

# Natural OUTLOOK

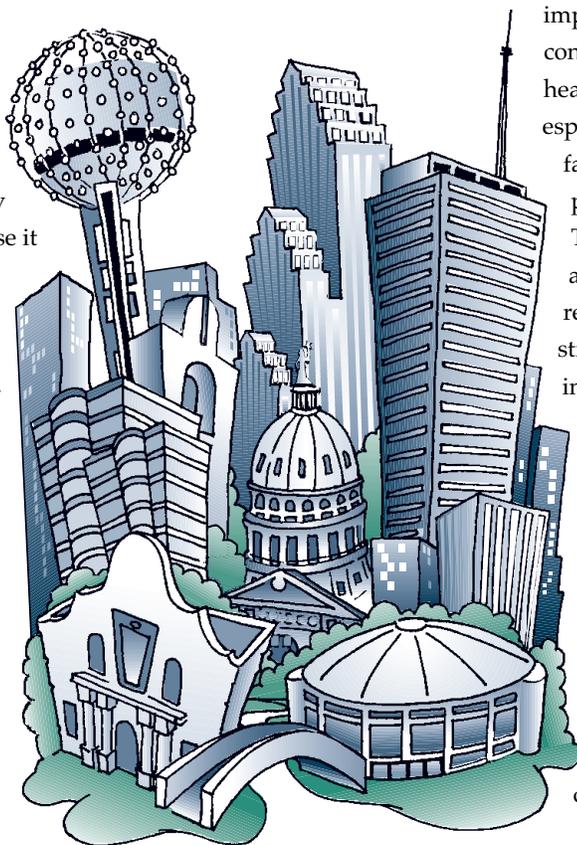
TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

## A WINNING CLEAN AIR STRATEGY FOR TEXAS CITIES

**W**ith Texas cities facing tough new federal air quality standards and requirements on the horizon, the TNRCC has proposed a bold new regional air quality strategy that promises to take Houston, Dallas, and other metro areas far down the road to satisfying the Clean Air Act.

"We want to work with local and regional groups to develop sound regional plans," TNRCC Chairman Barry McBee said. "This is a winning strategy for all Texans because it will benefit not only the nonattainment areas such as Houston and Dallas, but all growing communities that are struggling to meet the federal clean air requirements."

"We believe that what we are considering is a holistic approach to solving this problem," McBee said.



"Science tells us that air pollution has multiple causes and does not respect boundaries. We are convinced that what Texans devise for Texas will be an aggressive, balanced, commonsense approach."

Jerry Clifford, acting regional administrator of the EPA Region 6 Office, said he is pleased to see that Texas is moving to

implement regional controls to protect the health of its citizens, especially those in areas facing serious air pollution problems. Texas needs the active support of the regional clean air strategy by the public, industry, and elected officials to bring about real improvements to the environment.

"We're encouraged and pleased by Texas' new clean air strategy," Clifford said. "It is a step in a positive direction toward

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**A VOLUNTARY APPROACH TO GRANDFATHERED FACILITIES**

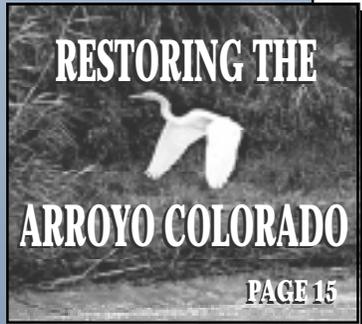


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**A BOLD INITIATIVE: TMDLS IN 10**

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**RESTORING THE ARROYO COLORADO**



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# A WINNING CLEAN AIR

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meeting the national health-based environmental standards. We believe the regional clean air strategy can help provide Texans with clean and safe air."

## Strategic efforts for cleaner air

The TNRCC's strategy, which represents a new direction for air quality management, includes these components:

- New regional control areas for volatile organic compounds (VOCs) for stationary sources such as factories could radiate 62 miles (100 km) from Houston-Galveston, Beaumont, and Dallas-Fort Worth, all nonattainment areas for ozone. New controls to reduce industrial NO<sub>x</sub> emissions could extend 124 miles (200 km). The state is not required to make the expanded zones of control nonattainment areas. The tentative effective date for these controls (and applicable State Implementation Plans) is December 2003.

- Texas has added its endorsement to calls by many states for automakers to develop a national low-emission vehicle (NLEV). Although consumers may see an estimated \$75 per vehicle increase in cost for new model year vehicles, some auto designs would cut polluting emissions up to 70 percent, compared to current cars and trucks. NLEVs are scheduled to be available in the northeastern United States later this year, and may be available in Texas as early as the fall of 2000.

- Cleaner-burning fuel, similar to that currently sold only in an eight-county Houston area and a four-county Dallas-Fort Worth area, is under consideration for use in virtually all central and

eastern Texas, including the San Antonio, Austin, Corpus Christi, Tyler-Longview, Beaumont-Port Arthur, and Waco-Temple areas. Widespread use of cleaner-burning fuel is expected in the targeted area by early 2000 or the start of the ozone season that year.

- Controls that trap ozone-producing vapors when gasoline is delivered to retailers by tanker trucks could become standard throughout central and eastern Texas. Widespread compliance with the Stage I vapor recovery effort is expected by the end of 1999.

The regional strategy complements a voluntary TNRCC program that is being developed to address the issue of grandfathered facilities, unpermitted older (pre-1971) facilities that are exempted from the air permitting requirements of the Clean Air Act (please see "Retirement Plan for the Grandfathered Exemption," page 7).

Herb Williams, director of the TNRCC Air Policy and Regulations Division, recommended that people keep two concepts in mind while considering the clean air strategy:

- 1) It is not directed at a specific nonattainment area, but rather is a strategy for that part of Texas where most of the population and air problems are.
- 2) The strategy is not only directed at trying to attain EPA's current one-hour ozone standard, but is also meant to help certain parts of Texas avoid being drawn into the nonattainment category under the new eight-hour standard.

The strategy has been well received by a wide range of Texans, from industry to the environmental community.

"The strategy to look at air problems on a regional basis is a good idea," said George

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# STRATEGY FOR TEXAS CITIES

Smith of the Lone Star chapter of the Sierra Club. "It attacks problems in their early stages in a cost-effective way."

Smith believes that the strategy "will help the near-nonattainment areas like Tyler and San Antonio avoid being bumped up into nonattainment. And it should help some of the nonattainment areas have an easier go of it."

The strategy is still in the development stage, and such details as cost and timetables have not been worked out. Realistically, however, the new strategy will likely result in significantly cleaner air as early as 2005. The TNRCC will work with other government agencies and industries to implement the plan.

## Regional control areas for air quality

TNRCC Commissioner Ralph Marquez emphasized the importance of spreading the word that air pollution is often not a local issue. "To achieve greater improvements in air quality, regional regulatory solutions will be necessary," Marquez said. "Our knowledge of air pollution and transport has increased over the last few years. We want to assure the regulated community and all Texans that this new regulatory approach is based on sound science."

