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The University of Texas
at Austin**

ACTIVITIES OF THE TEXAS GROUNDWATER PROTECTION COMMITTEE

REPORT TO THE 76TH LEGISLATURE

Prepared by the
Texas Groundwater Protection Committee

Activities of the Texas Groundwater Protection Committee Report to the 76th Legislature



Prepared by the
Texas Groundwater Protection Committee

SFR-047/98
November 1998



Texas Groundwater Protection Committee

<www.tnrcc.state.tx.us/tgpc>

Committee Membership:

Texas Natural Resource Conservation Commission
Texas Water Development Board
Railroad Commission of Texas
Texas Department of Health
Texas Department of Agriculture
Texas State Soil and Water Conservation Board
Texas Alliance of Groundwater Districts
Texas Agricultural Experiment Station
Bureau of Economic Geology

Activities of the Texas Groundwater Protection Committee was developed and produced by the Texas Groundwater Protection Committee in fulfillment of requirements given in §26.405 of the Texas Water Code. While the information contained in the report represents the contribution of each individual participating agency and group, the report as a whole is the work of the Committee and does not necessarily reflect all of the views and policies of each participating organization. The effort was partially funded by the U.S. Environmental Protection Agency.

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EXECUTIVE SUMMARY

This report is prepared and submitted to the 76th Texas Legislature by the Texas Groundwater Protection Committee (TGPC). The TGPC has prepared the report in accordance with §26.405 of the Texas Water Code, describing the TGPC's activities for the two preceding years and providing groundwater protection recommendations for Legislative consideration. The TGPC respectfully submits recommendations regarding the following issues for Legislative consideration:

- ▶ additional resources will be needed by the participating agencies during the next biennium for the development and implementation of pesticide-specific state management plans required by the EPA under a proposed rule on pesticide and groundwater state management plans;
- ▶ rewrite §36.117 of the Texas Water Code, relating to exemptions from groundwater conservation district water well permitting, to simplify the language to make it more easily understood and revise or eliminate the exemptions to facilitate local decision-making for the local management of groundwater resources;
- ▶ further streamline the groundwater conservation district creation procedure within the priority groundwater management area process;
- ▶ TGPC membership should be expanded to include a representative of the Water Wells Drillers/Pump Installers Program; and
- ▶ provide resources to develop and carry out education programs on wastewater reclamation and use and closure of abandoned wells.

The report discusses the TGPC's creation and mandate, membership, and federal involvement and coordination. TGPC activities for the preceding biennium are also reported. This discussion includes an overview of Legislative action regarding the TGPC's recommendations to the 75th Legislature and descriptions of TGPC meetings and presentations, subcommittees and work groups, rules review, and public records are presented. The development and implementation of the TGPC's Abandoned Well Closure educational outreach initiative and findings from the annual joint groundwater monitoring and contamination reports are described. The status of the state management plan for the prevention of pesticide contamination of groundwater and groundwater protection strategy are also discussed.

RECOMMENDATIONS TO THE 76TH LEGISLATURE

Groundwater protection has become an important concern of the general public and local, state, and federal agencies. High-quality groundwater resources are of vital importance to the state's economy and the public health and welfare. As required by §26.405 of the Texas Water Code, the Texas Groundwater Protection Committee submits the following groundwater protection recommendations for legislative consideration. These recommendations are not listed in priority order. The TGPC had identified the following issues for consideration by the 76th Legislature.

- ▶ Under a proposed federal rule scheduled for adoption in early 1999, the U.S. Environmental Protection Agency will cancel the use of at least five widely used pesticides if pesticide-specific state management plans are not developed and implemented within a two-year time frame. Loss of just one pesticide could result in a multi-million dollar adverse impact to the state's agricultural economy. Additional resources will be needed during the next biennium.
- ▶ Section 36.117 of the Texas Water Code, regarding exemptions from groundwater conservation district water well permitting, should be rewritten. Modifications to this section should accomplish two objectives: (1) simplifying the language so it can be easily understood, and (2) revising or eliminating the exemptions so as to facilitate local decision-making for the local management of groundwater resources.
- ▶ Further streamlining of the process to create groundwater conservation districts in designated priority groundwater management areas is needed. The district creation process and the timing of educational efforts within designated priority groundwater management areas should be clarified.
- ▶ The Water Well Drillers/Pump Installers Program of the Texas Department of Licensing and Regulation (TDLR) has certain groundwater protection responsibilities and has been transferred from the Texas Natural Resource Conservation Commission (TNRCC) thereby losing representation on the Texas Groundwater Protection Committee. TGPC membership should be expanded to include a representative of the Water Well Drillers/Pump Installers Program, chosen by the Executive Director of the TDLR.
- ▶ Education plays a central role in the management and protection of the state's water resources. Educational programming by state agencies for wastewater reclamation and use and the closure of abandoned water wells should be enhanced.

The TGPC urges the Legislature to consider the legislative appropriations requests of the individual member agencies and provide the funds necessary to carry out the existing and recommended groundwater protection programs. Funding for the recommended topics may allow an agency to leverage state funds with additional federal funding from the U.S. Geological Survey, the U.S. Environmental Protection Agency, or other federal agencies to implement these initiatives.

Development of Pesticide-Specific State Management Plans and Education Program

Issue:

Under a federal rule scheduled to be final in early 1999, the use of specific pesticides with the potential to leach to groundwater will be prohibited if pesticide-specific management plans are not developed by the state. Resources are not currently available for the development and implementation of the required pesticide-specific management plans. Sufficient federal funding will not be available. EPA maintains that this program is voluntary and therefore not an unfunded mandate. Even as the federal rule is finalized, federal funding levels, which are currently inadequate to support the full development and implementation of the plans, will not be increased. Loss of just one major use pesticide could result in a multimillion dollar adverse impact to the state's economy.

Recommendation:

To maintain the use of these pesticides for their value and use to the state's agricultural economy, the TGPC recommends the Legislature address funding for the participating agencies during the next biennium for the development and implementation of pesticide-specific state management plans required by the U.S. Environmental Protection Agency (EPA) under a proposed rule on pesticide and groundwater state management plans. Should the pesticide-specific state management plans not be submitted for EPA review within two years of EPA's adoption of the final rule, the use of these pesticides would be prohibited in Texas. Thus, Texas' economy will be negatively impacted by millions of dollars per year (estimates presented on the following pages).

Background:

On June 26, 1996, the EPA published proposed rules in the *Federal Register* on pesticides and groundwater state management plan regulation. This federal rule proposal will, when adopted, restrict the use of pesticides that have been identified as probable or possible human carcinogens and have the ability to leach to groundwater. Because these are major-use pesticides (used on corn, sorghum, soybeans, peanuts, cotton, and other crops), the rule provides the states with the opportunity to allow continued use within the state by developing and implementing pesticide-specific management plans to protect groundwater. The proposed federal rule is expected to be issued in a final form in early 1999. Under the proposal, the state will have two years to develop and submit management plans for each pesticide, and the EPA would then have nine months to approve or reject the state's proposed management plans. Upon approval, the state would have to implement the proposed management plans.

Alachlor, atrazine, cyanazine, metolachlor, and simazine are the first five pesticides to be identified under this proposed rule, and there is a strong possibility that additional pesticides will be added to the federal list in the future. Pesticide-specific state management plans outline the approach the state will take to facilitate the use of a pesticide in a manner that is protective of groundwater resources. These plans will include monitoring of

groundwater quality and will define and encourage the use of voluntary best management practices. Voluntary best management practices will be encouraged through the development and distribution of educational materials relating to plan implementation and water resource protection. If groundwater contamination still occurs, mandatory best management practices may become necessary to allow continued use of the pesticide within the state.

Section 26.407 of the Texas Water Code tasks the Texas Natural Resource Conservation Commission (TNRCC) to develop management plans, with the advice of the TGPC, for agricultural chemicals (e.g., pesticides) that threaten groundwater. Specifically, these plans are for the protection and enhancement of water quality pursuant to federal statute, regulation, or policy, including management plans for the prevention of water pollution by agricultural chemicals and agents. This section was added to the Texas Water Code in 1989 and was specifically intended to cover the plans required by the EPA under its proposed rule.

The Texas Water Commission (TWC, 1989) identified the Lower Rio Grande Valley (study area) to be highly vulnerable to potential groundwater contamination from the use of pesticides. In a 1993 study, the Texas Agricultural Experiment Station (TAES) examined the economic impact of withdrawing the use of atrazine on the study area. Alternative methods of controlling pests in this region were identified. Regional impacts on gross receipts (sales), variable costs, and net returns were determined. If atrazine use were canceled in the study area, corn and sorghum sales would decrease by approximately \$1 million, variable costs to produce corn, sorghum, and sugarcane would increase by almost \$2 million, leaving farmers in the region with a \$3 million loss in net income per year. These are direct farmer impacts. The TAES has conservatively estimated that this figure multiplied by three, or \$9 million, would represent the total economic impact on the state if the use of atrazine was withdrawn. If all five of the pesticides are canceled for use in Texas, the total economic impact on the state could range from \$92 to \$157 million. This estimate includes the estimates from the 1993 TAES study, adding in the impact to other crops, such as sugarcane, citrus, peanuts and spinach, and extrapolates the values to 1996-1997 crop values. An impact evaluation by Ciba-Geigy's agricultural chemicals division estimates an even greater economic impact to the farming community, should the use of these pesticides be canceled in Texas (website: <http://www.access.ch/atrazine/>).

Funding Requirements and Potential Sources:

The EPA has indicated that federal funding for this program is minimal and will remain so in the future. EPA maintains that this program is voluntary and therefore not an unfunded mandate. Even as the federal rule is finalized, federal funding levels, which are currently inadequate to support the full development and implementation of the plans, will not be increased. In the draft rule, the EPA estimates that the average state will require 7,367 hours (4 FTEs) per year to implement the program, with 12,019 hours (6.3 FTEs) required the first year. For the average state, the EPA further estimates an annual cost of \$322,198 per year and a first-year start-up cost of \$399,926. For a larger, more complex state like Texas, the EPA estimates up to \$750,000/year for the first few years of implementation, and would require approximately 22,512 hours (12 FTEs) for the first year. The Agricultural Chemical Subcommittee of the TGPC estimates a little more than EPA, at about \$900,000 to \$1 million, or 14 FTEs per year for implementing the program. Currently the TNRCC, as lead agency, has 2 federally funded FTEs for development of the generic SMP that will be

utilized for pesticide-specific plan implementation. An additional 12 FTEs will be needed by the agencies for the program as shown in Table 1. Until the state management plan rule is finalized by EPA, these estimates are not hard figures. The EPA also commented on the uncertainty of estimates in their draft rule. The Agricultural Chemicals Subcommittee breakdown of cost estimates by agency are presented below:

Table 1. State Pesticide-Specific SMP Budgetary Estimates

Agency Name	Dollars (\$)	Full Time Employees (FTEs)
TAES/TAEX	300,000	4
TSSWCB	147,000	0.5 to 1 per vulnerable area
TWDB	60,000 to 100,000	1 to 2
TDA	135,000	2.25
TNRCC	250,000 to 350,000	2 (FTE's to be outsourced)
Others (TDH, TSPCB)	60,000	1
Totals	~900,000 to 1,034,000	10.75 to 12.25

Texas is a major-use state for all five pesticides, is much larger in area than most states, and is hydrologically more complex than most states. As a result, the costs estimated by the EPA may be low, while the above estimates of the Agricultural Chemicals Subcommittee are possibly closer to Texas needs based upon the generic *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* that has been developed by the TGPC (TGPC, 1996d). Unless the plans are developed and implemented in an approved manner, the EPA will prohibit the use of these pesticides statewide, ultimately affecting a large segment of the state’s agricultural community. Without adequate state funding, the development of plans for all five chemicals will not occur in a timely manner or prioritization of which of the five pesticides the state should support will have to be made.

The development and implementation of the state management plans are the main focus of the TGPC’s Agricultural Chemicals Subcommittee. The subcommittee is currently working with EPA on the final version of the state’s generic plan and will be involved in the development and implementation of the pesticide-specific state management plans. Costs are associated with the components of the pesticide-specific state management plans over the next biennium and include: geographic targeting, development of preventative measures, pesticide monitoring–network design, and information transfer to affected parties. The member agencies have specific roles in developing and implementing plans to preserve the use of these pesticides and ensure that the waters in the state remain protected for their appropriate uses under the currently proposed program. Additionally, other state and federal agencies, grower and producer groups, chemical manufacturers, and public interest groups have been involved in the planning phase of this program.

Other states (Arkansas, Florida, Maine, Minnesota, New Mexico, New York, Oklahoma, Wisconsin) have provided a legislative funding mechanism for development and implementation of pesticide-specific management plans. A summary of other states funding methods include pesticide registration fees, wholesale agriculture product fees, applicator licensing fees, water use fees, and agricultural product sales tax.

Ultimately, a method that fairly distributes the cost of implementing the program will need to be identified. Stakeholders potentially affected should be involved. The TGPC estimates that up to \$1,000,000 per year will be needed during the 1999–2000 biennium for the development of the five pesticide-specific state management plans. One of the five pesticides, cyanazine, is being voluntarily canceled by the manufacturer, and could result in the initial need for only four pesticide-specific state management plans to be developed. However, the final decision on the number of pesticides to be addressed has not been determined by EPA at the present time. Should this change be verified, it is anticipated to cause a small decrease in the state management plan development costs, as most of the pesticide-specific state management plans will attempt to follow the same format as the generic state management plan.

Chapter 36, Texas Water Code: Exempt Wells

Issue:

The language of §36.117 of the Texas Water Code is confusing and difficult to interpret. Also, exemptions from water well permitting under this section limit the ability of locally created and governed groundwater conservation districts to manage their groundwater resources.

