Chapter 7

DROUGHT RESPONSE INFORMATION, ACTIVITIES, AND RECOMMENDATIONS

Drought is a frequent and inevitable factor in the climate of Texas. Therefore, it is vital to plan for the effect that droughts will have on the use, allocation, and conservation of water in the State. Drought management measures have been incorporated as an increasingly important part of water planning at the local, regional and statewide levels. In 2009, the Texas Water Development Board (TWDB) published "Drought Management in the Texas Regional and State Water Planning Process" (http://www.twdb.texas.gov/publications/reports/contracted_reports/doc/0804830819_DroughtMgmt.pdf) which examines the potential benefits and drawbacks of including drought management as a regional water management strategy.

Prolonged drought conditions can have serious impacts on water supplies. Due to the potentially devastating effects of drought on both individuals and the State's economy, it is important that water suppliers and users consider the potential impacts of drought and develop robust plans to address supply or demand management under drought conditions.

Through the regional water planning process, requirements for drought management planning are found in Title 31 of the Texas Administrative Code (TAC), Part 10, Chapter 357, Subchapter D. TAC §357.42 includes requirements regarding drought response information, activities, and recommendations. This chapter examines these specific requirements and identifies significant drought impacts within the Region.

7.1 Drought(s) of Record in North East Texas

The severity of several recent droughts have significantly impacted the lives of water users, providers and water managers who have been hard-pressed to find solutions to critical supply and demand issues. The severity of the impacts varies, but the overriding sense of urgency to create workable strategies and solutions has been acknowledged and acted upon Statewide. Therefore, it is critical in this and future planning cycles to address the impact that drought may have on the future use, allocation and conservation of water in the State.

There are different types of drought that have been defined in various ways; however, these definitions fall into four primary categories: meteorological drought, agricultural drought, hydrological drought, and socioeconomic drought. In the most general sense, drought is a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group or environmental purpose. The State Drought Preparedness Plan provides more specific and detailed definitions and is located at the following link: https://waterdatafortexas.org/drought/twdb-reports/state_of_texas_drought_annex_2016.pdf .

Meteorological drought is quantified by how dry it is (for example, a rainfall deficit) compared to normal conditions as well as the duration of the dry period. This is typically a region-specific metric, since factors affecting meteorological drought can vary significantly in different regions.

Agricultural drought considers the effects of meteorological drought in terms of agricultural impacts. For example, evapotranspiration, soil moisture and plant stress are measures of agricultural drought, which account for vulnerability of crops through the various growth stages.

Hydrological drought is measured in terms of effects on surface and subsurface waters, such as reservoir stage and capacity, stream flow or groundwater levels in wells. Hydrological drought is usually defined on a river-basin or watershed scale. Hydrological droughts typically lag behind meteorological and agricultural droughts because it takes more time for the evidence of basin-wide impacts to manifest.

Socioeconomic drought occurs when physical water needs affect the health, safety, and quality of life of the general public or when the drought effects the supply and demand of an economic product. An example of socioeconomic drought is when the demand for an economic product (such as hydroelectric power) exceeds supply due to a weather-related deficit. Typically, these demands increase with population growth and per capita consumptions. Supply increases due to efficiency technology and the construction of new water projects. If both are increasing, the rate of change between supply and demand determines the level of socioeconomic drought. However, regardless of the rate of change, when demand exceeds supply, vulnerability is magnified by water shortages during drought.

Several climatological drought indicators have been formulated in order to quantify drought. The Palmer Drought Severity Index (PDSI) was developed in 1965 and is currently used by many federal and state agencies. The PDSI is a soil moisture index that works best in relatively large regions with uniform topography that don't experience extreme climate shifts. PDSI values can lag oncoming drought by several months. The TWDB uses the PDSI to monitor State drought conditions, which has values ranging between 6.0 (driest) to 6.0 (wettest). "Extreme drought" conditions have a PDSI between 6.0 and 4.0, "severe drought" conditions have a PDSI between 3.99 and 3.0, and "moderate drought" conditions have a PDSI between 2.99 and 2.0. "Near normal" conditions are present when the PDSI is between 1.99 and -1.99, and "moist" conditions have a PDSI of less than -2.0.

The week of September 13, 2011 had the highest percentage of the East Texas climate division experiencing exceptional drought (99 percent) for the period of record shown (January 2000 through January 2024). The U.S. Drought Monitor indicates that in September 2011, all of the counties in the North East Texas region experienced at least some periods of severe or extreme drought (Figure 7.).

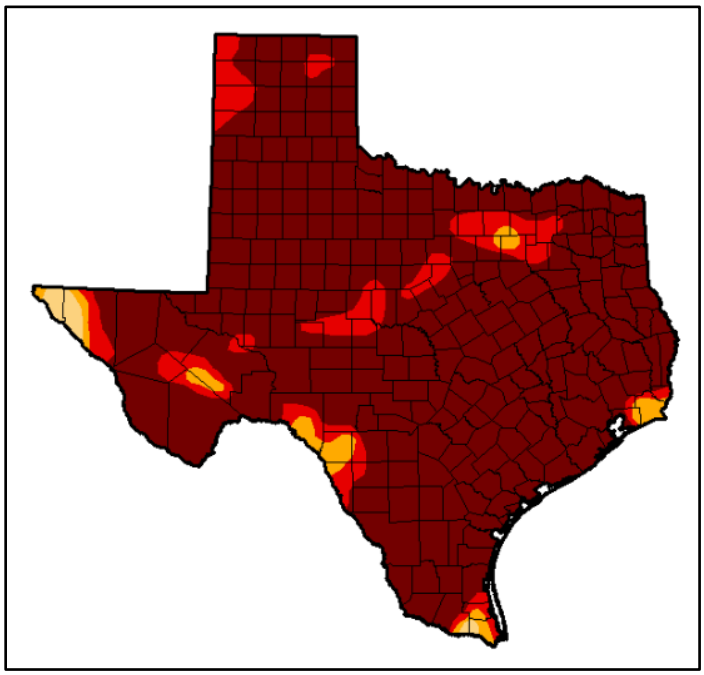


Figure 7.1 Drought in Texas, September 2011

Source: U.S. Drought Monitor

7.1.1 Droughts in the North East Texas Region

North East Texas is within the humid subtropical climate zone and receives the most rainfall of any region of Texas. Comparing the existing 1950's Drought of Record (DOR) and the more recent drought can be done using historic precipitation and the PDSI.

Precipitation data for TWDB defined quadrangles 412, 413, 512 and 513 from 1940 through 2023 are shown in Figure 7.2. These four quadrangles collectively cover the entire RWPA. The average annual rainfall for these quadrangles is approximately 47 inches. These data indicate that the DOR during this period was in the 1950s as indicated by five out of six years of below average rainfall between 1951 and 1956. Note that a recurrence, or continuation, of the drought of the 1950s is also evident between 1962 and 1965.

The recent drought indicates a possible trend toward below average annual rainfall beginning around 1995, but also shows a relatively high-amplitude fluctuation from one year to the next, including the highest rainfall total during this period in the year 2015. The lowest rainfall occurred in 2005 is also lower than any year the 1950s DOR. Years with below average rainfall may have a deficit of about 10 to almost 20 inches for the year. As shown in Figure 7., the PDSI values indicate similar patterns as the

average annual precipitation data except the years may vary because the PDSI incorporates different factors.

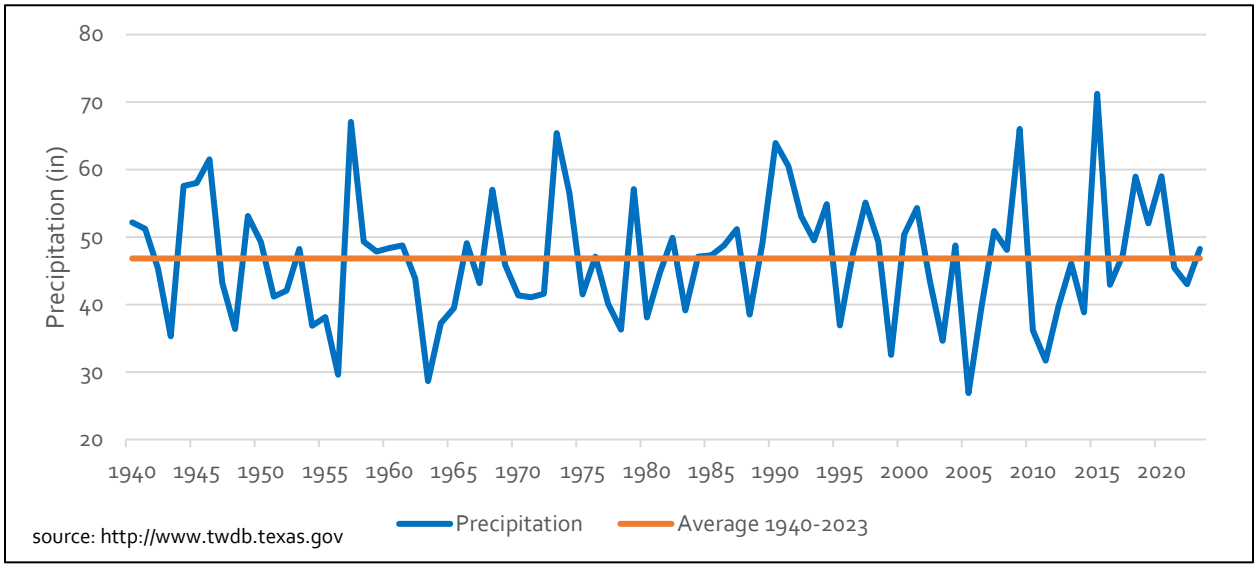


Figure 7.2 Annual Precipitation, 1940 – 2018, TWDB

Source: (https://waterdatafortexas.org/lakeevaporationrainfall)

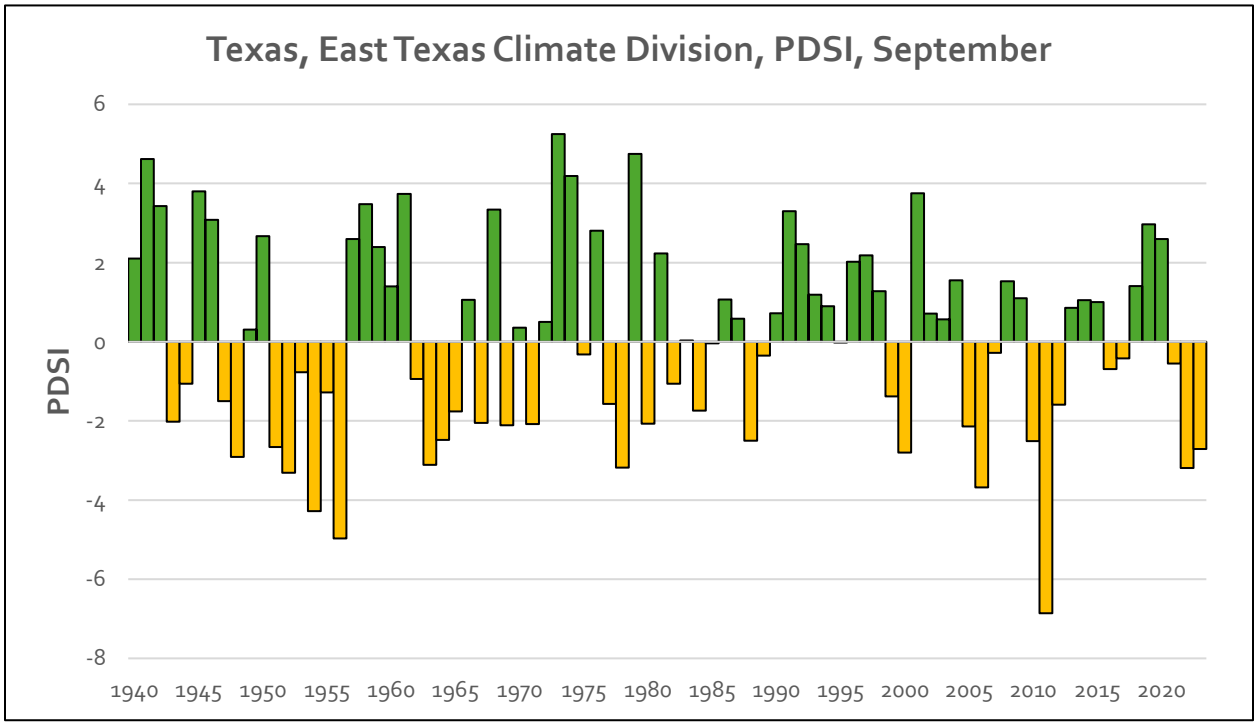


Figure 7.3 PDSI, 1940 – 2023

Source: (https://waterdatafortexas.org/drought/pdsi ***)***

7.1.2 North East Texas Region Drought of Record

For the purpose of this planning cycle, the droughts of the 1950s and early 2000s ~~is~~ are declared the DOR for the majority of the North East Texas Region, as these droughts have affected watersheds within the region to various effects. ~~This~~ These droughts ~~is~~ are the key drought periods represented and utilized in the official Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs) for the river basins within the RWPA. While ~~subsequent~~ other major droughts have occurred in the Region, including some with single years with less rainfall or a lower PDSI, none have yet displayed the combination of intensity and duration of the 1950's and early 2000s drought. ~~Further, only three of the official WAMs used in the North East Texas Region incorporate more recent hydrology observed since the year 2000, so it is yet unknown whether more recent drought conditions might be a new DOR for some of the watersheds within the Region.~~

The catalyst for more recent droughts can be attributed primarily to rainfall deficit (meteorological drought). The hydrological drought (impact on surface waters and groundwater) is a result of both meteorological and socioeconomic drought. To reiterate, socioeconomic drought occurs when demand exceeds supply due to a weather-related deficit. Typically, demand for a product increases with population growth and per capita consumptions. Supply increases due to efficiency technology and the construction of new water projects. If both are increasing, the rate of change between supply and demand is the key. However, when demand exceeds supply, vulnerability is magnified by water shortages during drought.

In future planning cycles, it would be useful to attempt to quantify the extent that anthropological factors exacerbate drought severity. Suggested areas of investigation include: base flow studies, sub-watershed scale water balance calculations, and rainfall deficit quantification.

7.2 Uncertainty and Drought(s) Worse than the Drought of Record

As mandated by TAC 357.42, the RWPGs must address water supply needs during a repeat of the drought of record. During plan development, the generated values of planning factors (supplies, demands, population) all have associated ranges of uncertainty. RWPGs may choose to consider scenarios and/or qualitatively address uncertainty and Drought Worse than the Drought of Record (DWDOR) in their region. This section discusses the scenarios and/or qualitative assessments that can be used to more explicitly recognize the relative planning uncertainties and options to help mitigate those risks.

Texas's strategy of planning for a repeat of the 1950s drought may no longer be enough. While historic evidence identifies droughts that were longer and more severe than the Drought of Record, contemporary data points to a likely future of increasing drought severity. A report by Texas 2036 and the Office of the State Climatologist at Texas A&M University projects that rising average temperatures and greater rainfall variability will contribute to a future with more severe droughts. Given this lengthy history and projected future, Texas needs to think differently about how we plan and prepare for drought.

During this current planning cycle, the Drought Preparedness Council (DPC) encouraged regional water planning groups to consider planning for drought conditions worse than the drought of record, including scenarios that reflect greater rainfall deficits and/or higher surface temperatures. A Drought Worse than the Drought of Record will inflict greater economic damage on industries critical to our continued prosperity.

Drought(s) worse than the drought of record (DWDOR) - For the purpose of this planning cycle, the droughts of the 1950s and 2000s are declared the DOR. The NETRWPG considered the use of DWDOR at one of its regular meetings and determined that for the purposes of the 2026 Plan the DOR would remain the standard for planning purposes. A DWDOR may be considered in the future if an entity performs a study such that the necessary information is available for use by the NETRWPG. To date, the RWPG is not aware of such a study in Region D. Therefore, for the current planning cycle, the North East Texas RWP has not included any planning measures to address a DWDOR. At present, the NETRWPG will follow the regulatory and administrative requirements for the development of the 2026 Regional Water Plan.

Uncertainty- Regional Water Planning requirements require use of the default Water Availability Model (WAM) developed and maintained by TCEQ for each river basin located within the region. At present, these WAMs are used for assessing permit and amendment applications for state water rights and assume the use of a sufficiently long historical period of record to characterize impacts from the Drought of Record on the hydrology of each river basin, which includes monthly estimates of net evaporation and naturalized flows at key locations within the basin. Therefore, for the currently planning cycle, the North East Texas RWP does not include any planning measures to address uncertainty relating to DOR.

The Region is not aware of any utilities or Major Water Providers that have planned for a DWDOR or explicitly addressed uncertainty in their drought planning measures.

7.3 Current Drought Preparations and Response

As mandated by 31 TAC 357.42(a)&(b), this section of the plan summarizes and assesses all preparations and Drought Contingency Plans (DCPs) that have been adopted within the North East Texas Region. The summary includes what specific triggers are used to determine the onset of each defined drought stage and the associated response actions developed by local entities to decrease water demand during the drought stage.

7.3.1 Water Suppliers Identification and Response to Drought Conditions

Wholesale water providers and public water suppliers in the North East Texas Region provide detailed information on the identification of drought conditions in their service area and specific responses to drought conditions in their drought contingency plans. DCPs are intended to establish criteria to identify when water supplies may be threatened and the actions that should be taken to ensure these potential threats are minimized. The general structure of DCPs allows increasingly stringent drought response measures to be implemented in successive stages as water supply decreases and water demand increases. This measured, or gradual, approach allows for timely and appropriate action as a water shortage develops.

The onset and termination of each implementation stage should be defined by specific "triggering" criteria. Triggering criteria are intended to ensure that: 1) timely action is taken in response to a developing situation, and 2) the response is appropriate to the level of severity of the situation. Each water-supply entity is responsible for establishing its own DCP that includes appropriate triggering criteria and responses. Drought response triggers and actions are covered in detail in Section 7.4 below.

DCPs typically emphasize measures of demand management designed to decrease water demand through curtailment of uses. Demand management in this context differs from water conservation, although the terms are frequently interchanged. The objective of water conservation is to achieve long-term reductions in water use through improved water use efficiency, reduced waste, and through reuse. Demand management focuses on temporary reductions in use in response to temporary shortages in water supply or other emergencies (e.g. equipment failures caused by peak water demands being excessive).

7.3.1.1 Municipal and Wholesale Water Provider Drought Contingency Plans

Because of the range of conditions that affected the more than 4,000 water utilities throughout the State in 1997, the Texas Legislature directed the TCEQ to adopt rules establishing common drought plan requirements for water suppliers. As a result, the TCEQ requires all retail public water suppliers serving 3,300 connections or more and wholesale public water providers to submit a drought contingency plan to TCEQ. Wholesale water providers and retail public water suppliers serving less than 3,300 connections are also required to prepare and administer DCPs. Plans are required to be made available for inspection upon request, but do not need to be submitted to the TCEQ. The amended Title 30, TAC, Chapter 288 addresses TCEQ's guidelines and plan requirements. The forms for wholesale public water providers, retail public water suppliers and irrigation districts are available at: https://www.tceq.texas.gov/permitting/water_rights/wr_technicalresources/contingency.html

DCPs for municipal uses by public water suppliers must document coordination with the regional water planning groups to ensure consistency with the regional water plans. A summary of entities, their supply source, specific triggers and actions for each drought stage is provided in

Table 7.1.

7.3.1.2 Public Water Supplier Drought Contingency Plans

Drought contingency plans have previously been adopted by most public suppliers and municipalities in the North East Texas Region, although some suppliers did not provide any adopted plans. Current triggers and response actions for participating entities are summarized in

Table 7.1. General recommended drought response actions are detailed in **Error! Reference source not found.** in Section 7.9.

7.3.1.3 Irrigation

Irrigation wells located within a municipality are subject to the triggers and response actions designated by the city's drought plan. Irrigation wells located outside of a municipality are not regulated as there are no GCDs within the RWPA.

7.3.1.4 Wholesale Water Provider

Wholesale water providers in the North East Texas Region are listed in **Error! Reference source not found.**. Their Drought Contingency Plan, if submitted, is summarized in

Table 7.1. Generally, triggers are based upon reservoir capacities falling below a designated elevation or volume, and/or when user demand exceeds a designated percent capacity of the supply system.

7.3.2 Unnecessary or Counterproductive Drought Response Efforts

The NETRWPG has not identified any unnecessary or counterproductive drought response strategies within the planning area.