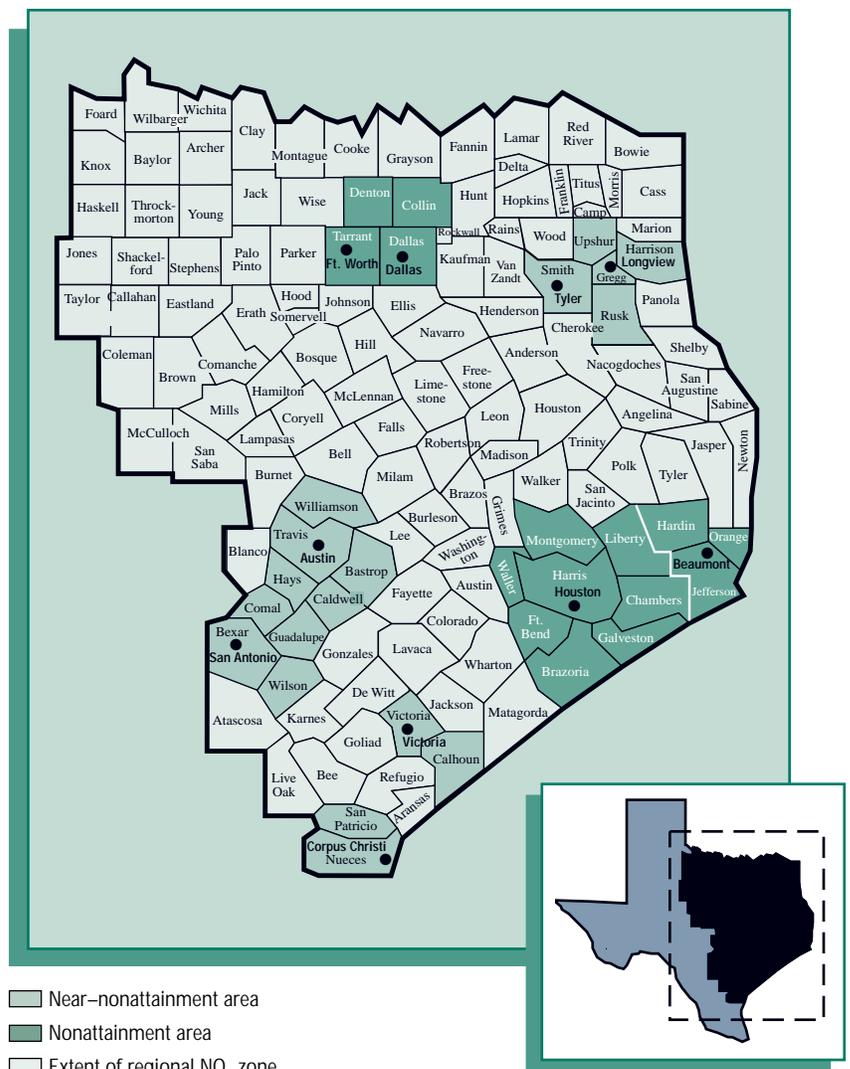
According to Dave Sullivan, team leader for the TNRCC's State Implementation Plan data analysis section, Texas' new regional controls for air quality are based partly on international research demonstrating that pollutants can travel long distances and create problems far from the point of origin. Acid rain is an example of such a problem that has been widely studied. More recently scientists have found that ozone, NO<sub>x</sub>, and VOCs can be transported over long distances from one part

of East Texas to another, contributing to regionwide high ozone levels.

"In many cases, relatively high ozone levels may exist in rural areas far downwind of large cities," Sullivan said. "In most cases,

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## PROPOSED REGIONAL ZONE FOR NITROGEN OXIDES



The Texas Clean Air Strategy proposes placing the eastern half of the state in a zone for the evaluation of reductions of industrial NO<sub>x</sub> emissions, which play a key role in ozone formation. Only by reducing both NO<sub>x</sub> and VOCs can Texas reduce ozone sufficiently to satisfy EPA requirements. The proposed controls would focus on major industrial sources such as utility plants and large factories.

# A WINNING CLEAN AIR

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**“Our knowledge of air pollution and transport has increased over the last few years. We want to assure the regulated community and all Texans that this new regulatory approach is based on sound science.”**

Ralph Marquez  
TNRCC Commissioner

rural ozone levels are not high enough to cause health concerns, but they may be high enough to damage crops, or to contribute to high ozone levels in the next urban area through which the polluted air mass will pass.”

Urban or rural, regional controls will be applied differently than in the past. “Previously the approach has been to apply regional controls through across-the-board percent reductions,” said Jim Thomas, director of the TNRCC Air Quality Planning and Assessment Division. “We now propose that the reductions be source specific, calculating their effect on net emission reduction goals. We will have to be more refined and apply controls according to source category, such as utilities or petrochemical plants.”

Thomas thinks that if there is opposition to the new strategy, it may come from the implementation of new regional point source controls in areas where there was previously little or no regulation.

Williams agrees that the challenge will be to convince people in smaller communities and rural areas that air quality controls are necessary, given that most people think air pollution is a big city problem.

“With computer modeling, we will have to demonstrate that compliance with new controls will help improve local air quality as well as greater metropolitan air quality,” Williams said. “We also need to make the point that near-nonattainment areas like Corpus Christi will benefit as well as nonattainment areas like Houston.”

#### Combined VOCs and NO<sub>x</sub>

Some industry segments, particularly utilities, have criticized the agency’s new air strategy for its focus on reducing both VOCs and NO<sub>x</sub>,

claiming that the link between NO<sub>x</sub> and ozone formation is yet to be definitively established.

The NO<sub>x</sub> strategy, however, is based on sound science.

“There is no question that NO<sub>x</sub> plays a key role in ozone formation,” Sullivan said. He explained that NO<sub>x</sub> is a combination of the compound nitric oxide (NO) and the compound nitrogen dioxide (NO<sub>2</sub>). Ozone is formed when NO<sub>2</sub> reacts with oxygen in the air in sunlight. The role of VOCs in the air is to recycle the NO back into NO<sub>2</sub> so more ozone can be produced. Some scientists say that it is more important to reduce VOCs to prevent this recycling than it is to reduce the initial NO and NO<sub>2</sub> emissions. Although in some cases they may be correct, TNRCC modeling shows that only by reducing both NO<sub>x</sub> and VOCs can Texas reduce ozone sufficiently to satisfy EPA requirements.

“A joint VOC/NO<sub>x</sub> approach is critical because TNRCC modeling indicates that NO<sub>x</sub> reductions alone can actually cause ozone increases in some areas,” Sullivan added.

Recent modeling efforts have made it clear that the state will never reach attainment if control strategies are limited to VOCs, according to Thomas.

“Even if we eliminated all human-produced VOCs, we would not attain the new air standard,” he said. “As we formulate our plans, we believe that using VOC reductions early and then phasing into the more significant NO<sub>x</sub> reductions is the appropriate strategy.”