Recommendation:

The TGPC recommends that §36.117 of the Texas Water Code be rewritten. The modifications to this section should accomplish at least two objectives: (1) simplify the language so it can be easily understood and (2) revise or eliminate the exemptions so as to facilitate local decision-making for the local management of groundwater resources. The TGPC recommends that exemptions from district permitting authority should be set locally through district rulemaking procedures. This recommendation would allow for public hearings and input in determining district-specific exemption needs based on district-specific groundwater conditions.

Background:

Texas Water Code, §36.117 provides exemptions, exceptions, and limitations related to groundwater conservation district water well permitting authority. This section of the Texas Water Code has been repeatedly amended over numerous legislative sessions as the powers and duties of groundwater conservation districts have evolved. The resulting language is often ambiguous, duplicative, and difficult to understand. The TGPC suggests that the entire section be rewritten.

Most groundwater districts are created by local citizens with the expectation that the district will manage the groundwater resources for the benefit of all within its jurisdiction. Fulfilling this expectation may fall short in any given district because of the exemptions that are provided in §36.117 of the Texas Water Code. Currently allowed exemptions from district permitting generally include wells incapable of producing more than 25,000 gallons per day; domestic wells supplying 10 or fewer households; livestock wells; wells supplying water for exploration, production, and other activities permitted by the Railroad Commission of Texas; and jet wells used for domestic need.

A number of aquifers within the state are not capable of producing 25,000 gallons per day, and this limit often prevents the protective measures for which local districts have been created. This “floor of regulation” has also discouraged the creation of groundwater conservation districts in some parts of the state, as most of the wells would be outside of a potential district’s authority to protect, conserve, and preserve the groundwater resource. The TGPC recommends that exemptions based on well production capacity should be set locally through district rulemaking procedures based on aquifer conditions. This change would allow for public hearings and input in determining local pumping exemption needs.

The TGPC suggests that the language of §36.117 be modified to provide groundwater districts the ability to adequately plan for the use and management of groundwater resources. The TGPC notes that all water wells to be drilled within a groundwater conservation district must be registered with the district prior to drilling, must conform with the district's well construction standards, and must meet the district's spacing and production requirements. This modification would emphasize the requirement for registration prior to drilling and the requirement to meet construction standards to protect groundwater resources. The benefits of district oversight regarding spacing and production requirements help prevent local well interference and overdrafting of the groundwater resource.

The TGPC further suggests that language be clarified to state that wells which are provided a permit exemption must be properly closed or plugged when taken out of use for the exempted purpose or must be permitted with the district if the use of the well no longer meets the exempted purpose.

Priority Groundwater Management Area Process Simplification

Issue:

Further streamlining of the process to create groundwater conservation districts in designated priority groundwater management areas would be beneficial. The district creation procedure required for TNRCC implementation is unclear and the educational program involving the Texas Agricultural Extension Service (TAEX) occurs too late for education needed by local governments and landowners to carry out local district establishment options.

Recommendation:

The TGPC recommends that the Legislature amend Chapters 35 and 36 of the Texas Water Code to clarify and improve the district creation process and the timing of educational efforts within designated priority groundwater management areas.

Background:

With the passage of Senate Bill 1 (SB 1) in 1997, the 75th Legislature significantly improved and streamlined the priority groundwater management area (PGMA) process. SB 1 amended Chapter 35 of the Texas Water Code to allow the TNRCC to designate a PGMA by order instead of by Administrative Procedure Act rulemaking requirements. SB 1 also added a much needed educational component to the PGMA process. In addition, SB 1 amended Chapter 36 of the Water Code to provide for the appointment of temporary directors in TNRCC-created districts in PGMA. A few procedural issues remain, however, that could be clarified to fully accomplish the groundwater district creation streamlining effort.

Chapter 35 provides a split in the PGMA process based upon the TNRCC's designation order. If the TNRCC's order finds that the PGMA should be added into an existing district, a definite procedure is given. However, if the TNRCC's designation order finds that groundwater district creation is needed in the PGMA, a somewhat vague district creation path is set forth. Under this path:

- ▶ landowners are provided an unspecified period of time to create a district;
- ▶ if local action is not taken, the TNRCC is required to identify the areas within the PGMA which have not created a district and "propose the creation of one or more districts";
- ▶ the TAEX educational program is initiated; and
- ▶ the TNRCC district creation proceeding is initiated according to Subchapter B, Chapter 36.

Under current statute, the type of TNRCC action and the triggers to initiate TNRCC district creation action is unclear. The TAEX educational program occurs too late in the PGMA process to be of value for locally-initiated district creation actions. Subchapter B of Chapter 36 provides a landowner petition process which is not appropriate for TNRCC-initiated district creation actions.

The TGPC suggests that this section of the Water Code (§35.012; Commission Order) should be clarified by separating the distinctly different actions which are required in the PGMA process at this stage. The TGPC recommends that separate sections pertaining to the Commission's designation order, landowner actions in a PGMA, and Commission creation of a district in a PGMA could provide the needed clarifications in the PGMA process pertaining to the creation of groundwater districts.

As required in Chapter 35, the educational program conducted by the TAEX, in conjunction with other state agencies, is initiated prior to TNRCC-initiated action to create a groundwater district or upon request from an existing district if annexation of the PGMA is being pursued. The initiation of the educational program occurs somewhat late in the PGMA process and is delayed until after the time frame allowed for local initiative to create a groundwater district in the PGMA.

The TGPC recommends that a notification to the PGMA's stakeholders should be provided following a TNRCC PGMA designation order. The TGPC recommends that the educational program be conducted immediately following the PGMA designation order if the TNRCC has determined that a groundwater district is needed. This change to Chapter 35 would allow the educational program to be administered for the benefit of the local population to encourage local initiative to create a groundwater district. This change would also follow the TNRCC's designation hearing and order, thus the district creation and groundwater management issues would still be fresh on the public's mind.

After allowing a certain time frame for local initiative to establish a groundwater district, the TGPC recommends that the statute be amended to provide that the Executive Director of the TNRCC should:

- ▶ identify the areas subject to the PGMA designation order which have not established a district,
- ▶ provide a written notice of consideration of the area for the creation of a district to the identified area's stakeholders and the other state agencies,
- ▶ provide an opportunity for the area's stakeholders to comment on the consideration of district creation, and
- ▶ prepare a district creation report and recommendations to be filed with the Commission.

The TGPC recommends that if the Executive Director's report recommends the creation of a district, the Commission could then consider the creation of a district following the procedures provided in Chapter 36 of the Water Code. The TGPC recommends that slight amendments to §36.014 (Notice and Hearing) and §36.015 (Findings) would be needed to include PGMA specific language and §36.0151 (Creation of District For Priority Groundwater Management Area) should be retitled.

Amending TGPC Membership

Issue:

The Texas Department of Licensing and Regulation (TDLR) has significant groundwater protection responsibilities related to the drilling and completion of water wells and the plugging of abandoned water wells. The TDLR's Water Well Drillers/Pump Installers Program should be represented on the Texas Groundwater Protection Committee.

Recommendation:

A representative of the Water Well Drillers/Pump Installers Program, chosen by the Executive Director of the TDLR, should be a member of the Texas Groundwater Protection Committee under the Texas Water Code, §26.403 © and (d).

Background:

The TDLR's Water Well Drillers/Pump Installers Program has the responsibilities of determining qualifications for licensure of all persons drilling water wells and enforcing standards of conduct and well completion through the revocation or suspension of licenses and assessment of administrative penalties. TDLR's Water Well Drillers/Pump Installers Program maintains communication with the Water Well Drillers Advisory Council and investigates all alleged violations of Chapter 32 and 33 of the Texas Water Code and TDLR rules.

The Texas Water Well Drillers Board was one of the original members of the Texas Groundwater Protection Committee when it was established in 1989. However, the Texas Water Well Drillers Board was consolidated within the Texas Water Commission in September, 1992 and subsequently, the TNRCC in September, 1993. As consolidated, the members of the Board became the interim members of the Texas Water Well Drillers Advisory Council and agency staff were consolidated into the Water Well Drillers and Pump Installers Program. The Advisory Council and the Water Well Drillers and Pump Installers Program were provided representation to the TGPC by the TNRCC.

Senate Bill 1955, 75th Legislature, 1997, transferred the Texas Water Well Drillers Advisory Council and the Water Well Drillers/Pump Installers Program from the TNRCC to the Texas Department of Licensing and Regulation effective September 1, 1997. This change in jurisdiction removed the Water Well Drillers/Pump Installers Program from representation on the TGPC.

Water Education Program Needs

Issue:

The TGPC recognizes the central role played by education in management and protection of the State's water resources. New educational programs are needed to promote wastewater reclamation and reuse and closure of abandoned wells to reduce groundwater depletion and contamination.

Recommendation:

Resources should be provided to develop and carry out education programs on wastewater reclamation and closure of abandoned wells.

Background:

Wastewater Reclamation and Reuse

Wastewater reuse is projected to account for about 15% of our total water supply by the year 2050. Wastewater can be provided by wastewater treatment plants, on-site wastewater treatment systems, and greywater systems. Wastewater reuse could reduce equivalent demands for groundwater. Reduced groundwater pumpage also lessens the likelihood of groundwater contamination by salt water intrusion. Use of reclaimed wastewater presents special problems because of elevated concentrations of salt, nutrients, organic chemicals, and microbiological agents, all of which have the potential to contaminate groundwater in sensitive hydrogeological settings.

Additional resources are needed to develop educational materials, conduct demonstrations, and deliver information and hands-on experience to best utilize this unique water resource.

Well Closure

Abandoned water wells remain at the top of the list of potential groundwater contaminant sources which can be easily identified and eliminated. Uncapped or uncased wells provide a direct conduit to groundwater from activities at the surface. Numerous state and local programs have identified abandoned water wells as having a significant, or potentially significant, impact on the quality of groundwater in the state. The state's Source Water Protection Program, administered by the TNRCC, routinely identifies abandoned wells as having the potential to impact public water supplies. Similarly, the Texas Rural Water Association routinely identifies abandoned wells as having the potential to impact wells. The potential for groundwater quality degradation, due in part to abandoned water wells, has also been documented by groundwater conservation districts in the western half of the state, Bureau of Economic Geology and Texas Water Development Board studies, and in the TNRCC's regional aquifer protection programs.

Abandoned water wells exist in every county of the state and impact all of the state's aquifers. Abandoned high-capacity municipal, industrial, and irrigation wells and abandoned rig-supply wells, domestic or livestock wells, and unplugged test holes pose existing and potential threats to groundwater quality. Many abandoned wells are old and improperly constructed and may have an inadequate or total absence of casing, uncemented surface casing, or may be left uncapped. Abandoned uncased, improperly cased, and gravel-packed wells completed in more than one water-bearing zone (or aquifer) may allow poorer-quality water from one zone to impact the other(s). In addition, poorer-quality surface water may impact aquifers by entering uncapped or unplugged well bores.

An exact count of the number of water wells which have been drilled within the state is unknown. However, it is estimated that since 1965 (the initial date records were required to be submitted to the state) close to 460,000 water wells have been completed. In addition, since 1988, over 71,000 dewatering, injection, and monitoring wells have been drilled. The total number of water wells drilled, or dug, prior to these dates is open for speculation. It is conservatively estimated that 25% of the water wells which have been drilled since 1965, or about 115,000, are improperly constructed or abandoned.

No statewide fund exists to specifically finance the plugging of improperly abandoned water wells. Additional financial resources are needed to produce educational materials, including an instructional video, conduct demonstrations of actual closings across the state, and deliver information through formal and informal meetings with landowners.

INTRODUCTION

Groundwater is a vitally important resource in Texas. It is a major source of the water used by Texans for domestic, municipal, industrial, and agricultural purposes. In 1994, Texans used about 16.5 million acre-feet of water, of which 9.4 million acre-feet, or 57 percent, was derived from groundwater sources. More than 80 percent of groundwater use is for irrigation, with the remainder being utilized for municipal supplies, rural and domestic consumption, rural livestock, electric utility, and industry. About 43 percent of municipal water in Texas is obtained from groundwater sources.

