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Handbook for Drought Contingency Planning for Wholesale Public Water Suppliers

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Water Supply Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Handbook for Drought Contingency Planning for Wholesale Public Water Suppliers

Prepared by
Water Supply Division

RG-426
April 2005



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1. Introduction

Purpose of this Handbook

The purpose of this handbook is to provide guidance and suggestions to wholesale public water suppliers with regard to the preparation of drought contingency plans.

This handbook is also intended to provide a single source of guidance on drought contingency planning that can be used by wholesale public water suppliers in meeting the requirements of either the Texas Commission on Environmental Quality (TCEQ) or the Texas Water Development Board (TWDB).

More specifically, this handbook provides guidance for meeting the statutory requirements set forth in the Texas Water Code, that all public water suppliers are “...to develop drought contingency plans...to be implemented during periods of water shortages and drought.” State law provides that water conservation and drought contingency plans are to be submitted to the TCEQ in support of applications for new or amended permits to use surface waters of the state. The TWDB also requires most state financial assistance applicants for water-related projects to develop water conservation and drought contingency plans.

Finally, **in September 2004, the TCEQ adopted new rules.** These rules require drought contingency plans to include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The rules additionally specify the minimum elements and submittal requirements for drought contingency plans. The guidelines and suggestions presented in this handbook are intended to help wholesale public water suppliers comply with these rules, which are summarized throughout the handbook and provided in their entirety in Appendix A.

In addition to the guidance provided by this handbook, the appendices include TCEQ rules for drought contingency planning, a model drought contingency plan, and an example ordinance and resolution for adoption of the plan.

Handbook’s Definition of a Wholesale Public Water Supplier

For the purposes of this handbook, and according to TCEQ rules, a wholesale public water supplier is defined as:

“an individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.”

Many wholesale public water suppliers also provide water service on a retail basis to the public for human consumption and are therefore also considered to be “community water systems.” Drought contingency plans for these water suppliers are required to address both their retail water service operations and their wholesale water service operations. Such suppliers are therefore encouraged to also consult the *TCEQ Handbook on Drought Contingency Planning for Retail Public Water Suppliers* (RG-424).

Drought Happens

Recurring drought is a natural part of Texas’ highly variable climate. Unlike other types of weather-related natural disasters, such as floods, droughts typically develop slowly, often almost imperceptibly over a period of months or even years. But like floods, drought can have widespread and far-reaching impacts on society, the economy, and the environment. In meteorological terms, a drought is simply a prolonged period of below normal rainfall. While droughts cannot be prevented or managed per se, recent statewide droughts in Texas, such as that which occurred during 1996, have underscored the need for better preparation for responding to the impacts of drought. Such preparedness is particularly critical to the effective management of our most precious and essential natural resource – water.

Drought and other uncontrollable circumstances can severely disrupt the normal availability of water and lead to water shortages. A water shortage occurs when there is an imbalance between the supply of water and the demand for water over some period of time. Short-term drought-related water shortages are often the result of both decreased water supply due to below normal rainfall and increased water demand, which can speed the depletion of water supplies. The conditions that define a water shortage tend to be specific and unique to each wholesale public water supplier. For example, for one wholesale supplier, hydrologic conditions and water demands may be such that a shortage is considered to exist when available water supplies are at 75 percent of “normal.” For another wholesale supplier, a water shortage might not exist until supplies reach 25 percent of normal.

Even where the water supply itself is adequate, a wholesale public water supplier’s diversion and conveyance facilities may not have adequate capacity to meet higher than normal peak water demands that typically occur during drought. In such situations, it may be difficult to deliver all of the water required during peak demand periods and there is often a significantly higher risk of equipment failure and system outages during prolonged peak demand periods. Also, other types of natural and man-made disasters can damage water facilities or contaminate water supplies thereby creating short-term water supply emergencies.

The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.

Title 30, Administrative Code, Chapter 288, Subchapter B (288.22) (a) (4)

Drought Contingency Planning and Comprehensive Water Resources Management

Traditionally, wholesale public water suppliers have planned for drought by focusing on water supply management strategies, such as supply development and expansion of water diversion and distribution capacity. Implicit in this approach is an orientation toward “risk avoidance” whereby the risk of shortage is reduced to near zero through supply-side strategies. This approach has served the public well. The great majority of Texas’ population is served by water suppliers that are able to withstand severe droughts with little or no inconvenience or impact to their customers. Increasingly, however, water suppliers are coming to recognize that there are limits - both economic and environmental- to a purely supply-side approach to drought and are adopting “risk management” strategies to cope with future droughts. Major components of the risk management approach are the best management practices utilized for accomplishing water use reductions during periods of water shortages and drought.

In terms of water supply, a risk management approach seeks to maintain an acceptable level of risk of water shortage through a combination of long-term water supply and system capacity development, long-term water conservation measures, and short-term supply-side and demand-side measures that are implemented only in response to drought-induced water shortages and other temporary emergency conditions. Seen in this context, drought contingency planning is best viewed as a part of, not distinct from, comprehensive long-term water resources planning and management.

Drought Contingency Planning and Water Conservation

It is common for the public, and for the operators of wholesale public water systems, to confuse water conservation planning with drought contingency planning. The TCEQ defines a water conservation plan as “*a strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water.*” The emphasis and basic goal of a water conservation plan is to achieve lasting, long-term improvements in water use efficiency. For example, water-saving plumbing fixtures and low water use landscaping are intended to achieve long-term permanent reductions in water use.

By comparison, the TCEQ defines a drought contingency plan as “*a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies.*” Drought response measures in this context are synonymous with best management practices. For a wholesale water supplier, best management practices typically include voluntary reductions in customer water demand, mandatory pro rata curtailment of water diversions or deliveries, or the temporary use of an alternative water supply.

The underlying philosophy of drought contingency planning is that:

- While often un-preventable, short-term water shortages and other water supply emergencies can be anticipated;
- The potential risks and impacts of drought or other emergency conditions can be considered and evaluated in advance of an actual event; and, most importantly,
- Response measures and best management practices can be determined with implementation procedures defined, again in advance, to avoid, minimize, or mitigate the risks and impacts of drought-related water shortages and other emergencies.