Texas is not the only state taking an approach that employs controls on VOCs and NO<sub>x</sub>. California, the only “lab” that Texans can look to for actual results from an air strategy similar to the one that Texas is



# STRATEGY FOR TEXAS CITIES

considering, has already drastically improved its situation.

Yet changes in ozone levels will not be apparent overnight because of meteorological variability and because of the complex relationship between  $\text{NO}_x$  and VOC emission reductions. Several years of careful monitoring and study will be needed to assess success. Significant reductions in future years'  $\text{NO}_x$  emissions will be required for the TNRCC's air quality strategy to be effective.

Citizens should also know that reductions of ozone-causing  $\text{NO}_x$  and VOCs will bring other environmental benefits, such as improved visibility, reductions in nuisance odors, and a decrease in human exposure to toxics.

## Reducing the load from the road

Early this year the country's automakers agreed to sell millions of cleaner-burning cars and light trucks nationwide as part of a compromise aimed at easing air pollution in the Northeast.

"We believe that the availability of cleaner cars in Texas is crucial to the continued improvement of air quality in our state," said TNRCC Chairman McBee. "Texas supports the adoption of the National Low Emission Vehicle program by the Northeast states and by the auto manufacturers with the understanding that the NLEV will become the national vehicle standard."

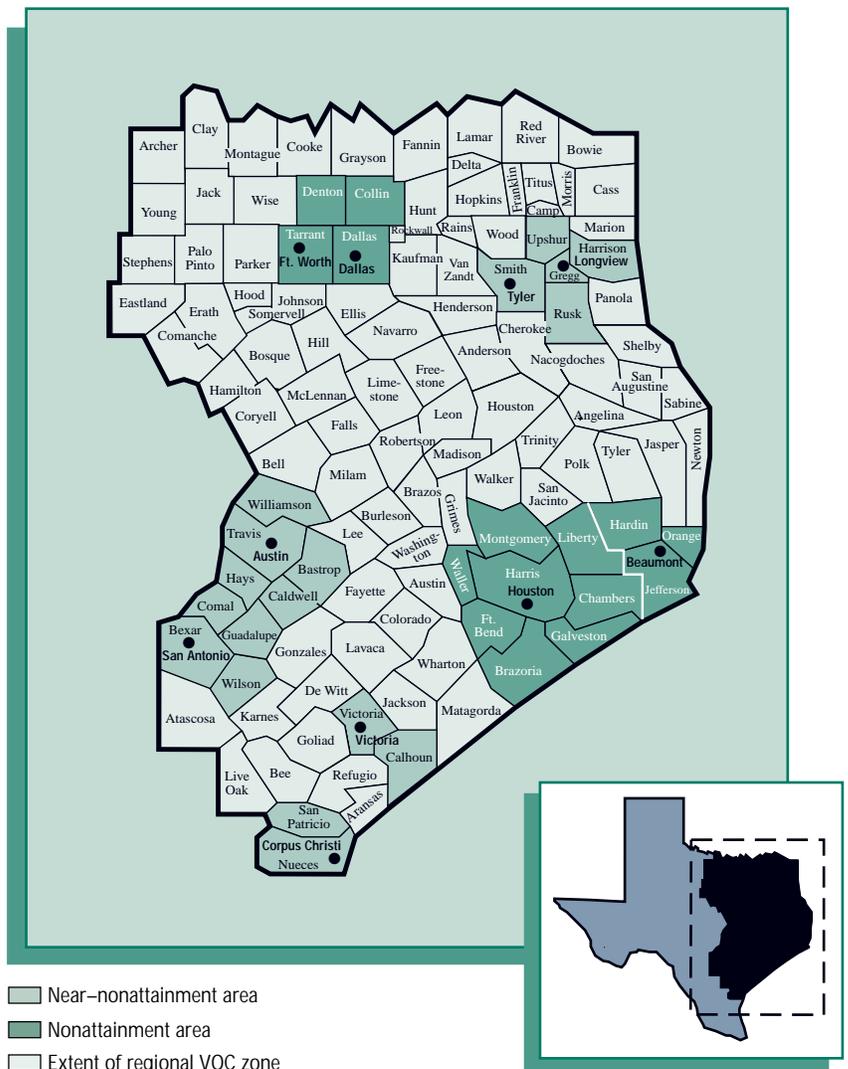
McBee also commended the auto manufacturers for recent efforts to reduce emissions from sport utility vehicles and light trucks. "We encourage the EPA and the manufacturers to work together to reduce emissions from these vehicles," he said.

The TNRCC continues to believe that there are several aspects of vehicle pollution

management that are best left to local decision makers and communities: limiting vehicle miles through means such as mandatory car pooling, and vehicle inspection and maintenance programs. Traditionally such

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## PROPOSED REGIONAL ZONE FOR VOLATILE ORGANIC COMPOUNDS



The Texas Clean Air Strategy places the eastern half of the state in a zone for the evaluation of reductions of VOCs for stationary sources such as factories. The proposed controls could also benefit near-nonattainment areas for ozone—including the Longview-Tyler area, the Austin-San Antonio corridor, and the Victoria and Corpus Christi areas—because the requirements could lower air pollution levels throughout the region.

# A WINNING CLEAN AIR STRATEGY FOR TEXAS CITIES

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options have been left up to metropolitan planning areas.

“The state government doesn’t feel like it is our business to intrude into lives without strong local support,” said Williams, the air policy division director.

The greatest challenge for planning and implementation of the new Texas clean air strategy will be reducing air pollution and improving air quality while maintaining economic prosperity and personal mobility, according to Thomas, air planning director.

“Texas needs to continue to be a thriving economic environment,” he said. “It is

imperative that we maintain our mobility because that is how our lifestyles are arranged. With this new strategy, the TNRCC has addressed mobile source pollution in a very positive way. The low-emission vehicles and cleaner, more efficient fuel will make a difference.”

## Fuel that burns clean

Cleaner-burning fuel is a critical part of the clean air strategy announced by Chairman McBee. One type of cleaner-burning fuel, federal reformulated gasoline (RFG), is already in use in the Houston-Galveston and Dallas-Fort Worth areas. The strategy for cleaner-burning fuel calls for consideration of a range of options, from an expansion of the current RFG program to broader areas to use of a different fuel with similar emissions reduction potential.

