Texas Commission on Environmental Quality Select Water Issues

Testimony of L'Oreal Stepney, P.E., Deputy Director, Office of Water

House Natural Resources Committee Hearing – March 1, 2017

Thank you Mr. Chairman and Committee members. The Texas Commission on Environmental Quality implements a number of the states water programs. Today we are here to provide you with an overview of select components of our water programs: water availability models (WAMs), priority groundwater management areas, aquifer storage and recovery and an update on the Texas Farm Bureau litagation versus TCEQ.

(Charles MaGuire, Director, Radioactive Materials Division, is also here to discuss in greater detail the ASR program.)

Water Availability Modeling

Water availability is a key component in TCEQ's technical review of water rights applications. The TCEQ uses its surface water availability models (WAMs) to evaluate water availability. The WAMs are structured to implement the prior appropriation doctrine and other State laws, rules, and policies. This ensures that senior water rights are protected and TCEQ is only permitting water that is available.

WAM Development

Prior to the development of the WAMs, TCEQ had models for six river basins and used those models to determine water availability for new projects. Water availability was determined on a case-by-case basis in the other river basins. The 75th Legislature (1997) passed Senate Bill 1, authorizing the funding for TCEQ to develop water availability models (the current WAMs) for twenty-two of Texas' river basins. The 76th Legislature (1999) subsequently required the TCEQ to develop an updated model for the Rio Grande.

The WAMs were developed between 1998 and 2004 through contracts overseen by the TCEQ. The basin datasets were developed through engineering contracts for each basin in phases over a six year period, from 1999 to 2004. Funding for WAM development came from capital budget appropriations from the Appropriation Acts for FY1998-1999, FY2000-2001, and FY2002-2003 totaling $12,610,000. The other component of the WAM is computer program component (i.e. the modeling engine). As part of WAM development, TCEQ selected the Water Rights Analysis Package (WRAP) program from Texas A&M University as the modeling engine for the WAM project. TCEQ funded updates to the modeling engine during WAM development to accommodate the complexity of water rights in Texas and continues to fund updates today.

Water Availability Model Development

The 75th Legislature passed Senate Bill 1, authorizing the funding for TCEQ to develop water availability models for Texas' river basins.

Those models were developed by engineering contracts for each basin in phases:

1999

- Guadalupe and San Antonio River Basin
- Nueces River Basin
- San Jacinto River Basin
- Sulphur River Basin

2000

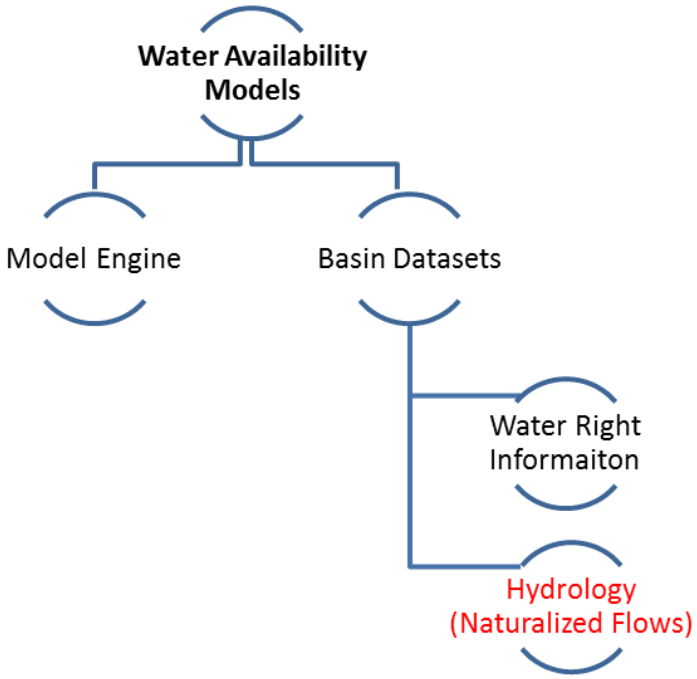
- Brazos River Basin and San Jacinto-Brazos Coastal Basin
- Colorado River Basin and Brazos-Colorado Coastal Basin
- Neches River Basin
- Sabine River Basin

2002

- Lavaca River Basin, Colorado-Lavaca Coastal Basin and Lavaca-Guadalupe Coastal Basin
- Nueces-Rio Grande Coastal Basin
- Red River Basin
- Canadian River Basin
- San Antonio-Nueces Coastal Basin
- Trinity River Basin, Trinity-San Jacinto Coastal Basin, and Neches Trinity Coastal Basin

2004

- Rio Grande Basin



WAM Structure and Operation/Function

The WAMs include both a modeling engine that processes data and basin datasets that include hydrology and water rights information. TCEQ recognized the need for flexibility during the developmental phase of the WAMs and adopted a data structure that could be modified for other purposes such as water planning.