Table 7.1 Municipal Mandated Drought Triggers and Actions

Water Supply Entity	Drought Trigger	Drought Stage and Response				
		Mild	Moderate	Severe	Critical	Emergency
ABLES SPRINGS SUD	• Multistage drop in volume of surface supplies in water supply lakes.	• Water demand has exceeded 90% of maximum capacity for an extended period • combined lake storage is less than 70% of the conservation pool during April to October; or • combined lake storage is less than 60% of the conservation pool during November to March	• Water demand has exceeded 95% of maximum capacity for an extended period • combined lake storage is less than 55% of the conservation pool during April to October; or • combined lake storage is less than 45% of the conservation pool during November to March	• Water demand has exceeded10% of maximum capacity for an extended period • combined lake storage is less than 30% of the conservation pool during April to October; or • combined lake storage is less than 20% of the conservation pool during November to March • Demand exceeds storage tank capacity; • Demand exceeds high service pump capacity.	N/A	N/A
		• Schedule restrictions • Reduce non-essential use • Reduce demand by 2%	• Stage 1 actions • Implement alternative water supply strategies • Limit landscape watering; • Reduce demand by 5%	• Stage 2 actions • Implement alternative water supply strategies • Mandatory water use restrictions; • Reduce demand by 30%	N/A	N/A
BICOUNTY WSC	• Capacity usage.	• Consumption > 80% daily max supply for 3 consecutive days; or • Supply reduced to 20% > consumption of previous month; or • >8 weeks of low rainfall; and • Daily use > 20% above same period of previous year.	• Consumption > 90% available for 3 consecutive days; or • Levels in any storage tanks cannot refill for 3 consecutive days.	• System failure; • Consumption > 95% available 3 days; • Consumption > 100% available; and storage levels drop during 24hour period; • Contamination; • Disaster declaration; • Wholesale supply reduction due to drought conditions; • Imminent health or safety risks to public.	N/A	N/A
		• Schedule restrictions • Reduce flushing operations • Reduce use via education.	• Prohibit outside use unless variance • Public outreach via local media	• Prohibit outside use • Usage restrictions • Enforcement and educational efforts	N/A	N/A
BIG SANDY	• Capacity usage.	• Shortage reaches 85% of capacity per day; or • Supply < 50% capacity.	• Shortage reaches 90% capacity per day; or • Supply < 40% capacity.	• Shortage reaches 95% capacity per day; or • Supply < 25% capacity.	N/A	• System failure; • Supply contamination.

		• Voluntary reduction 10%.	• Prohibit nonessential use except landscape use; • Reduce demand 15%.	• Prohibit nonessential use except landscape use; • Reduce demand 20%.	N/A	• Assess severity of problem; • Identify actions needed, time required to solve.
CADDO BASIN SUD	• Capacity usage.	• Water demand has exceeded 90% of maximum capacity for an extended period • combined lake storage is less than 70% of the conservation pool during April to October; or • combined lake storage is less than 60% of the conservation pool during November to March	• Water demand has exceeded 95% of maximum capacity for an extended period • combined lake storage is less than 55% of the conservation pool during April to October; or • combined lake storage is less than 45% of the conservation pool during November to March	• Water demand has exceeded10% of maximum capacity for an extended period • combined lake storage is less than 30% of the conservation pool during April to October; or • combined lake storage is less than 20% of the conservation pool during November to March	N/A	N/A
		• Schedule restrictions • Reduce non-essential use • Reduce demand by 2%	• Stage 1 actions • Implement alternative water supply strategies • Limit landscape watering; • Reduce demand by 5%	• Stage 2 actions • Implement alternative water supply strategies • Mandatory water use restrictions; • Reduce demand by 30%	N/A	N/A
CENTRAL BOWIE COUNTY	• Daily supply and demand.	• Voluntarily conservation; • Prescribed restrictions on certain use.	• Comply with requirements/ restrictions on certain nonessential use.	• Comply with requirements/ restrictions on certain nonessential use.	• Comply with requirements/ restrictions on certain nonessential use.	• System failure; • Supply contamination.
		• Reduce demand by 10%.	• Reduce demand by 20%.	• Reduce demand by 35%.	• Reduce demand by 50%.	• Reduce demand by 60%.
CITY OF COMMERCE	• Multistage drop in water levels in water supply lakes.	• Levels < 432.5 ft. in Lake Tawakoni; or • PDSI reaches 2 to 3; or • Requested by SRA.	• Production reaches 3.1 MGD for 5 consecutive days; or • Storage not refilled for 3 consecutive days.	• Emergency pump activation; or • Shortages deemed severe by City Manager.	• Production reaches 3.5 MGD for 7 days; or • Storage not completely refilled for 5 days.	• Contamination; or • System failure; or • Unprecedented loss of capability to provide service.
		• Reduce demand 5%.	• Reduce demand 10% or reduce demand by 2.79 MGD.	• Reduce demand to 2.79 MGD.	• Reduce demand 10% or reduce demand to 3.15 MGD.	• Response determined based on conditions.
CITY OF COOPER	• Multistage drop in water levels in water supply lakes.	• Reservoir levels < 455 ft.; or • PDSI at "Moderate;" or • Reservoir discharged 2 or fewer times in past year; and • Demand is 75% capacity for 3 consecutive days.	• Reservoir levels < 454 ft.; or • PDSI at "Severe;" or • Reservoir discharged no more than 1 time in the past 12 months; and • Demand is 85% capacity for 3 consecutive days.	• Reservoir levels < 453 ft.; or • PDSI at "Extreme;" or • Reservoir has not discharged in the past 12 months; and • Demand is 95% capacity for 3 consecutive days.	N/A	N/A
		• Voluntary usage reduction; • Reduce demand to 70% or less of water plant capacity	• Prohibit unnecessary water use; landscape water use restrictions; • Reduce demand to 75% or less of water plant capacity	• Prohibit all unnecessary water use, including all landscape water use; • Reduce demand to 85% or less of water plant capacity.	N/A	N/A
CITY OF DETROIT	• Daily supply and demand.	• 85% peak daily use for 7 days; or	• 90% peak daily use for 14 days; or	• 95% peak daily use for 21 days; or	• 97% peak daily use for 21 days; or	• System failure; or

		• 85% peak daily use in east line is 3.12 and west line is 1.44 MGD; 100% peak daily use for 3 days; or • 100% peak daily use in east line is 3.67 west line is 1.7 MGD; or • Treated reservoir levels fill < 90% overnight; or • “Mild" status implemented.	• 90% peak daily use in east line is 3.3 and west line is 1.53 MGD; 100% peak daily use for 6 days; or • 100% peak daily use in east line is 3.67 and west line is 1.7 MGD; • Treated reservoir levels fill < 80% overnight; or • "Moderate" status implemented.	• 95% peak daily use in east line is 3.49 and west line is 1.61 MGD; • 100% peak daily use for 9 days; or • 100% peak daily use in east line is 3.67 and west line is 1.7 MGD; • Treated reservoir levels fill < 70% overnight; or • "Severe" status implemented.	• 97% peak daily use in east line is 3.56 and west line is 1.65 MGD; or • 100% peak daily use for 9 days; or • 100% peak daily use in east line is 3.67 and west line is 1.7 MGD; or • Treated reservoir levels fill < 50% overnight; or • "Critical" status implemented.	• Supply contamination; or • "Emergency status" implemented.
		• Reduce demand 10%.	• Reduce demand 10%.	• Reduce demand 15%.	• Reduce demand 20%.	• Reduce demand 25%.
CITY OF EMORY	• Multistage drop in water levels in water supply lakes.	• Lake Tawakoni volume<728.3K ac-ft.; • Demand > 1.45 MGD for 30 days; or • Demand > 1.7 MGD; • Demand >60% safe capacity 30 days or 75% safe capacity one day.	• Lake Tawakoni volume<705.4K ac-ft.; • Demand >1.7 MGD for 30 days; or • Demand > 1.93 MGD; or • Demand >70% safe capacity 30 days or 80% safe capacity 1 day.	• Lake Tawakoni volume<663.2k ac-ft, • Demand >1.93 MGD 30 days; or • Demand >2.17 MGD; • Demand > 80% safe capacity 30 days, or 85% safe capacity one day; or • Supply < 180 days.	• Lake Tawakoni volume < 632.4K acre-ft.; or • Demand > 2.17 million gallons for 30 days, or • Demand >2.42 MGD; or • Demand > 90% safe capacity for 30 days or 100% safe capacity one day; or • Supply < 120 days.	• System failure; or • System contamination; or • Supply will not last 90 days.
		• Usage reduction 10%.	• Prohibit unnecessary water use except for landscape use; • Reduce demand 20%.	• Prohibit unnecessary water use; • Limited landscape use at prescribed times. • Reduce demand 40%.	• Prohibit unnecessary water use; • Limit landscape use; • Reduce demand 50%. • Alternative pumping devices into Lake Tawakoni.	• Prohibit any and all unnecessary water use; • Reduce demand 70%.
		The City of Emory employs a water allocation stage when the city determines that the water supply in Lake Tawakoni will not last another 60 days. Water will be rationed on number of residence per household basis at a surcharged rate.				
CITY OF FROGNOT	• Capacity usage range; and • Replenishment percentage.	• Voluntarily conservation; • Prescribed restrictions on certain uses; • Treated reservoir levels fill < 100% overnight; or • Well may be temporarily out of service; or • Pumping levels continue to decline.	• Restrictions on certain nonessential uses; if • Treated reservoir levels fill < 90% overnight; or • Well may be temporarily out of service; or • Pumping levels continue to decline.	• Stage 3 restrictions on certain non-essential water uses; if • Treated reservoir levels fill < 85% overnight; or • Well may be temporarily out of service; or • Pumping levels continue to decline.	• Stage 4 restrictions on certain nonessential uses; if Treated reservoir levels fill < 75% overnight; or • Well may be temporarily out of service; or • Pumping levels continue to decline.	• System damage or failure; or • Supply contamination; or • One or more wells are out of service; or • One or more wells are experiencing significant pumping level declines.
		• Reduce demand 10%.	• Reduce demand 15%.	• Reduce demand 20%.	• Reduce demand 30%.	• Reduce demand 50%.
CITY OF GREENVILLE	• Reservoir levels; and • Lake Tawakoni levels; and	• Reservoir levels <532.5 ft.; and • Lake Tawakoni <434 ft and	• Reservoir levels <531.5 ft.; and • Lake Tawakoni <432 ft.; and	• Reservoir levels <531.5 ft.; and • Lake Tawakoni <431 ft.; and	• Four of the triggering criteria in "Severe" Stage met; or • Critical water shortage declaration.	• All five of the triggering criteria in "Severe" Stage are met; or • System failure; or

	• Palmer Drought Severity Index; and • Reservoir recharge frequency; and • Demand.	• PDSI at Moderate, and • Reservoir recharged 2 times in the past 12 months; and • Demand is 60% capacity.	• PDSI at Severe and • Reservoir recharged 1 time in the past 12 months; and • Demand is 70% capacity.	• PDSI at Extreme and • Reservoir recharged 0 times in the past 12 months; and • Demand is 80% capacity.		• Supply contamination.
		• Voluntary usage reduction and conservation.	• Reduce demand by 10%; • Restricted use.	• Reduce demand by 20% • Restricted use; • Nonessential use prohibited.	• Reduce demand by 30%; • Restricted use; • Nonessential use prohibited.	• Reduce demand by 40%; • Prohibit all watering; Rationing implemented.
CITY OF GLADEWATER	• Multistage drop in water levels in water supply lakes.	• Mild shortage exists when Lake Gladewater is 4 ft. above lowest intake pipe.	• Moderate shortage exists when Lake Gladewater is 3 ft. above lowest intake pipe.	• Stage 3 nonessential use compliance when the level of Lake Gladewater is 2 ft. above lowest intake pipe.	N/A	• Stage 4 nonessential use compliance when the level of Lake Gladewater is 1 ft. above lowest intake pipe.
		• Reduce demand 5%.	• Reduce demand 10%.	• Reduce demand 15%.	N/A	• Reduce demand 20%.
CITY OF HOOKS	• Capacity usage range; and • Replenishment percentage.	• Consumption > 90% production capacity; or • 90% consumption for 3 days; and • Weather conditions considered in drought classification determination.	• Consumption >100% prod. capacity 3 days; Mild drought will exist > 5 days; or • Storage tank taken out of service during mild drought; or • Storage capacity not maintained during period of 100% prod. • Existence of preceding conditions listed for 36 hours.	• Consumption > 110% capacity for 24 hrs or • Consumption prevents storage maintained; or • Demand > available pump capacity; or • Two conditions listed during moderate drought occurs in 24 hours; or • Contamination; or • Severe condition or system damage/failure.	N/A	• System failure; or • Supply contamination.
		• Reduce demand 10%.	• Reduce demand 20%.	• Reduce demand 30%.	N/A	• Assess severity; Identify actions and time required to solve.
CITY OF HUGHES SPRINGS	• Capacity usage.	• Shortage reaches 85% of capacity per day; or • Supply < 50% capacity.	• Shortage reaches 90% capacity per day; or • Supply < 40% capacity.	• Shortage reaches 95% capacity per day; or • Supply < 25% capacity.	N/A	• System failure; Supply contamination.
		• Voluntary usage reduction of 10%.	• Prohibit nonessential use except for landscape use; • Reduce demand by 15%.	• Prohibit nonessential use except for landscape use; • Reduce demand by 20%.	N/A	• Assess the severity of the problem; • Identify the actions needed and time required to solve.
CITY OF KILGORE	• Capacity usage.	• Available supply < 70% storage capacity; or • Stage 1 drought initiation notification; or • Specific capacity is < 70% of original specific capacity; or • Other triggering criteria deemed by city.	• Available supply < 60% storage capacity; or • Stage 2 drought initiation notification; or • Specific capacity is < 60% of original specific capacity; or • Other triggering criteria deemed by city.	• Available supply < 50% storage capacity; or • Stage 3 drought initiation notification; or • Specific capacity is < 50% of original specific capacity; or • Other triggering criteria deemed by city.	• Available supply < 40% storage capacity; or • Stage 4 drought initiation notification; or • Specific capacity is < 40% of original specific capacity; or • Other triggering criteria deemed by city.	• System failure; Supply contamination.
		• Voluntary 5% reduction.	• Voluntary 10% reduction.	• Voluntary 15% reduction.	• Voluntary 20% reduction.	• Voluntary 30% reduction.

CITY OF LONGVIEW	• Capacity usage.	• 90% of 48.8 MGD pumping capacity for 4 consecutive days.	• 93% of 49.4 MGD pumping capacity for 3 consecutive days.	• 95% of 49.4 MGD pumping capacity for 3 consecutive days.	N/A	• System failure; Supply contamination.
		• 10% usage reduction.	• 15% usage reduction.	• 25% usage reduction.	N/A	• 25% usage reduction.
CITY OF MARSHALL	• Multistage drop in volume of surface supplies in water supply lakes.	• Reservoir volume < 50% for 3 days.; or • Demand is 85% of treatment capacity for 3 consecutive days.	• Reservoir volume <40% for 3 days.; or • Demand is 90% of treatment capacity for 3 consecutive days.	• Reservoir levels < 20% for 3 days; or • Demand is 95% or treatment capacity for 3 consecutive days.	• Analysis of water source indicates the supply is unsafeng	N/A
		• Voluntary usage reduction; • Reduce demand by 10%	• Reduce non-essential water use; cease water use for construction and road building; • Reduce demand by 15%.	• Prohibit all unnecessary water use, limit landscape water use; • Reduce demand by 20%.	• Continue Stage 3 restrictions; water rationing	N/A
CITY OF MOUNT PLEASANT	• Based on a percentage of capacity usage rate.	• Daily demand > 85% for 3 consecutive days; or • Levels in Lake Bob Sandlin decline at a rate disruptive to supply.	• Daily demand > 90% for 3 consecutive days; or • Levels in Lake Bob Sandlin decline at a rate causing imminent disruption to supply.	• Daily demand > 90% for 3 consecutive days; or • Pump failure; or • Storage levels no longer achieve full recovery in low demand periods.	• Daily demand > 100% for 1 day; or • Demand > safe limits; • Storage levels cannot maintain fire protection; • Lake Bob Sandlin levels decline to potential pumping failure.	• System failure; or • Supply contamination; or • Storage levels and pressures prevent fire protection.
		• Voluntary usage reduction of 10%; • Nonessential use prohibited.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 15%	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 25%.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 30%.	• All use prohibited except for public health and safety; • Reduce demand by 75%; • Implement any available alternative supply sources.
CITY OF PARIS	• Based on a percentage of capacity usage rate.	• Supply < 70% in Pat Mayse Lake and Lake Crook combined; or • Period of high demand; or • Production or distribution limits exist.	• Supply < 60% in Pat Mayse Lake and Lake Crook combined; or • Daily demand > 32 million gallons for 7 days; or • Daily demand > 36 million gallons for 3 days; or • Production or distribution limits exist.	• Supply < 50% in Pat Mayse Lake and Lake Crook combined; or • Daily demand > 34 million gallons for 14 days; or • Daily demand > 36 million gallons for 6 days; or • Production or distribution limits exist.	N/A	• Supply < 40% in Pat Mayse Lake and Lake Crook combined; or • Daily demand > 35 million gallons for 21 days; or • Daily demand > 36 million gallons for 9 days; or • Production or distribution limits exist; or • System failure; or • Supply contamination.
		• Voluntary usage reduction of 10%; • Limited nonessential use.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 20%.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 30%.	N/A	• Prohibit nonessential use; • Landscape use prohibited; • Reduce demand by 40%; • Prorata curtailment to wholesale customers.
		• Daily demand > 90%; or	• Daily demand > 100%; or	• Daily demand > 110%; or	N/A	N/A

CITY OF SULFUR SPRINGS		• Lake level decline disruptive to supply; or • Supply low enough to cause concern.	• Lake level decline causes serious disruption; or • Storage capacity not maintained.	• Lake levels too low for production equipment; or • Storage capacity prevents fire protection; or • Pumping capacity unable to refill; or • Failure could cause immediate health and safety hazard; or • Supply contamination.		
CITY OF SULFUR SPRINGS	• Percent capacity usage; Lake capacity; Potential disruption of supply.	• Usage reduction of 10%; • Limited nonessential use.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 15%.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand by 20%.	N/A	N/A
CITY OF TYLER	• Multistage drop in volume of surface supplies in water supply lakes.	• Lake Tyler storage volume < 75% of conservation storage; or • Demand is 85% of treatment capacity for 3 consecutive days.	• Lake Tyler storage volume < 60% of conservation storage; or • Demand is 90% of treatment capacity for 3 consecutive days.	• Lake Tyler storage volume < 45% of conservation storage; or • Demand is 98% of treatment capacity for 3 consecutive days; • Demand exceeds storage tank capacity; • Demand exceeds high service pump capacity.	N/A	N/A
		• Voluntary usage reduction, implement landscape watering schedule; • Reduce demand by 5%	• Stage 1 actions, limit landscape watering, reduce non-essential water use; • Reduce demand by 10%.	• Prohibit all unnecessary water use, limit landscape water use; • Reduce demand by 15%.	N/A	N/A
COMBINED CONSUMERS WATER UTILITY	• Percentage of capacity usage; • Lake capacity; • Replenishment percentage.	• Lake Tawakoni < 432 ft.; or • Demand reaches 80% of daily supply for 3 days; or • System not replenished to 80% capacity in 3 days.	• Lake Tawakoni < 430 ft.; • Demand reaches 90% of daily supply for 2 days; or • System not replenished to 90% capacity in 2 days.	• Lake Tawakoni < 428 ft.; or • Demand 100% of daily supply for 1 day; or • Contamination; or • Disaster declaration; • Health or safety concerns; or • System failure.	• Lake Tawakoni < 426 ft.; then • Emergency booster pump installation.	• All previous triggering criteria; or • System failure; or • Supply contamination; then • Deeper water source required.
		• Voluntary usage reduction of 5%; • Voluntary landscape use reduction; • Conservation request.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand 15%.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand 20%.	• Prohibit nonessential use; • Landscape use limited to prescribed times; • Reduce demand 30%.	• Prohibit nonessential use; • Landscape use prohibited; • Reduce demand 40%.
		Combined Consumers Water Utility employs a water allocation stage when the utility determines falling treated water levels do not refill above 50% overnight for any of the stages listed above. Water use is allocated on a surface per household basis.				
CITY OF WHITE OAK	• Capacity usage.	• Demand > 85% safe capacity; or	• Demand > 90% safe capacity; or	• Demand > 90% safe system capacity; or	• Demand > 100% safe capacity; or	• System failure; or