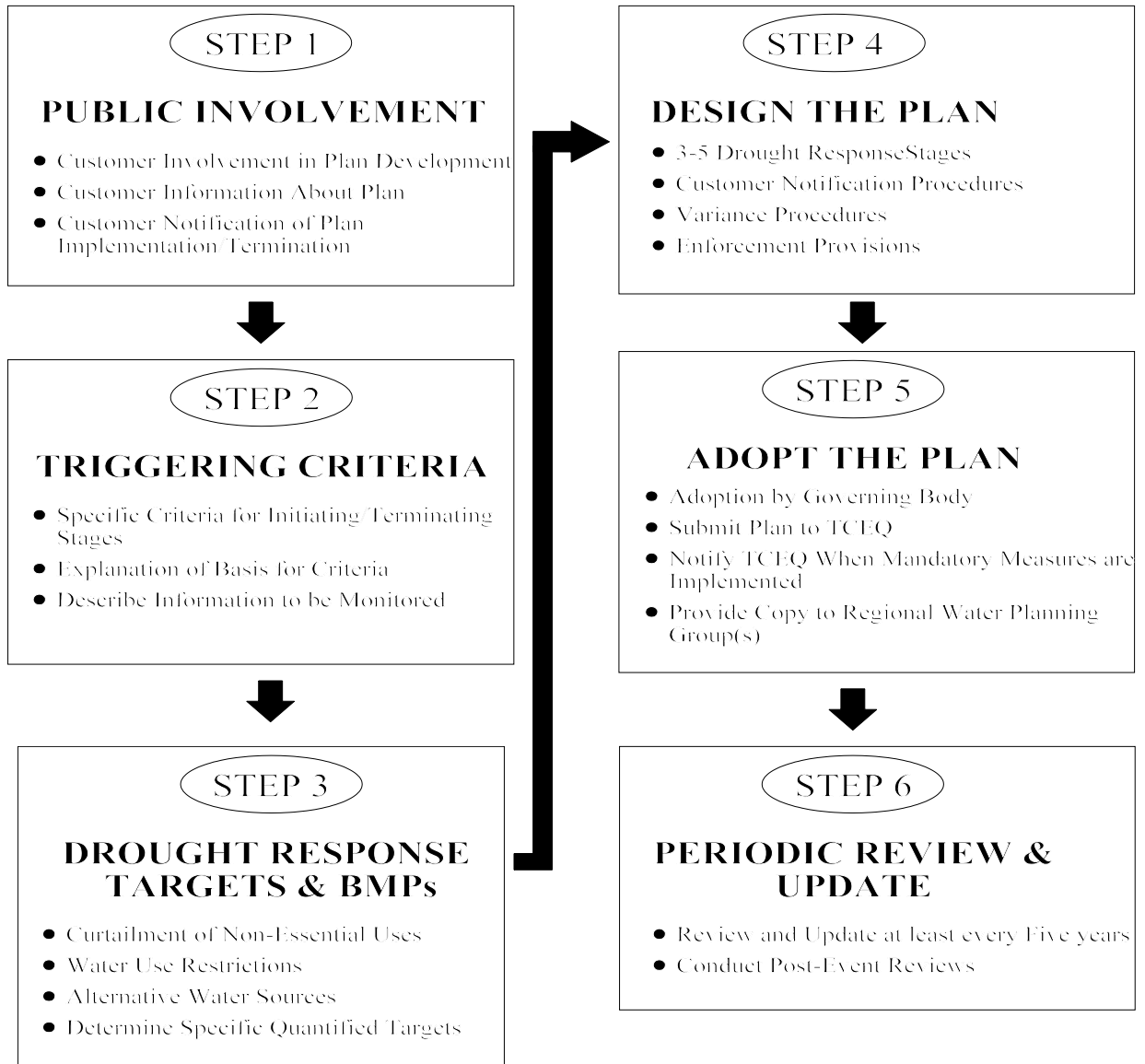
For wholesale public water suppliers, the basic goal of drought contingency planning is to ensure an uninterrupted supply of water to their wholesale customers in an amount sufficient to satisfy essential human and public needs. Secondary objectives are to minimize, to the extent possible, the adverse impacts of drought-induced water shortages and other emergency conditions on quality of life, the economy, and the environment. Drought contingency plan goals and objectives are achieved through the implementation of best management practices. A drought response measure becomes a specific best management practice for a wholesale supplier if the activity is successful in achieving the desired (target) water reduction.

2. Key Steps in Preparing a Drought Contingency Plan

At the very outset it should be emphasized that a “good” drought contingency plan is, almost by definition, one that is tailored to the unique conditions and circumstances of each individual water supplier. With few, if any, exceptions, no two wholesale public water suppliers face identical circumstances or conditions with respect to water supply availability, the water demand characteristics of their customers, or the capacity and limitations of their water supply facilities. Even wholesale water suppliers that rely on a common water source will likely have a different risk of shortage due to differences in water rights or the amount of water actually used by their wholesale customers. Since no two wholesale suppliers face identical conditions, the best management practices for one supplier may be completely different than the best management practices for another supplier. However, despite the many differences among water suppliers, there is a fairly standard six-step process that can be followed to develop an effective drought contingency plan and satisfy State requirements. This process is summarized in Figure 1.

Figure 1.

Drought Contingency Plan Process for a Wholesale Water Supplier



Step 1: Public and Wholesale Customer Involvement

The starting point for the development of a drought contingency plan is to provide the public and, more importantly, wholesale water customers, with an opportunity to participate directly in the planning process. To a large degree, the successful implementation of a drought contingency plan depends upon each customer's understanding of the need for the plan, the goals of the plan, as well as their cooperation and compliance with the drought response measures called for by the plan. Effective customer involvement can determine whether a response measure is an effective best management practice for a particular wholesale supplier. Therefore, it is important to give each wholesale customer a direct say in how the plan is designed and how and under what circumstances it will be implemented.

Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions responding to reductions in that water supply.

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.20) (a) (3)

There are a number of ways to involve the public and wholesale customers in the planning process. Common methods include providing notice that a drought plan is being prepared; forming a committee or task force with representation of the public, wholesale customers, and key stakeholders (e.g., recreation interests); holding public meetings; and, of course, distribution of the draft plan for public and wholesale customer review and comment prior to adoption.

During the preparation of drought contingency plans, TCEQ rules require wholesale public water suppliers to make provisions for:

- ***Actively inform the public and affirmatively provide opportunity for user input in preparation of the plan and for informing wholesale customers about the plan; and***
- ***Must document coordination with the regional water planning groups for the service area of the wholesale public water supplier to ensure consistency with the appropriate approved regional water plans.***

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.22) (a) (1-2)

An active, on-going effort to inform wholesale water customers about the drought contingency plan is also important, particularly prior to and during the actual implementation of the plan. The information provided should include a description of the conditions that will trigger implementation of the plan and a description of what can be expected once the drought contingency plan is in effect (e.g., response measures, enforcement provisions, etc.).

Step 2: Assess Vulnerability to Drought and Define Triggering Criteria

A common feature of drought contingency plans is a structure that allows increasingly stringent management measures to be implemented in successive stages as water supply and/or water demand conditions worsen. Drought contingency plans for wholesale public water suppliers are to include at least three drought response stages that implement best management practices and are to include specific “triggering criteria” both for initiating and terminating each stage. Triggering criteria that are based on water supplier-specific indicators have been shown to improve drought response in that decisions about when to implement and terminate drought response measures are not made arbitrarily. The objective is to ensure that timely action is taken in response to a developing drought situation and that the response is appropriate to the level of severity of the situation. Without such benchmarks, the risk of under or over-reacting to the situation increases.

It cannot be over-emphasized that triggering criteria should be specific to each water supplier and should be based on an assessment of each wholesale public water supplier’s vulnerability to drought or other emergency conditions. This should include an assessment of both the adequacy and reliability of the water supply itself and a determination of the conditions under which a water shortage can be said to exist. It is also important to evaluate the adequacy and reliability of water production and distribution facilities under drought conditions. Recent droughts have demonstrated that it is more common for water systems in Texas to experience capacity and equipment problems during periods of unusually high peak water demands, even during mild droughts, than it is for systems to experience actual water supply shortages.

With regard to water supply vulnerability, triggering criteria should be based on an analysis of how a particular water supply source is impacted by droughts of varying severity. In Texas, the common approach to estimating water supply availability is to estimate the quantity of water that can be provided from a given supply source during a repeat of the drought-of-record for that area. The drought-of-record is defined as the period of time for which there are historical hydrologic records when the amount of water in the supply source is at its lowest levels. As noted previously, TCEQ rules require the drought contingency plans of wholesale public water suppliers to address water supply conditions at least as severe as that, which would occur during a repeat of the drought of record.