The WAM operates by deducting the fully authorized amounts of each water right from the naturalized flows in the order of the water right's priority date. After all existing water rights and environmental flows are fully considered, any remaining flow is available for new appropriations. When TCEQ is evaluating amendments to water rights, such as moving a diversion point, we look at how much existing water rights could divert before the amendment, or how reliable those water rights are, and how much could be diverted after the amendment. This is to determine whether there are any impacts, in accordance with statutes and TCEQ's rules. If there is no adverse impact on existing water rights, TCEQ can issue the amendment.

WAM Users Group

When the WAMs were first developed, TCEQ met with state agencies and a small group of stakeholders to develop the technical assumptions for the new models. TCEQ has continued working with stakeholders across the state through the WAM Users Group. TCEQ uses this forum to meet with our model stakeholders to discuss technical issues related to the models and to share modeling experience. In 2015, the TCEQ developed an updated WAM Technical Issues document in collaboration with stakeholders. We are continuing to work with our stakeholders, including modeling experts across the state, to get input on future model upgrades to enhance our ability to model increasingly complex applications.

WAM Updates

TCEQ staff routinely updates the modeling engine and water right information in the basin datasets.

Modeling Engine

TCEQ funds updates to the modeling engine (WRAP) through a contract with Texas A&M University. Over time, water right applications have become increasingly complex. This has resulted in a need for more advanced modeling options to ensure that TCEQ's model can accommodate these more complex requests. TCEQ works with its stakeholders to develop and prioritize updates to meet these needs.

Basin Datasets

Water Right Information

TCEQ updates the water right information in the existing WAM basin datasets as new applications are granted. TCEQ also updates or modifies water right information based on stakeholder input. For example, TCEQ worked with the Region M Planning Group to develop and adopt a streamlined dataset for the Rio Grande to facilitate water rights updates by both TCEQ and the Region M Planning Group. TCEQ also modifies the water rights information in response to new modeling options to ensure that water rights requirements are more fully represented in the models.

Naturalized Flows

Naturalized flow represents the flow in a river that would have occurred without human impacts - such as reservoir construction, diversions, and return flows. For most datasets, the naturalized flow encompasses at least a fifty-year period of record. That period includes both high and low flows, which represent hydrologic variability within a river basin. Drought conditions in Texas vary in

severity and geographic scope. If a new drought is sufficiently severe and broad in scope in a river basin, it could affect the amount of water available to all water rights in a river basin.

Some basins have exhibited signals indicating the potential for a new basin wide drought of record. However, whether it is a new drought of record or not will not be known until there is an extension of the naturalized flow data for the basin. With the exception of the Colorado River Basin, the naturalized flows across the state have not been updated to add more data since their original development. In response to extended severe drought conditions in the Colorado River Basin, we extended the naturalized flows in the Colorado WAM to take into account the streamflow conditions through 2013. However, after examining data from 1940 through 2013, the TCEQ found that the 1950's drought was still the limiting factor in looking at water availability in the Colorado River Basin.

Since the models were developed, TCEQ has also made minor modifications to some of the data in response to issues raised by Regional Planning groups and other stakeholders.

Updating the Naturalized Flows

Updating the naturalized flow data sets is a detailed and time intensive process. In addition to adding more data, review of the existing data would be required to remove data gaps and modify existing statistical calculations to take the new data into account. For example, some USGS gages may have data gaps. These data gaps are filled by using statistical relationships with USGS gages that have a more complete record. If more data is added, the statistical relationships could change and this change would need to be applied to the old data. Each basin also has different characteristics such as the hydrology, stream flow, reservoirs, weather conditions, and other factors.