		• Demand > 2.8 MGD for 3 days; or • Big Sandy Creek levels decline at disruptive supply rate.	• Demand > 2.97 MGD for 3 days; or • Demand causes storage levels to fall daily and recover during low demand periods; or • Big Sandy Creek levels decline rate makes supply problems imminent.	• Demand > 2.97 MGD for 7 days; or • Pump failure; or • Storage levels no longer achieve recovery in low demand periods; or • Big Sandy Creek levels lower than highest intake tower.	• Demand > 3.3 MGD for 1 day; or • Demand > safe system limits; or • Storage reservoir levels cannot maintain fire protection; or • Big Sandy Creek decline to levels that may cause system failure.	• Supply contamination; or • System cannot maintain fire protection.
CITY OF WHITE OAK		• Voluntary 5% usage reduction.	• Voluntary 10% usage reduction.	• Voluntary 15% usage reduction.	• Voluntary 20% usage reduction.	• Voluntary 25% usage reduction.
HARLETON WSC	• Capacity usage.	• Consumption is 80% of supply for 3 consecutive days; or • Supply is 20% > previous month's consumption; or • >4 weeks of low rainfall and use > 15% more than same period of previous year.	• Consumption is 80% of supply for 3 consecutive days; or • Levels in any storage tanks cannot be refilled for 3 consecutive days.	• Consumption > 95% of supply for 3 consecutive days; or • Disaster declaration; or • Wholesale supply reduction due to drought conditions.	• Consumption > 100% of supply; and • Storage levels drop during one 24hour period.	• System failure; • Supply contamination.
		• Voluntary usage reduction of 5%.	• 10% demand reduction.	• 15% demand reduction.	• 20% demand reduction.	• 30% demand reduction.
LAMAR COUNTY WATER SUPPLY DISTRICT	• Capacity usage rate; • Replenishment percentage.	• Demand reached 85% of peak daily use for 7 days; or • System reaches 100% of peak daily use for 3 days; or • Reservoir levels < 90%.	• Demand reached 90% of peak daily use for 14 days; or • System reaches 100% of peak daily use for 6 days; or • Reservoir levels < 80%.	• Demand reached 95% of peak daily use for 21 days; or • System reaches 100% of peak daily use for 9 days; or • Reservoir levels < 70%.	• Demand reached 97% of peak daily use for 21 days; or • System reaches 100% of peak daily use for 9 days; or • Reservoir levels < 50%.	• System failure; or • Supply contamination.
		• Voluntary usage reduction of 10%; • Voluntary landscape use reduction; • Nonessential water use prohibited.	• Reduce demand by 10%; • Nonessential water use prohibited; • Landscape use limited to prescribed times.	• Reduce demand by 15%; • Nonessential water use prohibited; • Landscape use limited to prescribed times.	• Reduce demand by 20%; • Nonessential water use prohibited; • Landscape use prohibited.	• Reduce demand by 25%; • Nonessential water use prohibited; • Landscape use prohibited.
		Lamar County Water Supply District employs a water allocation stage when emergency conditions are in place.				
LAKE FORK WSC	• Capacity usage.	• Consumption is 80% of supply for 3 consecutive days; or • Supply is 20% > previous month's consumption; or • > 8 weeks of low rainfall; and • Usage > 20% same period of previous year.	• Consumption > 90% available for 3 consecutive days; or • Levels in any storage tanks cannot refill for 3 consecutive days.	• System failure; or • Consumption > 95% supply for 3 days; or • Consumption of 100% available; and • Storage levels drop during 24hour period; Contamination; or • Disaster declaration; Wholesale supply reduction from drought; or	N/A	N/A

				• Events of public health or safety risks.		
		• Schedule restrictions; • Reduce flushing operations. Reduce use via education.	• Prohibit outside use unless variance; Public outreach via local media.	• Prohibit outside use. • Usage restrictions. • Enforcement and educational efforts.	N/A	N/A
		Prorata water allocation triggered when severe water shortage conditions have been met.				
NORTH EAST TEXAS MUNICIPAL WATER DISTRICT	• Capacity usage rate; • Replenishment percentage.	• 48 hours of 85% pumping capacity utilized in a 24hour period; or • Supply volume < 50% capacity.	• 48 hours of 90% pumping capacity utilized in a 24hour period; or • Supply volume < 40% capacity.	• 48 hours of 95% pumping capacity utilized in a 24hour period; or • Supply volume < 25% capacity.	N/A	• System failure; or • Supply contamination.
		• Voluntary usage reduction of 10%; or • Voluntary landscape use reduction.	• Reduce demand by 15%; • Nonessential use prohibited.	• Reduce demand by 20%; • Nonessential use prohibited; • Prorate curtailment for wholesale customers.	N/A	• Assess the severity of the problem; • Identify the actions needed and time required to solve.
		Prorata water allocation triggered when severe water shortage conditions have been met.				
NORTH TEXAS MUNICIPAL WATER DISTRICT	• Multistage drop in water levels in water supply lakes.	• Demand projected as limit; or • Lavon Lake or Jim Chapman Lake < 65% full; or • Sabine River Authority (SRA) indicates "Mild Drought" in Upper Basin supplies; or • Demand > 90% delivered amount for 3 consecutive days; or • Demand approaches delivery capacity; or • Supply contamination; or • System damage.	• Demand projected as limit; or • Lavon Lake or Jim Chapman Lake < 55% full; or • SRA indicates "Mild Drought" in Upper Basin water supplies; or • Demand > 95% of amount delivered for 3 consecutive days; or • Demand approaches delivery capacity; or • Contamination; or • System damage.	• Demand projected above limit; or • Lavon Lake or Jim Chapman Lake < 45% full; or • SRA indicates "Moderate Drought" in Upper Basin water supplies; or • Demand > 98% of amount delivered for 3 consecutive days; or • Demand > delivery capacity; or • Supply contaminated; or • System damage.	• Demand projected as supply limit; or • Lavon Lake or Jim Chapman Lake < 35% full; or • SRA indicates "Severe Drought" in Upper Basin water supply; or • Demand > delivery capacity; or • Supply contamination; or • System damage.
		• Voluntary usage reduction; • Increase public education of water reduction.	• Reduce production 5%; • Further accelerate public education; • Halt nonessential use; • Notify TCEQ.	• Reduce production by 10%; • Initiate use restrictions; • Limit landscape water to once weekly; • Notify TCEQ	• Reduce production; • Impose mandatory restrictions on cities and customers; • Notify TCEQ.	
RED RIVER AUTHORITY	• Daily average use; and	• System > 2.5 times daily average for 14 days; and	• System > 3.5 times daily average for 7 days; and	• System > 5.5 times daily average 3 days; and	N/A	N/A

	• Demand percentage.	• Wholesale demand vol. reduced by 20%; or • Reduce demand 20%.	• Wholesale demand vol. reduced by 20% to 50%; and • Demand reduced between 20% & 50%.	• Wholesale demand vol. reduced over 50%; and • Reduce demand > 50%.		
		• Reduce demand by 20%.	• Reduce demand by 20%; • Prohibit landscape and nonessential use.	• Reduce demand to maintain public health and safety; • Prohibit landscape and nonessential use.	N/A	N/A
RIVERBEND	• Capacity usage range; and Replenishment percentage.	• 72 consecutive hours of 85% pumping capacity; or • Supply volume < 50% capacity.	• 72 consecutive hours of 90% pumping capacity; or • Supply volume < 40% capacity.	• 72 consecutive hours of 95% pumping capacity; or • Supply volume < 25% capacity.	N/A	• System failure; or • Supply contamination.
		• Reduce demand by 10%.	• Reduce demand by 20%.	• Reduce demand by 30%.	N/A	• Assess the severity of the problem; • Identify the actions needed and time required to solve.
SABINE RIVER AUTHORITY IRON BRIDGE AND LAKE FORK DIVISIONS	• Capacity use percentage.	• Lake Tawakoni and Lake Fork capacity < 65% for 2 consecutive months.	• Lake Tawakoni and Lake Fork capacity < 55% for 2 consecutive months.	• Lake Tawakoni and Lake Fork capacity < 45% for 2 consecutive months.	• Lake Tawakoni and Lake Fork capacity < 30% for 2 consecutive months.	• Lake Tawakoni and Lake Fork capacity < 30% for 6 consecutive months.
		• Reduce contract diversion from temporary and short-term contracts; • Notify customers.	• Reduce contract diversion from temporary and short-term contracts; • Reduce diversion to long-term contracts; • Notify customers.	• Reduce contract diversion from temporary and short-term contracts; • Reduce diversion to long-term contracts; • Notify public; • Possible emergency meetings.	• Reduce contract diversion, temporary and short-term contracts; • Reduce diversion to long-term contracts; • Municipal customers to prohibit all outdoor use and limit indoor use; • Notify public; • Possible emergency meetings.	• Ration contract diversion amounts; • All nonessential outdoor use prohibited; • Indoor use minimized; • Notify public; • Possible emergency meetings.
		In the event of a major contamination of Lake Tawakoni and Lake Fork; or a failure or breakdown of a major component of the pumps or delivery system, SRA will notify its customers and the media, and prohibit all nonessential water use.				
SABINE RIVER AUTHORITY TOLEDO BEND AND GULF COAST DIVISIONS	• Capacity use percentage.	• Surface elevation in Toledo Bend < 165.1 ft. for 14 consecutive days; or • Sabine River flow < "mild" condition trigger.	• Surface elevation in Toledo Bend < 162.2 ft. for 14 consecutive days; or • Sabine River flow < "moderate" condition trigger.	• Surface elevation in Toledo Bend < 156 ft. for 14 consecutive days; or • Sabine River flow < "severe" condition trigger.	N/A	N/A
SABINE RIVER AUTHORITY TOLEDO BEND AND GULF COAST DIVISIONS		• Inform customers of drought condition; and • Activate system to answer inquiries.	• Inform customers of drought condition; • Possible water curtailing; • Potentially prohibit nonessential outdoor use.	• Inform public of drought condition; • Possible emergency meeting; • May curtail water delivery; • Potentially prohibit all outdoor use and reduce indoor use.	N/A	N/A
		In the event of a major contamination or drawdown of Toledo Bend for emergency repairs; or a failure or breakdown of a major component of the pumps or delivery system, SRA will notify its customers and the media, and prohibit all nonessential water use.				
SAND FLAT WSC	• Capacity usage.	• Consumption is 80% of supply for 3 consecutive days; or	• Consumption > 90% available for 3 consecutive days; or	• System failure; or	N/A	N/A

		• Supply is 20% > previous month's consumption; or • > 8 weeks of low rainfall; and • Usage > 20% same period of previous year.	• Levels in any storage tanks cannot refill for 3 consecutive days.	• Consumption > 95% available supply for 3 consecutive days; or • Consumption of 100% available; and • Storage levels drop during one 24hour period; or • Supply contamination; or • Disaster declaration; or • Wholesale supply reduction due to drought conditions; or • Events which may cause imminent public health or safety risks.		
		• Schedule restrictions; • Reduce flushing operations. • Reduce use via education.	• Prohibit outside use unless granted variance; • Public outreach via local media.	• Prohibit outside use. • Usage restrictions. • Enforcement and educational efforts.	N/A	N/A
TEXARKANA WATER UTILITIES	• Reservoir conditions; • Demand.	• Wright Patman Reservoir is 220.60 ft.; or • Pump is out of service; or • Demand > 18 MGD. • Encourage conservation.	• Wright Patman Reservoir is 220.60 ft.; and/or; • Supply pump is out of service; and/or; • Demand > 18 MGD. • Reduce demand by 30%; • Limit nonessential and landscape use.	• Wright Patman Reservoir is 220.60 ft.; and • Supply pumps is out of service; and • Demand > 18 MGD. • Reduce nonessential demand by 40%; • Reduce total demand by 30%; • Prohibit outdoor use; • Curtail wholesale use.	N/A N/A	• Unable to produce or provide treated water from both plants simultaneously. • Reduce demand to 8.65 MGD; • Restricted to sanitary use only; • Curtailing wholesale use.
WEST CASS	• Capacity usage.	• Consumption is 80% of supply for 3 consecutive days; or • Supply is 20% > previous month's consumption; or • > 8 weeks of low rainfall; and • Usage > 20% same period of previous year.	• Consumption > 90% available for 3 consecutive days; or • Levels in any storage tanks cannot refill for 3 consecutive days.	• System failure; or • Consumption > 95% available supply for 3 consecutive days; or • Consumption of 100% available; and • Storage levels drop during one 24hour period; or • Supply contamination; or • Disaster declaration; or • Wholesale supply reduction due to drought conditions; or • Events which may cause imminent public health or safety risks.	N/A	N/A

		• Schedule restrictions; • Reduce flushing operations. • Reduce use via education.	• Prohibit outside use unless granted variance; • Public outreach via local media.	• Prohibit outside use. • Usage restrictions. • Enforcement and educational efforts.	N/A	N/A
WEST GREGG SUD	• Capacity usage.	• Demand > 60% total well capacity for 3 consecutive days; or • Demand causes line pressure below safe levels; or • Other triggering criteria deemed by operator.	• Demand > 70% total well capacity for 3 consecutive days; or • Demand causes line pressure below safe levels; or • Other triggering criteria deemed by operator.	• Demand > 80% total well capacity for 3 consecutive days; or • Demand causes line pressure below safe levels; or • Other triggering criteria deemed by operator.	• Demand > 90% total well capacity for 3 consecutive days; or • Demand causes line pressure below safe levels; or • Other triggering criteria deemed by operator.	• System failure; • Supply contamination.
		• Voluntary usage reduction of 5%.	• 10% demand reduction.	• 15% demand reduction.	• 20% demand reduction.	• 30% demand reduction.

Table 7.2. Major/Wholesale Water Providers within the North East Texas Region

Name	Entity Type	Wholesale Customers
CASH SUD	WUG/WWP	BHP WSC, City of Greenville, City of Quinlan, City of Lone Oak, Country Wood Estates, Miller Grove WSC, Oak Ridge Estates, Quinlan North Subdivision, Rock Wall East Mini Ranch, Quinlan South Subdivision
CHEROKEE WATER COMPANY	WWP	City of Longview, Southwestern Electric Power Company (SWEPCO)
CITY OF COMMERCE	WWP	Gafford Chapel WSC, Maloy WSC, Manufacturing Hunt County Sulphur Basin North Hunt WSC, West Delta WSC, Texas A&M University
CITY OF EMORY	WUG/WWP	City of Point, City of East Tawakoni, City of South Rains WSC
FRANKLIN COUNTY WD	WWP	Cypress Springs SUD, City of Winnsboro, City of Mt. Vernon, City of Mt. Pleasant
CITY OF GREENVILLE	WUG/WWP	City of Caddo Mills, Jacobia WSC, Shady Grove WSC, Manufacturing, Mining, Cash SUD, Caddo basin SUD
LAMAR COUNTY WSD	WUG/WWP	410 WSC, City of Blossom, City of Deport, City of Detroit, Manufacturing, Pattonville WSC, Red River County WSC, City of Reno, City of Roxton, City of Toco, M J C WSC, Pretty WSC,
CITY OF LONGVIEW	WUG/WWP	Elderville WSC, Gum Springs WSC 1, City of Hallsville, City of White Oak, City of (raw water), Eastman Chemical Company Texas Operation, Forest Lake Subdivision, Gum Springs WSC 2
CITY OF MARSHALL	WUG/WWP	Cypress Valley WSC, Gill WSC, Leigh WSC, Talley WSC, Blocker Crossroads, City of Scottsville
CITY OF MOUNT PLEASANT	WUG/WWP	Tri Water SUD, Lake Bob Sandlin State Park, Manufacturing, City of Winfield
NORTHEAST TEXAS MWD	WWP	City of Avinger, City of Daingerfield, Diana SUD, City of Hughes Springs, City of Jefferson, City of Lone Star, City of Lone Star Steel Longview, City of Luminant Marshall, Mims WSC, City of Pittsburg , City of SWEPCO Tyron Road SUD
CITY OF PARIS	WUG/WWP	Lamar County WSD, Manufacturing, MJC WSC, Steam Electric
SULPHUR RIVER MWD	WWP	City of Commerce, City of Sulphur Springs, City of Cooper
CITY OF SULPHUR SPRINGS	WUG/WWP	Brashear WSC, Brinker WSC, Gafford Chapel WSC, Marting Springs WSC, Livestock, North Hopkins WSC, Pleasant Hill WSC, Shady Grove WSC #2, Manufacturing
RIVERBEND WATER RESOURCES DISTRICT / TEXARKANA WATER UTILITIES	WUG/WWP	City of Annona, City of Atlanta, City of Avery, City of Central Bowie WSC, City of DeKalb, City of Domino, City of Hooks, Macedonia Eylau MUD, Manufacturing Cass County, Federal Correctional Institution, Manufacturing Bowie County, City of Maud, City of Nash, City of New Boston, City of Oak Grove WSC, City of Queen City, Red River Water Corp., City of Redwater, City of Wake Village, Texarkana Estates, Lone Star Army Ammunition Plant, City of Leary, El Chaparral Mobile Home Park,
TITUS COUNTY FWD #1	WWP	City of Mt. Pleasant, Luminant

Name	Entity Type	Wholesale Customers
SABINE RIVER AUTHORITY	WWP	Ables Springs WSC, Cash SUD, Combined Consumers SUD, City of Commerce, Eastman Chemicals, City of Edgewood, City of Emory, City of Greenville, City of Henderson, City of Bright Star Salem, CIty of Kilgore, City of Longview, Mac Bee SUD, City of Point, City of Quitman, Release from TXU, South Tawakoni WSC, West Tawakoni, City of Wills Point

7.4 Drought Response Triggers and Actions

As mandated by 31 TAC 357.42(c), this section of the plan summarizes drought response triggers and actions regarding the management of existing water sources within the North East Texas Region. The summary includes what specific triggers are used to determine the onset of each defined drought stage and the associated response actions developed by local entities to decrease water demand during the drought stage.

Drought response triggers and actions should be specific to each water supplier and should be based on an assessment of the water user's vulnerability. In some cases, it may be more appropriate to establish triggers based on a supply source volumetric indicator such as a lake surface elevation. Similarly, triggers might be based on supply levels remaining in an elevated or ground storage tank within the water distribution system, although this is not a recommended approach, as the warning of supply depletion would be only three to four days. Triggers based on demand levels can also be effective, if the demands are closely monitored. Whichever method is employed, trigger criteria should be defined on well-established relationships between the benchmark and historical experience. If historical observations have not been made, then common sense must prevail until such time that more specific data can be presented.

Specific drought response triggers and actions at each drought stage for water user groups, including their supply source, specific triggers, and actions in the planning area are summarized in Table 7.1.

7.4.1 Drought Response Triggers

Drought Contingency Plans (DCPs) developed by water user groups within the NETRWPG contain drought response triggers specific to each WUG. Trigger types may include surface water triggers, groundwater triggers, or system capacity triggers. Each of these types of triggers is summarized below.

7.4.1.1 Surface Water Triggers

Surface water triggers are widely-used in the RWPA, typically in conjunction with other triggers based on system demands. Surface water triggers based on reservoir capacity and/ or stage (water pool elevation) are relatively easy to monitor remotely as several reservoirs in the RWPA are equipped with gages and satellite telemetry with real-time data posted online.

7.4.1.2 Groundwater Triggers

Groundwater triggers that indicate the onset of drought are not as easily identified as factors related to surface-water systems. This is attributable to: (1) the rapid response of stream discharge and reservoir storage to short-term changes in climatic conditions within a region and watersheds where surface drainage originates, and (2) the typically slower response of groundwater systems to recharge processes resulting from climatologic drought. Although climatic conditions over a period of one or two years might have a significant impact on the availability of surface water, aquifers within the same area might not respond as quickly, depending on the location and size of recharge areas in a basin, the distribution of precipitation over recharge areas, the amount of recharge, and the extent to which aquifers are developed and exploited by major users of groundwater. Decreases in water levels in an aquifer during drought conditions are usually the result of increased pumping from the aquifer rather than a decrease in recharge, and water levels typically recover once the pumping is reduced. No entities utilize groundwater triggers in the RWPA.

7.4.1.3 System Capacity Triggers

Because of the above described problems with using groundwater levels as drought-condition indicators, several municipal water-supply entities in the North East Texas Region that rely on groundwater generally establish drought-condition triggers based on levels of demand that exceed a percentage of the systems production capacity. All the entities listed in Table 7.1 that use groundwater use both supply triggers as well as demand triggers with one exception. The Red River Authority bases its' drought triggers on average daily use.

7.4.2 Drought Response Actions

Drought Contingency Plans (DCPs) developed by water user groups within the NETRWPG also contain drought response actions that are based on the triggers described above, also specific to each WUG. Actions may include voluntary usage reductions, schedule restrictions, reduction of non-essential water use, limitations on landscape watering including the complete elimination of landscape watering or outside water use, and mandatory water use restrictions including water rationing. The type of action taken will depend on the stage of drought reductions being implemented, and all of these actions are intended to reduce the water demand placed on the system and are often rescinded when a different set of conditions are met. In some cases specific actions are not specified in the DCP, but rather a demand reduction goal is stated.

Additional drought response actions that may be taken by some water user groups do not involve reductions in water demand. These may include implementation of alternative water supply strategies and curtailment to wholesale customers.