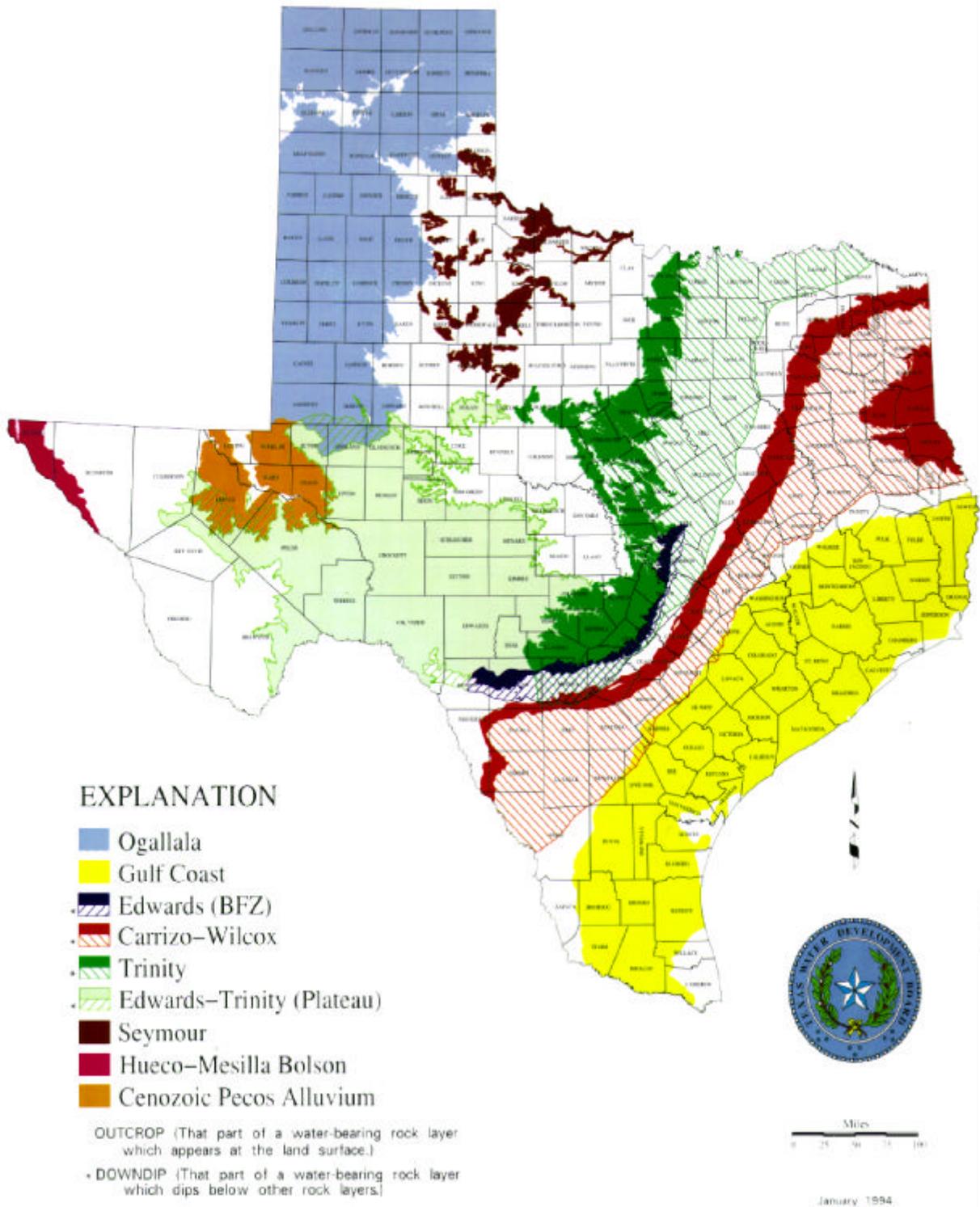
The major and minor aquifers within the state furnish this vast groundwater resource. These aquifers underlie approximately 76 percent of the state's surface area of 266,807 square miles. Major aquifers are defined as producing large quantities of water in a comparatively large area of the state, whereas minor aquifers produce significant quantities of water within smaller geographic areas or small quantities in large geographic areas. Minor aquifers are very important, as they may constitute the only significant source of water supply in some regions of the state. The major and minor aquifers are composed of many rock types, including limestones, dolomites, sandstones, gypsum, alluvial gravels, and in some parts of the state, igneous rocks. Nine major aquifers and 20 minor aquifers have been delineated within the state. Figures 1 and 2 illustrate the geographic distribution of the state's major and minor aquifers. Other undifferentiated, local aquifers may represent the only source of groundwater where major or minor aquifers are absent. These local aquifers, which provide groundwater that is utilized for all purposes, vary in extent from being very small to encompassing several hundred square miles.

Creation and Mandate

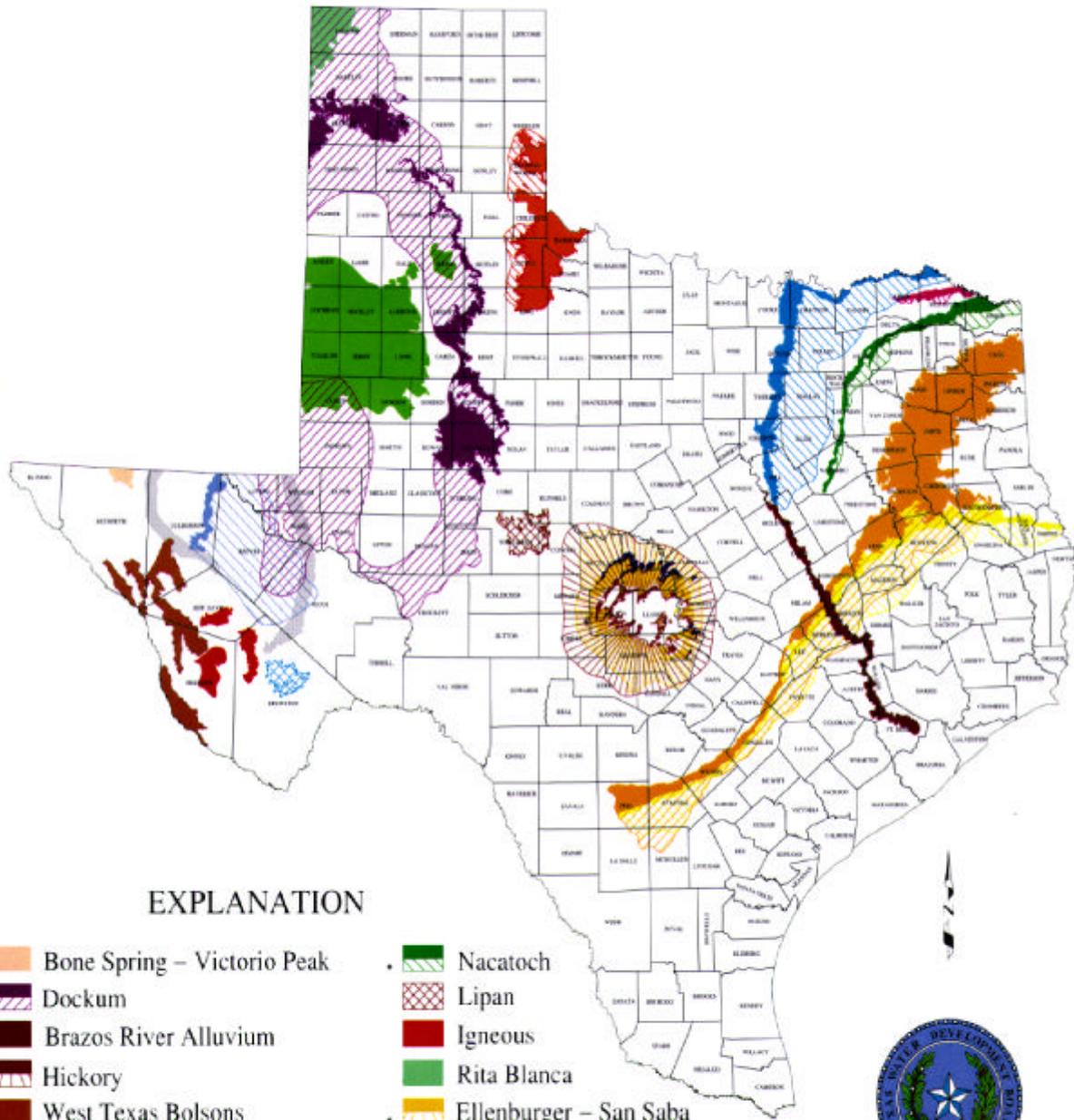
In March 1985, the Texas Department of Water Resources, predecessor to the Texas Natural Resource Conservation Commission (TNRCC) and the Texas Water Development Board (TWDB), received a grant from the U.S. Environmental Protection Agency (EPA) to improve coordination of groundwater protection activities undertaken by state agencies. In response to this federal mandate, the interagency Groundwater Protection Committee was established.

The Texas Groundwater Protection Committee (TGPC) was formally created by the 71st Texas Legislature in 1989. The TGPC was created to bridge gaps among existing state water and waste regulatory programs in order to focus protection on the groundwater resource and to optimize water quality protection by improving coordination among agencies involved in groundwater activities. House Bill 1458 (codified as §§26.401 through 26.407 of the Texas Water Code) established the TGPC and outlined its powers, duties, and responsibilities. Upon creation, the TGPC effectively replaced and continued with the efforts of the predecessor Groundwater Protection Committee.

MAJOR AQUIFERS OF TEXAS



MINOR AQUIFERS OF TEXAS



EXPLANATION

- | | |
|-----------------------------------|--------------------------|
| • Bone Spring – Victorio Peak | • Nacatoch |
| • Dockum | • Lipan |
| • Brazos River Alluvium | • Igneous |
| • Hickory | • Rita Blanca |
| • West Texas Bolsons | • Ellenburger – San Saba |
| • Queen City | • Blossom |
| • Woodbine | • Marble Falls |
| • Edwards – Trinity (High Plains) | • Rustler |
| • Blaine | • Capitan Reef Complex |
| • Sparta | • Marathon |

• OUTCROP (That part of a water-bearing rock layer which appears at the land surface.)
 • DOWNDIP (That part of a water-bearing rock layer which dips below other rock layers.)



January 1984

The state’s groundwater protection policy was also adopted by the Legislature as part of the Act that created the TGPC. The policy sets out nondegradation of the state’s groundwater resources as the goal for all state programs. The state’s groundwater protection policy recognizes:

- ▶ the variability of the state’s aquifers in their potential for beneficial use and susceptibility to contamination;
- ▶ the importance of protecting and maintaining present and potentially usable groundwater supplies;
- ▶ the need for keeping present and potential groundwater supplies reasonably free of contaminants for the protection of the environment and public health and welfare; and
- ▶ the importance of existing and potential uses of groundwater supplies to the economic health of the state.

The policy states that discharges of pollutants, disposal of wastes, and other regulated activities be conducted in a manner that will maintain present uses and not impair potential uses of groundwater or pose a public health hazard. The use of the best professional judgment by the responsible state agencies in attaining the goal and policy is also recognized.

The TGPC actively seeks to implement this policy by identifying opportunities to improve existing groundwater quality programs and promote coordination between agencies. The TGPC also strives to improve or identify areas where new or existing programs could be enhanced to provide additional needed protection. The major responsibilities of the TGPC are listed in Table 2.

Table 2. Major Responsibilities of the TGPC

IMPROVE COORDINATION BETWEEN STATE AND FEDERAL AGENCIES IN THE AREA OF GROUNDWATER PROTECTION
DEVELOP, IMPLEMENT, AND UPDATE A COMPREHENSIVE GROUNDWATER PROTECTION STRATEGY FOR THE STATE
STUDY AND RECOMMEND TO THE LEGISLATURE NEW GROUNDWATER PROTECTION PROGRAMS, AND FILE WITH THE GOVERNOR, LIEUTENANT GOVERNOR, AND SPEAKER OF THE HOUSE OF REPRESENTATIVES A BIENNIAL REPORT OF THE TGPC’S ACTIVITIES
PUBLISH AN ANNUAL MONITORING AND CONTAMINATION REPORT DESCRIBING THE CURRENT STATUS OF GROUNDWATER MONITORING PROGRAMS OF EACH MEMBER AGENCY AND GROUNDWATER CONTAMINATION CASES DOCUMENTED OR UNDER ENFORCEMENT DURING THE CALENDAR YEAR
ADVISE THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION ON THE DEVELOPMENT OF STATE MANAGEMENT PLANS FOR THE PREVENTION OF GROUNDWATER CONTAMINATION FROM PESTICIDES

TGPC Membership

The Texas Water Code, §26.403, identifies the agencies listed in Table 3 for TGPC membership. The TNRCC is designated as the lead agency, with the Executive Director designated as the TGPC’s chairman. The Executive Administrator of the Texas Water Development Board is designated as the TGPC’s vice chairman.

Table 3. Texas Groundwater Protection Committee Membership

EXECUTIVE DIRECTOR OF THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
EXECUTIVE ADMINISTRATOR OF THE TEXAS WATER DEVELOPMENT BOARD
REPRESENTATIVE SELECTED BY THE RAILROAD COMMISSION OF TEXAS
COMMISSIONER OF HEALTH OF THE TEXAS DEPARTMENT OF HEALTH
DEPUTY COMMISSIONER OF THE DEPARTMENT OF AGRICULTURE
EXECUTIVE DIRECTOR OF THE TEXAS STATE SOIL AND WATER CONSERVATION BOARD
REPRESENTATIVE SELECTED BY THE TEXAS ALLIANCE OF GROUNDWATER DISTRICTS
DIRECTOR OF THE TEXAS AGRICULTURAL EXPERIMENT STATION
DIRECTOR OF THE BUREAU OF ECONOMIC GEOLOGY OF THE UNIVERSITY OF TEXAS AT AUSTIN

The Water Code allows each member of the TGPC to designate a personal representative of the member’s agency to represent the member on the TGPC. The current TGPC members and their designated representatives are listed in Appendix 1.

The regulatory protection of groundwater is primarily the responsibility of the TNRCC. Certain activities requiring the regulatory protection of groundwater are under the jurisdiction of the Railroad Commission of Texas, the Texas Department of Agriculture, the Texas Department of Health, and the Texas State Soil and Water Conservation Board. The Texas Water Development Board has certain monitoring authorities in regard to groundwater but does not possess the statutory authority to regulate activities that may contaminate groundwater. The Texas Alliance of Groundwater Districts, as an organization, has no regulatory or enforcement authority, but individual groundwater districts have limited authorities for action with regard to groundwater contamination. The Texas Agricultural Experiment Station and the Bureau of Economic Geology conduct research activities related to groundwater. A brief description of groundwater-related responsibilities, protection programs, and research conducted by the agencies represented on the TGPC follows.

Texas Natural Resource Conservation Commission

The TNRCC conducts various groundwater protection programs that focus on both prevention of contamination and remediation of existing problems through education, permitting, and enforcement. As the state lead agency for water resources, the TNRCC administers both state and federally mandated programs, including the Resource Conservation and Recovery Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Clean Water Act; the Safe Drinking Water Act; and the development of state management plans for groundwater under the Federal Insecticide, Fungicide, and Rodenticide Act.