The assessment of water supply availability and reliability during drought should be based on simulation modeling of the period of hydrologic record for the water source. Such analyses provide useful information about the frequency and duration of certain supply conditions, as they occurred in the past, which can then be used to assess the risk of those conditions reoccurring under certain water demand conditions in the future. Limited guidance and technical assistance with such analyses is available from the TCEQ. However, in many cases it is advisable to obtain the expert assistance of qualified surface water or groundwater hydrologists.

It is also important to define the conditions under which a water supply shortage can be said to exist. As noted previously, a water shortage is a function of the available supply, water demand, and time. One common measure of water shortage might be an estimate of how long a given amount of water will last under certain water demand conditions with varying assumptions about replenishment of the supply (e.g., low flow or low-recharge). This will vary from one supplier to another. For

example, based on a statistical analysis of the hydrologic record or past experience, one wholesale supplier might consider a one-year supply as a shortage condition whereas another community might consider a three-month or six-month supply as a shortage condition. Triggering criteria, then, might be set at corresponding measures of supply, such as the actual quantity of water remaining in the source or the percentage of supply remaining. Whatever measures are used as triggering criteria, they should be based upon information that can be readily monitored by the water supplier.

For water systems that are “capacity constrained,” triggering criteria are typically defined in terms of the “safe” operating capacity of the water system. This can be thought of as the amount of water that can be reliably produced and distributed without undue stress on facilities and equipment or significant degradation of service (e.g., low water pressure). The “vulnerability assessment” in such cases should focus on identifying any “weak links” in the water system. System components to consider include water diversion or pumping capacity, water treatment plant capacity, treated water pumping capacity, and water storage capacity. Often, through experience, operators know how a system and its individual components perform under stress and can use this knowledge to develop drought response triggering criteria. Another approach is to assess the safe operating capacity of the system and identify system constraints through computer simulation modeling. There are a number of off-the-shelf, PC-based software programs that are used in the design of water systems that can also be used to identify capacity constraints and in the development of triggering criteria keyed to such constraints.

In some circumstances it may also be appropriate to use multiple parameters for triggering criteria. For example, implementation of a particular best management practice through a drought response stage might occur when two or more supply conditions occur simultaneously (e.g., low stream flow and low reservoir conditions). Similarly, for water systems with capacity constraints, one might use daily water demand and a minimum threshold for treated water storage in combination. Multiple parameters for triggering criteria would also be necessary if a particular water system is at risk of water shortage and also has system capacity problems.

As indicated, the drought contingency plan should also specify the criteria for terminating each response stage. Typically these criteria are based on a lessening of the severity of the conditions that triggered implementation of a response stage or the return to “normal” supply or demand conditions.

TCEQ rules require drought response triggering criteria to be specified along with an explanation of the rationale or basis for the criteria. While operator knowledge of and experience with how a water system performs during drought is important information, to be effective, a drought contingency plan should not be based on haphazard judgments. If at all possible, technical assistance should be obtained from experienced professionals that are qualified to perform the assessments of hydrologic conditions and/or water system capabilities.

A final note on triggering criteria. To the extent possible, the criteria should be expressed in quantitative terms without ambiguity. If certain pre-determined conditions occur certain prescribed actions will follow. However, as a practical matter, drought contingency plans should also provide some discretion in decision-making by the responsible official regarding the initiation and termination of drought response stages. It may be, for example, that while a benchmark for water supply or water demand has been reached, other factors may indicate a need to wait before taking

action (e.g., high near-term probability of a significant rainfall and recharge event). In such a situation, it might be prudent to delay so as to avoid the possibility of initiating a drought response stage only to then terminate that stage in a day or two.

The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.22) (a) (5)

Step 3: Determine Drought Response Targets and Best Management Practices for Reducing Water Use

TCEQ rules require drought contingency plans to include specific and quantified targets for water use reductions to be achieved during periods of water shortage and drought. Generally, the types of response measures employed for each response stage should be related to the severity of the water supply or demand conditions and on specific targets for each stage. For drought contingency plans that are designed to address water shortage conditions, targets are typically expressed in terms of specific and quantified reductions in withdrawals from the supply source. For plans that are designed to address system capacity constraints, targets are usually expressed as specific and quantified reductions in water demands. In either situation, the assessments performed in the previous step should provide insights into how much withdrawals or demand will need to be reduced for each stage of the drought contingency plan.

TCEQ rules require wholesale public water supplier drought contingency plans to specify the water supply or water demand management measures that are to be implemented during each stage of the plan, including, but not limited to the following:

- ***Must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity are not enforceable.***
- ***Pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code Section 11.039; and***
- ***Utilization of alternative water sources with the prior approval of the TCEQ executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.)***

Drought contingency plans should include, as appropriate, best management practices that are both demand management and supply management measures. Demand management measures are those designed to reduce water use while supply management measures involve actions that can be taken by the supplier to better manage the available water supply (e.g., modification of reservoir operations), as well as the use of back-up or alternative water sources. Plans that are designed for water shortage conditions should consider both supply and demand management, while those designed to address system capacity constraints typically rely only on demand management measures.

The ability of wholesale public water suppliers to curtail or reduce diversions or deliveries of water to their wholesale customers is usually constrained by the terms and conditions of their wholesale water supply contracts. Typically, those contracts are for specific amounts of water, which are backed up by the yield of the wholesale supplier's water supply source(s). Lacking specific contract provisions which provide for curtailment, the wholesale supplier must rely on the statutory authority provided by Section 11.039 of the Texas Water Code, which states:

“If a shortage of water in a water supply results from drought (sic), accident, or other cause, the water to be distributed shall be divided among all customers pro rata, according to the amount each may be entitled to, so that preference is given to no one and everyone suffers alike.”

Given this general statutory authority, it is strongly recommended that wholesale public water supplier drought contingency plans define in specific terms what constitutes a “shortage of water” that will trigger pro rata allocation. In other words, the drought contingency plan should provide information regarding the conditions under which pro rata allocation will be initiated and, if possible, the degree to which diversions or deliveries will be reduced. Ideally, each wholesale customer would also be provided with information about the degree to which their individual diversions or deliveries would be reduced so that this information can be used in the development of their drought contingency plans.

The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code Section 11.039.

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.22) (a) (8)

As a practical matter, pro rata allocation of water by a wholesale public water supplier during water shortages requires development of specific allocation policies and procedures. It is recommended that wholesale suppliers not wait until a shortage develops to develop allocation policies and procedures. Rather, allocation policies should be developed and incorporated into the drought contingency plan.

One common approach to pro rata water allocation is to reduce diversions by or deliveries to each wholesale customer by an equal percentage on a monthly basis. This requires the use of some baseline water usage period for each wholesale water customer. For example, a 10 percent reduction in monthly diversions relative to the amount of water diverted during that month in the previous calendar year or, alternatively, the average for each month over the past three years. Whatever allocation procedure is used, it is advisable to involve wholesale customers directly in the development of those procedures.

Another type of drought response measure that functions as a best management practice for wholesale suppliers and has been used with increasing frequency and effectiveness, is a water rate surcharge or price adjustment during a drought. This can take the form of significantly higher rates for water use in excess of a specified base amount or a temporary across-the-board increase in commodity charges. For example, the charges for diversions by a wholesale customer in excess of their monthly allocation might be set at several times the normal rate. This would provide both a positive incentive for compliance with water use restrictions and a method for penalizing those that use excessive amounts of water. It is important to note that water rate surcharges or rate adjustments can also be used to generate additional revenue to offset any lost revenues associated with reduced water sales. However, rate changes could be subject to challenge to the extent that they are not based on cost-of-service.