7.5 Existing and Potential Emergency Interconnects

As mandate by Texas Statute §357.42(d) & (e), regional water planning groups are to collect information on existing major water infrastructure facilities that may be used in the event of an emergency shortage of water. Pertinent information includes identifying the potential user(s) of the interconnect, the potential supplier(s), the estimated potential volume of supply that could be provided, and a general description of the facility. Texas Water Code §16.053(c) requires information regarding facility locations to remain confidential. This section provides general information regarding existing and potential emergency interconnects among water user groups within the North East Texas Region.

7.5.1 Existing Emergency Interconnects

Water infrastructure facilities within the North East Texas Region were originally identified through a survey process in order to better evaluate existing and potentially feasible emergency interconnects. The survey included major water infrastructure facilities like the City of Longview and the City of Marshall, along with smaller systems such as Karnack WSC. The TCEQ Drinking Water Watch database was then evaluated as a backup source of information for existing interconnects. Based on these sources, a total of 52 water supply systems have the ability to receive an emergency supply of water through an existing emergency interconnect. Table 7. presents the survey results for the existing emergency interconnects among water users and neighboring systems.

Table 7.3 Existing Emergency Interconnects in the North East Texas Region

Entity *Providing* Supply	Entity *Receiving* Supply
410 WSC	Red River County WSC
Able Springs WSC	Combined Consumers SUD
Alba-Golden	Grand Saline
BiCounty WSC	Newsome WSC, Thunderbird Point Water System, Woodland Harbor
Bois D Arc MUD	Honey Grove, Windom
Caddo Basin Special Utility District	Caddo Mills, Greenville
Carroll	Van, Twin Oaks Ranch
Cash SUD	Combined Consumer SUD, West Tawakoni, B H P WSC, Miller Grove WSC, Greenville
Central Bowie WSC	De Kalb
Combined Consumers SUD	Quinlan, West Tawakoni
Crooked Creek WSC	Myrtle Springs WSC
Cumby	Miller Grove WSC
East Mountain	Glenwood WSC
Emory	Point
Farmersville	Caddo Basin SUD
Gill WSC	Holiday Springs Mobile Home Park
Gladewater	Clarksville City, Warren City
Glenwood WSC	East Mountain Water System
Greenville	Caddo Basin SUD, Cash SUD
Gum Springs WSC #1	West Harrison WSC

Hughes Springs	Holly Springs WSC
Jefferson	Kellyville-Berea WSC
Karnack WSC	Caddo Lake WSC
Kilgore	Cross Roads SUD, Liberty Danville FWSD 2, Southern Utilities Laird Hill, West Gregg SUD
Lake Fork WSC	Yantis
Lamar County Water	410 WSC, Red River WSC, Pattonville WSC, M J C WSC
Leigh WSC	Shadowood WC
Lindale	Lindale Rural WSC
Longview	White Oak, Gum Springs WSC, Elderville WSC, Forest Lake Subdivision, Hallsville, Tryon Road SUD, White Oak
Mabank	Kemp
MacBee SUD	Ables Springs SUD
Marshall	Blocker Crossroads WSC, Cypress Valley WSC, Gill WSC, Leigh WSC, Talley WSC
Martin Springs WSC	Brinker WSC
Mount Vernon	Cypress Springs SUD
Mt. Pleasant	Tri SUD
Myrtle Springs WSC	Crooked Creek WSC
NETMWD	Avinger, Daingerfield, Diana SUD, Harleton WSC, Hughes Springs, Jefferson, Lone Star, Mims WSC, Pittsburg, Ore City
Paris	M J C WSC
Pine Ridge WSC	Sky Ranch Retreat
Point	Emory
Pritchett WSC	Int'l Alert Academy
Royse City	BHP WSC
Sharon WSC	Winnsboro
Southern Utilities	Walnut Grove WSC
Sulphur Springs	Martin Springs WSC
Texarkana	Queen City, Red River County WSC
Riverbend	Hooks
Texarkana Water Utilities	Atlanta, Domino, Queen City, Hooks
West Harrison WSC	Gum Springs WSC
West Tawakoni	Combined Consumers SUD
Winnsboro	Sharon WSC
Yantis	Lake Fork WSC

7.5.2 Potential Emergency Interconnects

Responses to survey questions helped identify other potential emergency interconnects for various WUGs within the North East Texas Region. Table 7. presents a list of 154 WUGs that may potentially receive water through an emergency interconnect and the WUGs supplying the potential emergency interconnects.

Table 7.4 Potential Emergency Interconnects in the North East Texas Region

Entity *Providing* Supply	Entity *Receiving* Supply
Red River County WSC	410 WSC
Van, R P M WSC, Edom WSC	Ben Wheeler WSC
Caddo Basin SUD	BHP WSC
TRI SUD, Diana SUD, Sharon WSC, Cypress Springs SUD, Holly Springs WSC, Mims WSC, NETMWD	Bi-County WSC
Pritchett WSC, Fouke WSC	Big Sandy
Sharon WSC	Big Wood Springs Water System
Atlanta	Bloomburg WSC
410 WSC, Lamar County WSD, Paris	Blossom
Red River County WSC	Bogata
Shirley WSC, Miller Grove WSC, Sulphur Springs, Gafford Chapel WSC	Brashear WSC
South Rains SUD, Golden WSC, Shirley WSC, Miller Grove WSC	Bright Star-Salem SUD
North Hopkins WSC, Cypress Springs SUD, Franklin County WD	Brinker WSC
BiCounty WSC	Brookshires Camp Joy Water System
Texarkana, Texas Riverbend WRD	Burns Redbank WSC
BHP WSC, Frognot WSC, Hickory Creek SUD, North Hunt SUD	Caddo Basin SUD
Karnack WSC	Caddo Lake WSC
BHP WSC, Cash SUD	Caddo Mills
Shady Grove WSC	Campbell WSC
Myrtle Springs WSC, MacBee SUD, Fruitvale WSC	Canton
Shady Grove WSC, Miller Grove WSC, South Rains SUD, Combined Consumers SUD, BHP WSC	Cash SUD
Hickory Creek SUD	Celeste
Texarkana, Texas Riverbend WRD, Red River County WSC, New Boston	Central Bowie County WSC
Bi County WSC	Cherokee Point Water Company
Texarkana, Texas Riverbend WRD, Red River County WSC	Clarksville
White Oak	Clarksville City
Quitman	Clear Lakes
MacBee SUD, South Tawakoni WSC	Combined Consumers SUD

North Hunt SUD, Gafford Chapel WSC	Commerce
Delta County MUD	Cooper
Cypress Springs SUD, Winnsboro, Sharon WSC	Cornersville WSC
Pritchett WSC	Country Club Estates
Texarkana, Texas Riverbend WRD, Red River County WSC, Western Cass WSC	County-Other, Bowie
Delta County MUD, Lamar County WSD, North Hunt SUD, NTMWD, Sabine River Authority	County-Other, Delta
North Hopkins WSC, Brinker WSC, Sulphur Springs, Gafford Chapel WSC, Cypress Springs SUD, NTMWD, Sabine River Authority	County-Other, Hopkins
Cash SUD, Greenville, NTMWD, Hickory Creek SUD, North Hunt SUD, Commerce, Sabine River Authority	County-Other, Hunt
Lamar County WSD, Paris, 410 WSC	County-Other, Lamar
Cash SUD, Miller Grove WSC, Shirley WSC, Bright Star Salem SUD, South Rains SUD, Emory, East Tawakoni, NTMWD, Sabine River Authority	County-Other, Rains
Red River County WSC, Lamar County WSD, Texarkana, Texas Riverbend WRD	County-Other, Red River
TRI SUD, Mount Pleasant, Bi County WSC	County-Other, Titus
MacBee SUD, South Tawakoni WSC, Fruitvale WSC, Myrtle Springs WSC, Canton, Little Hope Moore WSC, Bethel Ash WSC, Ben Wheeler WSC, RPM WSC, Van, Carroll WSC, Pruitt Sandflat WSC	County-Other, Van Zandt
Mims WSC	Crestwood Water Company
Lindale Rural WSC	Crystal Systems Texas
Cash SUD, Miller Grove WSC, Gafford Chapel WSC, Brashear WSC	Cumby
Franklin County WD, Brinker WSC, North Hopkins WSC, Tri SUD, Bi County WSC, Sharon WSC, Mt Vernon	Cypress Springs SUD
Texarkana, Texas Riverbend WRD	De Kalb
Cooper, Lamar County WSD, North Hunt SUD, Ladonia, North Hopkins WSC, NTMWD, Sabine River Authority	Delta County MUD
Western Cass WSC	Douglassville
Cash SUD, South Rains SUD	East Tawakoni
Atlanta	Eastern Cass WSC
South Tawakoni	Edgewood
South Tawakoni WSC, MacBee SUD	Edgewood
Ben Wheeler WSC, RPM WSC, Leagueville WSC, Brownsboro	Edom WSC
Blocker Crossroads	Elysian Fields WSC
Jefferson	EMC WSC

South Rains SUD, Bright Star Salem SUD, Miller Grove WSC	Emory
Lindale Rural WSC	Enchanted Lakes Water System
Quitman	Fouke WSC
Pritchett WSC	Friendship Water System
South Tawakoni WSC, Golden WSC, South Rains SUD, Bright Star Salem SUD	Fruitvale WSC
Cumby, Brashear WSC, Sulphur Springs, North Hunt SUD, Commerce, North Hopkins WSC	Gafford Chapel WSC
Longview	Garden Acres Subdivision
Pritchett WSC	Gilmer
Grand Saline, Fruitvale WSC, Bright Star Salem SUD, Ramey WSC, Sabine River Authority	Golden WSC
Fruitvale WSC, Golden WSC, Pruitt Sandflat WSC	Grand Saline
Shady Grove WSC, North Hunt SUD, Hickory Creek SUD	Greenville
Bi County WSC	HAB WSC
Pritchett WSC	Harmony ISD
Fouke WSC	Hawkins
Celeste, Caddo Basin SUD, Frognot WSC, West Leonard WSC, Leonard, Arledge Ridge WSC, Wolfe City, North Hunt SUD, NTMWD, Sabine River Authority	Hickory Creek SUD
Mims WSC	Holiday Harbor
Jones WSC	Holiday Villages Of Fork
Texarkana, Texas Riverbend WRD	Hooks
Mims WSC	Indian Hills Harbor
West Gregg SUD	Jackson WSC
Hawkins	Jarvis Christian College
Longview	Johnson Mobile Home Park
Martin Springs WSC, Sharon WSC, Fouke WSC, Quitman, Sabine River Authority, NTMWD	Jones WSC
Leigh WSC	Karnack WSC
Jefferson	Kellyville Berea WSC
Paris, 410 WSC, Red River County WSC, Delta County MUD	Lamar County WSD
Kilgore	Liberty City WSC
Lindale Rural WSC	Lindale
Tyler	Lindale Rural WSC
NETMWD	Linden
Canton, Ben Wheeler WSC	Little Hope Moore WSC
Myrtle Springs WSC, Mabank, Wills Point, Edgewood, South Tawakoni WSC, Combined Consumers SUD, NTMWD, Sabine River Authority	Macbee SUD

Texarkana, Texas Riverbend WRD	Macedonia Eylau MUD 1
Western Cass WSC	Marietta
NETMWD	Marshall
Shady Grove No. 2 WSC, Brinker WSC, Jones WSC, Lake Fork WSC	Martin Springs WSC
Texarkana, Texas Riverbend WRD	Maud
Shirley WSC, Brashear WSC	Miller Grove WSC
Ramey WSC	Mineola
Tri SUD, NETMWD, Cypress Springs SUD, Bi County WSC	Mount Pleasant
Cypress Springs SUD	Mount Vernon
MacBee SUD, Canton, Fruitvale WSC	Myrtle Springs WSC
Tri SUD	Naples
Texarkana, Texas Riverbend WRD	Nash
Texarkana, Texas Riverbend WRD	New Boston
Mineola	New Hope SUD
Marshall	North Harrison WSC
North Hunt SUD, Gafford Chapel WSC, Sulphur Springs, Brinker WSC, Cypress Springs SUD, Delta County MUD	North Hopkins WSC
Wolfe City, Hickory Creek SUD, Ladonia, Commerce, Gafford Chapel WSC	North Hunt SUD
Elysian Fields WSC	Old Town WSC
Tri SUD	Omaha
NETMWD	Ore City
Lamar County WSD, 410 WSC, Red River County WSC	Paris
Mims WSC	Pine Harbor Subdivision
Carroll WSC, Pruitt Sandflat WSC, Golden WSC, Lindale Rural WSC	Pine Ridge WSC
Cash SUD, Ables Springs WSC, Terrell, High Point WSC, RCH WSC, Blackland WSC, NTMWD, Sabine River Authority	Poetry WSC
Emory	Point
East Tawakoni, Cash SUD, South Rains SUD, South Tawakoni WSC, NTMWD, Sabine River Authority	Point
Gilmer	Pritchett WSC
Van, Carroll WSC, Pine Ridge WSC, Golden WSC, Grand Saline, Fruitvale WSC	Pruitt Sandflat WSC
West Tawakoni, Cash SUD, NTMWD, Sabine River Authority	Quinlan
Jones WSC, Fouke WSC	Quitman
Mineola	Ramey WSC

Paris, Texas Riverbend WRD, Central Bowie County WSC	Red River County WSC
Texarkana, Texas Riverbend WRD	Redwater
Paris, 410 WSC, Red River County WSC	Reno (Lamar)
Texarkana, Arkansas	Riverbend Water Resources District
Pritchett WSC	Rosewood Water System
Chandler, Southern Utilities, Ben Wheeler WSC, Edom WSC	RPM WSC
Lindale Rural WSC	Sand Flat WSC
Marshall	Scottsville
Brashear WSC, Sulphur Springs, Martin Springs WSC	Shady Grove NO. 2 WSC
Greenville, Cash SUD	Shady Grove WSC
Diana SUD	Shady Shores Water System
Winnsboro	Sharon WSC
Bright Star Salem SUD, Miller Grove WSC, Brashear WSC, Martin Springs WSC, Lake Fork WSC, NTMWD, Sabine River Authority	Shirley WSC
Tyler	Smith County MUD 1
Point, Emory, Bright Star Salem SUD, Fruitvale WSC, South Tawakoni WSC, NTMWD, Sabine River Authority	South Rains SUD
Wills Point	South Tawakoni
Combined Consumers SUD, MacBee SUD, South Rains SUD, Fruitvale SUD, Edgewood, Wills Point, NTMWD, Sabine River Authority	South Tawakoni WSC
Winona	Star Mountain WSC
Gladewater	Starrville-Friendship WSC
Shady Grove No. 2 WSC, Brashear WSC, Gafford Chapel WSC, North Hopkins WSC, Brinker WSC, Martin Springs WSC	Sulphur Springs
Texarkana, Arkansas	Texarkana
North Hunt SUD, Gafford Chapel WSC	Texas A&M University Commerce
Caddo Lake WSC	TPWD Caddo Lake State Park
Sand Flat WSC	TPWD Tyler State Park
Cypress Springs SUD, Bi County WSC, Western Cass WSC	TRI SUD
Gladewater	Union Grove WSC
Ben Wheeler WSC, Pruitt Sandflat WSC, Carroll WSC	Van
Texarkana, Texas Riverbend WRD	Wake Village
Waskom Rural WSC	Waskom
Waskom	Waskom Rural WSC
Gum Springs WSC	West Harrison WSC

Quinlan, NTMWD, Sabine River Authority	West Tawakoni
Linden	Western Cass WSC
MacBee SUD, South Tawakoni WSC, NTMWD, Sabine River Authority	Wills Point
Cypress Springs SUD	Winnsboro
Star Mountain WSC	Winona
Arledge Ridge WSC, North Hunt SUD, Hickory Creek SUD	Wolfe City

7.6 Drought Management Water Management Strategies

As mandate by Texas Statute §357.42(f), RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP. The list of recommended drought strategies and alternative drought strategies must include the associated WUG/ WWP and the triggers that would initiate the strategy. Potentially feasible drought strategies that were considered but not recommended must also be listed, as well as any other recommended measures included the RWP, including any applicable triggers.

The TWDB has required the consideration of a general methodology for estimating economic impacts associated with implementation of drought management as a water management strategy. Water user groups may have some flexibility to focus on discretionary outdoor water use first to reduce water use. Commercial and manufacturing use sectors may find some degrees of drought management to be economically viable and cost-competitive with other water management strategies.

The NETRWPG does not support the provision of drought management measures as an explicit WMS in the 2026 Region D Plan, and therefore no drought management WMSs were considered during the current cycle. Drought management measures vary within the Region, and are temporary strategies intended to conserve supply and reduce impacts during drought and emergency times and are not implemented in the Region to address long-term demands. Little to no firm supply (i.e., yield) is gained from the implementation of these measures, given their application during such specific times, particularly when considered alongside more typical WMS in the planning process. Also, the use of such measures, and their efficacy, varies greatly between entities within the North East Texas Region, creating additional uncertainty. Although not included as a specific WMS herein, drought management is nevertheless an important component of water supply management. The NETRWPG supports implementation of DCPs under appropriate conditions by water providers in order to enhance the availability of limited supplies during emergency and drought conditions and reduce impacts to water users and local economies. Recognizing that implementation of appropriate water management strategies is a matter of local choice, the NETRWPG supports consideration of economically viable drought management approaches as an interim strategy to meet near-term needs through demand reduction until such time as economically viable long-term water supplies can be developed.

The economic impacts on WUG reductions associated with increasing 5, 10, 15, 20, 25, and 30 percent drought management scenarios are shown in **Error! Reference source not found.** for decades 2030 through 2080 for water user groups in the North East Texas Region.

These impacts were derived using the TWDB's Drought Management Costing Tool, which relies upon estimated foregone consumer surplus (consumer willingness to pay to restore normal water usage) and annual cost and usage surveys performed by the Texas Municipal League (TML). The costing tool is only applicable to residential outdoor water use.

