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Chapter 7– Drought Response Information, Activities and Recommendations

This chapter presents all necessary requirements for drought management and contingency plans, as well as a summary of information provided by water systems in the Lavaca Regional Water Planning Area regarding drought, including preparations and response throughout the Region.

Drought Definitions

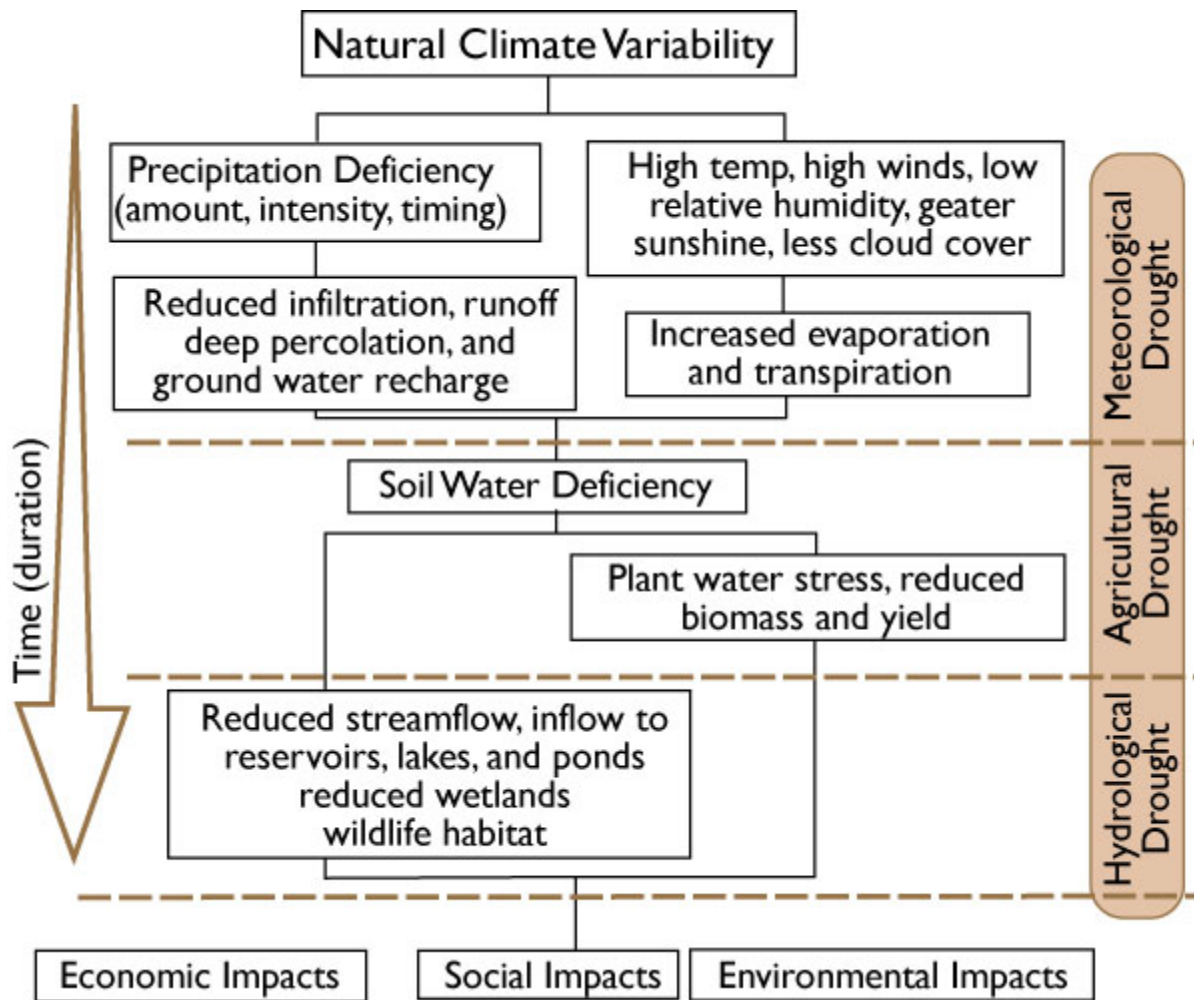
Drought is often referred to as a slow-moving emergency. The impact of droughts can be far-reaching but can be challenging to define due to the gradual and sometimes subtle progression of severity, as well as the tendency for temporal and geographic variations as isolated rain events shift perception of the drought severity. The types of droughts are sometimes characterized as meteorological, agricultural, and hydrological, which are leading events to the recognized socioeconomic impacts of drought. These drought terms are integrated and ordered such that as one type of drought intensifies it may lead to the development of another category of drought. The following definitions of categories of drought are taken from the State of Texas Drought Preparedness Plan and are further reflected in *Figure 7-1* on the next page:

- A meteorological drought is often defined as a period of substantially diminished precipitation duration and/or intensity that persists long enough to produce a significant hydrologic imbalance. The commonly used definition of meteorological drought is an interval of time, generally of the order of months or years, during which the actual moisture supply of a given place consistently falls below the climatologically-appropriate moisture supply.
- Agricultural drought occurs when there is inadequate precipitation and/or soil moisture to sustain crop or forage production systems. The water deficit results in serious damage and economic loss to plant or animal agriculture. Agricultural drought usually begins after meteorological drought but before hydrological drought and can also affect livestock and other agricultural operations.
- Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as streamflow, and as lake, reservoir, and groundwater levels. There is usually a time lag between a lack of rain or snow and less measureable water in streams, lakes, and reservoirs, making hydrological measurements not the earliest indicator of drought.
- Socioeconomic drought occurs when physical water shortages start to affect the health, well-being, and quality of life of the people, or when the drought starts to affect the supply and demand of an economic product.

Determining if a dry weather pattern substantiates a meteorological drought requires an area-specific analysis that is first typically signified by dry meteorological patterns. Short intervals of dry patterns are considered within the norm of meteorological variation (seasonally and annually), so it is important to note that a true meteorological drought is dependent on the area in which it occurs.