The TNRCC's groundwater protection related programs are primarily located in the Offices of Waste Management, Water Resource Management, and Compliance and Enforcement. Divisions with primary groundwater protection responsibilities include:

- ▶ Compliance Support Division -- responsible for professional licensing and the on-site wastewater program;
- ▶ Enforcement Division -- responsible for ensuring that groundwater resources are protected through enforcement activities related to the municipal solid waste, industrial and hazardous waste, petroleum storage tank, agricultural and watershed management, wastewater, water utilities, and public water supply programs;
- ▶ Field Operations Division -- responsible for the field investigation of contamination complaints and the inspection of permitted and nonpermitted facilities as well as the Edwards Aquifer Protection programs, oversight of the delegated authorized on-site wastewater agents, and inspection of on-site systems;
- ▶ Industrial and Hazardous Waste Division -- responsible for preventing groundwater contamination and ensuring remediation at industrial sites through the waste disposal facility permitting program, and the Class I and Class III underground injection control programs;
- ▶ Municipal Solid Waste Division -- responsible for monitoring activities associated with the collection, handling, storage, processing, and disposal of municipal solid waste to ensure protection of groundwater and requires remediation where these activities have failed;
- ▶ Petroleum Storage Tank Division -- regulates underground and aboveground product storage tanks and requires groundwater monitoring and remediation at contaminated sites;
- ▶ Pollution Cleanup Division -- responsible for both federal and state Superfund activities, the Voluntary Cleanup Program, and spill response;

- ▶ Remediation Division -- responsible for conducting remedial investigations and corrective actions and seeks funding for remedial activities based upon a health risk ranking program;
- ▶ Water Policy and Regulations Division -- coordinates rulemaking and water policy development process and chairs the Texas Groundwater Protection Committee
- ▶ Water Quality Division -- responsible for the surface and groundwater quality management and planning programs, the development and implementation of water quality standards, the implementation of the surface and groundwater nonpoint source pollution programs, the Class V underground injection well program, the pesticides in groundwater program, and ensuring that groundwater resources are protected through permitting activities related to concentrated animal feeding operations and municipal and industrial wastewater treatment; and
- ▶ Water Utilities Division -- monitors public water systems for compliance with state drinking water standards, conducts the Source Water Protection Program, and provides groundwater protection recommendations for various activities of the energy industry regulated by the Railroad Commission of Texas.

Railroad Commission of Texas

The Surface Mining and Reclamation Division of the Railroad Commission of Texas (RCT) is authorized to enforce laws and regulations consistent with the Texas Surface Coal Mining and Reclamation Act and the Texas Uranium Surface Mining and Reclamation Act. Groundwater information is required in the regulations, as are monitoring plans for pre-mining and post-mining conditions. Groundwater investigations and monitoring by the Surface Mining and Reclamation Division is conducted in response to citizen complaints of adverse impact from surface mining activities.

The RCT's Oil and Gas Division is responsible for protecting groundwater from activities related to the drilling, exploration, and production of oil, gas, and geothermal resources, the underground storage of hydrocarbons, and the solution mining of brine. The regulations of the Oil and Gas Division for the well drilling, completion, and plugging focus on the protection of groundwater resources. The RCT administers the EPA-delegated Underground Injection Control Program under the Safe Drinking Water Act for Class II injection wells associated with oil and gas activities, Class III brine-mining injection wells, and Class V disposal wells related to the oil and gas industry. The RCT regulates the handling, storage, treatment, and disposal of oil and gas wastes. The RCT responds to spills from pipelines under its jurisdiction and to other emergencies related to the production and transportation of oil and gas. The RCT responds to citizen complaints regarding alleged groundwater contamination from oil and gas activities and to allegations of unauthorized activities that may endanger groundwater.

Texas Department of Agriculture

The Texas Department of Agriculture has lead authority for pesticide regulation in the state of Texas. Recognizing pesticides as potential groundwater contaminants, and having primary responsibility to prevent unreasonable risk to humans or the environment from the use of pesticides, the TDA performs studies and analyses aimed at assessing health, ecological, and environmental effects of various pesticides. This analysis is performed by the agency's Pesticide Impact Evaluation activity in order to ensure compliance with federal laws and regulations relating to the use of pesticides and protection of groundwater resources. The TDA accomplishes this by independently substantiating and validating claims of pesticide contamination relating to human health and the environment.

Texas Department of Health

The Texas Department of Health's Bureau of Radiation Control (BRC) regulates radioactive materials in Texas under the authority of the Atomic Energy Act of 1954 as amended. As needed, the BRC will sample groundwater as a result of an incident, complaint, or situation that leads the BRC to believe there may be groundwater contamination.

Texas State Soil and Water Conservation Board

The Texas State Soil and Water Conservation Board (TSSWCB), under Title 7 Chapters 201 and 203 of the Agriculture Code of Texas, is charged with the overall responsibility for administering and coordinating the state's soil and water conservation program with the state's soil and water conservation districts. Section 201.016 gives the agency responsibility for planning, implementing, and managing programs and practices for abating agricultural and silvicultural nonpoint source pollution. Currently, the agricultural/silvicultural nonpoint source management program includes problem assessment, management program development and implementation, monitoring, education, and coordination.

Texas Water Development Board

The Texas Water Development Board (TWDB) collects data on the state's aquifers, including the occurrence, availability, quality, and quantity of groundwater and the current and projected demands on groundwater resources. This is done through the statewide groundwater level measurement program, groundwater quality sampling program, and groundwater studies.

The purpose of the groundwater quality sampling program is to monitor changes, if any, in the quality of groundwater over time and to establish as accurately as possible the baseline quality of groundwater

occurring naturally in the state's aquifers. The groundwater quality monitoring program is accomplished in accordance with procedures established in the TWDB's *Field Manual for Ground-Water Sampling*, in supplemental samples analyzed on Hach instruments, and by obtaining data collected by other entities such as groundwater conservation districts, the U.S. Geological Survey, and other state and federal agencies.

Texas Alliance of Groundwater Districts

The Alliance is the umbrella organization composed of groundwater conservation districts within the state (Figure 3). Its membership is restricted to groundwater conservation districts, which have the powers and duties to manage groundwater as defined in Chapter 36 of the Texas Water Code. The districts were created by the Legislature or by the Texas Natural Resource Conservation Commission with the purpose and responsibility of preserving and protecting groundwater. The districts are local or regional in their jurisdiction and have, for the most part, elected boards of directors. Among their legislatively granted authorities is the power to monitor groundwater quality. Districts also have the authority to bring civil court proceedings for injunctive relief against an entity causing groundwater contamination.

Texas Agricultural Experiment Station

The Texas Agricultural Experiment Station (TAES) is the official agricultural research agency in Texas. Headquartered at Texas A&M University, the TAES promotes food and fiber production that emphasizes water conservation and the protection of natural resources. Broad goals of the TAES groundwater research program are to protect, preserve, and efficiently use water resources, and to develop sustainable agricultural production systems. Groundwater programs of the TAES stress the development of management strategies, technologies, and educational programs coordinated with the Texas Agricultural Extension Service (TAEX) to support sustainable agriculture. TAES groundwater quality research focuses on reductions in chemical use; the control, fate, and transport of agricultural chemicals; and the remediation of contaminated groundwaters.

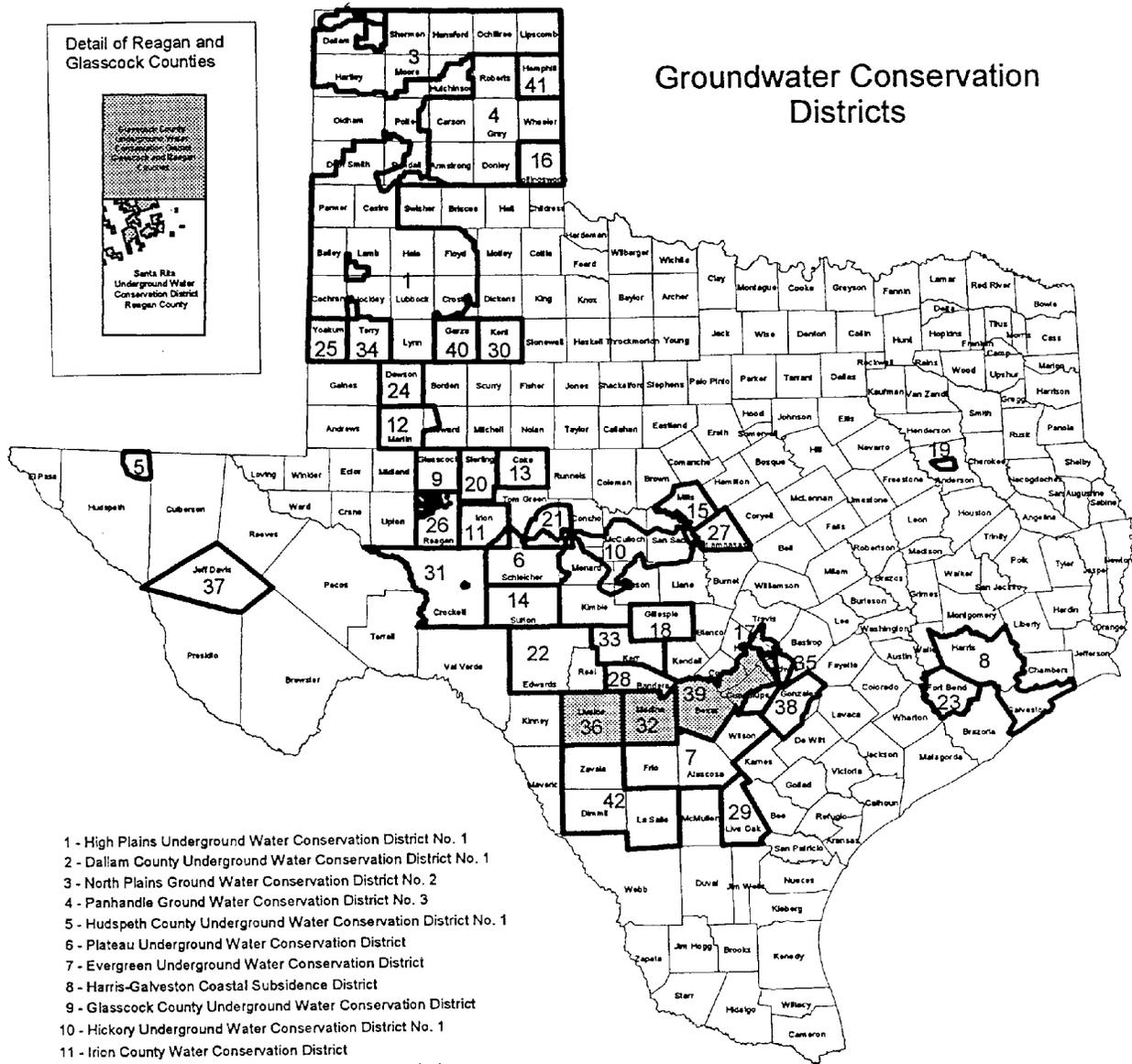
Bureau of Economic Geology

The Bureau of Economic Geology is a research entity of the University of Texas at Austin and functions as the state geological survey. Extensive advisory, technical, and informational services relating to the geology and groundwater resources of Texas are provided by the Bureau. In addition, the Bureau conducts basic and applied research projects in energy and mineral resources and in hydrogeology, groundwater resources, and geochemistry. Some projects are conducted jointly with other units of the University of Texas as well as with state, federal, and local agencies, industry associates, and foreign companies.

Federal Involvement and Coordination

Since 1985, the coordination of groundwater protection activities of the various federal and federally delegated regulatory programs, and the development of a groundwater protection strategy have been mandated and funded through EPA grants administered under Section 106 of the Clean Water Act.

The TGPC maintains an active relationship in providing coordination with federal agencies on groundwater protection issues that affect the state. Two issues for which the TGPC has taken an active leadership role with federal agencies are the development of a comprehensive state groundwater protection program and the development of state management plans for the prevention of groundwater contamination from pesticides. In addition, the TGPC has regularly provided input on a national level by participating in the national Groundwater Protection Council (mainly concerned with wellhead protection and underground injection control issues), the State FIFRA Issues Research Evaluation Group (dealing with pesticide related issues and state management plans), the Association of State and Interstate Water Pollution Control Administrators, and other state and federal stakeholder and regulatory guidance groups.