Step 4: Design the Plan

Once triggering criteria, specific and quantified targets, drought response stages, and best management practices have been identified, the next step is to develop the basic structure of the drought contingency plan. As previously noted, drought contingency plans typically provide for the implementation of best management practices through drought response stages in successive stages. The idea is to implement best management practices that are geared to the severity of the situation with the hope that actions taken in one stage will be sufficient to stabilize supply and/or demand conditions and avoid the need to progress to another response stage with more stringent measures. Also, best management practices implemented through drought response stages are often cumulative whereby implementation of measures prescribed in one stage may continue in subsequent stages.

Whether designed to address water supply shortage conditions or water system capacity constraints, drought contingency plans should also include a stage which prescribes best management practices for emergency conditions caused by depletion of the water source, damage to facilities, equipment failure, or contamination of the supply. Typically, this would include notification of wholesale water customers and the public with any instructions regarding emergency best management practices. Whenever a wholesale public water supplier experiences an “outage” or emergency condition, this should be reported immediately to the TCEQ, which will then notify other agencies and coordinate assistance through the Texas Department of Public Safety’s Drought Response and Monitoring Committee.

The Table 1 presented below illustrates the structure of a relatively simple three-stage drought contingency plan designed to address water shortage conditions for a hypothetical wholesale water supplier, surface water source and back-up groundwater supplies.

Table 1: Example Drought Contingency Plan for a Wholesale Water Supplier with a Surface Water Source and Backup Groundwater Suppliers			
Drought Response Stage	Triggering Criteria	Target	Best Management Practice
Stage 1 Mild Conditions	Reservoir levels at 50 percent of capacity	Raise public and customer awareness of the water supply conditions	Initiate regular communication with wholesale water customers
Stage 2 Moderate Conditions	Reservoir levels at 40 percent of capacity	Reduce diversions from reservoir by 10 percent	Initiate pro rata reductions in diversions by wholesale customers
Stage 3 Severe Conditions	Reservoir levels at 30 percent of capacity	Reduce diversions from reservoir by 25 percent	Initiate additional pro rata reductions in diversions by wholesale customers and implement water rate surcharge for excessive use

The Table 2 provides an illustration of a drought contingency plan for a wholesale public water supplier that provides treated water from a single facility to several wholesale customers.

Table 2: Example Drought Contingency Plan for a Wholesale Water Supplier with Water System Capacity Constraints			
Drought Response Stage	Triggering Criteria	Target	Best Management Practice
Stage 1 Mild Conditions	Total daily water demand equals or exceeds 90 percent of the safe operating capacity of the system for three consecutive days or 95 percent of system capacity on a single day	Raise public and customer awareness of water demand conditions	Initiate regular communication with wholesale customers and request customers to initiate voluntary measures to reduce peak water demand
Stage 2 Moderate Conditions	Total daily water demand equals or exceeds 95 percent of the systems' safe operating capacity for three consecutive days or equals or exceeds 100 percent of system capacity on a single day	Reduce and maintain daily water demand at or below 90 percent of system capacity	Initiate pro rata reductions of water deliveries. Require wholesale customers to use alternative water supply sources and/or initiate curtailment of nonessential water uses
Stage 3 Severe Conditions	Total daily water demand equals or exceeds 100 percent of the systems' safe operating capacity for three consecutive days	Reduce and maintain daily water demand at or below 90 percent of system capacity	Initiate additional pro rata reductions of water deliveries and impose a water rate surcharge for use in excess of allocation
Stage 4 Emergency Conditions	System outage due to equipment failure	Discontinue all water system operations	Initiate emergency response procedures

In addition to defining the overall structure of the plan, it is also necessary at this step in the process to address various issues relating to the actual implementation and administration of the drought contingency plan. This includes developing written procedures for notifying wholesale water customers about the initiation or termination of drought response stages; for granting variances, if any, to measures prescribed by the plan; and provisions for enforcement of any mandatory water use restrictions including specification of penalties for violations of such restrictions. All such written procedures are required by TCEQ rules.

The drought contingency plan must include the following:

- ***Procedures for granting variances to the plan, and***
- ***Procedures for the enforcement of any mandatory water use restrictions including specification of penalties (e.g., liquidated damages, water rate surcharges, discontinuation of service) for violations of such restrictions.***

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.22) (a)(9-10)

A model drought contingency plan for wholesale public water suppliers is provided in Appendix B.

Step 5: Adopt the Plan

Before the plan development process can be considered complete, each wholesale public water supplier's drought contingency plan must be formally adopted by resolution of its governing body, in most cases by the entity's board of directors. An example of such a resolution is provided in Appendix C.

Upon formal adoption of the drought contingency plan, it is required that such plans be submitted to the TCEQ by May 1, 2005. Any new or revised plans are to be submitted to the TCEQ within 90 days of adoption. In addition, a copy of the plan is to be provided to the appropriate Regional Water Planning Group(s) for the region(s) within which the water supplier operates.

A wholesale water supplier must notify the TCEQ by telephone at (512) 239-4691, or electronic mail at watermon@tceq.state.tx.us prior to implementing mandatory stage and must notify in writing the Public Drinking Water Section at MC-155, P. O. Box 13087, Austin, Texas 78711-3087 within five working days.

The wholesale public water supplier shall notify the executive director within five business days of implementation of any mandatory provisions of the drought contingency plan.

Title 30, Texas Administrative Code, Chapter 288, Subchapter B (288.22) (b)

Step 6: Periodic Review and Update the Plan

Each wholesale water supplier should periodically review and update its drought contingency plan. In particular, this review should focus on any required modifications in triggering criteria to reflect changed conditions. For example, barring any increase in available water supply, increasing wholesale customer water demands may increase a wholesale water supplier's vulnerability to drought. Triggering criteria might therefore be adjusted to initiate best management practices at a higher water supply threshold. Similarly, major additions of new water sources or improvements to water system facilities may significantly reduce vulnerability and therefore require a lower threshold for triggering drought response measures.

The wholesale public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

Water suppliers are also encouraged to conduct a "post event" review to identify and correct any problems that may have arisen during the actual implementation of the drought contingency plan. Invariably, one can look back on the experience of implementing a drought contingency plan for lessons learned and improve the plan accordingly.

3. Where to Go for Additional Assistance

Technical Assistance and Plan Submittal

For technical assistance with the preparation of a drought contingency plan contact:

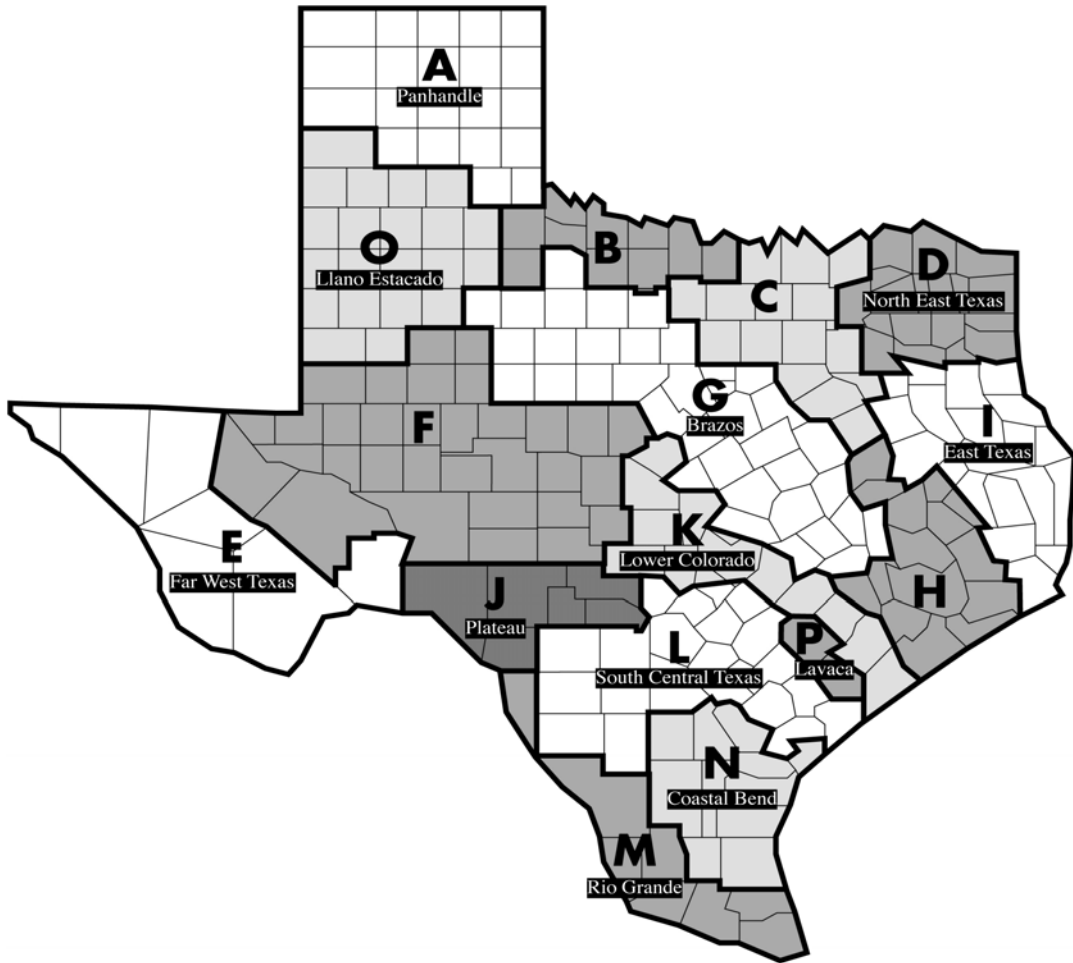
Resource Protection Team, MC 160
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087
(512) 239-4691
www.tceq.state.tx.us

Note: Those drought contingency plans that are required to be submitted to TCEQ should be mailed to the Resource Protection Team at the TCEQ address indicated above.

Regional Water Planning Groups

As noted previously, once adopted, a copy of each water supplier's drought contingency plan is to be submitted to the appropriate Regional Water Planning Group(s). The Regional Water Planning Groups are established by the TWDB pursuant to the Texas Water Code and are responsible for the development of regional water management plans. Sixteen (16) regional water planning areas have been established by the TWDB (see Figure 2). For each region, an agency has been selected by the Regional Water Planning Group to act as its agent for administrative purposes. The names, addresses, and telephone numbers of each of these agencies is given below.

Figure 2: Regional Water Planning Areas - Texas Water Development Board
(The 16 regions are identified by the letters A-P: 12 regions have names designated)



Panhandle Region (A)

Panhandle Groundwater Conservation District
P.O. Box 637
White Deer, TX 79097
(806) 883-2501

Region C

North Texas Municipal Water District
P.O. Box 2408
Wylie, TX 75098
(972) 442-5405

Far West Texas Region (E)

P. O. Box 668
Alpine, TX 79831
(915) 364-2244

Brazos Region (G)

City of Abilene
P. O. Box 60
Abilene, TX 79604-0060
(325) 676-6386

East Texas Region (I)

8740 FM 226
Nacogdoches, TX 75961
(936) 569-1284

Lower Colorado Region (K)

Aqua Water Supply Corporation
P.O. Drawer P
Bastrop, TX 78602
(512) 303-3943

Rio Grande Region (M)

Lower Rio Grande Valley Development Council
311 North 15 St.
McAllen, TX 78501-4705
(956) 682-3481

Llano Estacado Region (O)

P. O. Box 2426
Lubbock, TX 79408
(806) 765-8851

Region B

Red River Authority
900 8th St., Hamilton Building, Ste. 520
Wichita Falls, TX 76301-6894
(940) 723-8697

North East Texas Region (D)

City of Kilgore
P.O. Box 990
Kilgore, TX 75663
(903) 984-5081

Upper Colorado Region (F)

Colorado River Municipal Water District
P.O. Box 869
Big Spring, TX 79721-0869
(432) 267-6341

Houston Region (H)

San Jacinto River Authority
P.O. Box 329
Conroe, TX 77305-0329
(936) 588-1111

Plateau Region (J)

700 Main Street
Kerrville, TX 78028
(830) 792-2216

South Central Texas Region (L)

San Antonio River Authority
P. O. Box 839980
San Antonio, TX 78283
(210) 227-1373

Coastal Bend Region (N)

South Texas Water Authority
P. O. Box 1701
Kingsville, TX 78364
(361) 692-0337, ext 12

Lavaca Region (P)

115 W. Main
Edna, TX 77957
(361) 782-5229

APPENDIX A:

TCEQ Rules for Drought Contingency Plans

- Subchapter B: Drought Contingency Plans §§288.20 - 288.22
- Subchapter C: Required Submittals §288.30

SUBCHAPTER B: DROUGHT CONTINGENCY PLANS
§§288.20 - 288.22

STATUTORY AUTHORITY

The amendments are adopted under TWC, §5.103, which provides the commission with the authority to adopt any rules necessary to carry out its powers and duties under the provisions of the TWC or other laws of this state; and TWC, §11.1272, which provides the commission with the authority to require wholesale and retail public water suppliers and irrigation districts to develop drought contingency plans; and Texas Government Code, §2001.006, which authorizes state agencies to adopt rules or take other administrative action that the agency deems necessary to implement legislation.

§288.20. Drought Contingency Plans for Municipal Uses by Public Water Suppliers.

(a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.

(1) Minimum requirements. Drought contingency plans must include the following minimum elements.

(A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide opportunity for public input. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.

(C) The drought contingency plan must document coordination with the regional water planning groups for the service area of the retail public water supplier to ensure consistency with the appropriate approved regional water plans.

(D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.

(E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:

- (i) reduction in available water supply up to a repeat of the drought of record;
- (ii) water production or distribution system limitations;
- (iii) supply source contamination; or

(iv) system outage due to the failure or damage of major water system components (e.g., pumps).

(F) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.

(G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

(i) curtailment of non-essential water uses; and

(ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.

(I) The drought contingency plan must include procedures for granting variances to the plan.

(J) The drought contingency plan must include procedures for the enforcement of mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.

(2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.

(3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.

(b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

§288.21. Drought Contingency Plans for Irrigation Use.

(a) A drought contingency plan for an irrigation use, where applicable, must include the following minimum elements.

(1) Minimum requirements. Drought contingency plans for irrigation water suppliers must include policies and procedures for the equitable and efficient allocation of water on a pro rata basis during times of shortage in accordance with Texas Water Code, §11.039. Such plans shall include the following elements as a minimum.

(A) Preparation of the plan shall include provisions to actively inform and to affirmatively provide opportunity for users of water from the irrigation system to provide input into the preparation of the plan and to remain informed of the plan. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the water users and providing written notice to the water users concerning the proposed plan and meeting.

(B) The drought contingency plan must document coordination with the regional water planning groups to ensure consistency with the appropriate approved regional water plans.

(C) The drought contingency plan must include water supply criteria and other considerations for determining when to initiate or terminate water allocation procedures, accompanied by an explanation of the rationale or basis for such triggering criteria.

(D) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.

(E) The drought contingency plan must include methods for determining the allocation of irrigation supplies to individual users.