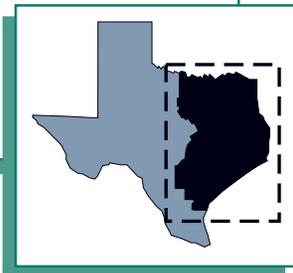
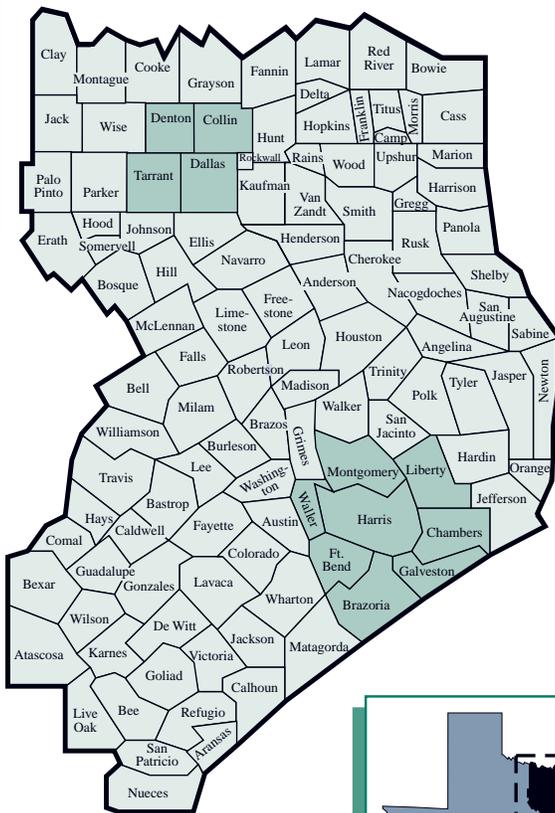
RFG reduces tailpipe, VOC, NO<sub>x</sub>, and toxic air emissions from cars, trucks, and gasoline-powered equipment. Both VOC and NO<sub>x</sub> emissions contribute to the formation of ground-level ozone. Toxic air emissions, such as benzene, a common component of gasoline, are considered to be human carcinogens.

Reductions in these emissions are expected to be significant. For example, when fully implemented in the Houston-Galveston and Dallas-Fort Worth areas, the RFG program will achieve reductions over conventional gasoline of up to 25 percent for VOCs and air toxics and 5 percent for NO<sub>x</sub>.

The TNRCC will soon enter into a dialogue with the fuel providers and the EPA to put a cleaner-burning fuel in place throughout the populous central and eastern parts of the state.

Information on the Texas Clean Air Strategy is available on the TNRCC Web Site at: <http://www.tnrcc.state.tx.us/oprd/forum/cleanair>.

**AREA  
PROPOSED  
FOR  
CLEANER-  
BURNING  
FUEL**



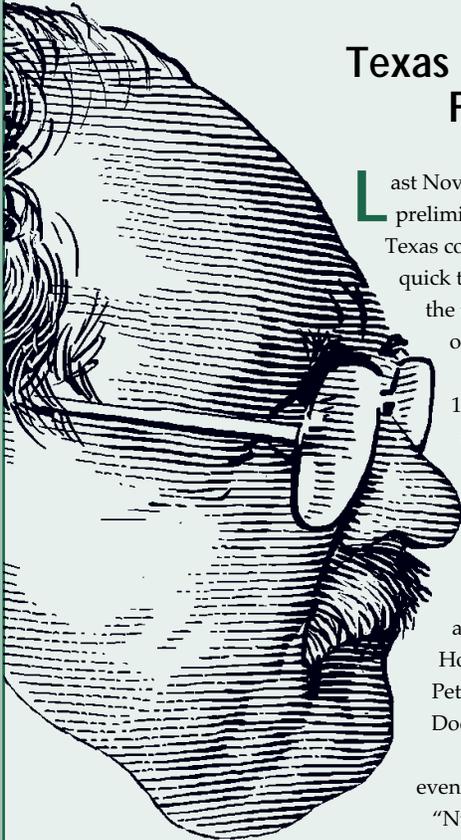
- Area proposed for cleaner-burning fuel
- Reformulated gasoline already in use

Texas’ new regional clean air strategy calls for a voluntary expansion of the use of cleaner-burning fuel from two ozone nonattainment areas, Dallas-Fort Worth and Houston-Galveston, to the entire eastern, more populous half of the state.



# Retirement Plan for the Grandfathered Exemption

## Texas Industries Volunteer to Bring Older Facilities into Full Permit Process



Last November when Gov. George Bush called for volunteers to participate in a preliminary agreement dealing with the issue of “grandfathered” facilities, 10 Texas companies boldly stepped forward. TNRCC Commissioner Ralph Marquez was quick to dub the industry leaders “trailblazers” for their willingness to confront one of the thorniest environmental issues in recent memory even before the development of a statewide voluntary program.

The term “grandfathered” applies to industrial units that date from before 1971 and are exempted from the requirement to obtain a preconstruction permit, and from the requirements of best available control technology (BACT) for air pollution, public notice, and a review of the impact on public health.

The governor and the 10 industry representatives announced the goal of reducing emissions by 10,000 tons yearly—the equivalent of taking 200,000 cars off Texas roads. The 10 companies, all with grandfathered facilities, relinquished their exempt status under Texas law and are making voluntary applications for emission permits. The firms include: Valero Energy Corp., Houston Lighting & Power, Marathon Oil Co., Koch Refining Co., Central Petroleum Corp., Lockheed Martin, Merichem-Sasol, Witco Corp., and two Phelps Dodge companies (a refinery and a copper mill).

Commissioner Marquez predicted that the state’s voluntary program will eventually attract hundreds of participants.

“Numerous companies have written to us expressing interest,” Marquez said. “My experience has been that if you develop worthwhile goals, provide the flexibility to attain them, and recognize those that voluntarily participate, industry will volunteer.”

The commissioner noted that the success of several voluntary environmental initiatives—such as the TNRCC’s Clean Industries 2000 program, which has achieved impressive reductions in toxic chemical releases and hazardous waste generation—proves that such efforts encourage wide participation.

### Time for a change

Norman Renfro, Valero’s vice president for environmental and safety affairs, pointed out that grandfathered facilities have been around 25 years. “We think the time has come and have agreed to work with the governor on this,” said Renfro. “We also see an opportunity to modernize using the TNRCC flexible permitting approach, which will enable us to control the emissions from these units and at the same time have greater flexibility in their operation.”

Many people are surprised to learn that grandfathered facilities are not regulation free. They must pay fees and report emissions, and in some cases, may be subject to so-called “reasonably available” air pollution control technology and monitoring requirements. Many grandfathered facilities also have had to install emissions control technology because of new federal air pollution standards.

Yet grandfathered facilities have been identified as significant contributors to air quality problems around the state.

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# Retirement Plan for the

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## Industry volunteers commit to cleaner Texas air

For many companies, bringing older units into the full regulatory process will be an expensive proposition.

For \$30 million, Valero, a leading producer of cleaner-burning gasoline and low-sulfur diesel, hopes to achieve a 40 percent reduction in emissions by using the flexible permit process to upgrade permitted and grandfathered facilities at its refineries in Texas City and Houston.

Renfro believes that incentives proposed for the voluntary program make this the right time to modernize.

"We are going to upgrade our facilities to give us additional flexibility to operate, working under an emissions cap, and then we can operate units in the most economical fashion," he said.

"We will be able to increase our profit margin while reducing emissions.