- 1 - High Plains Underground Water Conservation District No. 1
- 2 - Dallam County Underground Water Conservation District No. 1
- 3 - North Plains Ground Water Conservation District No. 2
- 4 - Panhandle Ground Water Conservation District No. 3
- 5 - Hudspeth County Underground Water Conservation District No. 1
- 6 - Plateau Underground Water Conservation District
- 7 - Evergreen Underground Water Conservation District
- 8 - Harris-Galveston Coastal Subsidence District
- 9 - Glasscock County Underground Water Conservation District
- 10 - Hickory Underground Water Conservation District No. 1
- 11 - Irion County Water Conservation District
- 12 - Permian Basin Underground Water Conservation District
- 13 - Coke County Underground Water Conservation District
- 14 - Sutton County Underground Water Conservation District
- 15 - Fox Crossing Water District
- 16 - Collingsworth County Underground Water Conservation District
- 17 - Barton Springs/Edwards Aquifer Conservation District
- 18 - Hill Country Underground Water Conservation District
- 19 - Anderson County Underground Water Conservation District
- 20 - Sterling County Underground Water Conservation District
- 21 - Lipan-Kickapoo Water Conservation District
- 22 - Real-Edwards Conservation and Reclamation District
- 23 - Fort Bend Subsidence District
- 24 - Mesa Underground Water Conservation District
- 25 - Sandy Land Underground Water Conservation District
- 26 - Santa Rita Underground Water Conservation District
- 27 - Saratoga Underground Water Conservation District
- 28 - Springhills Water Management District
- 29 - Live Oak Underground Water Conservation District
- 30 - Salt Fork Underground Water Conservation District

- 31 - Emerald Underground Water Conservation District
- 32 - Medina Underground Water Conservation District
- 33 - Headwaters Underground Water Conservation District
- 34 - South Plains Underground Water Conservation District
- 35 - Plum Creek Conservation District
- 36 - Uvalde County Underground Water Conservation District
- 37 - Jeff Davis County Underground Water Conservation District
- 38 - Gonzales County Underground Water Conservation District
- 39 - Edwards Aquifer Authority
- 40 - Garza County Underground and Fresh Water Conservation District
- 41 - Hemphill County Underground Water Conservation District
- 42 - Wintergarden Groundwater Conservation District

Texas Natural Resource Conservation Commission

TGPC ACTIVITIES 1997-1998

Actions on Recommendations to the 75th Legislature

The 75th Legislature, directly or indirectly, addressed five of the seven recommendations forwarded by the TGPC in December, 1996 (TGPC, 1996e). Two TGPC recommendations were not addressed: funding for pesticide-specific state management plan development and implementation and providing regional wastewater authority to groundwater conservation districts.

The TGPC recommended amending Chapter 16 of the Texas Water Code to make drought response, at both a statewide and regional level, a water planning priority. Senate Bill 1 (SB 1) addressed this recommendation by amending Chapter 16, Water Code, to require both statewide and regional water plans that provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions.

The TGPC provided a suite of recommendations and alternatives that called for the clarification of §36.117 of the Texas Water Code which exempts certain wells from groundwater conservation district jurisdiction. SB 1 added some clarifications to §36.117 as suggested by the TGPC; however, the full suite of TGPC recommendations were not addressed. An analysis of actions on individual TGPC recommendations and Legislative action follows.

- ▶ The exemption level of 25,000 gallons per day was not lowered, as suggested by the TGPC. As originally proposed, SB 1 would have allowed groundwater conservation districts to set exemption levels locally, as alternatively suggested by the TGPC; however, this language did not survive in SB 1 as enrolled. SB 1 did provide that groundwater districts may exempt wells from obtaining drilling, operating, and other permits as locally determined.
- ▶ The TGPC's recommendation to make the Railroad Commission of Texas (RCT) permitted activity exemption valid only for short-time water-supply wells, properly plugged and abandoned when RCT permitted drilling activities were completed, was not addressed. However, changes by SB 1 require all exempted water wells to be registered with a district prior to drilling.
- ▶ The TGPC's recommendation that if a well is constructed with the intention to retain the well as a water supply well following a RCT permitted activity, the well should be permitted by the district prior to drilling and should not be allowed an exemption was partially addressed. Changes by SB 1 require all exempted water wells to be registered with a district prior to drilling.

- ▶ The TGPC's recommendation that RCT exemptions should be valid only for rig-supply wells supporting mineral exploration or production development occurring on the same property was partially addressed. SB 1 requires that water supply wells for hydrocarbon production activities drilled after September 1, 1997 must meet the spacing requirements of the district unless no space is available within 300 feet of the production well or the central injection station.

The TGPC recommended amending Chapter 35 of the Texas Water Code to simplify and improve the groundwater conservation district creation process within designated PGMA's. SB 1 provided significant changes to Chapter 35 to amend and streamline the, now termed, priority groundwater management area process. SB 1 provided that priority groundwater management area designation will be conducted by TNRCC order instead of a TNRCC rule. However, the TNRCC-initiated creation of a groundwater district within a designated priority groundwater management area needs further clarification in regard to district creation procedure and timing.

The TGPC recommended providing sufficient appropriations to the TNRCC and TWDB to implement and administer the PGMA Program required under Chapter 35 of the Texas Water Code. Appropriations to TNRCC and TWDB, to implement SB 1, addressed the TGPC's recommendation.

The TGPC recommended amending Chapters 32 and 33 of the Texas Water Code to establish mandatory continuing education for water well drillers and pump installers. Senate Bill 1955 partially addressed this recommendation. SB 1955 transferred the water well drillers and pump installers certification program from the TNRCC to the Texas Department of Licensing and Regulation (TDLR) and provided for voluntary continuing education. However, SB 1955 stipulates that the Texas Water Well Drillers Advisory Council may determine if the TDLR should require continuing education.

Meetings and Presentations

In accordance with §26.404 of the Texas Water Code, the TGPC is subject to the Administrative Procedures and Texas Register Act and open meetings and open records law. In addition to the public notification of meetings in the *Texas Register*, a notice of meeting, including the proposed meeting agenda, are provided to all individuals which maintain a current address on the TGPC's mailing list. Meeting notices are also posted on the TGPC's Internet homepage.

As required by §26.404, the TGPC met quarterly during the 1997–1998 biennium for a total of eight meetings. Regularly scheduled items on the TGPC's agenda include subcommittee reports, presentations and round table discussions, business, information exchange, announcements, and public comment.

During the biennium, quarterly presentations were given to the TGPC which discussed new or improved groundwater related activities and initiatives from various agencies and groups. The presentations serve to

broaden interagency awareness and coordination. Presentations to the TGPC during the 1997–1998 biennium included the following:

- ▶ the TNRCC provided an overview of the agency’s geographic information system which included current capabilities and proposed improvements;
- ▶ the TNRCC presented information pertaining to the Texas Risk-Reduction Program and discussed the development and status of the agency’s risk-reduction rules;
- ▶ the TNRCC presented an overview of the provisions of Senate Bill 1 (75th Legislature, 1997) and other recent legislative changes which will directly impact the agency;
- ▶ the TNRCC presented an analysis of the TGPC’s recommendations to the 75th Legislature and related legislative changes which were incorporated;
- ▶ the TNRCC provided an extensive overview of the requirements for and the development of the Texas Source Water Protection Program;
- ▶ the Bureau of Economic Geology discussed findings from the study Extent, Mass, and Duration of Hydrocarbon Plumes from Leaking Petroleum Storage Tank Sites in Texas;
- ▶ the Texas Water Development Board provided a current overview of regional water planning activities conducted pursuant to Senate Bill 1;
- ▶ the Barton Springs/Edwards Aquifer Conservation District discussed the preliminary results of a groundwater tracing study in the Barton Springs Segment of the Edwards Aquifer; and
- ▶ the Texas Agricultural Extension Service provided an overview and status of water education programming as required by Senate Bill 1.

Subcommittees and Work Groups

Subcommittees and work groups are created at the call of the chairman. Upon approval of the TGPC, the subcommittees address specific groundwater-related issues or areas of program development and keep the TGPC apprised of ongoing issues and projects. The subcommittees report and provide recommendations to the TGPC at its regularly scheduled meetings. At its meetings, the TGPC considers the findings and recommendations of the subcommittees, and after holding discussion, takes action as it finds appropriate for each issue. The public is encouraged to fully participate on and serve in the subcommittee process. The subcommittees and task forces listed in Table 4 were used by the TGPC during the 1997–1998 biennium.

Table 4. Active Subcommittees, 1997–1998 Biennium

<p>AGRICULTURAL CHEMICALS SUBCOMMITTEE, CONSISTING OF: STATE MANAGEMENT PLAN TASK FORCE EDUCATION TASK FORCE SITE SELECTION TASK FORCE DATA EVALUATION AND INTERPRETATION TASK FORCE BEST MANAGEMENT PRACTICES TASK FORCE</p>
<p>DATA MANAGEMENT SUBCOMMITTEE</p>
<p>GROUND-WATER NONPOINT SOURCE SUBCOMMITTEE</p>
<p>JOINT GROUNDWATER MONITORING AND CONTAMINATION REPORT SUBCOMMITTEE</p>
<p>LEGISLATIVE REPORT SUBCOMMITTEE</p>
<p>ABANDONED WELL CLOSURE TASK FORCE</p>

Agricultural Chemicals Subcommittee

The Agricultural Chemicals Subcommittee was created specifically to coordinate the development of the generic state management plan (SMP) for pesticides in groundwater and the subsequent pesticide-specific state management plans. The subcommittee meets quarterly and is composed of representatives from each agency serving on the full TGPC, the Texas Agricultural Extension Service, and the Structural Pest Control Board. A technical advisory group of interested parties including federal agencies, other state agencies, producer groups, environmental groups, and the agricultural chemistry industry have served the subcommittee to provide expertise and perspective during the development of the generic SMP.

The Agricultural Chemicals Subcommittee has designated five work groups: the State Management Plan Task Force, the Educational Task Force, the Site Selection Task Force, the Data Evaluation and Interpretation Task Force, and the Best Management Practices Task Force.

- ▶ The State Management Plan Task Force is responsible for writing and revising generic and pesticide-specific state management plans.
- ▶ The Education Task Force is responsible for developing SMP-related educational information and materials and coordinating educational outreach through public presentations, displays, applicator certification curriculum development, and brochures.

- ▶ The Site Selection Task Force is responsible for identifying and delineating vulnerable geographic areas for conducting pesticide-specific groundwater monitoring. The Site Selection Task Force must also plan groundwater monitoring strategies, and, if contamination is discovered, determine sampling strategies for determining the extent of contamination.
- ▶ The Data Evaluation and Interpretation Task Force will, if monitoring reveals contamination, evaluate the quality of the data and interpret the available information through the use of best professional judgment. The task force will also coordinate the state's response, under the SMP, to groundwater contamination.
- ▶ The Best Management Practices Task Force is responsible for developing the preventive component of the generic SMP and identifying pesticide-specific and area-specific best management practices that can be used to prevent or curtail pesticide contamination of groundwater.

Data Management Subcommittee

The Data Management Subcommittee is charged with improving the sharing of data between various levels of government, the academic community, and the private sector. The subcommittee's initial goal was to develop ways of linking and sharing groundwater data and to develop standards or templates to facilitate the sharing of information. Representatives of 10 state, federal, and local agencies, and the private sector spent over two years developing the *Texas Ground-Water Data Dictionary* (TGPC, 1996b). The data dictionary provides groundwater professionals in Texas with specific guidelines to implement recent state and federal requirements and describes a standardized framework for collecting and storing information on groundwater in the state.

Upon completion of its efforts concerning the data dictionary, the TGPC formally tasked the Data Management Subcommittee to design and facilitate a formal committee process for the coordination and integration of groundwater data collection. The subcommittee was tasked to coordinate the assessment of the groundwater quality of the state's aquifers as an integral part of the state's comprehensive groundwater protection program. The subcommittee was further tasked to provide recommendations for the continuing improvement of groundwater data collection and assessment for the state's groundwater protection programs.

Ground-Water Nonpoint Source Subcommittee

The purpose of the Ground-Water Nonpoint Source Subcommittee, cochaired by the TNRCC and the TSSWCB, is to facilitate and formalize the groundwater nonpoint source (NPS) program in Texas and to provide support and guidance for the groundwater NPS management policy of the state. The subcommittee coordinates and provides input for the annual NPS effectiveness report to the EPA; coordinates, updates, and guides the state NPS assessment of groundwater conditions and NPS management strategy for groundwater

resources; facilitates the review and submission of NPS project proposals for the annual EPA Clean Water Act, Section 319 (h) funding cycle; and provides input related to groundwater to the TSSWCB and the TNRCC for their management plans.

The TNRCC has embarked on a statewide initiative with local, state, and federal partners to develop and subsequently implement the determination of total maximum daily loads (TMDLs) in watersheds across Texas as part of the EPA Clean Water Act, Section 303(d). A TMDL is a measure of the amount of pollution a water body can receive and still meet surface water quality standards for its uses (e.g., aquatic life, recreation, water supply) as established by the state. TMDLs are developed and implemented for water bodies in which these standards are currently exceeded for specific pollutants. The TNRCC is currently utilizing 319 funding, seeking additional funding, and encouraging other government and private organizations to fund and undertake TMDL projects. It is important to remember that groundwater can both contribute to and be effected by surface water quality problems, due to the intimate interaction and groundwater and surface water, and is thus an integral part of the TMDL issue.

While the bulk of funding acquired by the state has been utilized by the TNRCC to support water quality projects, there remains available funding from the EPA 319 program. Section 319 (h) of the Clean Water Act authorizes the distribution of federal funds for implementation of NPS prevention and watershed restoration activities as identified in the state's NPS Management Program. Implementation activities proposed are subject to a 40 percent local match on the part of the implementing entity. A proposed project and its associated work plan must comply with basic program requirements and must address a water body, stream segment, or aquifer included in the state's 319 NPS Assessment Report. Proposed projects must include implementation activities which will accomplish or support objectives of the state's 319 NPS Management Program. Once a project proposal has satisfied the basic 319 (h) program requirements, it will be prioritized by criteria and given a numerical score. The TNRCC will recommend proposed projects with the highest scores be given priority to receive EPA §319 (h) funding.

Joint Groundwater Monitoring and Contamination Report Subcommittee

This informal subcommittee is utilized to prepare the TGPC's annual groundwater monitoring and contamination report. Representatives of each member agency annually provide information and data to the TNRCC for inclusion in the reports. The TNRCC compiles and reviews the content and initiates publication efforts.

Legislative Report Subcommittee

The Legislative Report Subcommittee is biennially charged to facilitate the TGPC's efforts in publishing the legislative report required by §26.405 of the Texas Water Code. The subcommittee is specifically charged to review the draft report's contents, revise the scope of the report as needed, and develop, for full-TGPC approval, groundwater protection recommendations for legislative consideration.

