils of governments (COGs). The planning initiatives are based on goals specified in each COG’s regional solid-waste management plan.

For the 2012–13 grant period, the COGs received about \$10.9 million. Pass-through projects included collection stations in underserved areas, illegal-dumpsite clean-ups, and education and outreach projects.

The *Regional Councils of Governments and the Municipal Solid Waste Grant Program, FY 2012–2013: Report to the Texas Legislature* details the regional solid waste grant activities from that two-year period (<www.txregionalcouncil.org/documents/impacts&results.pdf>). The report, published by the Texas Association of Regional Councils, includes data collected by the TCEQ from the 24 COGs.

Municipal Solid Waste

Texas had 197 active municipal solid-waste landfills in fiscal 2013. Municipal solid waste reached about 30.6 million tons.



Note: After the TCEQ’s Biennial Report for fiscal 2009–10, the categories of “residential” and “commercial” were merged into the category of “municipal.”

Environmental Assistance

Voluntary Programs

The TCEQ uses technical assistance, education, and pollution prevention programs to encourage environmental

improvements. The Environmental Assistance Division steers many of these programs in a direction that better focuses on agency priorities and aligns more closely with agency regulatory systems.

The renamed EAD was known as the Small Business and Environmental Assistance Division until the end of fiscal 2014.

In fiscal 2013 and 2014, the division responded to a total of 10,652 requests for assistance from small businesses and local governments. Of those, 479 received one-on-one assistance at their business site or facility.

Also, more than 340 small businesses and local governments took advantage of the Compliance Commitment Program. This program allows participants to undergo a site visit, during which a consultant contracted by the TCEQ uses a checklist to identify environmental compliance problems. After the visit, the businesses and facilities receive recommended actions they can take to resolve those problems. They must correct deficiencies within six months to be eligible for a compliance-commitment certificate.

Thirty-six percent of Compliance Commitment Program participants achieved full environmental compliance with the applicable industry checklist. Upon successful completion of the program, businesses receive a certificate and an exemption of up to two years from routine investigations by the agency and partners, such as the EPA and local environmental-enforcement authorities.

Moreover, the program allows small businesses and local governments to achieve compliance voluntarily and confidentially—without fear of enforcement. Site visits do not lead to an investigation or citation, unless there is an imminent threat to human health or the environment. Many times, participants find they save money by improving the efficiency of their processes and reducing paperwork.

In outreach to the smallest of water systems, the division developed an easy-to-use guide, *Managing Small Public Water Systems* (RG-501). The guide includes simple instructions and worksheets to complete and maintain an asset management plan with or without a computer. The guide covers system inventory and prioritization, planning, budgeting, assessing and protecting water sources, and best management practices.

Workshops on making the best use the guide were held in five cities, educating representatives from more than 100 water systems. Workshop locations included Amarillo, Conroe, Nacogdoches, New Braunfels, and Tyler. Additional workshops were planned along Texas' southern border in the fall of 2014.

The TCEQ also offers educational opportunities and technical assistance through coordinated workshops, seminars, and education events, including the annual Trade Fair and Conference held in downtown Austin. During the last two years, the agency sponsored 16 seminars to provide technical information to almost 13,000 attendees.

For larger organizations such as refineries, universities, and municipal utility districts, the TCEQ offered technical advice on innovative approaches for improving environmental performance through pollution prevention planning.

All together, these efforts resulted in reductions of hazardous waste by more than 683,000 tons and toxic chemicals by about 84,000 tons during fiscal 2013–14.

Renewing Old and Surplus Materials

Texas established the Resource Exchange Network for Eliminating Waste (RENEW) in 1988 to promote the reuse 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.

RENEW is a free, easy-to-use service. 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 the RENEW website <www.renewtx.org>, these participants can list and promote information on opportunities for exchanging at national and regional levels.

In fiscal 2013 and 2014, 106 users signed up to use RENEW, and 261 new listings were posted.