"We think it is an opportunity for Valero to move ahead. The concept presented by the governor as a voluntary program is much more palatable to others than a mandatory program. I would recommend that other corporations consider implementing his plan."

Houston Lighting and Power, which is upgrading several grandfathered facilities, is working with the Electric Power Research Institute to develop cost-effective, nonproprietary technical solutions. The demonstration of technology through EPRI will reduce NO<sub>x</sub> control costs throughout the utility industry.

HL&P is committed to obtaining standard permits for three of its grandfathered units and has set a goal for getting a standard permit or following CARE Advisory Committee guidelines (see "CARE Committee recommendations" section on next page) for all its grandfathered facilities, according to Ed Feith, the utility company's environmental manager.

He noted that in January HL&P conducted an in-depth survey of 250 customers. "The two most important issues the customers said they want to see us address are cost-containment and their concern for a clean environment," Feith said. "In fact, they were very close on the two issues—33 percent put cost first and 30 percent put the environment first. Clean electric generation is good for our customers, and it's good for us. That's what the customers want."

## History of grandfathered facilities

The grandfathered exemption was created in 1971 as part of a major expansion of the Texas Clean Air Act. A permitting requirement was created with a mandate that new facilities emitting air pollution install best available technology for controlling air pollution emissions. The Legislature exempted from this permitting requirement facilities already in existence on the effective date of the Act. This exemption was not, however, without restrictions. In the exemption, the Legislature also provided that when a change that resulted in a significant increase in air contaminant emissions or in the emission of a new air contaminant was made to an existing facility, the facility would have to obtain a permit, undergo a review of the facility's effect on the surrounding area, and install control technology.

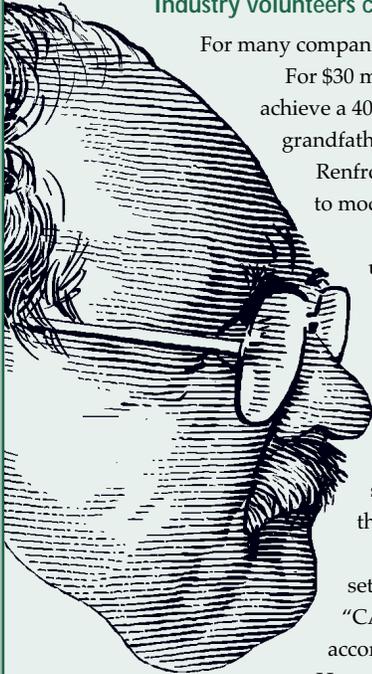
In 1994, an agency workgroup developed a concept later embodied in the TNRCC's flexible permit, which offered existing facilities additional flexibility in return for overall reductions in emissions.

Since he took office, Gov. Bush has made it a priority for his administration and the state to find an equitable solution regarding grandfathered facilities. Pushing for ways to clean the air after nearly a quarter century of the grandfathered exemption, Bush has provided the inspiration and leadership that have encouraged Texas industries to sign up voluntarily for air permits and state lawmakers to pass legislation addressing the problem. In June 1997, the governor signed House Bill 3019, which directed the TNRCC to develop a "voluntary emissions reduction plan for the permitting of existing significant sources of air contaminants."

## Creation of the CARE Committee

The Clean Air Responsibility Enterprise (CARE) Advisory Committee was created by the TNRCC to provide recommendations for this voluntary emissions reduction plan.

The CARE committee met five times in the fall of 1997 before submitting its recommendations.



# Grandfathered Exemption

“The CARE committee gave us key recommendations that enabled us to expedite the development of an effective voluntary program,” Marquez said. “They recommended incentives, the removal of obstacles in the permitting process through streamlining or simplifying, and real significant reductions. They also recommended an amnesty period in which any facilities that had inadvertently made modifications would get time to join on a voluntary basis.”

Marquez praised the advisory committee for tackling “one of the toughest environmental issues effectively and expeditiously. Their deliberation brought statewide awareness of difficult issues related to grandfathered facilities.”

## CARE Committee recommendations

A majority of the members of the CARE Advisory Committee agreed to a list of recommendations for achieving emission reductions, focusing on incentives, pollution caps, and permitting flexibility.

Cindy Morphew, vice president of environmental affairs for the Texas Oil and Gas Association, was one of the committee members who argued for permit flexibility. She said the reason many companies have not obtained a permit for the facilities is because permits are “rigid by nature.”

Morphew said incentives will get companies to participate because they will soften the economic impact of coming into the regulatory process. She added that pollution caps are important because they will let the people running the plants—who know the operations best—identify what will most effectively reduce emissions.

Gregg County Judge Mickey Smith, chairman of the CARE committee, acknowledged that heading up the diverse committee was challenging but was pleased that a majority of the broad-based group reached consensus.

“We allowed the submission of a minority report because everyone on the committee respected each other,” Smith said.

“Although environmentalists often want a bureaucratic mandate,” he said, “most people generally don’t. I believe in working with people to mediate problems. Let’s follow the approach of the governor and the TNRCC, who want to try incentives and voluntary action. If the measures don’t work, then go to disincentives and regulation. If companies with grandfathered facilities don’t volunteer, there are legislators who are ready to look at mandates. That’s a real possibility.”

## The minority takes a turn

Three members of the CARE Advisory Committee issued a minority report in which they claimed that the CARE process failed to provide meaningful recommendations. Their report, containing an alternative voluntary emission reduction plan, was signed by George Smith of the Sierra Club; Ramón Alvarez of the Environmental Defense Fund; and Patricia Gomez of the North Bay Citizens Advisory Panel.

Charging that the committee was not balanced nor representative of the citizens of Texas, the group claimed that matters such as testimony from the public hearing, disincentives for companies that choose to retain grandfathered status, health impacts, and a firm deadline for entering the voluntary program were not given due consideration.

Dr. George Smith, chair of the air quality committee for the Lone Star Chapter of the Sierra Club, found participation in the CARE Committee to be frustrating. He felt like the mandate from the Legislature to develop a voluntary program was inherently weak. Even more troublesome for Smith was the perception that the composition of the committee led to a bias for business and industry that was stronger than the bias for environmental and health concerns.

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“I believe in working with people to mediate problems. Let’s follow the approach of the governor and the TNRCC, who want to try incentives and voluntary action.”

Judge Mickey Smith  
Chairman of the CARE committee

## Retirement Plan for the Grandfathered Exemption

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"Business was not accommodating," Smith said. He noted that without a deadline for the ending of grandfathered facilities, business saw no reason for compromise and that they opposed all disincentives and increased fees. "In other words, they declined to compromise," Smith said.

The CARE Committee, Smith believes, "focused on enhancing the existing flexible permit to make it more attractive to business. That's all the committee came up with. There is a lot lacking there. Personally I feel like the final report will not be of much help to the TNRCC. There is no end to the existing (grandfathered) loophole."