(F) The drought contingency plan must include a description of the information to be monitored by the water supplier and the procedures to be followed for the initiation or termination of water allocation policies.

(G) The drought contingency plan must include procedures for use accounting during the implementation of water allocation policies.

(H) The drought contingency plan must include policies and procedures, if any, for the transfer of water allocations among individual users within the water supply system or to users outside the water supply system.

(I) The drought contingency plan must include procedures for the enforcement of water allocation policies, including specification of penalties for violations of such policies and for wasteful or excessive use of water.

(2) Wholesale water customers. Any irrigation water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan, appropriate provisions for responding to reductions in that water supply.

(3) Protection of public water supplies. Any irrigation water supplier that also provides or delivers water to a public water supplier(s) shall consult with that public water supplier(s) and shall include in the plan, mutually agreeable and appropriate provisions to ensure an uninterrupted supply of water necessary for essential uses relating to public health and safety. Nothing in this provision shall be construed as requiring the irrigation water supplier to transfer irrigation water supplies to non-irrigation use on a compulsory basis or without just compensation.

(b) Irrigation water users shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as adoption or revision of the regional water plan.

§288.22. Drought Contingency Plans for Wholesale Water Suppliers.

(a) A drought contingency plan for a wholesale water supplier must include the following minimum elements.

(1) Preparation of the plan shall include provisions to actively inform the public and to affirmatively provide opportunity for user input in the preparation of the plan and for informing wholesale customers about the plan. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(2) The drought contingency plan must document coordination with the regional water planning groups for the service area of the wholesale public water supplier to ensure consistency with the appropriate approved regional water plans.

(3) The drought contingency plan must include a description of the information to be monitored by the water supplier and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.

(4) The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.

(5) The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.

(6) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this paragraph are not enforceable.

(7) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

(A) pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039; and

(B) utilization of alternative water sources with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(8) The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.

(9) The drought contingency plan must include procedures for granting variances to the plan.

(10) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions including specification of penalties (e.g., liquidated damages, water rate surcharges, discontinuation of service) for violations of such restrictions.

(b) The wholesale public water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The wholesale public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as adoption or revision of the regional water plan.

SUBCHAPTER C: REQUIRED SUBMITTALS
§288.30

STATUTORY AUTHORITY

The amendment is adopted under TWC, §5.103, which provides the commission with the authority to adopt any rules necessary to carry out its powers and duties under the provisions of the TWC or other laws of this state; and TWC, §11.1271, which provides the commission with the authority to require applicants for a new or amended water right to adopt conservation measures; and TWC, §11.1272, which provides the commission with the authority to require wholesale and retail public water suppliers and irrigation districts to develop drought contingency plans; and Texas Government Code, §2001.006, which authorizes state agencies to adopt rules or take other administrative action that the agency deems necessary to implement legislation.

§288.30. Required Submittals.

In addition to the water conservation and drought contingency plans required to be submitted with an application under §295.9 of this title (relating to Water Conservation and Drought Contingency Plans), water conservation and drought contingency plans are required as follows.

(1) Water conservation plans for municipal, industrial, and other non-irrigation uses. The holder of an existing permit, certified filing, or certificate of adjudication for the appropriation of surface water in the amount of 1,000 acre-feet a year or more for municipal, industrial, and other non-irrigation uses shall develop, submit, and implement a water conservation plan meeting the requirements of Subchapter A of this chapter (relating to Water Conservation Plans). The water conservation plan must be submitted to the executive director not later than May 1, 2005. Thereafter, the next revision of the water conservation plan for municipal, industrial, and other non-irrigation uses must be submitted not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption. The revised plans must include implementation reports. The requirement for a water conservation plan under this section must not result in the need for an amendment to an existing permit, certified filing, or certificate of adjudication.

(2) Implementation report for municipal, industrial, and other non-irrigation uses. The implementation report must include:

(A) the list of dates and descriptions of the conservation measures implemented;

(B) data about whether or not targets in the plans are being met;

(C) the actual amount of water saved; and

(D) if the targets are not being met, an explanation as to why any of the targets are not being met, including any progress on that particular target.

(3) Water conservation plans for irrigation uses. The holder of an existing permit, certified filing, or certificate of adjudication for the appropriation of surface water in the amount of 10,000 acre-feet a year or more for irrigation uses shall develop, submit, and implement a water conservation plan meeting the requirements of Subchapter A of this chapter. The water conservation plan must be submitted to the executive director not later than May 1,

2005. Thereafter, the next revision of the water conservation plan for irrigation uses must be submitted not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption. The revised plans must include implementation reports. The requirement for a water conservation plan under this section must not result in the need for an amendment to an existing permit, certified filing, or certificate of adjudication.

(4) Implementation report for irrigation uses. The implementation report must include:

- (A) the list of dates and descriptions of the conservation measures implemented;
- (B) data about whether or not targets in the plans are being met;
- (C) the actual amount of water saved; and
- (D) if the targets are not being met, an explanation as to why any of the targets are not being met, including any progress on that particular target.

(5) Drought contingency plans for retail public water suppliers. Retail public water suppliers shall submit a drought contingency plan meeting the requirements of Subchapter B of this chapter (relating to Drought Contingency Plans) to the executive director after adoption by its governing body. The retail public water system shall provide a copy of the plan to the regional water planning group for each region within which the water system operates. These drought contingency plans must be submitted as follows.

(A) For retail public water suppliers providing water service to 3,300 or more connections, the drought contingency plan must be submitted to the executive director not later than May 1, 2005. Thereafter, the retail public water suppliers providing water service to 3,300 or more connections shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption by the community water system. Any new retail public water suppliers providing water service to 3,300 or more connections shall prepare and adopt a drought contingency plan within 180 days of commencement of operation, and submit the plan to the executive director within 90 days of adoption.

(B) For all the retail public water suppliers, the drought contingency plan must be prepared and adopted not later than May 1, 2005 and must be available for inspection by the executive director upon request. Thereafter, the retail public water suppliers shall prepare and adopt the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new retail public water supplier providing water service to less than 3,300 connections shall prepare and adopt a drought contingency plan within 180 days of commencement of operation, and shall make the plan available for inspection by the executive director upon request.

(6) Drought contingency plans for wholesale public water suppliers. Wholesale public water suppliers shall submit a drought contingency plan meeting the requirements of Subchapter B of this chapter to the executive director not later than May 1, 2005, after

adoption of the drought contingency plan by the governing body of the water supplier. Thereafter, the wholesale public water suppliers shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new or revised plans must be submitted to the executive director within 90 days of adoption by the governing body of the wholesale public water supplier. Wholesale public water suppliers shall also provide a copy of the drought contingency plan to the regional water planning group for each region within which the wholesale water supplier operates.

(7) Drought contingency plans for irrigation districts. Irrigation districts shall submit a drought contingency plan meeting the requirements of Subchapter B of this chapter to the executive director not later than May 1, 2005, after adoption by the governing body of the irrigation district. Thereafter, the irrigation districts shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new or revised plans must be submitted to the executive director within 90 days of adoption by the governing body of the irrigation district. Irrigation districts shall also provide a copy of the plan to the regional water planning group for each region within which the irrigation district operates.

(8) Other submissions. A water conservation plan or drought contingency plan required to be submitted with an application in accordance with §295.9 of this title must also be subject to review and approval by the commission.

(9) Existing permits. The holder of an existing permit, certified filing, or certificate of adjudication shall not be subject to enforcement actions nor shall the permit, certified filing, or certificate of adjudication be subject to cancellation, either in part or in whole, based on the nonattainment of goals contained within a water conservation plan submitted with an application in accordance with §295.9 of this title or by the holder of an existing permit, certified filing, or certificate of adjudication in accordance with the requirements of this section.