Abandoned Well Closure Task Force

The Abandoned Well Closure Task Force was created as an educational outreach initiative. The purpose of the task force is to develop the necessary procedures, educational, and technical information required to promote the landowner-initiated closure or plugging of abandoned water wells; develop a curriculum for well-closure presentations or workshops; and design well-closure seminars and demonstrations to be conducted throughout the state. The task force is composed of the TGPC member agencies and the Texas Agricultural Extension Service, U.S. Department of Agriculture's Natural Resource Conservation Service, Texas Farm Bureau, Water Well Drillers Advisory Council, and Texas Rural Water Association.

Rule Review and Readoption

The TGPC readopted rules contained in Title 31, Texas Administrative Code, Chapter 601, concerning the joint groundwater monitoring and contamination report, in accordance with the General Appropriations Act, Article IX, §167, 75th Legislature, 1997. Rider 167 required state agencies to review and consider for readoption rules adopted under the Administrative Procedures Act. The TGPC reviewed the rules in §§601.1 through 601.5 and determined that the rules were still necessary in order to provide the definitions and applicability for facilitating maintenance of public files on groundwater contamination cases and compilation of the annual joint groundwater monitoring and contamination report required by Texas Water Code, §26.406.

The rules were amended to implement legislative changes to Texas Water Code, §26.403 © regarding TGPC membership and to update the rules to reflect current agency membership and to establish policies of the TGPC regarding the report. Format changes were also made to conform with recent rules passed by the Secretary of State. The TGPC approved the draft rules for proposal on May 21, 1998. The proposed rules were published in the *Texas Register* on June 12, 1998. The comment period for the proposed rules ended on July 13, 1998. The TGPC adopted final rules on August 13, 1998. The adopted rules were filed with the Texas Register on August 24, 1998, and published on September 4, 1998. The rules became effective on September 14. The TGPC rules are included as Appendix 2.

Public Records

The TNRCC administers the activities of the TGPC in accordance with §26.403 of the Texas Water Code. The TNRCC's Water Quality Division maintains a mailing list of TGPC members, designated and alternate members, subcommittee members, agency staff, and interested parties for meeting notification and correspondence. The TNRCC provides meeting information through the *Texas Register* for public notification, maintains audio tapes of TGPC meetings, drafts meeting records for TGPC meetings, and maintains meeting and correspondence files for the TGPC and its subcommittees. The TGPC's publications are available through the TNRCC's Agency Communications Division. Information is also made available to the public through the TGPC Internet Homepage. Information regarding groundwater monitoring programs and groundwater contamination incidents are maintained individually by the agencies or districts.

EDUCATIONAL OUTREACH

The TGPC published an educational brochure (TGPC, 1994a) in 1994 outlining the TGPC's creation and mandate, membership, and major responsibilities. The brochure also discusses the state's groundwater protection strategy and implementation, subcommittee responsibilities, TGPC meetings, and the development of a Comprehensive State Ground-Water Protection Program. The brochure was initially distributed to the general public and other interested parties during 1995 by the TGPC's member agencies. The brochure accurately reflects the purpose of the TGPC is and still being utilized.

In addition, the Agricultural Chemicals Subcommittee's Education Task Force published an informational brochure (TGPC, 1995b) for distribution through the subcommittee members. The brochure is designed to provide information to the public about the generic *Texas State Management Plan for the Prevention of Pesticide Contamination of Groundwater* and the development of the pesticide-specific state management plans. In addition, a set of slides and an outlined presentation have been prepared to familiarize special interest groups and the general public with the development and implementation of the generic state management plan.

In 1996, the TGPC published the Texas Groundwater Program Directory (TGPC, 1996c) for distribution to the public. The directory was compiled to serve as a quick-reference guide for people interested in groundwater-related information. The directory provides a basic overview of groundwater hydrologic principles and terms and a subject-reference telephone directory for groundwater-related programs. The directory further describes the TGPC and the state's groundwater protection policy, gives abbreviated descriptions of the groundwater protection programs of the state agencies, and provides supplemental information.

Abandoned Well Closure Activities

Recognizing the dangers to human health and groundwater quality that abandoned water wells pose, the TGPC charged the Abandoned Well Closure Task Force to develop educational materials to promote the low-cost, landowner initiated closure (capping or plugging) of abandoned water wells. State law makes landowners responsible for plugging abandoned wells and, therefore liable for any water contamination or injury due to such wells.

The task force initiated efforts in 1997 to begin developing a technical guidance document to assist landowners in plugging abandoned water wells. A draft instructor's copy of the technical guidance document (entitled *Landowner's Guide to Plugging Abandoned Water Wells*) was distributed in February 1998 to regional personnel from several state and federal agencies to review and provide feedback on the effectiveness of the material's presentation. The draft instructor's copy was distributed to regional personnel from the TNRCC, TSSWCB, TAEX, U.S. Department of Agriculture Natural Resource

Conservation Service (USDA/NRCS), Texas Alliance of Groundwater Districts, and Texas Water Well Drillers Advisory Council in February 1998.

Concurrently, the task force started preparing an educational plan and a dissemination plan. The education plan generally calls for the task force to develop educational material to compliment the technical guidance document. Such material may include brochures on the dangers of abandoned water wells and possible sources of match-money for closing abandoned wells and other educational approaches such as the development of closure demonstrations, video cassettes, or public service announcements. The dissemination plan serves to identify the target audience, regional and local education personnel, and outline curriculum and educational materials. The plan will be followed to get the developed educational materials into the hands of local personnel, primarily TAEX, TSSWCB, and USDA/NRCS staff, who will be presenting the information to landowners.

The technical guidance document and the educational brochures should be finalized and distributed to the participating agencies prior to the end of 1998. The other educational efforts will extend into Fiscal Year 1999.

No statewide fund exists to specifically finance the plugging of improperly abandoned water wells. In the past, the TGPC has recommended to the Legislature that additional financial resources be provided to plug or cap abandoned water wells. The Committee still supports this plan; however the Committee is focusing its efforts on producing educational materials, including an instructional video, conducting demonstrations of actual closings across the state, and delivering information through formal and informal meetings with landowners.

TGPC Internet Homepage

In 1998, the TGPC established an Internet homepage. The TGPC's homepage is currently maintained on the TNRCC's Internet server at: <http://www.tnrcc.state.tx.us/tgpc/>. The TGPC's homepage provides "hot links" to the member agencies homepages and recent TGPC publications. Links are also provided for general information about the TGPC and the subcommittees, records of TGPC meetings, the TGPC's Groundwater Classification System, and TGPC rules. Meeting announcements and locations are provided on the homepage as are opportunities for the public to provide comments or seek inclusion on the TGPC's mailing list.

Quarterly Regulatory Update

The TGPC member agencies utilize the quarterly meetings to share and discuss current and ongoing rule development which relates to the protection of groundwater quality. Agencies which are proposing new rules or are amending existing rules generally provide a description of the rule's purpose and a rule development time line. This action allows the other agencies the opportunity to ask specific questions about the rule under

development and notifies the other agencies about their opportunities to provide comments on the rule. Discussions are held in an open forum and the public is provided the opportunity to participate.

ANNUAL GROUNDWATER MONITORING AND CONTAMINATION REPORTS

Section 26.406 of the Texas Water Code requires the TGPC to publish an annual groundwater monitoring and contamination report. The annual report is required to:

- ▶ describe the current status of groundwater monitoring activities conducted by or required by each agency at regulated facilities or associated with regulated activities;
- ▶ contain a description of each case of groundwater contamination documented during the previous calendar year;
- ▶ contain a description of each case of contamination documented during previous periods for which enforcement action was incomplete at the time of issuance of the preceding report; and
- ▶ indicate the status of enforcement action for each case of contamination which is listed.

The TGPC produced and published two monitoring and contamination reports during the biennium: *Joint Groundwater Monitoring and Contamination Report—1996* (TGPC, 1997) and *Joint Groundwater Monitoring and Contamination Report—1997* (TGPC, 1998). The reports describe the status of groundwater monitoring programs and groundwater contamination cases documented or under enforcement by the participating agencies for the calendar year entitled. Narrative groundwater protection program-specific descriptions for each contributing agency or organization are included. The reports also contain individual groundwater contamination case descriptions, listed by county, for each contributing agency with regulatory groundwater protection authority. The individual case descriptions provide the enforcement status for each case..

Groundwater Monitoring

The groundwater protection programs of the participating agencies generally fall within one of three categories:

- ▶ regulatory agencies requiring or conducting groundwater monitoring to assure compliance with guidelines and regulations for the protection of groundwater from discharges of contaminants;
- ▶ agencies or entities conducting groundwater monitoring to assess ambient or existing groundwater quality conditions and to track changes in water quality over time; and
- ▶ agencies or entities conducting research activities related to groundwater resources and groundwater conservation.

Each regulatory agency that requires or conducts groundwater monitoring to assure compliance with guidelines and regulations to protect groundwater from discharges of contaminants has its own monitoring program requirements and procedures. The criteria used to assess the need for groundwater monitoring vary among the regulatory entities. There are 15 programs in three agencies monitoring changes in groundwater

quality for permit and operational requirements at approximately 12,400 facilities statewide. Data indicate that an estimated 39,000 monitor and water wells are being used for groundwater monitoring purposes at these facilities. The majority (greater than 98 percent) of the facilities being monitored are under the jurisdiction of the TNRCC, with the remainder under the jurisdiction of the Railroad Commission of Texas and the Texas Department of Health (TGPC, 1996a).

Agencies or entities such as the Texas Water Development Board and the member districts of the Texas Alliance of Groundwater Districts conduct groundwater monitoring to assess ambient or existing groundwater quality conditions and to track changes in water quality over time. Some monitoring programs are developed for water quality assessment studies that target specific geographic areas, specific contaminants or constituents, or specific activities. Contamination cases discovered by these agencies or entities through groundwater studies or groundwater sampling programs are referred to the regulatory agency with appropriate jurisdiction. Monitoring programs addressing ambient groundwater quality and assessing the occurrence of particular constituents carried out by the Texas Water Development Board and participating organizations involved approximately 1,000 water wells in 1997. In addition, over 900 water wells were reported as being monitored for ambient groundwater quality and changes over time by the member districts of the Texas Alliance of Groundwater Districts during 1997 (TGPC, 1998).

Groundwater Contamination

Groundwater contamination, as defined by the TGPC (Appendix 2) for inclusion in the annual report, is the detrimental alteration of the naturally occurring physical, thermal, chemical, or biological quality of groundwater reasonably suspected of having been caused by the activities of entities under the jurisdiction of the state agencies. The TGPC recognizes that groundwater contamination may result from many sources, including:

- ▶ agricultural activities;
- ▶ commercial and business endeavors;
- ▶ current and past oil and gas production and related practices;
- ▶ domestic activities;
- ▶ industrial and manufacturing processes; and
- ▶ natural sources that may be influenced by, or may result from, human activities.

The contamination cases identified in the annual report are primarily those where contaminants have been discharged to the surface, to the shallow subsurface, or directly to groundwater from activities such as the storage, processing, transport, or disposal of products or waste materials (TGPC, 1998).

There were 7,458 documented groundwater contamination cases addressed in the 1997 report. Approximately 98.7 percent of the documented cases were under the jurisdiction of the Texas Natural Resource Conservation Commission. The remainder of the cases were under the jurisdiction of the

Railroad Commission of Texas, with slightly more than 1 percent, and the groundwater conservation districts that make up the Texas Alliance of Groundwater Districts, with less than 1 percent.

Table 5 lists the documented groundwater contamination cases by jurisdictional agency. The total number of cases documented during 1996 and 1997 for each agency and program are listed. The percentage of the total number of documented cases for each agency and program are also given for 1996 and 1997. The net change and percentage change from 1996 to 1997 for each agency and program is also shown.

As Table 5 illustrates, the 1996 and 1997 reports have continued to document the large number of groundwater contamination impacts from petroleum storage tanks (both aboveground and underground). In 1997, there were 63,565 facilities containing 158,393 registered underground and 20,688 registered aboveground storage tanks. Approximately 95 percent of the regulated storage tanks contain petroleum products, with the remainder containing regulated hazardous substances. As reported by the TNRCC, the number of documented groundwater contamination cases resulting from petroleum storage tank system failures rose from 5,507 in 1996 to 6,338 in 1997. These cases represent 85.7 percent of the total number of documented contamination cases in 1996 and 85.0 percent of the cases in 1997, a net increase of 15.1 percent. While the number of documented contamination cases from storage tanks is very high, it can be directly linked to the sheer number of regulated facilities and the monitoring requirements in effect for these systems.

Table 5 also documents a significant increase in the number of documented groundwater contamination cases under the jurisdiction of the TNRCC's Pollution Cleanup Division. The division is responsible for both federal and state Superfund activities. From 1996 to 1997, the division saw an increase of almost threefold in the total number of documented groundwater contamination cases. The division reported an increase from 220 documented contamination sites in 1996 to 655 sites in 1997; 156 new cases were added to the Division's Voluntary Cleanup and Corrective Action Programs in 1997. The remaining additional sites were transferred into the Division from the TNRCC's Industrial and Hazardous Waste Division and Enforcement Division. The Voluntary Cleanup Program was established by House Bill 2296 of the 74th Legislature which amended Chapter 361 of the Texas Health and Safety Code. The purpose of the program is to provide a streamlined, incentive-based process for participants to pursue cleanup of contaminated properties. Continued growth of the Voluntary Cleanup Program is anticipated in the future.

In addition, Table 5 indicates a significant change from 1996 to 1997 in the TNRCC's Industrial and Hazardous Waste Division and Enforcement Division due to a transfer of sites to the Pollution Cleanup Division.