In areas where surface and/or groundwater supplies are full at the start of a dry pattern there is often minimal impact in residential lifestyle or economic and agricultural activity. However, as dry pattern intensities deepen and duration of the meteorological drought continues and water supplies are stressed, the impacts of meteorological drought transition and begin to indicate other drought categories.

Figure 7-1 Categories of Drought and Natural Climate Variability



Source: National Drought Mitigation Center website “What is Drought?”

7.1 Drought of Record in Regional Water Planning Area

The definition of Drought of Record is “the period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply,” per TAC Title 31, Part 10, Chapter 357, Subchapter A, Rule 357.10.

Hydrological droughts are established using Water Availability Models (WAM) developed by the TCEQ. The Lavaca River Basin WAM is the model used for determining the Drought of Record in the Lavaca Region.

7.1.1 Current Drought of Record

Within the Lavaca Regional Water Planning Area, the Drought of Record (DOR) is most specifically associated with the hydrologic conditions of the Lake Texana. While Lake Texana was not yet constructed in the 1950s, the lake’s performance under a repeat of Drought of Record conditions can

be analyzed using the TCEQ Lavaca River Basin WAM. The current DOR for Lake Texana is defined as beginning in December 1952 and lasting through April 1957.

7.1.2 Potential New Drought of Record

While the recent year 2011 was an extremely dry year throughout the State and the lake levels in Lake Texana fell dramatically, the region recovered in such a way as to remove the potential for a new drought of record.

7.2 Current Drought Preparations and Response

In addition to regional or statewide droughts, entities may be subject to localized drought conditions or loss of existing water supplies due to infrastructure failure, temporary water quality impairment, or other unforeseen conditions. Loss of existing supplies, while relatively uncommon, is particularly challenging to address as the causes are often difficult to anticipate. Numerous entities within the Lavaca Region have DCPs which include an emergency response stage and corresponding measures for droughts exceeding the DOR or for other emergency water supply conditions.

Drought contingency plans were obtained from the municipal water providers in LRWPA during the last planning cycle to serve as a summary of existing drought planning within LRWPA. The majority of drought contingency plans for municipal water providers are included in their city ordinances. Those ordinances were reviewed again this cycle for any changes. El Campo approved a 2019 version of their Drought Contingency Plans. The drought contingency plan for the only MWP in the region, LNRA, was also compiled into this regional summary. During the last planning cycle, attempts were made to survey all of the municipal water providers by phone in order to assess what types of drought measures had been enacted during the earlier part of the planning cycle, including 2011, which was the year the municipal demand projections are based from. Survey results showed that drought conditions in the region had not been severe enough to cause the municipal water providers to enact any drought response measures. Drought measures have not been implemented during this cycle either, as conditions have been milder.

The Drought Contingency Plans show that a variety of triggers have been specified by the different water supplies as initiators of water shortage conditions. These triggers include a threshold level of total water use, well levels, and conditions caused by mechanical failure of water service systems. Strategies planned for dealing with drought conditions included restrictions on water use for irrigation, vehicle washing, and construction. The amount of water saved for each drought response conditions varied by community. The RWPG did not identify any unnecessary or counterproductive variations in specific drought response strategies that may confuse the public or otherwise impede drought response efforts.

Table 7-1 provides the drought triggers for a Severe Water Shortage and the Critical/Emergency Water Shortage for water users in the region, as available from the Drought Contingency Plans. The water reduction goals for the triggers are also included. Municipal water users exclusively rely on the Gulf Coast aquifer. Some manufacturing water users in Jackson County follow LNRA's triggers.

Table 7-1 Summary of Current Drought Triggers in the Lavaca Region

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
EDNA	JACKSON	LAVACA	GULF COAST AQUIFER	Total daily water demand >= 1.75 MGD for 3 consecutive days or 2.0 MGD for 1 day	Total demand reduction of 15%	Total daily water demand >= 2.0 MGD for 3 consecutive days or 2.25 MGD for 1 day	Total demand reduction of 20%
GANADO	JACKSON	LAVACA	GULF COAST AQUIFER	Water supply is equal or less than 70% of storage; pumping in wells is equal or less than 370 feet in Well #4 or 180 feet in Well #5; total daily demand equals or exceeds 250,000 gallons for 3 days or 500,000 gallons on a single day	Total demand reduction of 20%	Mayor determines the existence of a water supply shortage or water pressure deficit.	Limited lawn watering schedules or the elimination of all lawn watering
COUNTY-OTHER	JACKSON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
COUNTY-OTHER	JACKSON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
COUNTY-OTHER	JACKSON	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
MANUFACTURING	JACKSON	COLORADO-LAVACA	TEXANA LAKE/RESERVOIR	Reservoir Conservation Pool elevation equal to or less than 33.58 feet msl, in accordance with the LNRA DCP; or, the LNRA Board declares a drought worse than the Drought of Record or other water supply emergency and orders the mandatory curtailment of firm water supplies; or, upon notification from LNRA that it is implementing Stage 3 of the LNRA DCP.	Pro-rata water use reduction based on reservoir capacity: 50% capacity - 10% reduction; 40% capacity - 20% reduction; 30% capacity - 35% reduction; 20% capacity - 50% reduction	Contamination of water supply source; or catastrophic event causing failure or damage to structures; or causing emergency evacuation of reservoir; or any other emergency conditions determined by LNRA Board	Pro-rata water use reduction based on reservoir capacity: 50% capacity - 10% reduction; 40% capacity - 20% reduction; 30% capacity - 35% reduction; 20% capacity - 50% reduction
MANUFACTURING	JACKSON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	JACKSON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	JACKSON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	JACKSON	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
IRRIGATION	JACKSON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
IRRIGATION	JACKSON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
IRRIGATION	JACKSON	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	JACKSON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	JACKSON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	JACKSON	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
HALLETTSVILLE	LAVACA	LAVACA	GULF COAST AQUIFER	When pumpage of the City wells is equal to or greater than 1.5 mgd per day for 3 consecutive days.	30% reduction in total water use.	When pumpage of the City wells is equal to or greater than 1.75 mgd per day for 3 consecutive days.	40% reduction in total water use.
MOULTON	LAVACA	LAVACA	GULF COAST AQUIFER	Static water level in well #1, 2 drops to 250 ft below ground level; well #3 drops to 205 ft below ground level; well #4 drops to 165 ft below ground level and/or capacity of pumpage output is <= 70% of original capacity and/or loss of two or more wells due to mechanical failure	Total demand reduction of 20%	Static water level in well #1, 2 drops to 260 ft below ground level; well #3 drops to 215 ft below ground level; well #4 drops to 175 ft below ground level and/or capacity of pumpage output is <= 60% of original capacity and/or loss of two or more wells due to mechanical failure	Total demand reduction of 25%