APPENDIX B:
**Model Drought Contingency Plan for Wholesale
Public Water Suppliers**

**Note: This form, TCEQ-20193, can be downloaded from the following TCEQ Web
address: www.tceq.state.tx.us/comm_exec/forms_pubs/search_forms.html**

Drought Contingency Plan for a Wholesale Public Water Supplier

Texas Commission on Environmental Quality

Instructions: The following form is a model of a drought contingency plan for a wholesale public water supplier. Not all items may apply to your system's situation. This form is supplied for your convenience, but you are not required to use this form to submit your plan to the TCEQ. Submit completed plans to: Water Supply Division MC 160, TCEQ, P.O. Box 13087, Austin TX 78711-3087.

(Name of Utility)

(Address, City, Zip Code)

(CCN#)

(PWS #s)

(Date)

Section I: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and/or to protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the _____ (name of your water supplier) adopts the following Drought Contingency Plan (the Plan).

Section II: Public Involvement

Opportunity for the public and wholesale water customers to provide input into the preparation of the Plan was provided by _____ (name of your water supplier) by means of _____ (describe methods used to inform the public and wholesale customers about the preparation of the plan and opportunities for input; for example, scheduling and proving public notice of a public meeting to accept input on the Plan).

Section III: Wholesale Water Customer Education

The _____ (name of your water supplier) will periodically provide wholesale water customers with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of _____ (e.g., describe methods to be used to provide customers with information about the Plan; for example, providing a copy of the Plan or periodically including information about the Plan with invoices for water sales).

Section IV: Coordination with Regional Water Planning Groups

The water service area of the _____ (name of your water supplier) is located within the _____ (name of regional water planning area or areas) and the _____ (name of your water supplier) has provided a copy of the Plan to the _____ (name of your regional water planning group or groups).

Section V: Authorization

The _____ (designated official; for example, the general manager or executive director), or his/her designee, is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The _____, or his/her designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section VI: Application

The provisions of this Plan shall apply to all customers utilizing water provided by the _____ (name of your water supplier). The terms “person” and “customer” as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

Section VII: Criteria for Initiation and Termination of Drought Response Stages

The _____ (designated official), or his/her designee, shall monitor water supply and/or demand conditions on a (e.g., weekly, monthly) basis and shall determine when conditions warrant initiation or termination of each stage of the Plan. Customer notification of the initiation or termination of drought response stages will be made by mail or telephone. The news media will also be informed.

The triggering criteria described below are based on:

_____ (provide a brief description of the rationale for the triggering criteria; for example, triggering criteria are based on a statistical analysis of the vulnerability of the water source under drought of record conditions).

Stage 1 Triggers -- MILD Water Shortage Conditions

Requirements for initiation – The _____ (name of your water supplier) will recognize that a mild water shortage condition exists when _____ (describe triggering criteria, see examples below).

Below are examples of the types of triggering criteria that might be used in a wholesale water supplier's drought contingency plan. One or a combination of such criteria may be defined for each drought response stage:

Example 1: *Water in storage in the _____ (name of reservoir) is equal to or less than _____ (acre-feet and/or percentage of storage capacity).*

Example 2: *When the combined storage in the _____ (name of reservoirs) is equal to or less than _____ (acre-feet and/or percentage of storage capacity).*

Example 3: *Flows as measured by the U.S. Geological Survey gage on the _____ (name of river) near _____, Texas reaches _____ cubic feet per second (cfs).*

Example 4: *When total daily water demand equals or exceeds _____ million gallons for _____ consecutive days or _____ million gallons on a single day.*

Example 5: *When total daily water demand equals or exceeds _____ percent of the safe operating capacity of _____ million gallons per day for _____ consecutive days or _____ percent on a single day.*

Requirements for termination - Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of _____ (e.g., 30) consecutive days. The _____ (name of water supplier) will notify its wholesale customers and the media of the termination of Stage 1 in the same manner as the notification of initiation of Stage 1 of the Plan.

Stage 2 Triggers -- MODERATE Water Shortage Conditions

Requirements for initiation – The _____ (name of your water supplier) will recognize that a moderate water shortage condition exists when _____ (describe triggering criteria).

Requirements for termination - Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (e.g., 30) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative. The _____ (name of your water supplier) will notify its wholesale customers and the media of the termination of Stage 2 in the same manner as the notification of initiation of Stage 1 of the Plan.

Stage 3 Triggers -- SEVERE Water Shortage Conditions

Requirements for initiation – The _____ (name of your water supplier) will recognize that a severe water shortage condition exists when _____ (*describe triggering criteria; see examples in Stage 1*).

Requirements for termination - Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (e.g., 30) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative. The _____ (name of your water supplier) will notify its wholesale customers and the media of the termination of Stage 2 in the same manner as the notification of initiation of Stage 3 of the Plan.

Stage 4 Triggers -- CRITICAL Water Shortage Conditions

Requirements for initiation - The _____ (name of your water supplier) will recognize that an emergency water shortage condition exists when _____ (*describe triggering criteria; see examples below*).

Example 1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or

Example 2. Natural or man-made contamination of the water supply source(s).

Requirements for termination - Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (e.g., 30) consecutive days. The _____ (name of your water supplier) will notify its wholesale customers and the media of the termination of Stage 4.

Section VIII: Drought Response Stages

The _____ (designated official), or his/her designee, shall monitor water supply and/or demand conditions and, in accordance with the triggering criteria set forth in Section VI, shall determine that mild, moderate, or severe water shortage conditions exist or that an emergency condition exists and shall implement the following actions:

Stage 1 Response -- MILD Water Shortage Conditions

Target: Achieve a voluntary ___ percent reduction in _____ (e.g., total water use, daily water demand, etc.).

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (designated official), or his/her designee(s), to manage limited water supplies and/or reduce water demand. Examples include modifying reservoir operations procedures, interconnection with another water system, and use of reclaimed water for non-potable purposes.

Water Use Restrictions for Reducing Demand:

- (a) The _____ (designated official), or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate voluntary measures to reduce water use (e.g., implement Stage 1 of the customer's drought contingency plan).
- (b) The _____ (designated official), or his/her designee(s), will provide a weekly report to news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Stage 2 Response -- MODERATE Water Shortage Conditions

Target: Achieve a ___ percent reduction in _____ (e.g., total water use, daily water demand, etc.).

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (designated official), or his/her designee(s), to manage limited water supplies and/or reduce water demand. Examples include modifying reservoir operations procedures, interconnection with another water system, and use of reclaimed water for non-potable purposes.

Water Use Restrictions for Reducing Demand:

- (a) The _____ (designated official), or his/her designee(s), will initiate weekly contact with wholesale water customers to discuss water supply and/or demand conditions and the possibility of pro rata curtailment of water diversions and/or deliveries.
- (b) The _____ (designated official), or his/her designee(s), will request wholesale water customers to initiate mandatory measures to reduce non-essential water use (e.g., implement Stage 2 of the customer's drought contingency plan).
- (c) The _____ (designated official), or his/her designee(s), will initiate preparations for the implementation of pro rata curtailment of water diversions and/or deliveries by preparing a monthly water usage allocation baseline for each wholesale customer according to the procedures specified in Section VI of the Plan.
- (d) The _____ (designated official), or his/her designee(s), will provide a weekly report to news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Stage 3 Response -- SEVERE Water Shortage Conditions

Target: Achieve a ___ percent reduction in _____ (e.g., total water use, daily water demand, etc.).