Table 5. Groundwater Contamination Cases by Jurisdictional Agency, 1996–1997

Agency/Program	Total No. of Cases		Net Change	Percentage Change (total cases)	Percentage of Total	
	1996	1997	1996–1997	1996–1997	1996	1997
Texas Natural Resource Conservation Commission						
Industrial and Hazardous Waste Division	201	78	- 123	- 61.2	3.1	1.1
Municipal Solid Waste Division	28	26	-2	- 7.1	0.4	0.4
Petroleum Storage Tank Division	5507	6338	+ 831	+ 15.1	85.7	85.0
Pollution Cleanup Division	220	655	+ 435	+ 197.7	3.4	8.8
Water Planning and Assessment Division	46	46	0	None	0.7	0.6
Water Utilities Division	24	24	0	None	0.4	0.3
Enforcement Division/Waste Section	296	178	- 118	- 39.9	4.6	2.4
Enforcement Division/Water Section	4	5	+ 1	+ 25.0	<0.1	< 0.1
Field Operations Division	11	11	0	None	0.2	0.2
Subtotal	6337	7361	+ 1024		98.6	98.7
Railroad Commission of Texas	72	77	+ 5	+ 6.9	1.1	1.0
Texas Alliance of Groundwater Districts	18	20	+ 2	+ 11.1	0.3	0.3
Total	6427	7458	+ 1031		100	100

The most common contaminants reported in 1997 included gasoline, diesel fuel, and other petroleum products due to the large number of petroleum storage tank related cases. Less common contaminants reported included gasoline constituents, organic compounds (such as phenol, trichloroethylene, carbon tetrachloride, dichloroethylene, and naphthalene), pesticides (such as alachlor, atrazine, bromacil, dicamba, and prometon), creosote constituents, solvents, heavy metals, and sodium chloride.

As required by §26.046 of the Texas Water Code, the report indicates the status of enforcement action for each instance of groundwater contamination. For purposes of the report, enforcement action includes any agency action which accomplishes or requires the identification, documentation, monitoring, assessing, or remediation of groundwater contamination. In general, regulatory programs are structured to achieve the desired degree of environmental protection and mitigation with the lowest possible level of agency oversight. Agency actions dealing with contamination incidents are also placed in context of the activities necessary to address the incidents. This comparison of the level of agency action and the status or level of contamination assessment and mitigation are presented as an enforcement status matrix. The enforcement

status matrix allows a one-to-one correspondence between an agency's response and the completion of the discrete phases in the progression of contamination investigation.

Table 6 represents documented groundwater contamination cases during 1997. The table indicates the total number of documented cases by the agency and division or program with jurisdictional authority and indicates the activity status for the cases. Once groundwater contamination has been confirmed, either the regulated entity or the agency will address a groundwater contamination incident following a general sequence of actions until the investigation concludes no further action is necessary.

All of the 7,458 cases listed in the 1997 report have documented groundwater contamination. The activity status for each case is identified in the report's tables. As Table 6 indicates, "no activity" has occurred in 34 reported cases that are awaiting confirmation of contamination. Contamination is confirmed (validated) in 1,100 cases. The largest number of cases (3,910) are involved in ongoing investigations. Additionally, 311 cases are in corrective action planning. Action has been implemented in 518 cases, and 348 cases have an activity status of "monitor action." No further action is necessary for 461 cases that are designated as "action completed." No activity status was given for an additional 9 cases in which information was lacking concerning the 1997 activity status at the site.

Historically, the number of new groundwater contamination cases documented each year is greater than the number of cases in which action was completed during the same year. This trend has held since the initial publication of the report. The number of new cases had annually decreased up to 1994, but increased in 1995, in 1996, and again in 1997. These increases are chiefly attributed to increased release detection activity in the TNRCC's Petroleum Storage Tank (PST) program. The reversal is also partially attributed to new cases being reported under the Voluntary Cleanup Program of the TNRCC, established in 1995. The number of cases where action has been completed has annually increased (with exception in 1994, due to a lack of funding in the PST Program, and a slight decline in 1997). The elevated number of cases where action had been completed in the initial report was cumulative up to the end of 1989 (i.e., this reporting period was open-ended on the front). There were 992 new cases listed in the 1997 report, as compared to 421 new cases listed in 1996.

Action was completed on 461 groundwater contamination cases in 1997, as compared to 493 in 1996. Action on these cases was considered complete when the desired remedy was achieved or when no further regulatory action was required.

Table 6. Documented Groundwater Contamination Cases by Agency/Activity Status, 1997

Agency/Division/Program	Total Cases (1997) ¹	New Cases (1997) ²	Activity Status Code ³							
			0	1	2	3	4	5	6	None
Texas Natural Resource Conservation Commission										
Industrial and Hazardous Waste Division	78	6	0	0	18	1	2	55	2	0
Municipal Solid Waste Division	26	0	0	1	14	3	3	2	3	0
Petroleum Storage Tanks Division	6338	1308	0	995	3542	137	365	154	1145	0
Pollution Cleanup Division	655	156	23	52	241	105	99	71	59	5
Water Planning and Assessment Division	46	0	0	26	14	0	0	6	0	0
Water Utilities Division	24	3	0	0	0	2	0	18	4	0
Enforcement Division/Water Section	5	0	0	0	1	0	1	3	0	0
Enforcement Division/Waste Section	178	16	5	13	58	47	28	22	3	2
Field Operations Division	11	0	0	0	3	0	1	0	5	2
Subtotal	7361	1489	28	1087	3891	295	499	331	1221	9
Railroad Commission of Texas/Oil and Gas Division	77	12	0	9	11	15	18	17	7	0
Texas Alliance of Groundwater Districts	20	2	6	4	8	1	1	0	0	0
Total	7458	1503	34	1100	3910	311	518	348	1235	9

- Notes: 1. Total number of groundwater contamination cases documented or under enforcement during calendar year 1997.
 2. Number of new cases documented or under enforcement during calendar year 1997.
 3. Activity Status Codes: 0—No Activity; 1—Contamination Confirmed; 2—Ongoing Investigation; 3—Corrective Action Planning; 4—Corrective Action Implementation; 5—Monitoring Action; 6—Action Completed

STATE MANAGEMENT PLAN FOR PESTICIDES IN GROUNDWATER

Proposed Federal Rule

On June 26, 1996, the EPA published proposed rules in the *Federal Register* on pesticides and groundwater state management plan regulation. The EPA has determined that, due to their groundwater contamination potential, some pesticides commonly used nationwide may pose an unreasonable adverse effect on the environment, unless effective local management measures are developed and implemented through state pesticide-specific management plans. Under the proposal, the state will have two years to develop and submit management plans, and the EPA would then have six months to approve or reject the state's proposed management plans. Upon approval, the state would have to implement the proposed management plans.

Under its authority granted by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the EPA has released the proposed rules for the development and implementation of management plans as a condition for the legal sale and use of identified pesticides. This long-anticipated set of rules will restrict the use of certain pesticides that have been identified as probable or possible human carcinogens and have the ability to leach to groundwater. Alachlor, atrazine, cyanazine, metolachlor, and simazine are the first five pesticides to be identified under this proposed rule. When the rules go into effect, these pesticides will be prohibited for sale and use within a state that does not have an EPA-approved pesticide-specific state management plan (SMP), potentially affecting a large segment of a state's agricultural community who are dependent upon these pesticides. The proposed federal rule is expected to be issued in a final form in early 1999.

To preserve the continued use of the EPA-listed pesticides, a state will need to develop pesticide-specific SMPs that address groundwater contamination for each pesticide. The EPA is asking states to develop two different kinds of SMPs: generic and pesticide-specific. Both types must contain 12 components defined by the EPA (Table 7). Even though the development of a generic SMP is voluntary, it serves an important function since it is to contain the basic underlying framework for managing pesticide use in the state and will serve as a basis for the development of the pesticide-specific SMPs. The pesticide-specific SMPs will contain specific actions necessary to prevent groundwater contamination by the subject pesticide.

Comments on the proposed federal state management plan rule were submitted in October, 1996 by the TGPC's Agricultural Chemicals Subcommittee, the TNRCC, and the Texas Department of Agriculture. In response to the large number of comments received, the EPA formed a comment review committee to assist in the development of the final rule. One member of the TGPC's Agricultural Chemicals Subcommittee was selected by Region 6 of the EPA to serve on the comment review committee. The EPA's comment review committee completed its efforts in December, 1997. The final state management plan rule is currently scheduled to be published in early 1998.

Table 7. Twelve Components of State Management Plans

STATEMENT OF PHILOSOPHY
AGENCY ROLES AND RESPONSIBILITIES
LEGAL AUTHORITY
RESOURCES
GEOGRAPHIC PLANNING
MONITORING
PREVENTATIVE MEASURES
RESPONSE TO GROUNDWATER CONTAMINATION
ENFORCEMENT
PUBLIC AWARENESS AND PARTICIPATION
INFORMATION DISSEMINATION
RECORDS AND REPORTING

Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water

The Texas Natural Resource Conservation Commission is tasked, with the advice of the TGPC, to develop management plans for agricultural chemicals (e.g., pesticides) that threaten groundwater. Specifically, these plans are for the protection and enhancement of water quality pursuant to federal statute, regulation, or policy, including management plans for the prevention of water pollution by agricultural chemicals and agents. Section 26.407 of the Texas Water Code was added in 1989 and was specifically intended to address the plans required by the EPA under its proposed rule.

The development of the *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* (TGPC, 1996d) is being guided by the EPA’s *Ground-Water Protection Strategy* and the *Final Guidance for Pesticides and Ground-Water State Management Plans*. It is an update of the *Texas State Management Plan for Agricultural Chemicals in Ground Water*, published by the TGPC in 1991.

The state of Texas, through the Texas Natural Resource Conservation Commission, with the guidance of the TGPC, has initiated the process for developing the necessary SMPs. The *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* is the generic SMP for the state, and will serve to guide the development of pesticide-specific SMPs as needed. The goal of the *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* is to protect the existing quality of

groundwater and to prevent the degradation of state groundwater resources. This goal does not mean zero-contaminant discharge, but that normal use of pesticides be conducted in a manner that will maintain present groundwater uses and not impair potential uses of groundwater or pose a public health hazard. All usable and potentially usable groundwaters are subject to the same protection afforded by the nondegradation policy goal.

The SMP describes the general policies and regulatory approaches the state will use in order to protect groundwater resources from risk of contamination by pesticides. The document describes a generic coordinating mechanism among all responsible and participating agencies during the implementation of the SMP and provides for specific responses when it is deemed necessary to develop a pesticide-specific SMP. The SMP reflects the state's philosophy toward groundwater protection and recognizes the importance of agricultural resources to the state's economy. The seven major principles that govern the development of the SMP are listed in Table 8.

The TGPC submitted the draft *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* (TGPC, 1996d) to Region 6 of the EPA for review in March, 1996. After review, the EPA provided comments on the draft SMP back to the TGPC in December, 1996. Representatives from the TGPC's Agricultural Chemicals Subcommittee corresponded with the EPA on their comments and discussed changes to the generic SMP acceptable to both parties at an August, 1997 meeting. Agricultural Chemicals Subcommittee representatives provided a formal response to the EPA's draft SMP comments in October, 1997 outlining the proposed changes to the SMP and the EPA acknowledged in February, 1998 that the response and clarifications were those which were agreed to. The changes were incorporated into the generic SMP and a final draft of the generic *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* (TGPC, 1998) was delivered to EPA in June, 1998 for their concurrence.

Work will begin on the pesticide-specific SMPs in Fiscal Year 1999. The first monitoring effort, for atrazine, was performed in Fiscal Year 1995. This sampling effort was limited to monitoring and irrigation wells on Texas A&M property. A meeting was held with local agricultural producers in an effort to get well owners to volunteer wells for sampling. A general sense of noncooperation arose at this meeting due to fear of possible consequences of a discovery of atrazine contamination of groundwater.

A second monitoring effort was performed in Fiscal Year 1996. Privately owned irrigation wells and Texas A&M irrigation wells completed in the Brazos River alluvium were sampled during this monitoring effort. After the failure of getting well owners to volunteer wells through the public meeting forum, it was decided to try the direct approach by knocking on doors to obtain permission to sample wells. This approach turned out to be reasonably successful.

The Brazos River Bottom was selected as the first monitoring location because the area was shown to be vulnerable to groundwater contamination on the Agricultural DRASTIC map and because the area was known to have wells completed in the water table aquifer. Pesticide vulnerability analysis has now been done using the SPIM (Soil Pesticide Interaction Matrix) procedure. One of the areas indicated by SPIM as

being vulnerable to pesticide contamination of groundwater is Hidalgo County. An effort will be made to sample in Hidalgo if shallow water table wells can be located.