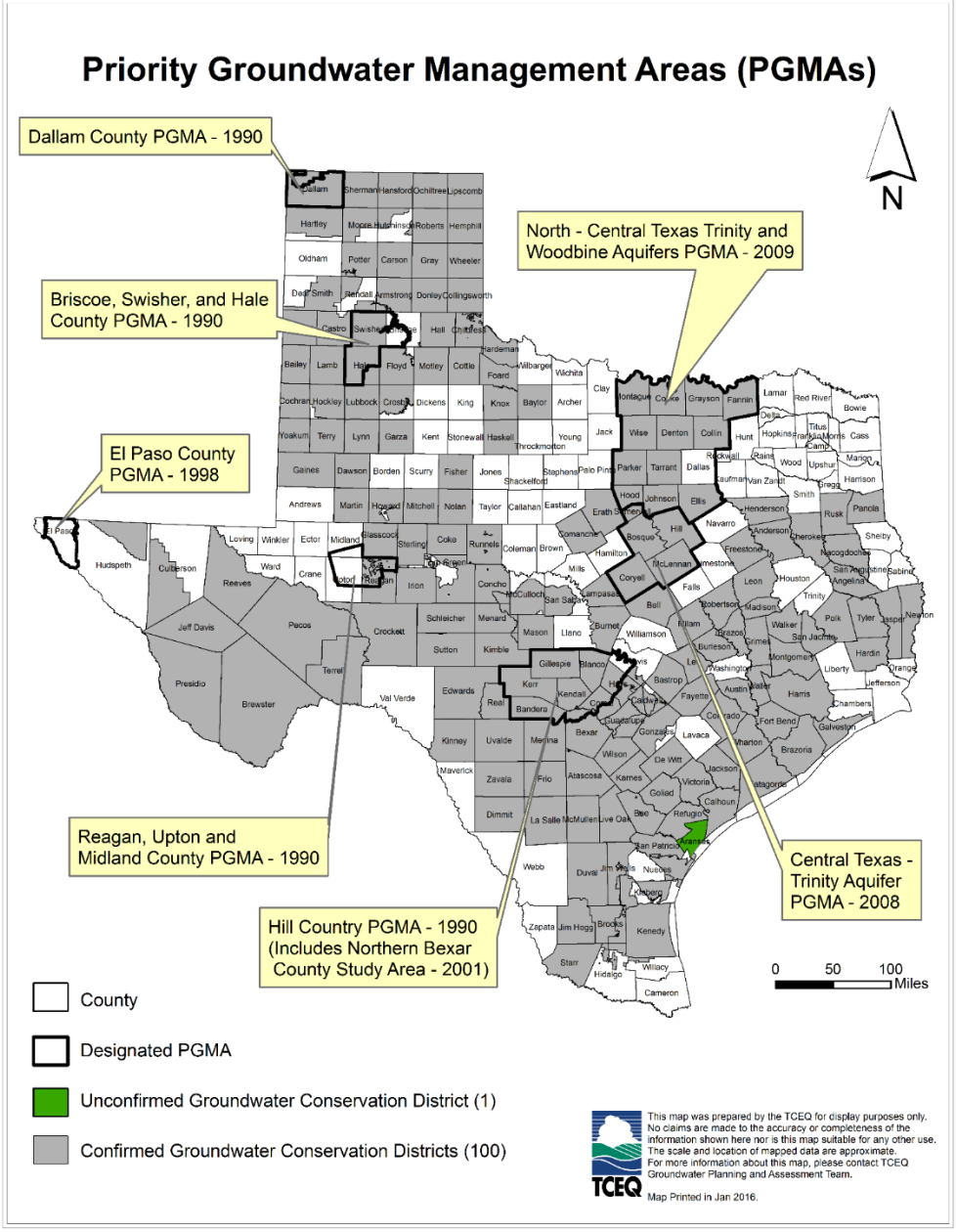
Priority Groundwater Management Areas

A Priority Groundwater Management Area (PGMA) is an area designated and delineated by TCEQ that is experiencing, or is expected to experience, within 50 years, critical groundwater problems including shortages of surface water or groundwater, land subsidence resulting from groundwater withdrawal, or contamination of groundwater supplies. To date, 18 PGMA studies and 5 PGMA update studies have been completed. Seven PGMAs have been designated by TCEQ covering all or part of 35 counties.

PGMA study areas are identified by the Executives of the TCEQ and the Texas Water Development Board (TWDB). The PGMA process entails the TCEQ Executive Director notifying and soliciting comments from water stakeholders in the study area, requesting study-area specific reports from

the TWDB and Texas Parks and Wildlife Department (TPWD), and soliciting input from the Texas Department of Agriculture. The Executive Director then prepares a report with PGMA designation and groundwater conservation district (GCD) creation recommendations. If PGMA designation is recommended, a contested case hearing is conducted by the State Office of Administrative Hearings. After the hearing, the Commission will issue an order designating the PGMA and recommending GCD creation action. The Texas A&M AgriLife Extension Service then works with county commissioners courts to provide educational outreach in the new PGMA. Under present statute, the residents of the PGMA have two-years to establish a GCD or join and existing GCD, or have TCEQ take the action if the residents are not successful.