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (designated official), or his/her designee(s), to manage limited water supplies and/or reduce water demand. Examples include modifying reservoir operations procedures, interconnection with another water system, and use of reclaimed water for non-potable purposes.

Water Use Restrictions for Reducing Demand:

- (a) The _____ (designated official), or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate additional mandatory measures to reduce non-essential water use (e.g., implement Stage 2 of the customer's drought contingency plan).
- (b) The _____ (designated official), or his/her designee(s), will initiate pro rata curtailment of water diversions and/or deliveries for each wholesale customer according to the procedures specified in Section VI of the Plan.

(c) The _____ (designated official), or his/her designee(s), will provide a weekly report to news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

Stage 4 Response -- EMERGENCY Water Shortage Conditions

Whenever emergency water shortage conditions exist as defined in Section VII of the Plan, the _____ (designated official) shall:

1. Assess the severity of the problem and identify the actions needed and time required to solve the problem.
2. Inform the utility director or other responsible official of each wholesale water customer by telephone or in person and suggest actions, as appropriate, to alleviate problems (e.g., notification of the public to reduce water use until service is restored).
3. If appropriate, notify city, county, and/or state emergency response officials for assistance.
4. Undertake necessary actions, including repairs and/or clean-up as needed.
5. Prepare a post-event assessment report on the incident and critique of emergency response procedures and actions.

Section IX: Pro Rata Water Allocation

In the event that the triggering criteria specified in Section VII of the Plan for Stage 3 – Severe Water Shortage Conditions have been met, the _____ (designated official) is hereby authorized initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code Section 11.039.

Section X: Enforcement

During any period when pro rata allocation of available water supplies is in effect, wholesale customers shall pay the following surcharges on excess water diversions and/or deliveries:

- _____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation up through 5 percent above the monthly allocation.
- _____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation from 5 percent through 10 percent above the monthly allocation.

_____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation from 10 percent through 15 percent above the monthly allocation.

_____ times the normal water charge per acre-foot for water diversions and/or deliveries more than 15 percent above the monthly allocation.

The above surcharges shall be cumulative.

Section XI: Variances

The _____ (designated official), or his/her designee, may, in writing, grant a temporary variance to the pro rata water allocation policies provided by this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the public health, welfare, or safety and if one or more of the following conditions are met:

- (a) Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
- (b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the _____ (designated official) within 5 days after pro rata allocation has been invoked. All petitions for variances shall be reviewed by the _____ (governing body), and shall include the following:

- (a) Name and address of the petitioner(s).
- (b) Detailed statement with supporting data and information as to how the pro rata allocation of water under the policies and procedures established in the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
- (c) Description of the relief requested.
- (d) Period of time for which the variance is sought.
- (e) Alternative measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- (f) Other pertinent information.

Variations granted by the _____ (governing body) shall be subject to the following conditions, unless waived or modified by the _____ (governing body) or its designee:

- (a) Variations granted shall include a timetable for compliance.
- (b) Variations granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

Section XII: Severability

It is hereby declared to be the intention of the _____ (governing body of your water supplier) that the sections, paragraphs, sentences, clauses, and phrases of this Plan are severable and, if any phrase, clause, sentence, paragraph, or section of this Plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, since the same would not have been enacted by the _____ (governing body of your water supplier) without the incorporation into this Plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

APPENDIX C:
**Example Ordinance and Resolution Adopting a
Drought Contingency Plan**

- **Example Ordinance**
- **Example Resolution**

**EXAMPLE ORDINANCE FOR ADOPTION OF A
DROUGHT CONTINGENCY PLAN**

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF _____,
TEXAS, ADOPTING A DROUGHT CONTINGENCY PLAN;
ESTABLISHING CRITERIA FOR THE INITIATION AND
TERMINATION OF DROUGHT RESPONSE STAGES;
ESTABLISHING RESTRICTIONS ON CERTAIN WATER
USES; ESTABLISHING PENALTIES FOR THE VIOLATION
OF AND PROVISIONS FOR ENFORCEMENT OF THESE
RESTRICTIONS; ESTABLISHING PROCEDURES FOR
GRANTING VARIANCES; AND PROVIDING
SEVERABILITY AND AN EFFECTIVE DATE.

WHEREAS, the City of _____, Texas recognizes that the amount of water available to the City and its water utility customers is limited and subject to depletion during periods of extended drought;

WHEREAS, the City recognizes that natural limitations due to drought conditions and other acts of God cannot guarantee an uninterrupted water supply for all purposes;

WHEREAS, Section 11.1272 of the Texas Water Code and applicable rules of the Texas Commission on Environmental Quality require all public water supply systems in Texas to prepare a drought contingency plan; and

WHEREAS, as authorized under law, and in the best interests of the citizens of _____, Texas, the _____ (governing body) deems it expedient and necessary to establish certain rules and policies for the orderly and efficient management of limited water supplies during drought and other water supply emergencies;

NOW THEREFORE, BE IT ORDAINED BY THE CITY OF _____, TEXAS:

SECTION 1.

That the City of _____, Texas Drought Contingency Plan attached hereto as Exhibit "A" and made part hereof for all purposes be, and the same is hereby, adopted as the official policy of the City.

SECTION 2.

That all ordinances that are in conflict with the provisions of this ordinance be, and the same are hereby, repealed and all other ordinances of the City not in conflict with the provisions of this ordinance shall remain in full force and effect.

SECTION 3.

Should any paragraph, sentence, subdivision, clause, phrase, or section of this ordinance be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this ordinance as a whole or any part or provision thereof, other than the part so declared to be invalid, illegal or unconstitutional.

SECTION 4.

This ordinance shall take effect immediately from and after its passage and the publication of the caption, as the law in such cases provides.

DULY PASSED BY THE CITY OF _____, TEXAS, on the _____ day of _____, 20__.

APPROVED:

MAYOR

ATTESTED TO:

CITY SECRETARY

APPROVED AS TO FORM:

CITY ATTORNEY

**EXAMPLE RESOLUTION FOR ADOPTION OF A
DROUGHT CONTINGENCY PLAN**

RESOLUTION NO. _____

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE
_____ (name of your water supplier) ADOPTING A
DROUGHT CONTINGENCY PLAN.

WHEREAS, the Board recognizes that the amount of water available to the _____ (name of your water supplier) and its water utility customers is limited and subject to depletion during periods of extended drought;

WHEREAS, the Board recognizes that natural limitations due to drought conditions and other acts of God cannot guarantee an uninterrupted water supply for all purposes;

WHEREAS, Section 11.1272 of the Texas Water Code and applicable rules of the Texas Commission on Environmental Quality require all public water supply systems in Texas to prepare a drought contingency plan; and

WHEREAS, as authorized under law, and in the best interests of the customers of the _____ (name of your water supplier), the Board deems it expedient and necessary to establish certain rules and policies for the orderly and efficient management of limited water supplies during drought and other water supply emergencies;

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE _____ (name of your water supplier):

SECTION 1. That the Drought Contingency Plan attached hereto as Exhibit "A" and made part hereof for all purposes be, and the same is hereby, adopted as the official policy of the _____ (name of your water supplier).

SECTION 2. That the _____ (e.g., general manager) is hereby directed to implement, administer, and enforce the Drought Contingency Plan.

SECTION 3. That this resolution shall take effect immediately upon its passage.

DULY PASSED BY THE BOARD OF DIRECTORS OF THE _____, ON THIS
__ day of _____, 20__.

President, Board of Directors

ATTESTED TO:

Secretary, Board of Directors