Table 7.3 Drought Management Action Evaluation Summary

Entity Name	Total Annual Water Reduction (Percentage and volume in ac-ft)						Total annual lost consumer surplus (in 2023 $)					
	5% 2030	10% 2040	15% 2050	20% 2060	25% 2070	30% 2080	2030	2040	2050	2060	2070	2080
410 WSC	5	10	14	18	22	25	836	3,353	7,604	13,753	21,926	32,323
Ables Springs SUD	3	6	9	13	17	21	409	1,869	4,748	9,457	16,574	26,795
Atlanta	24	45	65	82	98	112	3,948	15,922	35,974	64,983	103,360	151,840
Avinger	1	3	4	5	6	7	203	814	1,834	3,310	5,260	7,661
B H P WSC	26	61	103	152	207	270	3,252	15,980	42,748	88,970	162,127	271,629
Ben Wheeler WSC	11	26	44	65	89	117	1,788	8,615	22,952	48,253	88,705	149,702
Bethel Ash WSC	8	17	29	41	55	71	981	4,558	11,807	24,102	43,205	71,454
Bi County WSC	61	124	186	249	312	376	7,575	32,246	77,040	145,920	244,125	378,550
Big Sandy	5	10	15	19	24	28	646	2,752	6,534	12,156	19,951	30,333
Blocker Crossroads WSC	7	15	22	29	37	44	1,107	4,805	11,496	21,836	36,594	56,734
Blossom	5	11	16	21	26	32	865	3,661	8,679	16,322	27,084	41,604
Bogata	6	11	16	20	24	27	667	2,656	5,982	10,730	16,983	24,814
Bois D Arc MUD	0.1	0.1	0.2	0.3	0.3	0.4	10	41	99	187	311	480
Brashear WSC	4	9	14	20	26	32	684	3,114	7,515	14,691	25,378	40,499
Bright Star Salem SUD	18	38	60	88	119	153	2,756	12,632	31,667	65,192	117,718	195,608
Brinker WSC	10	22	33	45	58	72	1,588	7,125	17,257	33,609	57,763	91,815
Burns Redbank WSC	6	12	19	27	36	46	881	3,953	10,001	20,077	35,545	58,258
Caddo Basin SUD	69	125	219	301	373	487	8,544	32,535	90,526	176,358	291,375	490,067
Caddo Mills	4	7	11	15	20	24	604	2,597	6,298	12,108	20,569	32,307
Canton	30	67	111	162	222	288	4,167	19,628	51,653	106,705	194,509	324,990
Carroll WSC	4	8	12	18	24	30	549	2,541	6,512	13,174	23,397	38,347
Cash SUD	93	211	354	510	642	817	11,468	54,950	146,455	299,018	502,448	821,376
Celeste	3	7	10	14	18	23	379	1,688	4,196	8,179	14,068	22,356
Central Bowie County WSC	51	103	156	209	264	319	6,297	26,814	64,443	122,789	206,458	321,267
Chalk Hill SUD	0.1	0.1	0.2	0.3	0.3	0.4	11	45	112	201	335	491
Clarksville	11	19	25	29	31	32	3,332	12,454	25,729	42,760	61,279	79,072
Clarksville City	4	8	12	15	19	22	493	2,100	4,979	9,249	15,172	22,978
Combined Consumers SUD	30	64	99	136	174	215	3,763	16,601	41,097	79,718	136,420	216,048
Commerce	23	45	65	84	100	115	3,001	12,279	28,490	51,608	82,367	121,501
Como	3	5	8	10	13	15	287	1,211	2,886	5,451	9,085	14,017
Cooper	17	33	49	65	80	95	1,974	8,297	19,642	36,629	60,263	91,764
Cornersville WSC	4	9	14	19	25	31	675	2,988	7,361	14,412	24,902	39,918
Cross Roads SUD	1	3	5	6	8	10	230	988	2,408	4,661	7,971	12,611

Crystal Systems Texas	21	44	69	93	118	144	3,340	14,726	36,139	69,301	117,324	183,897
Cumby	3	6	9	11	14	17	445	1,829	4,523	8,520	14,123	21,671
Cypress Springs SUD	43	86	130	178	227	279	5,270	22,533	54,006	104,241	177,695	280,525
Cypress Valley WSC	6	12	18	24	30	37	906	3,943	9,442	17,984	30,203	46,983
Daingerfield	9	19	30	41	52	63	1,365	5,920	14,601	28,056	47,593	74,805
De Kalb	7	15	22	29	36	42	1,469	6,163	14,566	27,114	44,525	67,721
Delta County MUD	8	16	24	33	42	51	1,244	5,325	12,863	24,617	41,584	65,016
Diana SUD	27	59	95	136	184	240	3,377	15,290	39,179	79,887	144,171	241,335
E M C WSC	10	18	24	30	34	36	1,584	6,084	12,816	22,130	33,286	45,634
East Mountain Water System	7	14	20	27	33	39	919	3,917	9,296	17,274	28,381	43,131
East Tawakoni	3	6	9	12	15	18	589	2,516	6,139	11,541	19,097	29,218
East Texas MUD	5	12	20	29	39	50	810	3,981	10,419	21,317	38,275	63,291
Eastern Cass WSC	17	35	55	77	103	133	2,631	11,555	28,861	57,574	102,094	169,298
Edgewood	6	11	18	24	30	37	830	3,618	8,874	16,988	28,724	45,083
Edom WSC	4	7	11	15	19	23	575	2,472	5,981	11,276	18,776	28,968
Elderville WSC	23	46	68	89	110	130	2,797	11,928	28,216	52,430	85,922	130,367
Elysian Fields WSC	3	8	12	19	27	36	548	2,689	6,535	14,171	26,590	45,454
Emory	5	11	17	23	29	35	1,150	4,951	12,133	23,081	38,719	60,027
Fouke WSC	28	59	91	127	166	208	3,510	15,499	37,882	74,757	130,007	209,046
Frognot WSC	0.1	0.3	0.4	0.7	1.0	1.4	16	83	233	517	970	1,729
Fruitvale WSC	14	30	49	70	94	121	2,164	9,999	25,786	52,372	93,494	153,976
Gafford Chapel WSC	4	9	13	18	23	28	656	2,845	6,953	13,363	22,691	35,655
Gill WSC	5	11	16	20	25	29	831	3,496	8,329	15,200	24,490	36,481
Gilmer	19	39	58	76	93	110	2,179	9,282	22,037	41,026	67,390	102,389
Gladewater	25	50	75	98	121	143	3,618	15,420	36,534	67,911	111,429	169,125
Glenwood WSC	12	23	35	46	56	67	1,811	7,715	18,297	34,069	55,961	85,042
Golden WSC	13	28	44	61	80	101	2,079	9,280	23,041	45,662	79,728	128,716
Grand Saline	12	24	37	49	62	74	1,671	7,189	17,427	32,908	54,909	84,909
Greenville	191	430	687	962	1261	1584	18,951	90,067	228,313	452,961	791,568	1,278,490
Gum Springs WSC	50	108	163	233	309	392	6,137	28,047	67,581	136,439	241,614	394,019
Hallsville	16	34	51	73	96	121	3,709	16,858	40,609	81,497	143,606	233,169
Harleton WSC	18	35	51	68	84	100	2,747	11,621	26,943	50,462	83,326	127,137
Hawkins	6	12	18	23	30	36	657	2,823	6,800	12,892	21,596	33,512
Hickory Creek SUD	14	31	53	81	117	161	2,119	10,256	28,014	60,671	115,922	205,035
Holly Springs WSC	6	11	15	19	22	24	910	3,575	7,815	13,832	21,468	30,675
Hooks	10	19	29	38	46	55	1,444	6,058	14,294	26,594	43,612	66,217
Hughes Springs	8	16	22	28	34	39	1,059	4,272	9,651	17,427	27,709	40,737
Jackson WSC	6	14	22	30	39	49	1,010	4,602	11,534	22,619	39,126	62,509

Jefferson	8	14	20	25	29	33	1,356	5,341	11,741	20,901	32,710	47,265
Jones WSC	17	36	56	80	107	136	2,689	12,046	29,689	59,813	105,969	173,156
Josephine	1	2	3	4	5	7	131	644	1,740	3,624	6,578	11,060
Kellyville-Berea WSC	4	9	13	17	21	24	689	2,846	6,660	12,379	20,385	31,211
Kilgore	38	77	115	151	186	219	5,599	23,879	56,525	105,050	172,215	261,355
Lake Fork WSC	9	20	30	43	57	73	1,443	6,468	15,938	32,052	56,730	92,600
Lamar County WSD	82	164	244	324	403	482	10,076	42,657	101,123	190,151	315,467	484,454
Leigh WSC	6	11	16	18	17	15	953	3,617	8,493	13,170	17,327	19,789
Liberty City WSC	18	37	56	73	90	107	2,868	12,291	29,187	54,470	89,643	136,548
Liberty Utilities Silverleaf Water	12	25	38	52	66	82	1,863	8,139	19,762	38,378	65,779	104,323
Lindale	21	44	67	90	113	137	2,610	11,381	27,728	52,762	88,626	137,869
Lindale Rural WSC	42	92	147	206	271	341	5,144	23,983	60,915	121,131	212,033	342,818
Linden	19	36	51	65	78	89	2,022	8,169	18,515	33,496	53,400	78,647
Little Hope Moore WSC	7	14	22	31	39	48	1,071	4,728	11,715	22,734	38,969	61,788
Lone Star	6	10	14	17	20	22	877	3,421	7,387	13,013	20,099	28,492
Longview	309	629	955	1281	1610	1943	21,966	94,420	227,694	432,554	724,899	1,124,251
Mabank	1	2	3	5	6	8	120	571	1,504	3,124	5,692	9,548
MacBee SUD	41	101	186	305	470	695	5,047	26,216	76,877	178,881	367,514	699,379
Macedonia Eylau MUD 1	42	84	124	163	200	237	5,192	21,780	51,382	95,583	156,794	238,006
Marshall	88	172	257	323	380	429	10,391	42,957	102,160	182,003	285,583	413,981
Martin Springs WSC	12	24	37	51	65	79	1,844	8,041	19,602	37,780	64,223	101,052
Maud	3	7	10	13	17	20	754	3,165	7,462	13,859	22,764	34,560
Miller Grove WSC	5	11	17	24	31	38	829	3,689	9,012	17,625	30,381	48,425
Mims WSC	8	17	26	36	46	57	1,285	5,579	13,870	26,770	45,782	73,032
Mineola	24	50	77	108	141	177	4,978	22,068	54,040	107,240	187,416	302,670
Mount Pleasant	53	108	165	223	282	344	5,335	23,133	55,951	107,003	180,758	282,998
Mount Vernon	9	18	27	36	46	55	1,195	5,015	11,789	22,436	37,657	58,505
Myrtle Springs WSC	13	31	55	87	124	168	1,987	10,337	29,061	64,456	123,383	215,097
Naples	6	12	18	23	29	34	927	3,885	9,215	17,269	28,613	43,887
Nash	16	32	48	63	78	92	2,249	9,436	22,263	41,415	67,945	103,166
New Boston	20	40	59	77	95	112	2,691	11,285	26,634	49,530	81,251	123,332
New Hope SUD	12	24	35	45	55	63	1,866	7,832	18,582	33,828	54,320	80,784
North Harrison WSC	6	13	19	26	34	41	946	4,184	10,039	19,483	33,316	52,643
North Hopkins WSC	41	86	132	180	230	282	5,111	22,448	54,638	105,595	179,995	283,989
North Hunt SUD	10	20	30	39	47	55	1,620	6,718	15,782	29,015	46,993	70,489
Omaha	4	7	11	14	17	20	726	2,993	6,962	12,889	21,023	31,797
Ore City	5	10	15	21	26	31	703	3,054	7,447	14,140	23,687	36,755
Overton	0.5	1.1	1.7	2.4	3.1	3.8	60	269	676	1,312	2,257	3,570

Panola-Bethany WSC	1.8	2.9	3.5	3.8	3.9	3.8	277	949	1,843	2,842	3,840	4,830
Paris	101	202	301	400	498	594	14,450	61,182	145,108	272,794	452,458	694,711
Pine Ridge WSC	6	14	24	35	47	61	988	4,791	12,580	25,930	46,845	77,897
Pittsburg	18	36	55	73	92	112	2,810	11,997	28,667	54,606	91,749	142,731
Poetry WSC	8	19	31	44	46	55	1,274	6,168	16,229	32,725	45,475	70,594
Point	4	7	11	15	19	23	1,001	4,305	10,533	19,983	33,392	51,609
Pritchett WSC	35	71	106	140	172	204	4,358	18,569	44,080	82,079	134,882	205,004
Pruitt Sandflat WSC	5	10	15	20	24	28	786	3,323	7,923	14,640	23,903	36,145
Queen City	5	10	15	20	24	29	878	3,566	8,243	15,210	24,963	38,316
Quinlan	8	18	28	40	52	66	1,268	5,808	14,802	29,485	51,729	83,873
Quitman	9	18	27	36	44	51	1,432	6,051	14,423	26,567	43,254	65,250
R P M WSC	7	13	19	25	30	35	1,030	4,307	10,178	18,570	29,898	44,630
Ramey WSC	14	32	56	85	122	168	2,204	10,685	29,229	63,398	121,322	214,925
Red River County WSC	20	38	55	71	88	108	3,137	12,542	28,716	52,874	87,505	137,735
Redwater	11	22	33	44	54	64	1,776	7,446	17,571	32,665	53,608	81,363
Reno (Lamar)	11	23	34	45	56	67	1,786	7,563	17,932	33,712	55,920	85,896
Riverbend Water Resources District	2	4	6	7	9	11	296	1,242	2,928	5,447	8,915	13,538
Royse City	18	52	97	156	229	315	2,228	13,443	40,372	91,787	179,045	316,750
Sand Flat WSC	16	32	50	67	85	103	2,447	10,712	26,174	49,954	84,190	131,333
Scottsville	5	10	16	23	31	40	732	3,425	8,283	17,165	31,052	51,571
Shady Grove No 2 WSC	3	7	11	15	19	24	520	2,360	5,700	11,140	19,212	30,639
Shady Grove SUD	7	18	35	59	95	145	1,126	6,057	18,393	44,277	94,049	184,898
Sharon WSC	33	68	105	146	190	238	4,019	17,765	43,320	85,533	148,654	238,945
Shirley WSC	10	22	33	47	61	76	1,601	7,173	17,599	34,743	60,423	97,197
South Rains SUD	12	25	40	57	75	96	1,833	8,321	20,833	42,102	74,840	122,833
South Tawakoni WSC	10	16	19	20	20	19	1,548	5,277	10,162	15,141	19,974	24,435
Southern Utilities	50	106	165	226	288	354	6,229	27,738	68,498	132,314	225,475	355,623
Star Mountain WSC	5	11	17	23	29	35	799	3,551	8,769	16,904	28,761	45,308
Starrville-Friendship WSC	6	11	17	22	27	32	881	3,716	8,825	16,371	26,768	40,557
Sulphur Springs	63	129	198	268	340	414	7,493	32,273	78,930	151,410	256,174	401,186
Talco	2	4	6	8	10	12	402	1,696	3,924	7,228	11,699	17,512
Talley WSC	7	15	22	30	37	44	1,142	4,909	11,737	22,031	36,469	55,911
Texarkana	142	282	419	551	679	802	9,897	41,552	98,206	182,868	300,341	456,469
Texas A&M University Commerce	1.2	2.3	3.5	4.6	5.8	6.9	180	761	1,814	3,427	5,711	8,811
Tri SUD	86	191	303	429	564	706	10,678	49,774	125,625	251,763	441,154	709,706
Tryon Road SUD	35	75	114	159	208	259	4,380	19,684	47,025	93,190	162,344	260,955
Tyler	5	9	13	15	17	18	499	1,901	4,201	7,077	10,405	13,969
Union Grove WSC	7	14	20	27	33	39	1,064	4,532	10,756	20,030	32,904	49,999

Van	12	24	37	49	61	73	1,936	8,321	20,149	37,981	63,264	97,694
Wake Village	29	58	86	112	138	163	3,583	15,029	35,459	65,950	108,204	164,212
Waskom	11	20	30	35	37	38	1,393	5,482	12,941	21,411	30,780	40,123
West Gregg SUD	16	34	53	74	96	120	2,524	11,155	27,786	54,794	95,388	153,831
West Harrison WSC	14	31	47	71	98	128	2,145	10,263	24,865	52,615	96,888	163,170
West Leonard WSC	0	0	1	1	1	1	22	108	288	616	1,105	1,827
West Tawakoni	10	23	37	53	70	89	2,579	11,993	30,875	62,122	109,987	179,692
Western Cass WSC	26	49	70	89	106	121	4,037	16,258	36,726	66,278	105,391	154,713
White Oak	21	43	64	84	104	122	2,469	10,530	24,913	46,284	75,861	115,070
Wills Point	18	39	64	92	124	160	2,542	11,872	30,882	63,304	113,914	188,865
Winnsboro	17	35	53	72	92	112	2,652	11,471	27,647	53,401	90,964	143,566
Winona	2	5	7	10	14	17	245	1,143	2,904	5,789	10,141	16,388
Wolfe City	6	11	17	23	29	36	1,270	5,462	13,243	25,164	42,165	65,478

7.7 Emergency Responses to Local Drought Conditions or Loss of Municipal Supply

Texas Statute §357.42(g) requires regional water planning groups to evaluate potential temporary emergency water supplies for all County-Other WUGs and municipalities with 2030 populations less than 7,500 that rely on a sole source of water. The purpose of this evaluation is to identify potential alternative water sources that may be considered for temporary emergency use in the event that the existing water supply sources become temporarily unavailable due to extreme hydrologic conditions such as emergency water right curtailment, unanticipated loss of reservoir conservation storage, or other localized drought impacts. This section provides potential solutions that should act as a guide for municipal water users that are most vulnerable in the event of a loss of supply. This review was limited and did not require technical analyses or evaluations following in accordance with 31 TAC §357.34.

The TCEQ tracks public water suppliers who have self-reported drought stages and implemented TCEQ drought stages. Data on these implementations includes PWS name and ID, TCEQ Stage, estimated days of water remaining, and date of implementation. Table 7.6 provides a summary of all drought stages declared in the North East Texas Region and self-reported to the TCEQ since 2012.

7.7.1 Emergency Responses to Local Drought Conditions

A survey was conducted to identify and evaluate the municipal water users that are most vulnerable in the event of an emergency water shortage for the previous round of planning. The analysis included all 'County-other' WUGs and rural cities with a population less than 7,500 and on a sole source of water regardless of whether that water is provided by a WWP. **Error! Reference source not found.** presents temporary responses that may or may not require permanent infrastructure. It was assumed in the analysis that the entities listed would have approximately 180 days or less of remaining water supply. Additionally, entities with existing infrastructure but no contract language that specifically addresses emergency supply have been included in this table.

7.7.2 Releases from Upstream Reservoirs and Curtailment of Rights

In times of drought and limited supply, the most 'junior' right holder must be the first to discontinue use under Texas' "prior appropriations system". This temporary source of supply was evaluated as a feasible option during an emergency shortage of water. Of the 90 entities listed on **Error! Reference source not found.**, 49 municipalities might have the option of implementing curtailment of water rights. In addition, release from upstream reservoirs was also evaluated. **Error! Reference source not found.** presents 25 entities where this approach might be feasible.

7.7.3 Brackish Groundwater

Brackish groundwater was evaluated as a temporary source during an emergency water shortage. Some brackish groundwater is found in certain places in the Carrizo-Wilcox Aquifer, and other brackish groundwater supplies can be obtained from the Nacatoch and Queen City aquifers in the North East Texas Region.

Required infrastructure would include additional groundwater wells, potential treatment facilities and conveyance facilities. Brackish groundwater at lower TDS concentrations may require only limited treatment. Of the entities listed in **Error! Reference source not found.**, ten will be able to potentially use brackish groundwater as a feasible solution to an emergency local drought condition.

7.7.4 Drill Additional Local Groundwater Wells and Trucking in Water

If the existing water supply sources become temporarily unavailable, drilling additional groundwater wells and trucking in water are optimal solutions. **Error! Reference source not found.** presents this option as viable for most of the entities listed.

Table 7.6. Summary of self-reported implementation of drought stages to the TCEQ in the North East Texas Region since 2012.

PWS ID	PWS Name	County	TCEQ Stage	Estimated Days of Water Remaining	Date of Implementation
TX0320019	NORTHEAST TEXAS MWD PITTSBURG PLANT	Camp	Voluntary	Greater Than 180-Days	1/11/12
TX2120008	COMMUNITY WATER CO MONTGOMERY GARDEN	Smith	M1	Greater Than 180-Days	1/25/12
TX2340007	CALLENDER LAKE	Van Zandt	M1	Greater Than 180-Days	1/25/12
TX0320019	NORTHEAST TEXAS MWD PITTSBURG PLANT	Camp	Voluntary	Greater Than 180-Days	2/8/12
TX1160004	CITY OF GREENVILLE	Hunt	M1	Greater Than 180-Days	2/8/12
TX1900001	CITY OF EMORY	Rains	M3	Greater Than 180-Days	2/8/12
TX2340007	CALLENDER LAKE	Van Zandt	M1	Greater Than 180-Days	2/8/12
TX2120008	COMMUNITY WATER CO MONTGOMERY GARDEN	Smith	M1	Greater Than 180-Days	2/15/12
TX0320019	NORTHEAST TEXAS MWD PITTSBURG PLANT	Camp	Voluntary	Greater Than 180-Days	3/7/12
TX1160004	CITY OF GREENVILLE	Hunt	Voluntary	Greater Than 180-Days	3/7/12
TX1020004	CITY OF HALLSVILLE	Harrison	Voluntary	Greater Than 180-Days	3/7/12
TX1160017	CAMPBELL WSC	Hunt	M1	Greater Than 180-Days	3/7/12
TX2340007	CALLENDER LAKE	Van Zandt	M1	Greater Than 180-Days	3/7/12
TX2120008	COMMUNITY WATER CO MONTGOMERY GARDEN	Smith	M1	Greater Than 180-Days	3/14/12
TX1160017	CAMPBELL WSC	Hunt	Voluntary	Greater Than 180-Days	3/21/12
TX2340007	CALLENDER LAKE	Van Zandt	M1	Greater Than 180-Days	3/26/12
TX2120004	CITY OF TYLER	Smith	Voluntary	Greater Than 180-Days	3/26/12
TX2120008	COMMUNITY WATER CO MONTGOMERY GARDEN	Smith	Voluntary	Greater Than 180-Days	4/18/12
TX1020004	CITY OF HALLSVILLE	Harrison	Voluntary	Greater Than 180-Days	4/25/12
TX1160028	HOLIDAY ESTATES WATER	Hunt	Voluntary	Greater Than 180-Days	4/25/12
TX0320001	CITY OF PITTSBURG	Camp	Voluntary	Greater Than 180-Days	7/3/12
TX1160005	CITY OF WOLFE CITY	Hunt	M1	Greater Than 180-Days	8/1/12
TX1020004	CITY OF HALLSVILLE	Harrison	Voluntary	Greater Than 180-Days	8/8/12
TX1020078	WEST HARRISON WSC	Harrison	M1	Greater Than 180-Days	4/24/13