The PGMA process provided in Chapter 35 of the Texas Water Code is implemented by TCEQ rules that outline these procedures for the designation of PGMAs and address issues related to the creation of GCDs in areas which have been designated as PGMAs.



Priority Groundwater Management Areas and Groundwater Conservation Districts Report to the 85th Legislature

Status and Recommendations for Priority Groundwater Management Areas

Local, legislative or TCEQ administrative actions to establish GCDs are still required in four PGMAs as recommended in Priority Groundwater Management Areas and Groundwater Conservation Districts Report to the 85th Legislature.

Hill Country PGMA: Action remains to address groundwater management in the Hill Country PGMA for southwestern Travis County. The TCEQ recommends statutory action to create a new GCD that includes all of the territory in the Travis County portion of the PGMA, or the addition of the Travis County PGMA territory to an existing GCD. Either option is feasible and practicable.

Briscoe, Hale, Swisher County PGMA: Action remains to address groundwater management for the western portion of Briscoe County within the PGMA. In accordance with the TCEQ's December 12, 2014 order and Texas Water Code, Section 35.013(i), the TCEQ has determined that adding the western portion of Briscoe County within the PGMA to the High Plains Underground Water Conservation District #1 (HPUWCD) is the only feasible and practicable solution for the protection and management of groundwater resources and recommends statutory action be taken to add the western portion of Briscoe County within the PGMA to the HPUWCD.

Reagan, Upton, Midland County PGMA: In December 2016, The Executive Director's Report for Reagan, Upton, and Midland County Priority Groundwater Management Area – Northeastern Upton and Southeastern Midland Counties was completed. The report evaluates five options for groundwater management and recommends the option to add northeastern Upton County and southeastern Midland County to Glasscock GCD as the most feasible, practicable, and economic means to achieve groundwater management in the Reagan, Upton, and Midland PGMA. The matter will be referred to SOAH to conduct a contested case hearing. Following mailed and published notice, a preliminary hearing will be held in the PGMA. After the hearing on the merits, the SOAH administrative law judge will file a proposal for decision with TCEQ. Then, the Commission will consider and adopt the most feasible and practicable option for a groundwater management for Midland and Upton counties.

North-Central Texas Trinity and Woodbine Aquifers PGMA: All of the counties except for Dallas County have been included in a GCD. TWC, Section 36.0151 provides that the TCEQ may not, before September 1, 2021, create a GCD in Dallas County.

The TCEQ Executive Director met with the TWDB Executive Administrator in January 2017. They discussed the completion and delivery of the PGMA/GCD Report to 85th Legislature; the need to track 85th session legislation relating to PGMAs and creation of GCDs in PGMAs; the continued coordination, planning and prioritization for potential new PGMA studies; and the need for

continued GCD creation action in the designated PGMAs. Williamson, Jefferson, and Orange Counties, and Val Verde county and the Devils River were discussed as potential areas of concern and may need follow up PGMA assessment as more data becomes available.

Recommendation for TWC Chapters 35 and 36

The report does not recommend statutory changes to Texas Water Code, Chapters 35 and 36 to facilitate the designation of PGMAs or the creation and operation of GCDs.

UPDATE---- TEXAS FARM BUREAU/CURTAILMENT RULES LITIGATION

BACKGROUND

Texas Water Code Section 11.053 gives the Executive Director the authority to issue an order suspending or curtailing water rights in times of drought or emergency shortage of water based on a senior call. The Commission enacted rules in 30 TAC Chapter 36 to implement the statute. On November 19, 2012, the Executive Director issued an Order under the Chapter 36 rules based on a senior call from Dow Chemical Company suspending water rights in the Brazos River Basin. The Order did not suspend junior municipal or power generation water rights because of health and welfare concerns. However, on January 15, 2013, the Executive Director issued an Order that adjusted or suspended several of these water rights based on information that was required to be submitted under the November 2012 Order, as affirmed and modified by the Commission.

LITIGATION

Texas Farm Bureau filed a Petition against the TCEQ on December 14, 2012. Travis County District Court Judge Scott H. Jenkins issued a Judgment on June 6, 2013, declaring that the TCEQ Drought Curtailment Rules are invalid because:

1. The rules exceed TCEQ's statutory authority because they allow exemption of preferred uses from a curtailment or suspension order, and such exemptions are not in accordance with the priority of water rights established by Texas Water Code Section 11.027; and
2. Exemption of junior water rights from a priority call and curtailment or suspension order is not authorized by TCEQ's police power or any general authority to protect the public health, safety, or welfare.