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
SHINER	LAVACA	LAVACA	GULF COAST AQUIFER	Emergency Water Demand Management Program, based on weather conditions or 90% of City's plant capacity.	Limit all consumption by citizens either using a fixed percentage of prior month usage or a maximum number of gallons per meter per week.	Emergency Water Demand Management Program, based on weather conditions or 90% of City's plant capacity.	Limit all consumption by citizens either using a fixed percentage of prior month usage or a maximum number of gallons per meter per week.
YOAKUM	LAVACA	LAVACA	GULF COAST AQUIFER	Daily usage equals or exceeds 3.42 mgd, or 100% of the current safe production capacity of the water system for 2 consecutive days.	Achieve 30 percent reduction in total water use.	Daily usage equals or exceeds 3.6 mgd, or 95% of the current safe production capacity of the water system for 2 consecutive days.	Achieve 40 percent reduction in total water use.
COUNTY-OTHER	LAVACA	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
COUNTY-OTHER	LAVACA	GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
MANUFACTURING	LAVACA	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	LAVACA	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	LAVACA	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
IRRIGATION	LAVACA	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	LAVACA	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	LAVACA	LAVACA-GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	LAVACA	GUADALUPE	GULF COAST AQUIFER	NA	NA	NA	NA
EL CAMPO	WHARTON	COLORADO	GULF COAST AQUIFER	Total daily demand equals or exceeds 4.5 MGD for 3 consecutive days or 5.0 MGD on a single day	Achieve a 15% reduction in daily water pumpage	Total daily demand equals or exceeds 5.0 MGD for 3 consecutive days or 5.5 MGD on a single day	Achieve a 20% reduction in daily water pumpage
EL CAMPO	WHARTON	COLORADO-LAVACA	GULF COAST AQUIFER	Total daily demand equals or exceeds 4.5 MGD for 3 consecutive days or 5.0 MGD on a single day	Achieve a 15% reduction in daily water pumpage	Total daily demand equals or exceeds 5.0 MGD for 3 consecutive days or 5.5 MGD on a single day	Achieve a 20% reduction in daily water pumpage
EL CAMPO	WHARTON	LAVACA	GULF COAST AQUIFER	Total daily demand equals or exceeds 4.5 MGD for 3 consecutive days or 5.0 MGD on a single day	Achieve a 15% reduction in daily water pumpage	Total daily demand equals or exceeds 5.0 MGD for 3 consecutive days or 5.5 MGD on a single day	Achieve a 20% reduction in daily water pumpage
WHARTON COUNTY WCID 1	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA

WUG Name	County	Basin	Source Name	Severe Water Shortage		Critical/Emergency Water Shortage	
				Trigger	Goal	Trigger	Goal
COUNTY-OTHER	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MANUFACTURING	WHARTON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
MINING	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
IRRIGATION	WHARTON	COLORADO-LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
IRRIGATION	WHARTON	COLORADO-LAVACA	LCRA - GARWOOD (ROR)	NA	NA	NA	NA
IRRIGATION	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
LIVESTOCK	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA
STEAM-ELECTRIC*	WHARTON	LAVACA	GULF COAST AQUIFER	NA	NA	NA	NA

*Steam-Electric responses to drought may be subject to the Electric Reliability Council of Texas (ERCOT) requirements.

7.3 Existing and Potential Emergency Interconnects

The guidance provided by the Texas Water Development Board states that “RWPGs will collect information on existing major water infrastructure facilities that may be used for interconnections in event of an emergency shortage of water. RWP shall include a description of the RWPG methodology used to collect emergency interconnects information and the number of existing and potential emergency interconnects in the RWPA, including who is connected to whom. Detailed emergency interconnect information must be kept confidential in accordance with TWC 16.053(r) and should be provided separately and confidentially to the EA of the TWDB. Any information regarding the location or descriptions of facilities should be excluded from the plan.”

During the last planning cycle, in order for the Lavaca Regional Water Planning Group to comply with this requirement, a request letter was mailed to seven major water infrastructure facilities within the region. The intent of the letter was to obtain information on whether the facilities’ water system currently have access to, or the ability to provide, an emergency water supply through an interconnect with another water system.

The RWPG received six responses to the seven request letters. Each response stated that the municipality had no emergency interconnect.

In order to confirm there have been no updates since the last planning cycle, this cycle the Region P consultant submitted an information request to the TCEQ for information on emergency interconnects within the counties in Region P. The data that the TCEQ provided showed no interconnects within the Lavaca Regional Water Planning Area.

As no emergency interconnect data exists within the region, no data was passed along confidentially to the TWDB Executive Administrator. As no emergency interconnects exist in the region, there was no mention of emergency interconnects in the various Drought Contingency Plans that were reviewed.

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

Emergency preparedness is of particular importance for entities that rely on a sole-source of water for supply purposes. In instances where water systems rely exclusively on a single source, the State of Texas has identified a need to develop emergency preparedness protocols should source availability be significantly and suddenly reduced for any reason, including drought, equipment failure, or accidental or deliberate source contamination.