In the majority committee's response to the minority report, it was explained that the CARE Committee was charged with producing recommendations for a voluntary program to permit grandfathered facilities with a deadline of December 31, 1997. The majority response concluded: "We believe all the task force members have done their best to meet that deadline in a manner that would encourage maximum participation and maximum emission reductions from grandfathered facilities."

Morphew explained that the TNRCC was asked to develop a program that would bring in people voluntarily, not a mandatory enforcement program.

"If the legislature had called for the TNRCC to develop an enforcement program, I wouldn't expect all carrots," she said. "You will get the greatest number of people, and the greatest reduction in emissions, with a program that encourages participation rather than in a program that penalizes. That's human nature."

### EPA recommendations on emission reductions

The EPA expressed support for the concepts behind the CARE Committee's proposals, yet also raised some questions about implementation.

"The biggest question I have involves how the program works with respect to the emissions inventory," said Bill Luthans, associate director for air in the EPA Region 6 Multimedia Planning and Permitting Division.

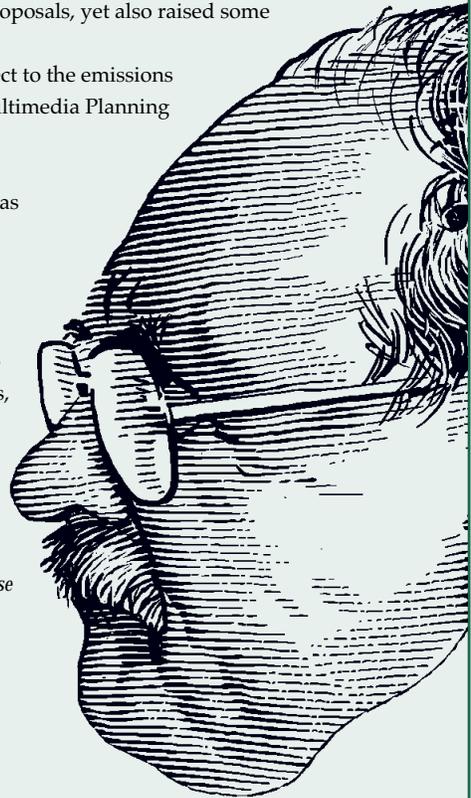
"When a corporation voluntarily reduces its emissions by modernizing a grandfathered facility, will that corporation be able to use all of that reduction as emission credits for future growth?" Luthans asked.

"If a corporation with a grandfathered facility develops an innovative, economical way of reducing emissions, that's great. But if there are other corporations with similar facilities in nonattainment areas, why not make that same economical reduction a requirement for them as well? I would not like to see a missed opportunity to achieve similar reductions from other corporations, particularly those that may not be as willing to participate voluntarily.

"The CARE Advisory Committee has proposed a good program," Luthans concluded. "Any time you can get sources to reduce voluntarily, that's good news. There are precedents that show that industries will participate in solid programs on a voluntary basis."

The CARE Advisory Committee's *Final Report*, *Minority Report*, and *Response to Minority Report* are available on the TNRCC Web Site at:

<http://www.tnrcc.state.tx.us/air/care>.



# TEXAS' FUTURE: CLEAN RIVERS RUN THROUGH IT

## “TMDLs in 10” Initiative to Boost Texas Water Quality in Coming Decade

**F**ew environmental initiatives have enjoyed a more colorful kickoff than the “TMDLs in 10” initiative, a massive, aggressive water quality improvement effort to ensure that Texas lakes and streams meet state standards.

Standing at the dock of the Arroyo Queen riverboat on Dec. 10, with the Arroyo Colorado and the port of Harlingen as a backdrop, TNRCC Chairman Barry McBee and a group of local and regional speakers inaugurated a 10-year effort to boost the quality of 141 impaired waterways across Texas.

The initiative involves the development and implementation of total maximum daily loads (TMDLs), which limit how much pollution a water body can receive and still meet state surface water quality standards. A TMDL is a quantitative assessment of an impairment and its sources. Based on TMDL findings, an action plan outlining the steps needed to restore and

protect the water body must be defined and implemented so that the water body is in line with state standards for specific uses, such as drinking water supplies or swimming. TMDLs provide the scientific foundation for the TNRCC’s efforts to manage water quality holistically by watershed.



Chairman Barry McBee (right) explains the agency’s “TMDLs in 10” initiative to a television journalist at the kickoff event on the dock of the Arroyo Queen river boat.

“The TMDLs in 10 initiative is the first water quality effort in Texas of this magnitude and complexity to improve the quality of resources enjoyed by everyone—our rivers, lakes, and streams,” said McBee. “Our goal is to accomplish within 10 years the development of

comprehensive watershed action plans to limit pollution in impaired waterways statewide.”

### TMDLs in 10: An overview

Previous efforts to ensure adequate water quality in Texas have focused on the permitting of wastewater discharges by cities and

landscape maintenance, and poorly designed or malfunctioning septic systems.

According to Mel Vargas, TNRCC watershed coordinator, state water quality management programs have focused on point source pollution and the Clean Water Act’s (CWA) National Pollutant Discharge Elimination System (NPDES) for the last 25 years. While the requirement for doing TMDLs has been in the Clean Water Act since 1972, state and federal water quality management agencies have not strategically addressed nonpoint source pollution.

“The ‘TMDLs in 10’ initiative is the next logical step, the necessary extension of water quality management to deal with nonpoint source pollution, which previously has been addressed in a limited fashion with limited funding,” Vargas said. “We are building on 30 years of water management experience, relying on our extensive knowledge of Texas water bodies, our monitoring

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network, and a variety of existing programs that have addressed point source pollution.”

The TNRCC plans to build on one of the most successful examples of these efforts, the Clean Rivers Program, relying on the regional planning agencies and basin steering committees to help watershed management efforts throughout the state.

The Clean Rivers Program will be helpful to the TMDLs in 10 initiative in several ways, according to Gail Rothe, one of the agency’s TMDL planners. She made the following points:

- The Clean Rivers Program already has some of the infrastructure needed for data collection and assessment.
- The basin steering committees can provide additional local information to assess and target water bodies.
- Clean Rivers partners may serve as lead agencies for TMDL development, as in the case of the Salado Creek TMDL, which will be led by the San Antonio River Authority.

In April the TNRCC submitted the 1998 list of 141 impaired water bodies to the EPA for approval. The list

will be the basis for setting TMDL priorities for the next 10 years. A separate TMDL must be developed for each contaminant, such as pesticides and herbicides. The water bodies that are affected by several contaminants will require several TMDLs.

The TNRCC will continue the work in progress in 14 watersheds where TMDLs are being developed and has recently targeted

four more: Big Cypress Creek in northeast Texas, Armand Bayou in Houston, Salado Creek near San Antonio, and the E.V. Spence Reservoir in the upper Colorado River basin.

In some instances, the TNRCC will use funds provided through section 319 of the Clean Water Act for development and implementation of TMDLs through watershed action plans.

“We’re going to have to use our limited resources smarter, leveraging multiple sources of funding,” Vargas said. “Targeting this money toward priority segments will be critical. We will have to think through our monitoring and assessment methods a little better. Some tough decisions about which pollution management

the Texas Legislature in the upcoming session.