The judgment was affirmed by the 13th Court of Appeals, and TCEQ's petition for review was denied by the Texas Supreme Court.

IMPACT ON TCEQ

TCEQ's ability to respond to priority calls in non-watermaster areas will be severely compromised as follows.

a. TCEQ will not be able to manage its response to a senior call in a manner that takes into account concerns about public health, safety, or welfare; therefore, TCEQ will not be able to exempt uses, such as municipal uses or power generation, if they have a junior priority date; and

b. Curtailed water right holders that lack sufficient alternative sources of water will either have to purchase water from a supplier, apply for an emergency permit under Texas Water Code Section 11.139 if water is available, or apply for an emergency transfer of a water right under Texas Water Code Section 11.139. An emergency transfer of a water right requires the payment of fair market value of the water transferred and payment of damages caused by the transfer.

Aquifer Storage and Recovery

HB 655 (84th Legislative Session) changed the water rights permitting requirements for Aquifer Storage and Recovery (ASR) projects. To implement these revisions to the TWC, TCEQ adopted revisions to rules in the following chapters of the Texas Administrative Code:

Chapter 39 Public Notice

Chapter 295 Water Rights, Procedural

Chapter 297 Water Rights, Substantive

Chapter 331 Underground Injection Control (UIC)

These rules were adopted by the Commission on April 27, 2016 and published in the May 13, 2016 Texas Register (41 TexReg 3500), and effective on May 17, 2016.

Under the new rules, a water right holder or a person with a water supply contract can put their permitted water in an ASR project without obtaining additional water right authorizations under Chapter 11 of the Texas Water Code. TCEQ can also consider the use of water for an ASR project in determining water availability for new projects.

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Aquifer Storage and Recovery

The Underground Injection Control (UIC) Program made numerous changes to current rules to implement the ASR legislation. The major changes include the following:

1. Chapter 39 now includes public notice requirements for applications for Class V UIC well permits associated with an ASR project. There are no notice requirements for a Class V UIC well authorization associated with an ASR project, although under the revised Chapter 331 rules, TCEQ will notify a groundwater conservation district (GWCD) of an application for an ASR within that district. A permit application is subject to opportunity for a contested case hearing. An authorization by rule application is not.

2. Chapter 295 was revised to remove requirements for a two-phase ASR project approval process and to remove the requirement to obtain a temporary or term water right to inject appropriated water. Chapter 297 was revised to add definitions for "native groundwater" and "marine seawater" (required to implement portions of HB 2031, 84th Texas Legislature, Regular Session, 2015).

3. Injected water no longer must meet the public drinking water standards in 30 TAC Chapter 290. However, injected water cannot cause off-site contamination. TCEQ may impose additional requirements, such as monitoring wells, to prevent off-site contamination.

4. TCEQ will determine the extent to which the cumulative volume of water injected can be recovered. If an ASR is within a groundwater conservation district, district rules will apply to any volume of water recovered above the volume TCEQ determines can be recovered.

5. An ASR project operator must perform water quality testing on the injected water and on the recovered water on an annual basis.

6. An ASR project operator must report to the TCEQ on a monthly basis:

    a. The volume of water injected;

    b. The volume of water recovered;

    c. The monthly average injection pressure; and

    d. Any other information TCEQ determines is necessary for protection of underground sources of drinking water.

Current program efforts to facilitate ASR projects include the following:

1. UIC Permits Section developed an ASR application, which now is available on the TCEQ Internet pages.
2. A summary of the rule changes was presented at the TCEQ Trade Fair on May 4, 2016.
3. A summary of the rule changes was presented at the Groundwater Protection Council UIC Conference in Orlando, Florida on September 14, 2016.
4. TCEQ Radioactive Materials Division personnel have met with representatives from the City of Victoria, Barton Springs/Edwards Aquifer Conservation District, the City of Corpus Christi, the City of Kerrville, and the City of Bryan to discuss ASR projects.
5. Although applications for an ASR project have not been received by TCEQ, the agency received an application for a Class V UIC pilot project to investigate ASR feasibility. That application is under review.

Contact Information

Thank you for the opportunity to provide testimony and we are available to answer any questions.

For additional information on the topics discussed above, please contact:

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