Table 8. Major Principles Governing State Management Plan Development

<p>AGRICULTURAL PESTICIDES ARE BENEFICIAL AND IMPORTANT TO THE PRODUCTION OF FOOD, FIBER SUPPLY, AND THE ECONOMY OF THE STATE.</p>
<p>STATE AND LOCAL GOVERNMENTS SHOULD BE THE FIRST LINE OF GROUNDWATER PROTECTION, WITH THIS EFFORT BEING COMPLEMENTED BY FEDERAL EXPERTISE AND INFORMATION.</p>
<p>THE USE OF PESTICIDES, WHILE IMPORTANT FOR PROTECTION OF PUBLIC SAFETY AND HEALTH, SHOULD NOT IMPAIR ANY USE OF GROUNDWATER OR CAUSE A PUBLIC HEALTH HAZARD.</p>
<p>DRINKING WATER SUPPLIES, INCLUDING GROUNDWATER RESOURCES USED TO SUPPLY PRIVATE WELLS, SHOULD BE PROTECTED.</p>
<p>GROUNDWATER QUALITY MONITORING BY STATE AGENCIES, LOCAL GOVERNMENT, AND OTHER INTERESTED PARTIES CAN BE DIRECTED, AS FUNDS ALLOW, TO AREAS DETERMINED BY THE STATE TO BE VULNERABLE TO NONPOINT SOURCE CONTAMINATION.</p>
<p>PESTICIDE USE AND BEST MANAGEMENT PRACTICES (BMPs) SHOULD BE TAILORED TO PREVENT CONTAMINATION OF GROUNDWATER FROM PESTICIDES</p>
<p>EDUCATION AND VOLUNTARY IMPLEMENTATION OF BMPs SHOULD BE THE PRIMARY EMPHASIS OF THE PLAN.</p>

Response to Contamination

The state's response to a confirmed pesticide contamination of groundwater is explained in the final draft of the generic *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* (TGPC, 1998). The determination of what response to make will depend on a large number of questions such as:

- ▶ Is the contamination from a point or nonpoint source?
- ▶ Is the contaminated groundwater used for domestic water supply?
- ▶ What is the extent of the contamination?
- ▶ What is the level of contamination? Is it above or below the maximum contaminant level (MCL) or health advisory level (HAL) and by how much?
- ▶ Is the contamination due to present levels of usage of the pesticide or was it due to the greater levels of usage allowed under previous labels?
- ▶ What is the travel time from the application of the pesticide at or near the soil surface until it reaches the water table?

A careful assessment will need to be made to answer these questions and determine what if any changes in usage (such as the application of best management practices) will diminish the contamination. The exact responses to be made under specific conditions are set out in more detail in the generic *Texas State Management Plan for Prevention of Pesticide Contamination of Ground Water* (TGPC, 1998).

GROUNDWATER PROTECTION STRATEGY/CSGWPP

Strategy Development, Implementation, and Update

As mandated by §26.404 of the Texas Water Code, the TGPC is responsible for developing and updating a comprehensive groundwater protection strategy for the state. The strategy is mandated to provide guidelines for the prevention of groundwater contamination, the conservation of groundwater resources, and the coordination of the groundwater protection activities of the agencies and organizations represented on the TGPC.

The *Texas Ground Water Protection Strategy* (GPC, 1988) was developed by the Groundwater Protection Committee, the current TGPC's predecessor. The strategy is intended to be a flexible guide for state agencies and others in developing and implementing groundwater protection efforts. The development of the Strategy was preceded and aided by *Texas Ground Water Protection Activities—1986* (GPC, 1986), a compilation by the predecessor committee detailing the existing groundwater protection programs.

The strategy outlines goals, needs, and recommendations in six important areas: interagency coordination, hazardous and nonhazardous materials management, public water supply, rural water supply, research, and legislation. The strategy discusses the following elements for each of the six areas: status of existing programs, gaps or inadequacies in existing programs, areas of currently unaddressed groundwater issues, recommendations for changes or improvements in existing programs, and institution of new programs where needed. The final chapter of the strategy summarizes the important needs and goals for improvement of groundwater protection efforts.

The TGPC added contributions to the strategy from the Texas Alliance of Groundwater Districts and the Texas State Soil and Water Conservation Board, two new member agencies, in 1990. Since 1990, the TGPC has made two additional efforts concerning the strategy. The TGPC developed the report *Texas Ground Water Protection Profiles* (GPC, 1991b) in 1991 at the request of the EPA. This report provided a profile of the state's groundwater protection program. The profile cataloged the current groundwater protection roles of each state agency and identified new efforts and improvements in the state's groundwater protection program. During 1992, the TGPC discussed and prepared comments and input on the EPA's efforts and guidance for the development of a state comprehensive groundwater protection program (CSGWPP). Member agencies attended an EPA round table discussion and provided subsequent input on the development of the EPA's CSGWPP guidance.

Development of a Comprehensive State Groundwater Protection Program

Final guidance for the development of a comprehensive state ground-water protection program (CSGWPP) was published by the EPA in December 1992. The EPA developed its concept of such a program and encouraged states to further their efforts in developing existing programs into a more comprehensive

approach. CSGWPPs will serve as a working guide for a coherent partnership between EPA, the states, and local governments to achieve efficient protection of groundwater resources. As the catalyst for fundamental changes in the development and implementation of groundwater protection programs at the federal, state, and local levels, the CSGWPP approach provides unique opportunities for the successful implementation of state-directed, resource-based groundwater protection programs. The EPA’s guidance first calls for the development of a core protection program, a basic program from which states would work with the EPA over the next few years to build a fully integrated CSGWPP.

Following the EPA’s guidance, a CSGWPP consists of a set of six strategic activities. The six strategic activities foster more efficient and effective protection of groundwater through cooperative, consistent, and coordinated operation of all relevant federal, state, and local programs within the state. These six strategic activities are listed in Table 9.

Table 9. Six Comprehensive State Groundwater Protection Program Strategic Activities

ESTABLISHING A COMMON GROUNDWATER PROTECTION GOAL
ESTABLISHING PRIORITIES TO DIRECT RELEVANT PROGRAMS
DEFINING AUTHORITIES, ROLES, AND RESOURCES
IMPLEMENTING PROGRAMS TO ACCOMPLISH THE STATE’S GOAL
COORDINATING INFORMATION COLLECTION AND MANAGEMENT
IMPROVING PUBLIC EDUCATION AND PARTICIPATION

Serving as the coordinator for the state’s groundwater protection program, the TGPC prepared and submitted the *Texas Core Program Assessment* to the EPA in October 1993. This represented the first step the EPA had identified in developing a comprehensive program. The *Texas Core Program Assessment* has as its basis the state’s groundwater protection policy, as established by the Legislature in 1989, and the *Texas Ground Water Protection Strategy*. Information from *Texas Ground Water Protection Profiles* provided an outline of the agencies’ responsibilities and described program implementation relative to the basic activities identified by the EPA for a fully integrated CSGWPP. The core assessment compared the Texas groundwater protection program, as strengthened and coordinated through the TGPC, to federal CSGWPP guidance.

The TGPC believes that the core assessment demonstrated core-program compliance, and thus provides the base from which to develop a fully integrating CSGWPP. The EPA provided comments on the *Texas Core Program Assessment* in February 1995, and noted that portions of the Texas assessment required more detail and clarification to adequately meet core criteria. The TGPC feels that the continued development of the core assessment is a worthy commitment for the state to pursue, and that the components of the Texas program should meet the EPA’s criteria for a core CSGWPP. The Texas core assessment represents the initial commitment to work jointly with EPA to move toward a fully integrating CSGWPP. The core assessment

provides the means for Texas to demonstrate, and for the EPA to endorse, the state's potential to be the primary decision-maker in groundwater protection efforts.

The TGPC is currently updating the core assessment by addressing the EPA's comments of deficiency. The updated Texas core assessment will continue to be based on the state's groundwater protection goal and strategy. Updated groundwater protection roles and responsibilities of the member agencies, chiefly due to reorganizations and recent legislation, have been compiled in conjunction with the preparation the TGPC's annual *Joint Groundwater Monitoring and Contamination Report*. The current groundwater protection roles and responsibilities of the member agencies will be incorporated into the revised version of the Texas core assessment. Upon completion, the revised Texas core assessment will effectively update and replace the strategy.

Benefits of a Comprehensive State Groundwater Protection Program

The eventual goal, the attainment of a fully integrating CSGWPP, means that groundwater protection efforts are coordinated and focused across all federal, state, and local programs. Coordination and focus are based on our state's understanding and decisions regarding the relative use, value, and vulnerability of the groundwater resources of Texas, including the relative threat of all actual or potential contamination sources. The adequacy criteria for a fully integrating CSGWPP provide considerable flexibility in what the Texas program can encompass. Thus, Texas can tailor its CSGWPP to emphasize the decision-making responsibilities the state believes are most suited for its own purposes. The EPA is committed to working with the state in a joint effort to gain additional decision-making responsibilities under various federal programs and achieve a fully-integrating CSGWPP.

Through extensive discussions with the states, the EPA has realized that inconsistencies and rigidities among federal groundwater-related programs result in inefficient expenditures of efforts and less cost-effective protection from a total resource-based perspective. The EPA has also realized that federal rigidity stems largely from ignorance or misconceptions regarding state groundwater protection capabilities as well as state needs, priorities, and approaches.

The EPA will provide flexibility to the state based on Texas meeting CSGWPP adequacy criteria. The EPA is using the CSGWPP approach as a catalyst to allow state flexibility while increasing consistency among individual protection programs meeting the adequacy criteria. At a minimum, the approach is intended to reduce the burden on the state in meeting numerous program criteria from several different programs. The EPA will also use the CSGWPP approach as a basis for suggesting appropriate changes to existing federal statutes and regulations to allow states greater flexibility to achieve comprehensive resource-based groundwater protection.

Through the development of the CSGWPP, Texas will be able to better coordinate the expenditure of its limited resources through increased program coordination. Because the CSGWPP approach recognizes the

need to set priorities to manage groundwater resources, it allows for a greater focus of financial resources for the variety of functions with statutory constraints presented by federal groundwater protection laws and regulations.

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APPENDIX 1.

TEXAS GROUNDWATER PROTECTION COMMITTEE

MEMBERSHIP

CHAIRMAN—TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

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APPENDIX 2.

TEXAS GROUNDWATER PROTECTION COMMITTEE RULES

Title 31. NATURAL RESOURCES AND CONSERVATION

Part XVIII. TEXAS GROUNDWATER PROTECTION COMMITTEE

Chapter 601. GROUNDWATER CONTAMINATION REPORT

Subchapter A. GENERAL PROVISIONS RELATING TO PUBLIC FILES AND JOINT REPORT

§601.1. Purposes of Rules.

The purpose of these sections is to implement duties and responsibilities assigned to the committee under the Texas Water Code, §26.406, concerning the maintenance by certain state agencies of public files containing documented cases of groundwater contamination and the publication by the committee, in conjunction with the commission, of annual groundwater monitoring and contamination reports and to establish general policies of the committee to guide such implementation.

§601.2. Applicability.

These rules specifically apply to each state agency or organization having membership on the committee. The committee is composed of the Texas Natural Resource Conservation Commission, the Texas Department of Health, the Texas Department of Agriculture, the Railroad Commission of Texas, the Texas Water Development Board, the Texas Alliance of Groundwater Districts, the Texas Agricultural Experiment Station, the Bureau of Economic Geology of the University of Texas at Austin, and the State Soil and Water Conservation Board.

§601.3. Definitions.

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise.

- (1) **Act**--House Bill 1458 (71st Session) codified as Texas Water Code §§26.401-26.407.
- (2) **Commission**--Texas Natural Resource Conservation Commission.
- (3) **Committee**--Texas Groundwater Protection Committee.

(4) **Documented groundwater contamination**--A case of groundwater contamination where an agency has an established procedure for making a determination based on the quality of groundwater and the information pertinent to making the determination is maintained by the agency under §601.4 (b) of this title (relating to Public Files).

(5) **Enforcement action**--Any action of the agencies, identified in §601.2 of this title (relating to Applicability), which accomplishes or requires the identification, documentation, monitoring, assessing, or remediation of groundwater contamination.

(6) **Groundwater**--Water below the land surface in a zone of saturation.

(7) **Groundwater contamination**--The detrimental alteration of the naturally occurring physical, thermal, chemical, or biological quality of groundwater. Furthermore, groundwater contamination, for purposes of inclusion of cases in the public files and the joint groundwater monitoring and contamination report, shall be limited to contamination reasonably suspected of having been caused by activities or by entities under the jurisdiction of the agencies identified in §601.4 (b) of this title (relating to Public Files), except in the case of an underground source of drinking water granted an aquifer exemption by the commission with concurrence from the United States Environmental Protection Agency in accordance with 40 Code of Federal Regulations, Parts 144, 145, and 146, and 30 TAC Chapter 331 (relating to Underground Injection Control); and affecting groundwater which contains a concentration of:

(A) less than or equal to 10,000 milligrams per liter (mg/liter) of dissolved solids; or

(B) greater than 10,000 mg/liter if it is:

(I) currently extracted for beneficial use such as domestic, industrial, or agricultural purposes; or

(ii) hydrologically connected with, and with the potential for contaminant movement to, a surface water body or another zone of groundwater which has a concentration of less than or equal to 10,000 mg/liter of dissolved solids.

§601.4. Public Files.

(a) Subject to the limitations provided by the Texas Water Code, §§26.401-26.407 (the Act), and the Open Records Act, Texas Civil Statutes, Article 6252-17a, information collected, assembled, or maintained by the committee and the agencies having responsibilities related to protection of groundwater under the Act is public record open to inspection and copying during regular business hours.

(b) Each agency having the responsibilities related to the protection of groundwater under the Act shall maintain a public file of all documented cases of groundwater contamination that are reasonably suspected of having been caused by activities regulated by the agency.

§601.5. Joint Groundwater Monitoring and Contamination Report.

In conjunction with the Texas Natural Resource Conservation Commission, the committee shall publish not later than April 1 of each year a joint groundwater monitoring and contamination report covering the activities and findings of the committee made during the previous calendar year. The report must:

(1) describe the current status of groundwater monitoring programs conducted by or required by each committee agency or organization at regulated facilities or in connection with regulated facilities;

(2) contain a description of each case of groundwater contamination documented during the previous calendar year and of each case of groundwater contamination documented during previous years for which enforcement action was incomplete at the time of issuance of the preceding report; and

(3) indicate the status of enforcement action for each case of groundwater contamination that is included in the report.