Vargas noted that an important strategy that will be pursued in parallel with the TMDL initiative is the development of water quality standards that more accurately reflect Texas’ broad range of ecosystems. “We have a much more diverse mix of ecosystems than other states,” he said, “and this creates a need to establish additional site-specific water quality standards for more water bodies.”

**A new federal initiative**

As Texas pushes ahead with TMDLs in 10, the federal government is also launching a new nationwide initiative to clean up water bodies and coastal areas. In February, President Bill Clinton announced the administration’s Clean Water Action Plan, which targets water quality issues, including nonpoint sources of water pollution.

Clinton’s budget proposal sets aside \$568 million for the pollution control effort, which calls for stricter limits on coastal runoff, new controls on waste from poultry and livestock operations, and additional protections for wetlands. The federal funds for cleaner water will go to the EPA, U.S. Department of Agriculture, U.S. Department of the Interior, U.S. Army Corps of Engineers, and other federal agencies.

**SAMPLE OF HIGH-PRIORITY SEGMENTS FOR TMDL DEVELOPMENT**

WATER BODY	PROBLEM(S)
Armand Bayou	Low dissolved oxygen
Big Cypress Creek	Selenium in fish tissue
North Bosque River	Excess nutrients (nitrate, nitrate nitrogen, orthophosphorus, and total phosphorus)
Upper Bosque River	Excess nutrients (nitrogen and phosphorus)
E.V. Spence Reservoir	Total dissolved solids and sulfates
Arroyo Colorado	Low dissolved oxygen; chlordane, toxaphene, and DDE in fish tissue; and nitrobenzene, isophorone, and bis(2-ethylhexyl) phthalate in water.

The TNRCC will focus its initial TMDL efforts on a select group of water bodies with significant pollution problems.

strategies are most appropriate will have to be made.”

Funding for TMDLs remains a critical issue that may well be addressed by

Elements of the proposal that would have the greatest impact on Texas include:

- Increased enforcement and assistance to states intended to control discharges that contaminate fish and shellfish, beaches, and drinking water sources. The EPA will develop new microbiological testing criteria for coastal waters to better gauge the potential for human infection.
- Financial incentives for private landholders to create more than 2 million square miles of buffer zones on agricultural lands nationwide to prevent pollutants from draining into nearby water bodies.

The administration's broad range of initiatives, which build upon the success of the Clean Water Act, could cost up to \$2.3 billion over the next five years. Whatever part of federal funds that might come to Texas for TMDLs will cover only a portion of the total cost of development and implementation.

**Public participation critical for TMDL process**

Since state and federal funds won't cover the entire cost of TMDLs in 10, the initiative depends on collaborating with other state, regional, and local agencies and the stakeholders in the affected watersheds.

Judicious reallocation of TNRCC resources in areas such as the Clean Rivers Program will be necessary, according to TNRCC Commissioner John Baker.

"The infrastructure is in place; it is a matter of refocusing our efforts," he said.

Baker urged stakeholders to get involved early in the process. "Not only do they need to know the underlying assumptions for a TMDL, they need to be part of the formulation of those assumptions," he said. "Consequently, when the studies are completed and the results reported, their confidence level in the results will be higher."

The commissioner acknowledged that TMDLs may often prove to be expensive for stakeholders. The goal is that by specifically identi-

fying the contaminants getting into streams, TMDL teams can develop solutions that will not be cost-prohibitive.

"We are counting on the TMDL process, with its inclusive stakeholder input, to help us find affordable, common-sense, locally acceptable solutions," Baker said.

Linda Shead, executive director of the Galveston Bay Foundation, affirms the agency's commitment to inclusivity and shared decision making. The foundation—a nonprofit organization dedicated to the preservation, restoration, and conservation of Galveston Bay for its multiple uses—seeks consensus among all stakeholders and interest groups when exploring solutions to water quality problems. She would like to

see a similar model used for TMDL development.

Shead, a member of the EPA Federal Advisory Committee on TMDLs, emphasized the importance of the TNRCC "capitalizing on existing networks, like the Galveston Bay Foundation and the national estuary programs, where stakeholder involvement is already part of the culture."

**Keys to a successful initiative**

Texas is not alone or unique in its efforts to address water quality issues and implement the spirit and letter of the Clean Water Act.

"Everyone is struggling with the same types of problems and pollutants, but with their own state's brand of

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**IMPAIRMENTS IN TEXAS WATER BODIES**

PROBLEM	IMPAIRMENT	NUMBER OF SEGMENTS*
Fecal coliform bacteria in water	Contact recreation	59
Organics (such as PCBs)	Fish/shellfish consumption	36
Metals (such as cadmium and lead)	Fish/shellfish consumption, aquatic life	33
Low dissolved oxygen	Aquatic life	33
Dissolved solids (such as salt or sediment)	Aquatic life (16), public water supply (1)	17
Bacterial and viral contamination in shellfish	Shellfish consumption	20
High temperature	Aquatic life	1
pH imbalance	Aquatic life	1

\* 56 segments are counted in several categories because they have multiple impairments.

The TMDLs in 10 initiative fosters the protection and restoration of water uses such as swimming, fishing, and aquatic life habitat. By targeting and evaluating pollution sources, the program will enable the development of watershed action plans and the eventual attainment of state water quality standards.



politics," said Troy Hill, TMDL coordinator for EPA's Region 6.

Hill believes that for TMDLs in 10 to be successful, "the monitoring must be in sync, and there needs to be a really good outreach program. Is 10 years the right number? It is realistic, but I don't think it will be easy."

The challenge, Hill said, is to work cooperatively with all point and nonpoint source dischargers to establish the TMDLs. Further, the state needs to use incentives whenever possible to get as many stakeholders involved as possible, particularly during the implementation phase of the TMDL.

He is cautiously optimistic about the outcome of Texas' TMDL initiative.

"The TNRCC has the expertise, the right staff, the technical and programmatic experience, and the outreach experience," Hill said. "The agency also shows an understanding for the politics and the people that will help get the job done."

Not surprisingly, industry has demonstrated great interest in and concern about the state's TMDL initiative. Although they generally express strong support for the goals of achieving clean water

statewide, industry representatives have definite ideas about how they would like to see the effort proceed.

"We need to move ahead, but in the right direction," said Carolyn Johnson, an environmental consultant with Dow Chemical in Freeport. "If the initiative is done wrong, it could present industry with

unnecessary, unreasonable cost. We need to use proper science so we distinguish between which water bodies are truly impacted and those which are not. Proper monitoring is the key that will bring industry support.

"Lately the TNRCC has worked in true partnership with the regulated and broader community," said Johnson, who also chairs the subcommittee on wastewater discharge of the Water and Waste Management Committee of the Texas Chemical

Council. "If the efforts that began with the Clean Rivers Program continue with the TMDL initiative, it could be something great for Texas."