TX1116004	CITY OF GREENVILLE	Hunt	Voluntary	Greater Than 180-Days	5/1/13
TX1160018	CASH SUD	Hunt	M1	Greater Than 180-Days	5/1/13
TX2340009	EDOM WSC	Van Zandt	Voluntary	Greater Than 180-Days	5/8/13
TX2010018	SOUTHERN UTILITIES LAIRD HILL	Gregg	Voluntary	Greater Than 180-Days	5/15/13
TX2120063	SOUTHERN UTILITIES	Smith	Voluntary	Greater Than 180-Days	5/15/13
TX0600001	CITY OF COOPER	Delta	M1	Greater Than 180-Days	5/22/13
TX1900001	CITY OF EMORY	Rains	M1	Greater Than 180-Days	5/29/13
TX1900011	CITY OF EAST TAWAKONI	Rains	M1	Greater Than 180-Days	6/5/13
TX2120008	COMMUNITY WATER CO MONTGOMERY GARDEN	Smith	Voluntary	Greater Than 180-Days	6/19/13
TX1160007	CITY OF QUINLAN	Hunt	M1	Greater Than 180-Days	7/17/13
TX1160042	SHADY GROVE WSC	Hunt	M1	Greater Than 180-Days	7/17/13
TX1120001	CITY OF CUMBY	Hopkins	M1	Greater Than 180-Days	7/24/13
TX1120015	MARTIN SPRINGS WSC	Hopkins	Voluntary	Greater Than 180-Days	7/24/13
TX1900001	CITY OF EMORY	Rains	M1	Greater Than 180-Days	8/7/13
TX0600001	CITY OF COOPER	Delta	M2	Greater Than 180-Days	8/21/13
TX0600018	DELTA COUNTY MUD	Delta	M1	Greater Than 180-Days	8/21/13
TX1160004	CITY OF GREENVILLE	Hunt	M1	Greater Than 180-Days	8/21/13
TX1160029	CADDO BASIN SUD	Hunt	M1	Greater Than 180-Days	8/21/13
TX2120006	CITY OF BULLARD	Smith	Voluntary	Greater Than 180-Days	8/21/13
TX1160031	JACOBIA WSC	Hunt	M2	Greater Than 180-Days	8/28/13
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	8/28/13
TX0920006	CITY OF WHITE OAK	Gregg	M2	Greater Than 180-Days	8/28/13
TX1160006	CITY OF LONE OAK	Hunt	Voluntary	Greater Than 180-Days	8/28/13
TX0920028	SUN ACRES MOBILE HOME PARK	Gregg	M2	Greater Than 180-Days	9/11/13
TX1940002	CITY OF CLARKSVILLE	Red River	Voluntary	Greater Than 180-Days	9/11/13
TX1120011	BRINKER WATER SUPPLY	Hopkins	Voluntary	Greater Than 180-Days	9/18/13
TX1120013	CORNERSVILLE WSC	Hopkins	Voluntary	Greater Than 180-Days	9/18/13

TX1120018	PICKTON WSC	Hopkins	Voluntary	Greater Than 180-Days	9/18/13
TX1900009	SOUTH RAINS WSC	Rains	M1	Greater Than 180-Days	10/9/13
TX1160004	CITY OF GREENVILLE	Hunt	Voluntary	Greater Than 180-Days	10/30/13
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	2/26/14
TX1900009	SOUTH RAINS WSC	Rains	M2	Greater Than 180-Days	4/2/14
TX1900011	CITY OF EAST TAWAKONI	Rains	M1	Greater Than 180-Days	5/7/14
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	5/21/14
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	7/30/14
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	12/3/14
TX1160012	CITY OF WEST TAWAKONI	Hunt	Voluntary	Greater Than 180-Days	1/21/15
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	2/18/15
TX1160012	CITY OF WEST TAWAKONI	Hunt	M3	Greater Than 180-Days	3/4/15
TX1160052	COMBINED CONSUMERS SUD	Hunt	M1	Greater Than 180-Days	3/11/15
TX1160052	COMBINED CONSUMERS SUD	Hunt	Voluntary	Greater Than 180-Days	3/18/15
TX1020002	CITY OF MARSHALL	Harrison	M3	Greater Than 180-Days	4/15/15
TX1160012	CITY OF WEST TAWAKONI	Hunt	Voluntary	Greater Than 180-Days	5/6/15
TX1020078	WEST HARRISON WSC	Harrison	Voluntary	Greater Than 180-Days	7/8/15
TX1020078	WEST HARRISON WSC	Harrison	Voluntary	Greater Than 180-Days	7/15/15
TX1160018	CASH SUD	Hunt	Voluntary	Greater Than 180-Days	9/16/15
TX2120035	PINE TRAIL SHORES	Smith	M1	Greater Than 180-Days	8/3/16
TX0190021	RIVERBEND WATER RESOURCES DISTRICT	Bowie	Voluntary	Greater Than 180-Days	10/12/17
TX1020004	CITY OF HALLSVILLE	Harrison	Voluntary	Greater Than 180-Days	10/24/18
TX2120035	PINE TRAIL SHORES	Smith	Voluntary	Greater Than 180-Days	11/20/19
TX0320016	H A B WSC	Camp	Voluntary	Greater Than 180-Days	5/24/21
TX2120063	SOUTHERN UTILITIES	Smith	Voluntary	Greater Than 180-Days	5/24/21
TX2120006	CITY OF BULLARD	Smith	M1	Greater Than 180-Days	6/21/22
TX2340009	EDOM WSC	Van Zandt	Voluntary	Greater Than 180-Days	6/30/22

TX1020026	GUM SPRINGS WSC 1	Harrison	Voluntary	Greater Than 180-Days	7/7/22
TX2340004	CITY OF VAN	Van Zandt	M2	Greater Than 180-Days	7/13/22
TX2340011	LITTLE HOPE-MOORE WATER SUPPLY	Van Zandt	Voluntary	Greater Than 180-Days	7/13/22
TX2120015	CRYSTAL SYSTEMS	Smith	Voluntary	Greater Than 180-Days	7/13/22
TX2500016	FOUKE WSC	Wood	M1	Greater Than 180-Days	7/20/22
TX2500039	LAKE FORK WSC	Wood	M1	Greater Than 180-Days	7/20/22
TX2340016	R P M WSC	Van Zandt	Voluntary	Greater Than 180-Days	7/27/22
TX2340019	SOUTH TAWAKONI WSC	Van Zandt	Voluntary	Greater Than 180-Days	7/20/22
TX1160018	CASH SUD	Hunt	M1	Greater Than 180-Days	7/27/22
TX0600017	WEST DELTA WSC	Delta	M1	Greater Than 180-Days	7/27/22
TX1160039	NORTH HUNT SUD	Hunt	M2	Greater Than 180-Days	7/27/22
TX2120063	SOUTHERN UTILITIES	Smith	M2	Greater Than 180-Days	7/27/22
TX2500015	BRIGHT STAR-SALEM SUD	Wood	M3	Greater Than 180-Days	8/3/22
TX2340005	CITY OF WILLS POINT	Van Zandt	M1	Greater Than 180-Days	8/3/22
TX2500007	JONES WSC	Wood	M1	Greater Than 180-Days	8/17/22
TX1900001	CITY OF EMORY	Rains	Voluntary	Greater Than 180-Days	8/17/22
TX2340001	CITY OF CANTON	Van Zandt	Voluntary	Greater Than 180-Days	8/17/22
TX1020026	GUM SPRINGS WSC 1	Harrison	Voluntary	Greater Than 180-Days	8/10/23
TX2500008	NEW HOPE SUD	Wood	M3	Greater Than 180-Days	8/10/23
TX2120015	CRYSTAL SYSTEMS	Smith	M1	Greater Than 180-Days	8/18/23
TX2340004	CITY OF VAN	Van Zandt	M3	Outage	1/4/24
TX2340004	CITY OF VAN	Van Zandt	M3	Less than 180-day supply	1/11/24

Table 7.7 Emergency Responses to Local Drought Conditions in the North East Texas Region

Entity				Implementation Requirements									
Water User Group Name	County	2030 Population	2030 Demand (AF/year)	Release from upstream reservoir	Curtailment of upstream or downstream water rights	Local groundwater wells	Brackish groundwater limited treatment	Brackish groundwater desalination	Potential Emergency interconnect	Trucked in water	Type of infrastructure required	Entity providing supply	Emergency agreements already in place
410 WSC	RED RIVER	1,356	353		▪				▪	▪			
Atlanta	CASS	5,031	981	▪	▪	▪			▪	▪		Texarkana	
Ben Wheeler WSC	VAN ZANDT	2,864	294			▪			▪	▪			
Big Sandy	UPSHUR	1,124	266			▪	▪		▪	▪	piping & meters	Pritchett WSC	
Blocker Crossroads WSC	HARRISON	1,572	152			▪			▪	▪		Marshall	
Blossom	LAMAR	1,385	137		▪	▪			▪	▪			
Bogata	RED RIVER	892	170			▪			▪	▪			
Brashear WSC	HOPKINS	995	210	▪	▪				▪	▪			
Bright StarSalem Sud	WOOD	4,227	708			▪			▪	▪			
Burns Redbank WSC	BOWIE	2,344	260	▪	▪	▪			▪	▪			
Caddo Mills	HARRISON	1,083	153	▪		▪				▪		Karnack WSC	▪
Celeste	HUNT	826	109			▪			▪	▪			
Central Bowie County WSC	BOWIE	9,911	769	▪	▪	▪			▪	▪			
Clarksville	RED RIVER	2,483	623			▪			▪	▪		White Oak	
Clarksville City	GREGG	838	126			▪			▪	▪		White Oak	
Combined Consumers SUD	HUNT	6,634	873		▪				▪			Cash SUD	▪
Cooper	DELTA	2,067	464			▪			▪	▪			
Cornersville WSC	HOPKINS	1,211	126			▪			▪	▪		Cypress Springs SUD	
Crystal Systems	SMITH	5,065	1,624			▪			▪	▪		Lindale Rural WSC	
Cumby	HOPKINS	736	98			▪			▪	▪			
Cypress Springs SUD	FRANKLIN	8,977	1,440			▪	▪		▪	▪	piping & meters	Mt. Vernon	
Daingerfield	MORRIS	2,179	452	▪	▪		▪		▪	▪		NETMWD	
De Kalb	BOWIE	1,398	266	▪	▪	▪			▪	▪			
Delta County MUD	HUNT	1,987	198			▪	▪		▪	▪			
Diana SUD	UPSHUR	6,294	604	▪	▪	▪			▪	▪	piping	Northeast Texas MUD	
East Texas MUD	SMITH	2,934	1,328			▪	▪	▪	▪	▪	well & equip.		
Edom WSC	VAN ZANDT	1,271	169			▪			▪	▪			
Fouke WSC	UPSHUR	5,977	793			▪			▪	▪		Quitman	

Fruitvale WSC	VAN ZANDT	3,467	332			▪			▪	▪		
Gladewater	GREGG	6,328	1,376		▪	▪	▪		▪		well & equip.	Warren City ▪
Glenwood WSC	UPSHUR	2,863	348			▪			▪	▪		East Mountain
Golden WSC	RAINS	3,524	393			▪			▪	▪		Ramey WSC
Grand Saline	VAN ZANDT	3,404	466			▪			▪	▪		
Gum Springs WSC	HARRISON	10,430	1,677		▪	▪			▪	▪		
Hallsville	HARRISON	4,575	653		▪	▪			▪	▪		Longview
Hawkins	WOOD	1,334	354			▪			▪	▪		Fouke WSC
Holly Springs WSC	MORRIS	1,526	127	▪	▪	▪			▪	▪		Hughes Springs
Hooks	BOWIE	2,637	317	▪	▪	▪			▪	▪		
Hughes Springs	CASS	2,108	378	▪	▪	▪			▪	▪		NETMWD
Jones WSC	HOPKINS	4,284	602			▪			▪	▪		Quitman
KellyvilleBerea WSC	MARRION	977	125			▪			▪			Jefferson ▪
Lake Fork WSC	WOOD	2,140	317			▪			▪	▪		Yantis
Leigh WSC	HARRISON	1,476	399			▪			▪	▪		Marshall
Liberty City WSC	GREGG	4,941	567			▪			▪	▪		Kilgore
Lindale	SMITH	5,358	1,247			▪			▪	▪		Lindale Rural WSC
Lindale Rural WSC	SMITH	13,116	1,699			▪			▪	▪		Lindale ▪
Linden	CASS	1,742	347			▪			▪	▪		
Little Hope Moore WSC	VAN ZANDT	1,478	133			▪			▪	▪		
Lone Star	MORRIS	1,294	206	▪	▪	▪			▪	▪		NETMWD
Macedonia Eylau MUD 1	BOWIE	8,447	710	▪	▪	▪			▪	▪		
Maud	BOWIE	787	164	▪	▪	▪			▪	▪		
Miller Grove WSC	RAINS	1,384	232			▪			▪			▪
MIMS WSC	CASS	2,095	138	▪	▪	▪			▪	▪		NETMWD
Mineola	WOOD	6,281	937			▪			▪	▪		Ramey WSC
Mount Vernon	FRANKLIN	2,444	481			▪			▪	▪		Cypress Springs SUD
Myrtle Springs WSC	VAN ZANDT	3,375	275			▪			▪	▪		
Nash	BOWIE	4,160	314	▪	▪	▪			▪	▪		
New Hope SUD	WOOD	2,984	533			▪			▪	▪		Mineola
North Harrison WSC	HARRISON	1,453	163	▪	▪	▪			▪	▪	piping, meters & valves	Leign WSC
North Hopkins WSC	HOPKINS	9,220	1,152		▪	▪	▪		▪	▪	well & equip.	
Pine Ridge WSC	VAN ZANDT	1,967	233			▪			▪	▪		
Pittsburg	CAMP	3,974	841	▪	▪	▪	▪		▪	▪		BiCounty WSC
Point	RAINS	1,092	229		▪				▪	▪	well & equip.	Emory
Pruitt Sandflat WSC	VAN ZANDT	1,151	125			▪			▪	▪		
Quitman	WOOD	2,214	345		▪	▪			▪	▪	well & equip.	Jones WSC; Fouke WSC
Ramey WSC	WOOD	3,637	581			▪			▪	▪		Mineola

Reno (Lamar)	LAMAR	2,754	402			▪	▪			▪	▪	
Sand Flat WSC	SMITH	4,067	319				▪			▪	▪	
Scottsville	HARRISON	1,308	338	▪		▪	▪			▪	▪	
Shady Grove SUD	HUNT	1,732	174	▪		▪				▪	▪	
Sharon WSC	WOOD	6,448	739				▪	▪		▪	▪	
South Rains WSC	WOOD	2,797	271	▪		▪	▪			▪	▪	
South Tawakoni WSC	VAN ZANDT	2,619	295			▪				▪	▪	
Star Mountain WSC	SMITH	1,380	244			▪	▪	▪		▪	▪	
Talley WSC	HARRISON	1,883	129	▪		▪	▪			▪	▪	
Texas A&M University Commerce	HUNT	2,125	433		▪		▪			▪	▪	
Tryon Road SUD	GREGG	7,757	1,249	▪		▪	▪	▪		▪	▪	
Wake Village	BOWIE	5,831	649	▪		▪	▪				▪	
Waskom	HARRISON	2,023	288				▪			▪	▪	
West Harrison WSC	HARRISON	1,876	195	▪		▪	▪			▪	▪	
West Tawakoni	HUNT	2,874	323			▪				▪		
White Oak	GREGG	6,421	2,656		▪		▪	▪		▪		
Winnsboro	WOOD	3,337	661			▪	▪	▪		▪	▪	
Winona	SMITH	597	180				▪			▪	▪	

Reno (Lamar)		
Sand Flat WSC	Lindale Rural WSC	
Scottsville	Marshall	
Shady Grove SUD		
Sharon WSC	Winnsboro	▪
South Rains WSC	Bright StarSalem WSC	
South Tawakoni WSC	Wills Point	
Star Mountain WSC	well & equip.	
Talley WSC	Marshall	▪
Texas A&M University Commerce		
Tryon Road SUD	Longview	
Wake Village		
Waskom	Waskom Rural WSC	
West Harrison WSC	Gum Springs WSC #1	▪
West Tawakoni	Cash SUD	▪
White Oak	Longview	▪
Winnsboro	Cypress Springs SUD	
Winona	Star Mountain WSC	

7.7.5 TCEQ Emergency Funds for Groundwater Supply Wells

In order to qualify for emergency funds that are earmarked for emergency groundwater supply wells, entities must have a drought plan in place and be currently listed as an entity that is limiting water use to avoid shortages. This list is updated weekly by the TCEQ's Drinking Water Technical Review and Oversight Team and can be found at: https://www.tceq.texas.gov/drinkingwater/trot/exception

100 instances of Public Water Systems (PWS) within the RWPA self-identifying to the TCEQ as having implemented drought restrictions occurred between 2012 and 2024. The list is presented in Appendix C7-1.

There is some assistance available through the Texas Department of Agriculture (TDA) and the TWDB. There are requirements, deadlines, and a specific application process. Contact the TWDB by email, <Financial_Assistance@twdb.texas.gov>, or call (512) 463-7853. Contact the TDA, Community Development Block Grants by email at CDBGApps@TexasAgriculture.gov or call (512) 936-7891. Funding is limited.

7.7.6 Other TCEQ Guidance Resources

- Questions from the TCEQ's Workshops on Drought Emergency Planning: Answers to Help Drinking Water Systems Prepare for Emergencies https://www.tceq.texas.gov/assets/public/response/drought/workshopquestions071312.pdf
- Video: Workshop on Drought Emergency Planning for PWSs in Texas http://www.youtube.com/watch?v=BdlF9CEcGPI&feature=plcp&context=C34378a7UDOEgsToPDskJNYWXf5I3pKq8tW9pkVqQU

7.8 Region-Specific Model Drought Contingency Plans

As mandated by TAC 357.42(c)&(i), the RWPGs shall develop drought response recommendations regarding the management of existing groundwater and surface water sources in the RWPA designated in accordance with §357.32. The RWPGs shall make drought preparation and response recommendations regarding the development of, content contained within, and implementation of local drought contingency plans. The RWPGs shall develop region-specific model drought contingency plans that shall be presented in the RWP which shall be consistent with 30 TAC Chapter 288 requirements.

Region-specific model DCPs have been developed for the North East Texas Region for both Wholesale Water Providers and for groundwater users. A region-specific model DCP for Wholesale Water Providers is included in Appendix 7A-1, and a region-specific model DCP for groundwater users, including both municipal and industrial (steam-electric power and manufacturing) users, is included as Appendix 7A-2. The region-specific model DCPs will likely change over time in order to address the needs and issues of the Region's users.

A focus of the model plan considers the consistency of existing plans within the Region. Entities that have adopted drought plans will only be assessed to this end; therefore, fine tuning existing triggers of existing municipal drought plans is not a goal of the model plan, beyond an effort toward achieving consistent responses/actions to drought across the Region.

7.9 Other Drought-related Considerations and Recommendations

As mandated by TAC 357.42(h), &(i), RWPGs shall consider any relevant recommendations from the Drought Preparedness Council and may make drought preparation and response recommendations regarding:

- development of content and implementation of local DCPs required by the Commission;
- current drought management preparations in the RWPA including (drought response triggers, responses to drought conditions);
- the Drought Preparedness Council and the State Drought Preparedness Plan;
- and any other general recommendations regarding drought management in the Region or State.

7.9.1 Texas Drought Preparedness Council

The Drought Preparedness Council was authorized and established by the 76th legislature (HB 2660) in 1999. The Council is described in Chapter 16, Section 2, Subchapter C of the Texas Water Code, and was created to carry out the provisions of Sections 16.055 and 16.0551 of the Code. The drought preparedness council is responsible for:

- the assessment and public reporting of drought monitoring and water supply conditions;
- advising the governor on significant drought conditions;
- recommending specific provisions for a defined state response to drought related disasters for inclusion in the state emergency management plan and the state water plan;
- advising the regional water planning groups on drought-related issues in the regional water plans;
- ensuring effective coordination among state, local, and federal agencies in drought-response planning; and
- reporting to the legislature, not later than January 15 of each odd-numbered year, regarding significant drought conditions in the state.

The Drought Preparedness Council has a significant role in Texas regarding drought monitoring, advising the governor and other groups, and coordinating amongst state and federal agencies. The Council has produced the State Drought Preparedness Plan, establishing a framework for approaching drought in Texas that attempts to minimize the impacts of drought on people and resources.

The NETRWG has considered the recommendations made by the Texas Drought Preparedness Council and provided to the NETRWPG in a February 8, 2024 letter. Specifically, the Drought Preparedness Council's recommendations included:

1. The regional water plans and state water plan shall serve as water supply plans under drought of record conditions. The DPC encourages regional water planning groups to consider planning for drought conditions worse than the drought of record, including scenarios that reflect greater rainfall deficits and/or higher surface temperatures.
2. The Drought Preparedness Council encourages regional water planning groups to incorporate projected future reservoir evaporation rates in their assessments of future surface water availability.
3. The Drought Preparedness Council encourages regional water planning groups to identify in their plans utilities within their boundaries that reported having less than 180 days of available water

supply to the Texas Commission on Environmental Quality during the current or preceding planning cycle. For systems that appeared on the 180-day list, RWPGs should perform the evaluation required by Texas Administrative Code Section 357.42(g), if it has not already been completed for that system.