The Texas Administrative Code (31 TAC §357.42) requires that regional planning groups evaluate potential emergency responses to drought conditions or loss of existing water supplies for municipal Water User Groups (WUGs) with a 2010 population of less than 7,500 and with a sole-source of water, as well as all county-other WUGs.

A list of identified single-source WUGs with population of less than 7,500 and all county-other WUGs is included in *Table 7-2*, with potential emergency supply options and implementation requirements identified as applicable. Due to limited water sources, individual rural well owners, and large distances between municipalities in the region, the emergency supply options are reduced to trucking in water and drilling a new well. The entities evaluated were assumed to have 180 days or less of remaining supply.

Table 7-2 Potential Emergency Supplies for Sole-Source Municipal WUGs under 7,500 in Population and all County-Other

Entity					Potential Emergency Water Supply Source(s)								Implementation Requirements				
Water User Group Name	County	2010 Census Population	2020 Population	2020 Demand (AF/year)	Release from upstream reservoir	Curtailment of upstream/downstream water rights	Local groundwater well	Brackish groundwater limited treatment	Brackish groundwater desalination	Emergency interconnect	Other named local supply	Trucked-in water	Type of infrastructure required	Entity providing supply	Other local entities required to participate/ coordinate	Emergency agreements/ arrangements already in place?	other
EDNA	JACKSON	5,499	5,747	891			X					X	well				
GANADO	JACKSON	2,003	2,080	270			X					X	well				
COUNTY-OTHER	JACKSON	6,573	6,779	695			X					X	well				
HALLETTSVILLE	LAVACA	2,550	2,820	669			X					X	well				
MOULTON	LAVACA	886	874	180			X					X	well				
SHINER	LAVACA	2,069	2,054	480			X					X	well				
YOAKUM	LAVACA	3,677	3,701	662			X					X	well				
COUNTY-OTHER	LAVACA	10,081	9,814	1,208			X					X	well				
WHARTON COUNTY WCID 1	WHARTON	1,014	1,076	177			X					X	well				
COUNTY-OTHER	WHARTON	4,085	3,448	447			X					X	well				

7.5 Region-Specific Drought Response Recommendations and Model Drought Contingency Plans

7.5.1 Region-Specific Drought Response Recommendations

The Lavaca Regional Water Planning Group (LRWPG) acknowledges that the Drought Contingency Plan for the Lavaca-Navidad River Authority (LNRA) is the best drought management tool for surface water supplies in the Lavaca Region. LNRA uses multiple triggers at each stage that include water surface elevations of the lake as well as a broad trigger that allows for any additional scenario that would cause the LNRA to notify its customers that a drought stage has been triggered. Please see *Table 7-1* for severe and critical/emergency triggers and responses associated with LNRA customers.

The majority of the region uses groundwater as their main source of supply. Throughout the region, the Drought Contingency Plans for groundwater users are developed specifically to their use and location. Aquifer properties can vary across the region and it can be difficult to require the same triggers for all users of a particular groundwater source that covers several counties. The LRWPG acknowledges that the municipalities that use groundwater have the best knowledge to develop their Drought Contingency Plan triggers and responses. Please see *Table 7-1* for severe and critical/emergency triggers and responses associated with groundwater users in the region. Even so, the LRWPG encourages ongoing coordination between groundwater users, Groundwater Conservation Districts, and the Groundwater Management Areas to monitor local conditions for necessary modifications to the Drought Contingency Plans.

7.5.2 Region-Specific Model Drought Contingency Plans

Model Drought Contingency Plans addressing the requirements of 30 TAC §288(b) were developed for the Lavaca Region and are available in *Appendix 7A*. Model plans were developed for wholesale water providers, water utilities, and irrigation users. The Drought Preparedness Council recommendations included developing a region-specific model drought contingency plan for all water use categories in the region that account for more than 10 percent of water demands in any decade over the 50-year planning horizon. The only water use category that meets that requirement in Region P is the Irrigation water use category. The model plans were developed by starting with the TCEQ's template and making modifications to the template to acknowledge coordination with the Lavaca Regional Water Planning Group and to make the template more source-specific to the region.

7.6 Drought Management Strategies

Drought management can be implemented as a water management strategy to reduce water demands during times of drought. While there were no identified municipal or manufacturing water needs in the region, drought management was considered by the RWPG as a potential strategy based on identified water reduction goals in the Drought Contingency Plans. For the WUGs in the region with identified water needs, which included Irrigation in Wharton County, it was determined that reducing water demands during times of drought could potentially help meet those needs. This was done by looking at rolling out polypipe temporarily to reduce water use during times of drought. See *Chapter 5* for additional details.

7.6.1 Recommended Drought Management Strategies

Drought Management is recommended as a strategy for the municipal utility WUGs in the region. While no water needs exist, the LRWPG supports municipalities following their Drought Contingency Plans and the responses to the various drought triggers identified in their Drought Contingency Plans. Drought Management is recommended for Edna, Ganado, Hallettsville, Moulton, Shiner, Yoakum, El Campo, and Wharton County WCID 1.

7.6.2 Alternative Drought Management Strategies

Drought Management is included as an alternative strategy for Manufacturing in Jackson County. This strategy identifies that there is a portion of the manufacturing sector in Jackson County that purchases surface water from the Lavaca-Navidad River Authority (LNRA). Under drought conditions, LNRA may pose restrictions on surface water use, based on its Drought Contingency Plan. If the manufacturing sector is unable to find additional water to meet its manufacturing demands, it may be forced to cut back, and having to do so will likely have impacts economically.

7.6.3 Potential Drought Management Strategies Considered

Drought Management was considered and evaluated as a potentially feasible water management strategy for those municipal utility WUGs with a Drought Contingency Plan (see *Section 7.6.1*), for Manufacturing in Jackson County, and for Irrigation in Wharton County, as it had a water need. See *Appendix 5B* in *Chapter 5* for additional details.