### **Agriculture ready to do its part**

Addressing nonpoint source pollution will be a major challenge for TMDL development across the state.

A good beginning has already been made with urban nonpoint source pollution because there is already a system in place dealing with

ly unregulated. In those watersheds where agricultural operations are shown to be a contributing problem, the TNRCC is hopeful that voluntary programs will suffice. These voluntary efforts might be built upon existing programs aimed at concerns such as soil conservation and erosion control that have implications for water quality.

Commissioner Baker, himself a Central Texas farmer, pointed out that farmers and ranchers have known for some time that they would be asked to address the nonpoint source problem. Like industry, they ask that sound science be used to delineate problems and find solutions.

"Agriculturalists have always said they would comply in areas where they are confident that their operations contribute to a problem," Baker said.

"Farmers and ranchers are nonetheless concerned about the impact of the TMDLs on their enterprises. How will they affect the way they fertilize and use pesticides? I believe it is a matter of being more conscious and more precise about the way they farm."

### **Concern about legal action**

In about half the nation's states, environmental and other groups have filed suits

**"Agriculturalists have always said they would comply in areas where they are confident that their operations contribute to a problem."**

John Baker  
TNRCC Commissioner

municipal runoff. As specified in the federal Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) has required stormwater permits from the EPA for municipal facilities serving populations of more than 100,000. In Phase II of the NPDES program, which will be finalized in 1999, the permit requirement is being extended to smaller municipalities.

Agricultural nonpoint sources, however, are virtual-

against the EPA to compel the EPA and state water quality agencies to comply with the federal requirements in the Clean Water Act. The EPA is sued because under the provisions of the act the federal agency has ultimate responsibility for implementation, even though states are expected to develop and implement their own TMDLs.

Commissioner Baker believes that Texas hasn't been sued on the TMDL front because the state has pursued a water quality program that is more aggressive than those of many other states. Further, the TMDLs in 10 initiative has a more aggressive schedule than those of many of the states that have settled lawsuits over the issue.

Vargas agrees with Baker that the ambitious TMDL initiative shows the state's high level of commitment to meet its obligations to the citizens of Texas. Both men are confident that the TMDL program being implemented in Texas is right for the state and will meet the expectations of environmental interest groups, industries, municipalities, and agricultural producers.

In general, Vargas said, "striking a balance between the protection of the environment and managing pollution sources will be a difficult task. Through Texas' TMDL initiative, the forum and process for debating how to

achieve that balance have been established."

**Consensus-building approach**

Melinda Taylor, senior attorney with the Environmental Defense Fund, said she believes the TMDL initiative "should move us a lot further along in terms of knowing where the greatest water quality problems are."

She hopes that the initiative ultimately will encourage a flexible, consensus-building approach to environmental problem solving.

"I don't think the outcome should be a rigid, technology-based set of permit amendments for point sources, but rather a more flexible mixture of different types of controls for water quality—whether that be a trading system between point and nonpoint sources, wetlands restoration, pollution prevention, or other methods," Taylor said.

The downside is apparent: TMDLs will be expensive and will have to happen in a compressed time frame.

Baker stresses the upside: "The TNRCC has the infrastructure to do a comprehensive job on cleaning up our impaired water bodies. The TMDLs will not be superficial efforts to satisfy some legal requirement but instead will be effective strategies based on thorough scientific analysis."



## Restoring the Arroyo Colorado

The TMDL process for the Arroyo Colorado reflects the enormity and difficulty of the task ahead for the TMDLs in 10 initiative. Water quality experts working on the Arroyo Colorado are confronted with a complex watershed affected by diverse urban and agricultural land uses, which translate into multiple sources and types of pollutants entering the waterway.

There are many individuals, businesses, and interest groups with an interest in this subtropical watershed, including agriculture, recreation, and tourism.

The influence of agriculture is pervasive. The Arroyo Colorado is an extensively modified watershed, repeatedly bisected by irrigation ditches and levees.

The river runs through a number of small towns, including McAllen and Harlingen, before reaching the Laguna Madre, which feeds into the Gulf of Mexico. The port of Harlingen is part of the water body, which means that the river in its lower reaches is a dredged shipping channel.

Nonpoint source contributions from colonias and illegal dumping are a special consideration for this and other South Texas watersheds.

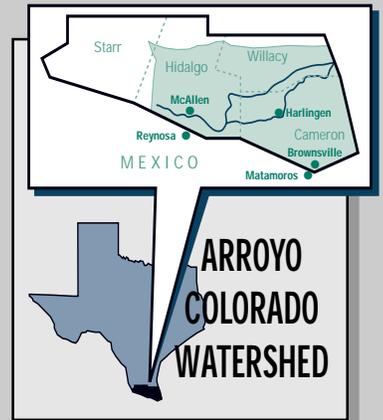
The Arroyo Colorado TMDL steering committee, which includes local and regional stakeholders, will gather frequently over the next three years to make recommendations for the development of TMDLs in the watershed.

The schedule calls for TMDL completion in FY 2001, but full implementation will take several more years.

Gail Rothe, a TMDL planner at the TNRCC, believes valuable lessons will be learned from the Arroyo Colorado TMDL.

"We will see how to use public participation more efficiently in making decisions affecting watersheds," she said. "And we will get a better sense of how to tailor TMDLs to a range of conditions."

Fortunately, most water bodies requiring TMDLs are not as complex as the Arroyo Colorado. Yet the river, only one of 141 water bodies requiring TMDLs, demonstrates the challenges facing the TNRCC and its partners that are seeking to improve Texas water quality.



# Lancaster Goes Green

## TNRCC helps Houston firm cut air emissions

Lancaster Furniture Inc. operates under a standard exemption from federal Title V and state air permitting. Owner Jim Lancaster plans to keep it that way.

The Houston company, which employs 75 people and brings in about \$3.5 million a year, is prospering. Yet with technical assistance from the TNRCC, Lancaster has reduced emissions by 30 percent, saving \$20,000 to \$30,000 in the bargain.

After inspecting the Lancaster facility, TNRCC staff from the Small Business Assistance Program (SBAP) and the Office of Pollution Prevention and Recycling recommended employee training, new equipment, and a different manufacturer for the stains being applied to the high-quality furniture the company ships nationwide.

"In terms of emissions, the company was close to having to get state and federal air permits," said Justine Burt of the

SBAP. "The reduction in emissions gives them room to grow without having to get those operating permits."

Lancaster, a member of SBAP's Houston Small Business Advisory Committee, is pleased that he has avoided the

paperwork associated with regulation and that the company has significantly cut costs.

"We are also glad of the chance to be a responsible corporate citizen because we are in Harris County, a severe nonattainment area for ozone," Lancaster said.

TNRCC technical assistance also helped Lancaster avoid having to

register as a small-quantity generator of hazardous waste, which means the firm must keep hazardous waste output below 220 pounds a month.

"We want to be a green company and we thank the TNRCC for helping us achieve that goal."