Additionally, water supplies developed for the 2026 Region D Plan have been based upon firm yield/100% reliability of existing supply, thus accounting for significant drought conditions experienced historically by North East Texas. Availability determinations have been based upon full utilization of existing, permitted water rights, while demand projections have been based upon per capita usage amounts from the year 2011, a period of significant drought in the region. Each of these factors allow a margin of safety when considering risks associated with droughts more significant than the DOR, to address and plan for responses to extreme drought conditions.

The NETRWPG supports the Texas Drought Preparedness Council and recommends that water providers and others regularly review the Council's Situation Reports as part of their drought monitoring efforts.

7.9.2 Drought Response Recommendations

As mandated by TAC 357.42(c)&(j), the RWPGs shall develop drought response recommendations regarding the management of existing groundwater and surface water sources in the RWPA designated in accordance with §357.32. The RWPGs shall make drought preparation and response recommendations regarding the development of content contained within, and implementation of local DCPs. The RWPGs shall develop region-specific model DCPs that shall be presented in the RWP which shall be consistent with 30 TAC Chapter 288 requirements.

Regional Drought Planning expands the conceptualization and application of drought planning by specific entities to encompass the entire RWPA. The approach utilized in developing a region-specific drought plan considers the following:

1. all regional groundwater and surface water sources;
2. current drought plans that are being utilized by user entities within the region; and
3. current groundwater monitoring wells within the region that have evolved since the previous planning cycle.

The goals of this approach are:

1. to gain a comprehensive view of what resources are being monitored by entities within the region;
2. determine which resources are not being monitored;
3. determine which users do not fall under the umbrella of existing DCPs,
4. identify potential groundwater monitoring stations with publicly accessible real-time data that currently exist;
5. determine how these data can be utilized for the water user groups that are not subject to existing DCPs; and
6. development of a regional model drought contingency plan.

As discussed in Section 7.3, several WUGs and various public supply systems have written drought management plans or DCPs and have provided them for inclusion in the Regional Plan. Drought triggers based on groundwater elevations are not utilized in Region D. Additionally, there is only one real-time

monitoring well on TWDB's Water Data for Texas website. State well number 3430907 monitors the confined portion of the Carrizo-Wilcox Aquifer. It is located about four miles north of Tyler State Park in northern Smith County. As a result, it is recommended that the NETRWPG use the U.S. Drought Monitor (USDM) to help assess drought stages for all groundwater users, since there are no Groundwater Conservation Districts within the RWPA. A summary of drought severity classification used by the USDM is shown in Table 7..

Drought triggers for surface water are usually related to reservoir levels. A summary of municipal mandated drought triggers and actions are included in Table 7.1, and a summary of recommended regional drought triggers and actions are included in **Error! Reference source not found.**.

Table 7.8 USDM Drought Severity Classification

Category	Description	Possible Impacts	Palmer Drought Index	USGS Weekly streamflow (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	1.0 to 1.9	20.01 to 30.00
D1	Moderate Drought	Some damage to crops, pastures; Streams, reservoirs, or wells low, some water shortages developing or imminent; Voluntary water use restrictions requested	2.0 to 2.9	10.01 to 20.00
D2	Severe Drought	Crop or pasture losses likely; Water shortages common; Water restrictions imposed	3.0 to 3.9	5.01 to 10.00
D3	Extreme Drought	Major crop/pasture losses; Widespread water shortages or restrictions	4.0 to 4.9	2.01 to 5.00
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; Shortages of water in reservoirs, streams, and wells creating water emergencies	5.0 or less	0.01 to 2.00

Source: https://droughtmonitor.unl.edu/About/AbouttheData/DroughtClassification.aspx and https://climatedataguide.ucar.edu/climate-data/palmer-drought-severity-index-pdsi

7.9.3 Development and Implementation of DCPs

The NETRWPG recognizes that DCPs developed by water providers within the RWPA are the best available approach for drought management, and makes the following recommendations:

- In addition to monitoring procedures within the DCP, consider regular monitoring of information from TCEQ, TWDB, the Texas Drought Preparedness Council, and the U.S. Drought Monitor.
- Coordination with water providers regarding the identification of drought conditions and implementation of the DCP, particularly during times of drought.
- Communication with water customers during times of drought to ensure adequate implementation of drought management measures.

- Regular consideration of updating the DCP to reflect recent changes in the status of demand, water sources, infrastructure, or service area.

7.9.4 Regional Source Recommendations

Error! Reference source not found. provides a summary overview of all existing regional water sources and the recommended drought triggers and actions. The intent of this table is to provide a comprehensive region-wide assessment of what current tools are available to monitor water resources within the region. These may be used as guidelines for the development of WUG-specific DCPs.

The Regional Model DCP will undoubtedly change over time to address particular needs and issues of the Region's users. The version of the model in this Plan will primarily focus on identifying sources, users, and monitoring tools to find the specific components within the Region that are not currently incorporated into any existing drought plan but could potentially utilize existing data resources. Another focus of this model plan will consider consistency of existing plans within the Region. Entities that have adopted drought plans will only be assessed to this end, therefore fine-tuning existing triggers of existing municipal drought plans is not a goal of the model plan beyond an effort toward achieving consistent responses/actions to drought across the Region.

Table 7.10- Recommended Regional Drought Plan Triggers and Actions for Regional Water Sources

Source Name	Type (SW/GW)	Factor considered	TRIGGERS						ACTIONS					
			Source Manager			Users			Source Manager			Users		
			Mild	Severe	Critical/ Emergency	Mild	Severe	Critical/ Emergency	Mild	Severe	Critical/ Emergency	Mild	Severe	Critical/ Emergency
FORK	SW	Supply capacity	65% combined storage	45% combined storage	duration <30% combined storage	varies by user; see Table 7.1	varies by user; see Table 7.1	varies by user; see Table 7.1	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
TAWAKONI	SW								Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
CYPRESS SPRINGS	SW	Supply capacity, demand	demand % of capacity; lake water level declines at disruptive rate			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
BOB SANDLIN	SW								Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
JIM CHAPMAN	SW	Supply capacity, demand	lake less than 50% capacity; >48 hours x% pumping capacity		loss of capacity, line breaks	voluntary		halt nonessential use	mandatory restrictions	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
MONTICELLO	SW	unknown	unknown			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
LAKE O' THE PINES	SW	unknown	unknown			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
CADDO	SW	unknown	unknown			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
CROOK	SW	Supply capacity	70% combined storage	50% combined storage	40% combined storage	70% combined storage	50% combined storage	40% combined storage	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	
PAT MAYSE	SW								Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	

SULPHUR SPRINGS	SW	unknown		unknown			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
WRIGHT PATMAN	SW	unknown		unknown			unknown			Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
CYPRESS RIVER	SW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
SABINE RIVER	SW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
SULPHUR RIVER	SW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
BLOSSON AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
CARRIZO-WILCOX AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
NACATOCH AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
QUEEN CITY AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
TRINITY AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)		Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies

WOODBINE AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies
OTHER AQUIFER	GW	Drought Monitor	D1 (Moderate)	D2 (Severe)	D4 (Critical)	D1 (Moderate)	D2 (Severe)	D4 (Critical)	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies	Invoke needed actions from DCP	Invoke needed actions from DCP, evaluate other/emergency supplies

Appendix 7A-1

MODEL DROUGHT CONTINGENCY PLAN FOR WHOLESALE WATER PROVIDERS

Introduction

Drought is a very real natural disaster that occurs in Texas, even in the verdant bottomlands, green pastures, and piney woods of northeast Texas. As recently as 2008, drought strained water systems in the northeast Texas region. In addition to natural drought, there are also water supply emergencies that occur from time to time in which water supply becomes contaminated. A good example of this is the MTBE spill into Lake Tawakoni in May 2000, which contaminated supply for several Hunt County water systems for multiple days.

In an effort to better respond to drought conditions than we've been able to in the past, the North East Texas Regional Water Planning Group (NETRWPG) has prepared this document, with the idea that if water providers study their water supply system before a drought or emergency occurs, then they will be better prepared to respond. In preparing this document, several references were used, including Chapters 288 and 363 of the Texas Administrative Code, the Texas Commission on Environmental Quality's (TCEQ) 'Handbook for Drought Contingency Planning for Retail Public Water Suppliers,' Texas Water Code § 11.1272, and the TCEQ and TWDB websites. All of these resources are available to you if you need further information or clarification. You may also contact the TCEQ at 512-239-4691 with questions or for information. Example wording for your plan will be found throughout in bold italics.

According to the requirements set forth in the amended Chapter 288, Subchapter C of the Texas Administrative Code, retail public water suppliers providing water service to 3,300 or more connections must submit revisions to existing drought contingency plans to the executive director 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 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. If you are a retail supplier, but serve less than 3,300 connections, you are still required to develop and implement a plan, but you do not need to submit the plan unless specifically requested by TCEQ. If you provide retail supply in addition to wholesale supply, you will also need to develop a retail drought contingency plan. Please see the Northeast Texas Region's guidance for retail drought contingency plans.

The _____(water provider) understands that water conservation is a viable strategy for protecting water resources both now and in the future, and that adequate planning for times of drought or emergency is a necessary part of conservation. The purpose of this plan is to prepare for the possibility of a drought or emergency situation where water is in short supply. This plan will help to ensure that _____(water supplier) and its wholesale customers use water wisely and efficiently during periods of drought.

Though not specifically required by rule, it is helpful to the reader if you summarize your water supply and distribution systems in the introduction. This will familiarize users of the Plan with your system and help them to make sense of the actions that you intend to take. In addition, discussing your water system here will assist those who update the plan in five years, because they will know exactly what the system looked like when the plan was created.

The _____(water supplier) utilizes groundwater/surface water from _____(source). Supply is secured by a (water right, water supply contract, etc.) through the year _____. Our customers include _____, and their current contracted amounts are _____. Our storage and distribution systems consist of _____.

Coordination with the North East Texas Regional Water Planning Group

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. – 30 TAC Chapter 288

A copy of this adopted plan will be submitted to the NETRWPG via its administrator, Mr. Kyle Dooley, Riverbend Water Resources District, 228A Texas Ave, New Boston, TX 75570. Proof of submittal is attached hereto as Figure ___.

Informing the Public/Requesting Input

According to 30 TAC Chapter 288, Subchapter B.a.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."

The _____(water supplier) gave the public and its wholesale customers an opportunity to provide input into this plan by _____(public notice, public hearing, letter requesting comments, etc.). Public comments included _____.

Efforts to inform wholesale customers and the public about each stage of the plan, and when stages are implemented or rescinded, will be through _____ (certified letter, newspaper articles, radio announcements, website announcements, etc.).

Authorization/Applicability

The _____ (mayor, president, city administrator, etc.) is hereby authorized to monitor weather conditions as well as water supply and demand conditions and to implement the Drought Contingency Plan as appropriate.

The _____(City Council, Board of Directors, etc.) authorizes the Plan by a _____(resolution, ordinance), which has been included in this Plan.

Coordination with the Texas Commission on Environmental Quality

According to 30 TAC Chapter 288, Subchapter C, "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."

This plan was submitted to the executive director of the Texas Commission of Environmental Quality on _____(date).

Send your plan to the following address: TCEQ, Resource Protection Team, Mail Code 160, P.O. Box 13087, Austin, TX 78711-3087 for regular and certified mail, or 12100 Park 35 Circle, Austin, TX 78753 for express carrier deliveries (U.S. Post Office Express Mail, FedEx, UPS, etc.).

For questions to the TCEQ, see the website at www.tceq.state.tx.us, or call: 512/239-4691.

Coordination with Wholesale Water Supplier

This section only applies if you purchase supply from a wholesale provider. If you have a contract or agreement with a water provider, then complete this section. If you have your own water rights or otherwise own your supply, this section does not apply.

This plan has been created with our water provider, _____'s drought contingency plan in mind. We have included _____'s (water provider) requirements within our plan and have created this plan to compliment _____'s (water provider) plan. _____(water provider) has been provided a copy of this plan.

Plan Definitions

For the purposes of this Plan**,** the following definitions, taken from TCEQ guidance, shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

Customer: any person, company, or organization using water supplied by _____ (name of water supplier).

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, rights-of-way and medians.

Non-essential water use: water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

(a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
(b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
(c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
(d) use of water to wash down buildings or structures for purposes other than immediate fire protection;
(e) flushing gutters or permitting water to run or accumulate in any gutter or street;
(f) use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
(g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
(h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
(i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

RESPONSE TO A DROUGHT EVENT

In this portion of the plan, it will need to be determined whether a water constraint will more likely be caused by a shortage in water supply or by constraints in the storage and distribution system. Associated goals and water management measures should correspond to the type of constraint expected. For example, if insufficient storage is determined to be the most likely cause of water shortage during a drought, then an emergency back-up supply source would not solve the problem; reduced use during peak hours (banning lawn watering, etc.) would more likely solve the problem by giving storage tanks a better opportunity to refill.

The drought contingency plan should be designed for a drought condition at least as severe as the drought of record according to TCEQ rules. Since the drought of record in Texas occurred in the 1950's, few systems will have water use records still available to plan by. Therefore, the NETRWPG suggests using the most recent drought for the State, which occurred in 1996. If your system does not have records for 1996, use the time period in your records when your system was the most strained by dry weather conditions.

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. – 30 TAC Chapter 288

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. – 30 TAC Chapter 288

A minimum of three drought stages is required in this plan. During each stage, it will need to be determined what will trigger initiation, what the water use reduction target goal is, what water management strategies will be put into place, and, finally, what will terminate the stage. Keep in mind that a supplier who is also a customer of its wholesale provider must comply with its provider's Drought Contingency Plan. Do not develop stages or management strategies that are in conflict with your water provider's DCP. Also note that the NETRWPG has developed water management strategies for all providers who are projected to have a water shortage within the planning period (50 years). You should review the latest version of the Regional Water Plan to determine if you have had strategies prepared for you.

Include an opening paragraph in this section that describes what information should be monitored in order to initiate the stages, and a rationale of why you chose the triggering criteria that you chose.

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. – 30 TAC Chapter 288

Texas Water Code, §11.039 states, "DISTRIBUTION OF WATER DURING SHORTAGE. (a) If a shortage of water in a water supply not covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, 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. (b) If a shortage of water in a water supply covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the person, association of persons, or corporation owning or controlling the water shall divide the water to be distributed among all customers pro rata, according to: (1) the amount of water to which each customer may be entitled; or (2) the amount of water to which each customer may be entitled, less the amount of water the customer would have saved if the customer had operated its water system in compliance with the water conservation plan.(c) Nothing in Subsection (a) or (b) precludes the person, association of persons, or corporation owning or controlling the water from supplying water to a person who has a prior vested right to the water under the laws of this state.

Stage 1 – Mild Water Shortage

Initiation: The _____(name of water supplier) will consider that a mild water shortage exists when_____ (i.e. water levels in the reservoir reach____; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a mild water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 1 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage I is rescinded by _____ (entity's water provider) if applicable.

Water Management Strategies: During Stage 1, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Request voluntary water conservation from all customers
- Recommend that customers initiate Stage 1 of their Drought Contingency Plans
- Reduce operating procedures that use water (i.e. flushing of mains) as appropriate

Stage 2 – Moderate Water Shortage

Initiation: The _____(water supplier) will consider that a moderate water shortage exists when_____(i.e. water levels in the reservoir reach_____; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a moderate water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 2 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage 2 is rescinded by _____ (entity's water provider) if applicable. Upon termination of Stage 2, Stage 1 becomes operative.

Water Management Strategies: During Stage 2, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Recommend that customers initiate Stage 2 of their Drought Contingency Plans, which should, at a minimum, contain lawn watering restrictions
- Modify reservoir operations if applicable
- Initiate strong public awareness campaign in service area to warn of impending shortages

Stage 3 – Severe Water Shortage

Initiation: The _____(water supplier) will consider that a severe water shortage exists when_____(i.e. water levels in the reservoir reach___; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a severe water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; __% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 3 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage 3 is rescinded by _____ (entity's water provider) if applicable. Upon termination of Stage 3, Stage 2 becomes operative.

Water Management Strategies: During Stage 3, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Recommend that customers initiate Stage 3 of their Drought Contingency Plans, which, at a minimum, must include a ban on lawn watering
- Begin pro rata water allocation (Pro rata curtailment of water deliveries to or diversions by wholesale water customers must be considered in a wholesale DCP according to 30 TAC Chapter 288, Subchapter B. Rules for pro rata curtailment are provided in Texas Water Code, §11.039.)
- Implement water rate surcharges (i.e. a set charge for any use above average monthly use)
- Implement price adjustments (i.e. increase the price per 1,000 gallons of water used above the average monthly use)
- Utilize alternate or emergency water sources

Stage 4 – Emergency Water Shortage

This Stage could apply in the instance of a major water line break, a contamination of the water supply source, or other urgent water system conditions. Most likely, this stage would be initiated by decision of the authorized plan implementer (Mayor, President, Manager, etc.)

Initiation: The _____(water supplier) will consider that an emergency water shortage exists when_____ (i.e. the water main at the water treatment plant bursts or is otherwise significantly damaged; the reservoir is contaminated by oil spill; etc.,), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When an emergency water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 4 shall be rescinded when _____ (i.e. the main at the water treatment plant is restored and storage tanks have been allowed to refill; analysis of the source water indicates that supply is safe to use; etc.), or when Stage 4 is rescinded by _____(entity's water provider) if applicable.

Water Management Strategies: During Stage 4, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Utilize alternative or emergency water supplies (i.e. tying into a neighboring water system, etc. This may require approval by the TCEQ Executive Director)
- Modify reservoir operations
- Strategies listed in Stage 3

PLAN EXECUTION

Public Involvement

This section should discuss the ways in which the supplier will inform its wholesale customers about the initiation and termination of drought stages, as well as management strategies that customers are expected to follow. Public involvement can be in the form of special public hearings, articles and notices in the local newspaper, radio announcements, announcements on local television stations, notices in billing statements, etc.

The _____ (water provider) will keep its customers apprised of initiation of the drought contingency plan, and changes in stages, by means of _____.

Enforcement

The _____ (Mayor, City Manager, President, etc.), or his/her designee, is responsible for monitoring weather conditions and water supplies, and determining when to initiate and terminate stages of the DCP.

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. – 30 TAC Chapter 288, Subchapter B.a.10.

The _____ (governing body) has adopted this plan through _____ (ordinance, resolution), and has made it an official _____ (city, Corporation, etc.) policy. The _____ (ordinance, resolution, etc.) is attached hereto as Figure ___.

Provision for responding to wholesale provider restrictions

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. – 30 TAC Chapter 288

If you have a wholesale provider, then add this section. If you own your own supply, please skip this section.

As stated in each water shortage stage, we intend to comply with all requirements of our wholesale provider's drought contingency plan. This plan is as stringent as our provider's plan, and in some cases may be more so.

Notification of TCEQ on mandatory provisions

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. – 30 TAC Chapter 288

The Executive Director at TCEQ shall be notified with 5 business days if any mandatory provisions of this plan are implemented. The Executive Director can be reached at 512-239-3900.

Variance procedures

The drought contingency plan must include procedures for granting variances to the plan. – 30 TAC Chapter 288

The _____ (authorized representative) may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the customer requesting such variance 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.

Customers requesting an exemption from the provisions of this Plan shall file a petition for variance with the _____ (water supplier) within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the _____ (authorized representative), and shall include the following:

(a) Name and address of the petitioner(s).
(b) Purpose of water use.
(c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
(d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
(e) Description of the relief requested.
(f) Period of time for which the variance is sought.
(g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
(h) Other pertinent information.

Variances granted by the _____ (water supplier) shall be subject to the following conditions, unless waived or modified:

(a) Variances granted shall include a timetable for compliance.
(b) Variances 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.

5-year updates

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. – 30 TAC Chapter 288

This plan shall be re-evaluated and updated every five years based on updated information; especially the latest adopted NETRWPG Regional Water Plan.

Appendix 7A-2

MODEL DROUGHT CONTINGENCY PLAN FOR GROUNDWATER USERS

MODEL DROUGHT CONTINGENCY PLAN – MUNICIPAL USER

Introduction

Drought is a very real natural disaster that occurs in Texas, even in the verdant bottomlands, green pastures, and piney woods of northeast Texas. As recently as 2008, drought strained water systems in the northeast Texas region. In addition to natural drought, there are also water supply emergencies that occur from time to time in which water supply becomes contaminated. A good example of this is the MTBE spill into Lake Tawakoni in May 2000, which contaminated supply for several Hunt County water systems for multiple days.