7.7 Other Drought Recommendations

Housed within the Office of Emergency Management within the Texas Department of Public Safety, the Drought Preparedness Council was authorized and established by the 76th legislature (HB-2660) in 1999, subsequent to the establishment of the Drought Monitoring and Response Committee (75th legislature, SB1). The Council is composed of representatives of state agencies and appointees by the governor. As defined by the Texas Water Code, the Council is responsible for the monitoring and assessing drought conditions and advising elected and planning officials about drought-related topics.

The Lavaca Regional Water Planning Group (LRWPG) reviewed and considered recommendations from the Drought Preparedness Council with regards to developing region-specific model drought contingency plans for water use categories in the region with more than 10 percent of water demands, as well as following the outline template provided by the Texas Water Development Board, making an effort to fully address the assessment of current drought preparations and planned responses, as well as planned responses to local drought conditions or loss of municipal supply. The LRWPG currently has no drought preparation and response recommendations regarding the Drought Preparedness Council and the State Drought Preparedness Plan.

The Lavaca Regional Water Planning Group recognizes that the most valuable contingency will be completed at a local level. Further guidance and regional cooperation would be valuable in producing meaningful plans with clear trigger definition and implementation guidance. Communication of these between state, regional and local levels would also further facilitate necessary emergency responses when drought measures need to be implemented. The following recommendations are made to support development and implementation of meaningful Drought Contingency Plans during times of drought:

- Coordination by water providers with local Groundwater Conservation Districts, in order to consider more uniform triggers and responses from a particular source within the district, as applicable.
- Coordination with wholesale providers regarding drought conditions and potential implementation of drought stages, particularly during times of limited precipitation.
- Communication with customers during times of decreased supply or precipitation in order to facilitate potential implementation of drought measures and reinforce the importance of compliance with any voluntary measures.

- Designation of appropriate resources to allow for consistent application of enforcement procedures as established in the Drought Contingency Plans.

APPENDIX 7A

Region-Specific Model Drought Contingency Plans

**Model Lavaca Region Drought Contingency Plan Template
Utility/Water Supplier**

Model Drought Contingency Plan Template (Utility / Water Supplier)

Brief Introduction and Background

Include information such as

- Name of Utility
- Address, City, Zip Code
- CCN#
- PWS #s

Section I: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the _____ (name of your water supplier) hereby adopts the following regulations and restrictions on the delivery and consumption of water through an ordinance/or resolution.

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section XI of this Plan.

Section II: Public Involvement

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

Section III: Public Education

The _____ (name of your water supplier) will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of _____ (describe methods to be used to provide information to the public about the Plan; for example, public events, press releases or utility bill inserts).

Section IV: Coordination with the Lavaca Regional Water Planning Group

The service area of the _____ (name of your water supplier) is located within the Lavaca Regional Water Planning Area and _____ (name of your water supplier) has provided a copy of this Plan to the Lavaca Regional Water Planning Group.

Section V: Authorization

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

Section VI: Application

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

Section VII: Definitions

For the purposes of this Plan, the following definitions 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 your 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, and 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.

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

The _____ (designated official) or his/her designee shall monitor water supply and/or demand conditions on a _____ (example: daily, weekly, monthly) basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified triggers are reached.

The triggering criteria described below are based on _____

(provide a brief description of the rationale for the triggering criteria; for example, triggering criteria / trigger levels based on a statistical analysis of the vulnerability of the water source under drought of record conditions, or based on known system capacity limits).

Stage 1 Triggers -- MILD Water Shortage Conditions

Requirements for initiation

Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII Definitions, when

(Describe triggering criteria / trigger levels; see examples below).

Following are examples of the types of triggering criteria that might be used in one or more successive stages of a drought contingency plan. One or a combination of such criteria must be defined for each drought response stage, but usually not all will apply. Select those appropriate to your system:

Example 1: Annually, beginning on May 1 through September 30.

Example 2: When the water supply available to the _____ (name of your water supplier) is equal to or less than _____ (acre-feet, percentage of storage, etc.).

*Example 3: When, pursuant to requirements specified in the _____ (name of **your** water supplier) wholesale water purchase contract with _____ (name of your wholesale water supplier), notification is received requesting initiation of Stage 1 of the Drought Contingency Plan.*

Example 4: When flows in the _____ (name of stream or river) are equal to or less than _____ cubic feet per second.

Example 5: When the static water level in the _____ (name of your water supplier) well(s) is equal to or less than _____ feet above/below mean sea level.

Example 6: When the specific capacity of the _____ (name of your water supplier) well(s) is equal to or less than _____ percent of the well's original specific capacity.

Example 7: When total daily water demand equals or exceeds _____ million gallons for _____ consecutive days of _____ million gallons on a single day (example: based on the safe operating capacity of water supply facilities).

Example 8: Continually falling treated water reservoir levels which do not refill above _____ percent overnight (example: based on an evaluation of minimum treated water storage required to avoid system outage).

The public water supplier may devise other triggering criteria which are tailored to its system.

Requirements for termination

Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (e.g. 3) consecutive days.

Stage 2 Triggers -- MODERATE Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in Section IX of this Plan when _____ (describe triggering criteria; see examples in Stage 1).

Requirements for termination

Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (example: 3) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

Stage 3 Triggers -- SEVERE Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Plan when _____ (describe triggering criteria; see examples in Stage 1).

Requirements for termination

Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (example: 3) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

Stage 4 Triggers -- CRITICAL Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of this Plan when _____ (describe triggering criteria; see examples in Stage 1).

Requirements for termination

Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (example: 3) consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

Stage 5 Triggers -- EMERGENCY Water Shortage ConditionsRequirements for initiation

Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when _____ (designated official), or his/her designee, determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; **or**
2. Natural or man-made contamination of the water supply source(s).

Requirements for termination

Stage 5 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (example: 3) consecutive days.

Stage 6 Triggers -- WATER ALLOCATIONRequirements for initiation

Customers shall be required to comply with the water allocation plan prescribed in Section IX of this Plan and comply with the requirements and restrictions for Stage 5 of this Plan when _____ (describe triggering criteria, see examples in Stage 1).

Requirements for termination - Water allocation may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of ____ (example: 3) consecutive days.

Note: The inclusion of WATER ALLOCATION as part of a drought contingency plan may not be required in all cases. For example, for a given water supplier, an analysis of water supply availability under drought of record conditions may indicate that there is essentially no risk of water supply shortage. Hence, a drought contingency plan for such a water supplier might only address facility capacity limitations and emergency conditions (example: supply source contamination and system capacity limitations).

Section IX: Drought Response Stages

The _____ (designated official), or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VIII of this Plan, shall determine that a mild, moderate, severe, critical, emergency or water shortage condition exists and shall implement the following notification procedures:

NotificationNotification of the Public:

The _____ (designated official) or his/ her designee shall notify the public by means of:

Examples:
publication in a newspaper of general circulation,
direct mail to each customer,
public service announcements,

*signs posted in public places
take-home fliers at schools.*

Additional Notification:

The _____ (designated official) or his/ her designee shall notify directly, or cause to be notified directly, the following individuals and entities:

Examples:

Mayor / Chairman and members of the City Council / Utility Board

Fire Chief(s)

City and/or County Emergency Management Coordinator(s)

County Judge & Commissioner(s)

State Disaster District / Department of Public Safety

TCEQ (required when mandatory restrictions are imposed)

Major water users

Critical water users, i.e. hospitals

Parks / street superintendents & public facilities managers

Note: The plan should specify direct notice only as appropriate to respective drought stages.

Stage 1 Response -- MILD Water Shortage Conditions

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

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, activation and use of an alternative supply source(s); use of reclaimed water for non-potable purposes.

Voluntary Water Use Restrictions for Reducing Demand :

- (a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 p.m. to midnight on designated watering days.
- (b) All operations of the _____ (name of your water supplier) shall adhere to water use restrictions prescribed for Stage 2 of the Plan.
- (c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

Stage 2 Response -- MODERATE Water Shortage Conditions

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

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or

discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.

Water Use Restrictions for Demand Reduction:

Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

- (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
- (c) Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
- (d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.
- (e) Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the _____ (name of your water supplier).
- (f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight. However, if the golf course utilizes a water source other than that provided by the _____ (name of your water supplier), the facility shall not be subject to these regulations.
- (g) All restaurants are prohibited from serving water to patrons except upon request of the patron.
- (h) The following uses of water are defined as non-essential and are prohibited:
 1. wash down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
 2. use of water to wash down buildings or structures for purposes other than immediate fire protection;
 3. use of water for dust control;

4. flushing gutters or permitting water to run or accumulate in any gutter or street; and
5. failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

Stage 3 Response -- SEVERE Water Shortage Conditions

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

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.

Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 shall remain in effect during Stage 3 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times.
- (b) The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the _____ (name of your water supplier).
- (c) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

Stage 4 Response -- CRITICAL Water Shortage Conditions

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

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.

Water Use Restrictions for Reducing Demand: All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and

shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.

- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Further, such vehicle washing at commercial car washes and commercial service stations shall occur only between the hours of 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10 p.m.
- (c) The filling, refilling, or adding of water to swimming pools, wading pools, and Jacuzzi-type pools is prohibited.
- (d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.
- (e) No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage or a higher-numbered stage shall be in effect.

Stage 5 Response -- EMERGENCY Water Shortage Conditions

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

Best Management Practices for Supply Management:

Describe additional measures, if any, to be implemented directly by _____ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.

Water Use Restrictions for Reducing Demand. All requirements of Stage 2, 3, and 4 shall remain in effect during Stage 5 except:

- (a) Irrigation of landscaped areas is absolutely prohibited.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

Section X: Enforcement

- (a) No person shall knowingly or intentionally allow the use of water from the _____ (name of your water supplier) for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by _____ (designated official), or his/her designee, in accordance with provisions of this Plan.

(b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than _____ dollars (\$___) and not more than _____ dollars (\$___). Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Plan, the _____ (designated official) shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, hereby established at \$_____, and any other costs incurred by the _____ (name of your water supplier) in discontinuing service. In addition, suitable assurance must be given to the _____ (designated official) that the same action shall not be repeated while the Plan is in effect. Compliance with this plan may also be sought through injunctive relief in the district court.

(c) Any person, including a person classified as a water customer of the _____ (name of your water supplier), in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

d) Any employee of the _____ (name of your water supplier), police officer, or other _____ employee designated by the _____ (designated official), may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the _____ (example: municipal court) on the date shown on the citation for which the date shall not be less than 3 days nor more than 5 days from the date the citation was issued. The alleged violator shall be _____ served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence. The alleged violator shall appear in _____ (example: municipal court) to enter a plea of guilty or not guilty for the violation of this Plan. If the alleged violator fails to appear in _____ (example: municipal court), a warrant for his/her arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in _____ (example: municipal court) before all other cases.

Section XI: Variances

The _____ (designated official), or his/her designee, 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 person 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.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance with the _____ (name of your 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 _____ (designated official), or his/her designee, 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.

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

RESOLUTION NO. _____

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

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

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

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

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

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

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

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

SECTION 3.

Tha

t this resolution shall take effect immediately upon its passage.

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

President, Board of Directors
ATTESTED TO:

Secretary, Board of Directors

Model Lavaca Region Drought Contingency Plan Template
Irrigation Uses

Model Drought Contingency Plan Template (Irrigation Uses)

DROUGHT CONTINGENCY PLAN FOR (Name of irrigation district) (Address) (Date)

Section I: Declaration of Policy, Purpose, and Intent

The Board of Directors of the _____ (name of irrigation district) deems it to be in the interest of the District to adopt Rules and Regulations governing the equitable and efficient allocation of limited water supplies during times of shortage. These Rules and Regulations constitute the District's drought contingency plan required under Section 11.1272, Texas Water Code, *Vernon's Texas Codes Annotated*, and associated administrative rules of the Texas Commission on Environmental Quality (Title 30, Texas Administrative Code, Chapter 288).

Section II: User Involvement

Opportunity for users of water from the _____ (name of irrigation district) was provided by means of _____ (describe methods used to inform water users about the preparation of the plan and opportunities for input; for example, scheduling and providing notice of a public meeting to accept user input on the plan).

Section III: User Education

The _____ (name of irrigation district) will periodically provide water users with information about the Plan, including information about the conditions under which water allocation is to be initiated or terminated and the district's policies and procedures for water allocation. This information will be provided by means of _____ (e.g. describe methods to be used to provide water users with information about the Plan; for example, by providing copies of the Plan and by posting water allocation rules and regulations on the district's public bulletin board).

Section IV: Authorization

The _____ (e.g., general manager) is hereby authorized and directed to implement the applicable provision of the Plan upon determination by the Board that such implementation is necessary to ensure the equitable and efficient allocation of limited water supplies during times of shortage.

Section V: Application

The provisions of the Plan shall apply to all persons utilizing water provided by the _____ (name of irrigation district). The term "person" as used in the Plan includes individuals, corporations, partnerships, associations, and all other legal entities.

Section VI: Initiation of Water Allocation for Severe or Critical/Emergency Conditions

The _____ (designated official) shall monitor water supply conditions on a _____ (e.g. weekly, monthly) basis and shall make recommendations to the Board regarding irrigation of water allocation. Upon approval of the Board, water allocation will become effective when _____ (describe the criteria and the basis for the criteria):

Below are examples of the types of triggering criteria that might be used; singly or in combination, in an irrigation district's drought contingency plan:

Example 1: Water in storage in the _____ (name of reservoir) is equal to or less than

_____ (acre-feet and/or percentage of storage capacity).

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

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

Example 4: The storage balance in the district's irrigation water rights account reaches _____ acre-feet.

Example 5: The storage balance in the district's irrigation water rights account reaches an amount equivalent to _____ (number) irrigations for each flat rate acre in which all flat rate assessments are paid and current.

Example 6: The _____ (name of entity supplying water to the irrigation district) notifies the district that water deliveries will be limited to _____ acre-feet per year (i.e. a level below that required for unrestricted irrigation).

Example 7: Water levels in the Gulf Coast Aquifer fall to _____ feet or lower.

Section VII: Termination of Water Allocation

The district's water allocation policies will remain in effect until the conditions defined in Section IV of the Plan no longer exist and the Board deems that the need to allocate water no longer exists.

Section VIII: Notice

Notice of the initiation of water allocation will be given by notice posted on the District's public bulletin board and by mail to each _____ (e.g. landowner, holders of active irrigation accounts, etc.).

Section IX: Water Allocation

- (a) In identifying **specific, quantified targets** for water allocation to be achieved during periods of water shortages and drought, each irrigation user shall be allocated _____ irrigations or _____ acre-feet of water each flat rate acre on which all taxes, fees, and charges have been paid. The water allotment in each irrigation account will be expressed in acre-feet of water.

Include explanation of water allocation procedure. For example, in the Lower Rio Grande Valley, an "irrigation" is typically considered to be equivalent to eight (8) inches of water per irrigation acre; consisting of six (6) inches of water per acre applied plus two (2) inches of water lost in transporting the water from the river to the land. Thus, three irrigations would be equal to 24 inches of water per acre or an allocation of 2.0 acre-feet of water measured at the diversion from the river.

- (b) As additional water supplies become available to the District in an amount reasonably sufficient for allocation to the District's irrigation users, the additional water made available to the District will be equally distributed, on a pro rata basis, to those irrigation users having _____.

Example 1: An account balance of less than _____ irrigations for each flat rate acre (i.e. _____ acre-feet).

Example 2: An account balance of less than _____ acre-feet of water for each flat rate acre.

Example 3: An account balance of less than _____ acre-feet of water. (c)

The amount of water charged against a user's water allocation will be _____ (e.g. eight inches) per irrigation, or one allocation unit, unless water deliveries to the land are metered. Metered water deliveries will be charges based on actual measured use. In order to maintain parity in charging use against a water allocation between non-metered and metered deliveries, a loss factor of _____ percent of the water delivered in a metered situation will be added to the measured use and will be charged against the user's water allocation. Any metered use, with the loss factor applied, that is less than eight (8) inches per acre shall be credited back to the allocation unit and will be available to the user. It shall be a violation of the Rules and Regulations for a water user to use water in excess of the amount of water contained in the users irrigation account.

- (d) Acreage in an irrigation account that has not been irrigated for any reason within the last two (2) consecutive years will be considered inactive and will not be allocated water. Any landowner whose land has not been irrigated within the last two (2) consecutive years, may, upon application to the District expressing intent to irrigate the land, receive future allocations. However, irrigation water allocated shall be applied only upon the acreage to which it was allocated and such water allotment cannot be transferred until there have been two consecutive years of use.

Section X: Transfers of Allotments

- (a) A water allocation in an active irrigation account may be transferred within the boundaries of the District from one irrigation account to another. The transfer of water can only be made by the landowner's agent who is authorized in writing to act on behalf of the landowner in the transfer of all or part of the water allocation from the described land of the landowner covered by the irrigation account.
- (b) A water allocation may not be transferred to land owned by a landowner outside the District boundaries.

or

A water allocation may be transferred to land outside the District's boundaries by paying the current water charge as if the water was actually delivered by the District to the land covered by an irrigation account. The amount of water allowed to be transferred shall be stated in terms of acre-feet and deducted from the landowner's current allocation balance in the irrigation account. Transfers of water outside the District shall not affect the allocation of water under Section VII of these Rules and Regulations.

- (c) Water from outside the District may not be transferred by a landowner for use within the District.

or

Water from outside the District may be transferred by a landowner for use within the District. The District will divert and deliver the water on the same basis as District water is delivered, except that a _____ percent conveyance loss will be charged against the amount of water transferred for use in the District as the water is delivered.

Section XI: Penalties

Any person who willfully opens, closes, changes or interferes with any headgate or uses water in violation of these Rules and Regulations, shall be considered in violation of Section 11.0083, Texas Water Code, *Vernon's Texas Codes Annotated*, which provides for punishment by fine of not less than \$10.00 nor more than \$200.00 or by confinement in the county jail for not more than thirty (30) days, or both, for each violation, and these penalties provided by the laws of the State and may be enforced by complaints filed in the appropriate court jurisdiction in _____ County, all in accordance with Section 11.083; and in addition, the District may pursue a civil remedy in the way of damages and/or injunction against the violation of any of the foregoing Rules and Regulations.

Section XII: Severability

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

Section XIII: Authority

The foregoing rules and regulations are adopted pursuant to and in accordance with Sections 11.039, 11.083, 11.1272; Section 49.004; and Section 58.127-130 of the Texas Water Code, *Vernon's Texas Codes Annotated*.

Section XIV: Effective Date of Plan

The effective date of this Rule shall be five (5) days following the date of Publication hereof and ignorance of the Rules and Regulations is not a defense for a prosecution for enforcement of the violation of the Rules and Regulations.

EXAMPLE RESOLUTION FOR ADOPTION OF A DROUGHT CONTINGENCY PLAN

RESOLUTION NO. _____

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

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

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

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

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

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

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

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

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

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

President, Board of Directors

ATTESTED TO:

Secretary, Board of Director

Model Lavaca Region Drought Contingency Plan Template
Wholesale Water Providers

Model Drought Contingency Plan Template (**Wholesale Public Water Suppliers**)

**DROUGHT CONTINGENCY PLAN
FOR THE
(Name of wholesale water supplier)
(address)
(CCN)
(PWS)
(Date)**

Section I: Declaration of Policy, Purpose, and Intent

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

Section II: Public Involvement

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

Section III: Wholesale Water Customer Education

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

Section IV: Coordination with the Lavaca Regional Water Planning Group

The service area of the _____ (name of your water supplier) is located within the Lavaca Regional Water Planning Area and _____ (name of your water supplier) has provided a copy of this Plan to the Lavaca Regional Water Planning Group.

Section V: Authorization

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

Section VI: Application

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

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

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

The triggering criteria described below are based on:

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

Stage 1 Triggers -- MILD Water Shortage Conditions

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

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

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

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

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

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

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

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

Stage 2 Triggers -- MODERATE Water Shortage Conditions

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

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

Stage 3 Triggers -- SEVERE Water Shortage Conditions

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

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

Stage 4 Triggers -- CRITICAL Water Shortage Conditions

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

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

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

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

Section VIII: Drought Response Stages

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

Stage 1 Response -- MILD Water Shortage Conditions

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

Best Management Practices for Supply Management:

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

Water Use Restrictions for Reducing Demand:

(a) The _____ (designated official), or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate voluntary measures to reduce water use (e.g., implement Stage 1 of the customer's drought contingency plan).

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

Stage 2 Response -- MODERATE Water Shortage Conditions

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

Best Management Practices for Supply Management:

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

Water Use Restrictions for Reducing Demand:

(a) The _____ (designated official), or his/her designee(s), will initiate weekly contact with wholesale water customers to discuss water supply and/or demand conditions and the possibility of pro rata curtailment of water diversions and/or deliveries.

(b) The _____ (designated official), or his/her designee(s), will request wholesale water customers to initiate mandatory measures to reduce non-essential water use (e.g., implement Stage 2 of the customer's drought contingency plan).

(c) The _____ (designated official), or his/her designee(s), will initiate preparations for the implementation of pro rata curtailment of water diversions and/or deliveries by preparing a monthly water usage allocation baseline for each wholesale customer according to the procedures specified in Section VI of the Plan.

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

Stage 3 Response -- SEVERE Water Shortage Conditions

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

Best Management Practices for Supply Management:

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

Water Use Restrictions for Reducing Demand:

(a) The _____ (designated official), or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will request that wholesale water customers initiate additional mandatory measures to reduce non-essential water use (e.g., implement Stage 2 of the customer's drought contingency plan).

(b) The _____ (designated official), or his/her designee(s), will initiate pro rata curtailment of water diversions and/or deliveries for each wholesale customer according to the procedures specified in Section VI of the Plan.

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

Stage 4 Response -- EMERGENCY Water Shortage Conditions

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

1. Assess the severity of the problem and identify the actions needed and time required to solve the problem.
2. Inform the utility director or other responsible official of each wholesale water customer by telephone or in person and suggest actions, as appropriate, to alleviate problems (e.g., notification of the public to reduce water use until service is restored).
3. If appropriate, notify city, county, and/or state emergency response officials for assistance.

4. Undertake necessary actions, including repairs and/or clean-up as needed.
5. Prepare a post-event assessment report on the incident and critique of emergency response procedures and actions.

Section IX: Pro Rata Water Allocation

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

Section X: Enforcement

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

- _____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation up through 5 percent above the monthly allocation.
- _____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation from 5 percent through 10 percent above the monthly allocation.
- _____ times the normal water charge per acre-foot for water diversions and/or deliveries in excess of the monthly allocation from 10 percent through 15 percent above the monthly allocation.
- _____ times the normal water charge per acre-foot for water diversions and/or deliveries more than 15 percent above the monthly allocation.

The above surcharges shall be cumulative.

Section XI: Variances

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

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

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the _____ (designated official) within 5 days after pro rata allocation has been invoked.

All petitions for variances shall be reviewed by the _____ (governing body), and shall include the following:

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

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

- (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.

Section XII: Severability

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

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DROUGHT CONTINGENCY PLAN**

RESOLUTION NO. _____

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

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

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

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

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

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

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

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

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

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

President, Board of Directors

ATTESTED TO:

Secretary, Board of Directors