In an effort to better respond to drought conditions than we've been able to in the past, the North East Texas Regional Water Planning Group (NETRWPG) has prepared this document, with the idea that if water providers study their water supply system before a drought or emergency occurs, then they will be better prepared to respond. In preparing this document, several references were used, including Chapters 288 and 363 of the Texas Administrative Code, the Texas Commission on Environmental Quality's (TCEQ) 'Handbook for Drought Contingency Planning for Retail Public Water Suppliers,' Texas Water Code § 11.1272, and the TCEQ and TWDB websites. All of these resources are available to you if you need further information or clarification. You may also contact the TCEQ at 512-239-4691 with questions or for information. Example wording for your plan will be found throughout in bold italics.

According to the requirements set forth in the amended Chapter 288, Subchapter C of the Texas Administrative Code, retail public water suppliers providing water service to 3,300 or more connections must submit revisions to existing drought contingency plans to the executive director 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 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. If you are a retail supplier, but serve less than 3,300 connections, you are still required to develop and implement a plan, but you do not need to submit the plan unless specifically requested by TCEQ. If you provide retail supply in addition to wholesale supply, you will also need to develop a retail drought contingency plan. Please see the Northeast Texas Region's guidance for retail drought contingency plans.

The _____(water provider) understands that water conservation is a viable strategy for protecting water resources both now and in the future, and that adequate planning for times of drought or emergency is a necessary part of conservation. The purpose of this plan is to prepare for the possibility of a drought or emergency situation where water is in short supply. This plan will help to ensure that _____(water supplier) and its wholesale customers use water wisely and efficiently during periods of drought.

Though not specifically required by rule, it is helpful to the reader if you summarize your water supply and distribution systems in the introduction. This will familiarize users of the Plan with your system, and help them to make sense of the actions that you intend to take. In addition, discussing your water system here will assist those who update the plan in five years, because they will know exactly what the system looked like when the plan was created.

The_____(water supplier) utilizes groundwater /surface water from _____(source). Supply is secured by a (water right, water supply contract, etc.) through the year _____. Our customers include _____, and their current contracted amounts are _____. Our storage and distribution systems consist of _____.

Coordination with the North East Texas Regional Water Planning Group

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. – 30 TAC Chapter 288

A copy of this adopted plan will be submitted to the NETRWPG via its administrator, Mr. Kyle Dooley, Riverbend Water Resources District, 228A Texas Ave, New Boston, TX 75570. Proof of submittal is attached hereto as Figure ___.

Informing the Public/Requesting Input

According to 30 TAC Chapter 288, Subchapter B.a.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."

The _____(water supplier) gave the public and its wholesale customers an opportunity to provide input into this plan by _____(public notice, public hearing, letter requesting comments, etc.). Public comments included _____.

Efforts to inform wholesale customers and the public about each stage of the plan, and when stages are implemented or rescinded, will be through _____ (certified letter, newspaper articles, radio announcements, website announcements, etc.).

Authorization/Applicability

The _____ (mayor, president, city administrator, etc.) is hereby authorized to monitor weather conditions as well as water supply and demand conditions and to implement the Drought Contingency Plan as appropriate.

The _____(City Council, Board of Directors, etc.) authorizes the Plan by a _____(resolution, ordinance), which has been included in this Plan.

Coordination with the Texas Commission on Environmental Quality

According to 30 TAC Chapter 288, Subchapter C, "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."

This plan was submitted to the executive director of the Texas Commission of Environmental Quality on _____(date).

Send your plan to the following address: TCEQ, Resource Protection Team, Mail Code 160, P.O. Box 13087, Austin, TX 78711-3087 for regular and certified mail, or 12100 Park 35 Circle, Austin, TX 78753 for express carrier deliveries (U.S. Post Office Express Mail, FedEx, UPS, etc.).

For questions to the TCEQ, see the website at www.tceq.state.tx.us, or call: 512/239-4691.

Coordination with Wholesale Water Supplier

This section only applies if you purchase supply from a wholesale provider. If you have a contract or agreement with a water provider, then complete this section. If you have your own water rights or otherwise own your supply, this section does not apply.

This plan has been created with our water provider, _____'s drought contingency plan in mind. We have included _____'s (water provider) requirements within our plan and have created this plan to compliment _____'s (water provider) plan. _____(water provider) has been provided a copy of this plan.

Plan Definitions

For the purposes of this Plan, the following definitions, taken from TCEQ guidance, shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

Customer: any person, company, or organization using water supplied by _____ (name of water supplier).

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, rights-of-way and medians.

Non-essential water use: water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

(j) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;

(k) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;

(l) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;

(m) use of water to wash down buildings or structures for purposes other than immediate fire protection;

(n) flushing gutters or permitting water to run or accumulate in any gutter or street;

(o) use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;

(p) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;

(q) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and

(r) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

RESPONSE TO A DROUGHT EVENT

In this portion of the plan, it will need to be determined whether a water constraint will more likely be caused by a shortage in water supply or by constraints in the storage and distribution system. Associated goals and water management measures should correspond to the type of constraint expected. For example, if insufficient storage is determined to be the most likely cause of water shortage during a drought, then an emergency back-up supply source would not solve the problem; reduced use during peak hours (banning lawn watering, etc.) would more likely solve the problem by giving storage tanks a better opportunity to refill.

The drought contingency plan should be designed for a drought condition at least as severe as the drought of record according to TCEQ rules. Since the drought of record in Texas occurred in the 1950's, few systems will have water use records still available to plan by. Therefore, the NETRWPG suggests using the most recent drought for the State, which occurred in 1996. If your system does not have records for 1996, use the time period in your records when your system was the most strained by dry weather conditions.

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. – 30 TAC Chapter 288

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. – 30 TAC Chapter 288

A minimum of three drought stages is required in this plan. During each stage, it will need to be determined what will trigger initiation, what the water use reduction target goal is, what water management strategies will be put into place, and, finally, what will terminate the stage. Keep in mind that a supplier who is also a customer of its wholesale provider must comply with its provider's Drought Contingency Plan. Do not develop stages or management strategies that are in conflict with your water provider's DCP. Also note that the NETRWPG has developed water management strategies for all providers who are projected to have a water shortage within the planning period (50 years). You should review the latest version of the Regional Water Plan to determine if you have had strategies prepared for you.

Include an opening paragraph in this section that describes what information should be monitored in order to initiate the stages, and a rationale of why you chose the triggering criteria that you chose.

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. – 30 TAC Chapter 288

Texas Water Code, §11.039 states, "DISTRIBUTION OF WATER DURING SHORTAGE. (a) If a shortage of water in a water supply not covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, 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. (b) If a shortage of water in a water supply covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the person, association of persons, or corporation owning or controlling the water shall divide the water to be distributed among all customers pro rata, according to: (1) the amount of water to which each customer may be entitled; or (2) the amount of water to which each customer may be entitled, less the amount of water the customer would have saved if the customer had operated its water system in compliance with the water conservation plan.(c) Nothing in Subsection (a) or (b) precludes the person, association of persons, or corporation owning or controlling the water from supplying water to a person who has a prior vested right to the water under the laws of this state.

Stage 1 – Mild Water Shortage

Initiation: The _____(name of water supplier) will consider that a mild water shortage exists when_____ (i.e. water levels in the reservoir reach_____; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a mild water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 1 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage I is rescinded by _____ (entity's water provider) if applicable.

Water Management Strategies: During Stage 1, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Request voluntary water conservation from all customers
- Recommend that customers initiate Stage 1 of their Drought Contingency Plans
- Reduce operating procedures that use water (i.e. flushing of mains) as appropriate

Stage 2 – Moderate Water Shortage

Initiation: The _____(water supplier) will consider that a moderate water shortage exists when_____(i.e. water levels in the reservoir reach_____; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a moderate water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 2 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage 2 is rescinded by _____ (entity's water provider) if applicable. Upon termination of Stage 2, Stage 1 becomes operative.

Water Management Strategies: During Stage 2, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Recommend that customers initiate Stage 2 of their Drought Contingency Plans, which should, at a minimum, contain lawn watering restrictions
- Modify reservoir operations if applicable

- Initiate strong public awareness campaign in service area to warn of impending shortages

Stage 3 – Severe Water Shortage

Initiation: The _____(water supplier) will consider that a severe water shortage exists when_____(i.e. water levels in the reservoir reach_____; average daily water use reaches ___% of capacity for three consecutive days; water level in elevated storage tank is at or below ____ for more than 12 hours, etc.), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When a severe water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 3 shall be rescinded when _____ (i.e. water levels in the reservoir rise above ___ for 7 consecutive days; average daily water use falls below ___% of capacity for three consecutive days; storage facilities return to normal levels for 24 consecutive hours, etc.), or when Stage 3 is rescinded by _____ (entity's water provider) if applicable. Upon termination of Stage 3, Stage 2 becomes operative.

Water Management Strategies: During Stage 3, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Recommend that customers initiate Stage 3 of their Drought Contingency Plans, which, at a minimum, must include a ban on lawn watering
- Begin pro rata water allocation (Pro rata curtailment of water deliveries to or diversions by wholesale water customers must be considered in a wholesale DCP according to 30 TAC Chapter 288, Subchapter B. Rules for pro rata curtailment are provided in Texas Water Code, §11.039.)
- Implement water rate surcharges (i.e. a set charge for any use above average monthly use)
- Implement price adjustments (i.e. increase the price per 1,000 gallons of water used above the average monthly use)
- Utilize alternate or emergency water sources

Stage 4 – Emergency Water Shortage

This Stage could apply in the instance of a major water line break, a contamination of the water supply source, or other urgent water system conditions. Most likely, this stage would be initiated by decision of the authorized plan implementer (Mayor, President, Manager, etc.)

Initiation: The _____(water supplier) will consider that an emergency water shortage exists when_____ (i.e. the water main at the water treatment plant bursts or is otherwise significantly damaged; the reservoir is contaminated by oil spill; etc.,), or when requested by _____ (entity's water provider) if applicable.

Target Goal: When an emergency water shortage exists, the _____(water supplier) will implement water management strategies in an attempt to reduce daily water use to _____ (i.e. 2 MGD; ___% of average daily water use, etc.) Please note that this goal must be quantifiable. Goals established in this section are not enforceable.

Termination: Stage 4 shall be rescinded when _____ (i.e. the main at the water treatment plant is restored and storage tanks have been allowed to refill; analysis of the source water indicates that supply is safe to use; etc.), or when Stage 4 is rescinded by _____(entity's water provider) if applicable.

Water Management Strategies: During Stage 4, we will take the following steps to reduce water use:_____.

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

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.). – 30 TAC Chapter 288

- Utilize alternative or emergency water supplies (i.e. tying into a neighboring water system, etc. This may require approval by the TCEQ Executive Director)
- Modify reservoir operations
- Strategies listed in Stage 3

PLAN EXECUTION

Public Involvement

This section should discuss the ways in which the supplier will inform its wholesale customers about the initiation and termination of drought stages, as well as management strategies that customers are expected to follow. Public involvement can be in the form of special public hearings, articles and notices in the local newspaper, radio announcements, announcements on local television stations, notices in billing statements, etc.

The _____ (water provider) will keep its customers apprised of initiation of the drought contingency plan, and changes in stages, by means of _____.

Enforcement

The _____ (Mayor, City Manager, President, etc.), or his/her designee, is responsible for monitoring weather conditions and water supplies, and determining when to initiate and terminate stages of the DCP.

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. – 30 TAC Chapter 288, Subchapter B.a.10.

The _____ (governing body) has adopted this plan through _____ (ordinance, resolution), and has made it an official _____ (city, Corporation, etc.) policy. The _____ (ordinance, resolution, etc.) is attached hereto as Figure ___.

Provision for responding to wholesale provider restrictions

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. – 30 TAC Chapter 288

If you have a wholesale provider, then add this section. If you own your own supply, please skip this section.

As stated in each water shortage stage, we intend to comply with all requirements of our wholesale provider's drought contingency plan. This plan is as stringent as our provider's plan, and in some cases may be more so.

Notification of TCEQ on mandatory provisions

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. – 30 TAC Chapter 288

The Executive Director at TCEQ shall be notified with 5 business days if any mandatory provisions of this plan are implemented. The Executive Director can be reached at 512-239-3900.

Variance procedures

The drought contingency plan must include procedures for granting variances to the plan. – 30 TAC Chapter 288

The _____ (authorized representative) may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the customer requesting such variance and if one or more of the following conditions are met:

(c) 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.

(d) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Customers requesting an exemption from the provisions of this Plan shall file a petition for variance with the _____ (water supplier) within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the _____ (authorized representative), and shall include the following:

(i) Name and address of the petitioner(s).

(j) Purpose of water use.

(k) Specific provision(s) of the Plan from which the petitioner is requesting relief.

(l) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.

(m) Description of the relief requested.

(n) Period of time for which the variance is sought.

(o) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.

(p) Other pertinent information.

Variances granted by the _____ (water supplier) shall be subject to the following conditions, unless waived or modified:

(c) Variances granted shall include a timetable for compliance.

(d) Variances 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.

5-year updates

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. – 30 TAC Chapter 288

This plan shall be re-evaluated and updated every five years based on updated information; especially the latest adopted NETRWPG Regional Water Plan.

MODEL DROUGHT CONTINGENCY PLAN –INDUSTRIAL USER (MANUFACTURING AND STEAM ELECTRIC POWER)

RESPONSE TO A DROUGHT EVENT

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. – 30 TAC Chapter 288

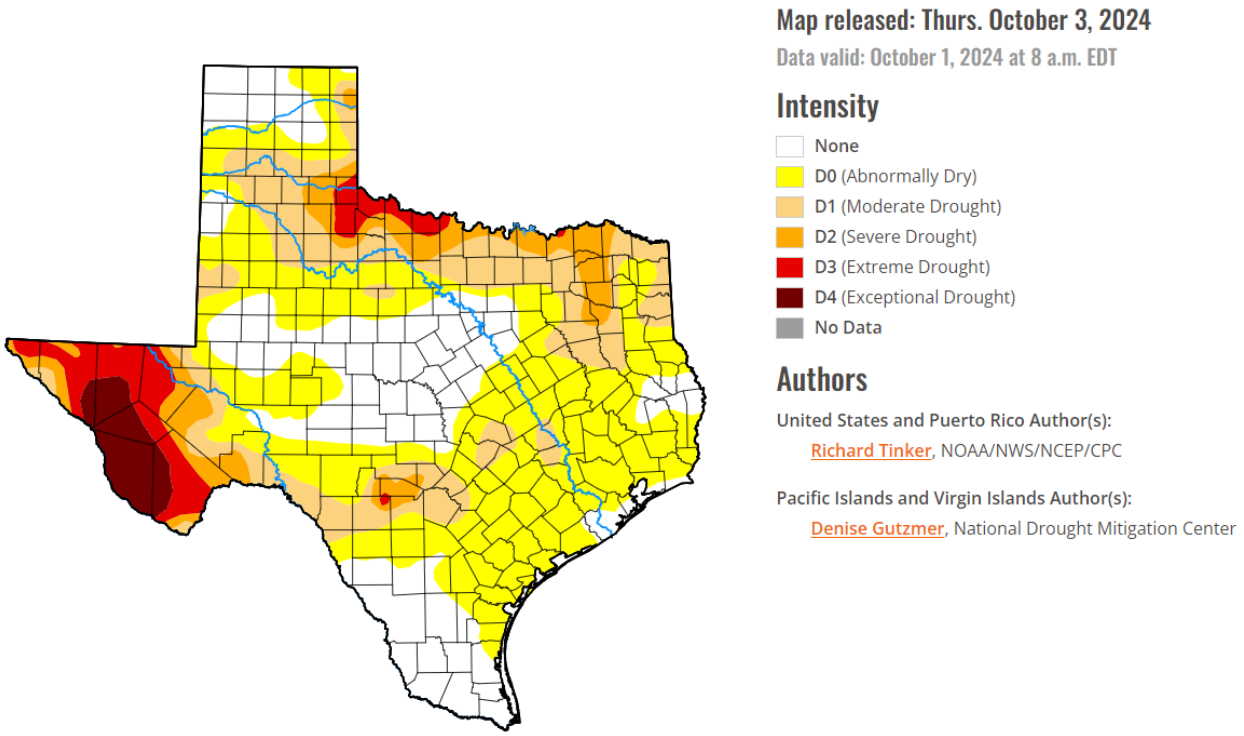
The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this paragraph are not enforceable. – 30 TAC Chapter 288

This model DCP is intended to follow the regional recommendations for industrial users, which includes manufacturing and steam electric power. This recommendation is to monitor drought intensity using the U.S. Drought Monitor website. Drought intensity is updated weekly with a map of Texas shaded with the applicable drought condition.

Category	Description	Possible Impacts	Palmer Drought Index	USGS Weekly Streamflow (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2

Go to https://droughtmonitor.unl.edu/Maps/MapArchive.aspx

Select "current" "state" and "Texas" from the drop-down menus.



Once the specific drought intensity is determined using the map, the industrial user is encouraged to voluntarily follow the drought responses recommended by the nearest public water supplier(s) or this plan.

Stage 1 – Mild Water Shortage

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive.

- Request voluntary water conservation from all customers

Stage 2 – Moderate Water Shortage

Initiation: The groundwater user will consider that a moderate water shortage exists when the local drought stage shown on the weekly Texas map is category D1 - moderate drought.

Termination: Stage 2 shall be rescinded when the local weekly drought category is D0 - abnormally dry.

Water Management Strategies: During Stage 2, we will follow the drought restrictions of local public water supplier(s).

The following are examples of strategies that are commonly used during this stage.

- Request ten percent water conservation

Stage 3 – Severe Water Shortage

Initiation: The groundwater user will consider that a moderate water shortage exists when the local drought stage shown on the weekly Texas map is category D2 - severe drought.

Termination: Stage 3 shall be rescinded when the local weekly drought category is D1 – moderate drought.

Water Management Strategies: During Stage 3, we will follow the drought restrictions of local public water supplier(s).

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive. When determining strategies, remember the type of constraint you expect on your system and plan accordingly.

- Request a twenty percent water conservation
- Utilize alternate or emergency water sources

Stage 4 – Emergency Water Shortage

Initiation: The groundwater user will consider that a moderate water shortage exists when the local drought stage shown on the weekly Texas map is category D3 - extreme drought.

Termination: Stage 4 shall be rescinded when the local weekly drought category is D2 – severe drought.

Water Management Strategies: During Stage 4, we will follow the drought restrictions of local public water supplier(s).

The following are examples of strategies that are commonly used during this stage. These are not mandatory, only suggestive.

- Request a thirty percent water conservation
- Utilize alternative or emergency water supplies (i.e. tying into a neighboring water system, etc.

The following worksheet content is from TCEQ industrial conservation plan guidance and is included For guidance.

WATER USE AND CONSERVATION PRACTICES

Water Use in Industrial Processes

Production Use	*% Groundwater*	*% Surface Water*	*% Saline Water*	*% Treated Water*	*Water Use (in acre-ft)*
Cooling, condensing, & refrigeration					
Processing, washing, transport					
Boiler feed					
Incorporated into product					
Other					

Facility Use	*% Groundwater*	*% Surface Water*	*% Saline Water*	*% Treated Water*	*Water Use (in acre-ft)*
Cooling tower(s)					
Pond(s)					
Once through					
Sanitary & drinking water					
Irrigation & dust control					

1. Was fresh water recirculated at this facility? □ Yes □ No

2. Provide a detailed description of how the water will be utilized in the industrial process.

3. Estimate the quantity of water consumed in production processes and is therefore unavailable for reuse, discharge, or other means of disposal.

4. Monthly water consumption for previous year (in acre-feet).

Month	*Diversion Amount*	*% of Water Returned (if any)*	*Monthly Consumption*
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Totals			

5. Projected monthly water consumption for next year (in acre-feet).

Month	*Diversion Amount*	*% of Water Returned (if any)*	*Monthly Consumption*
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Totals			

Specific and Quantified Conservation Goal

Water conservation goals for the industrial sector are generally established either for (1) the amount of water recycled, (2) the amount of water reused, or (3) the amount of water not lost or consumed, and therefore is available for return flow.

6. Water conservation goal (water use efficiency measure)

Type of goal(s):

% reused water

% of water not consumed and therefore returned

Other (specify)

7. Provide specific, quantified 5-year and 10-year targets for water savings and the basis for development of such goals for this water use/facility.

Quantified 5-year and 10-year targets for water savings:

a. 5-year goal:

b. 10-year goal:

8. Describe the device(s) and/or method(s) used to measure and account for the amount of water diverted from the supply source, and verify the accuracy is within plus or minus 5%.

9. Provide a description of the leak-detection and repair, and water-loss accounting measures used.

10. Describe the application of state-of-the-art equipment and/or process modifications used to improve water use efficiency.

11. Describe any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan: