

EXHIBIT A

**MODEL WATER RESOURCE AND EMERGENCY
MANAGEMENT PLAN
NORTH TEXAS MUNICIPAL WATER DISTRICT
MEMBER CITIES AND CUSTOMERS**

FEBRUARY 2014

Prepared by:

FRESE AND NICHOLS, INC.
4055 International Plaza, Suite 200
Fort Worth, Texas 76109
817-735-7300

FORWARD

This Model Water Resource and Emergency Management Plan (which is an update to the previous Drought Contingency and Water Emergency Response Plan) was prepared by Freese and Nichols for the North Texas Municipal Water District (NTMWD). It is intended to be used by NTMWD Member Cities and Customers as a guide as they develop their own Water Resource and Emergency Management Plans. This plan was prepared pursuant to Texas Commission on Environmental Quality rules.

Questions regarding this Water Resource and Emergency Management plan should be addressed to the following:

Tom Gooch, P.E.
Freese and Nichols, Inc.
(817) 735-7300
tcg@freese.com

Jeremy Rice
Freese and Nichols, Inc.
(817) 735-7300
jjr@freese.com

Denise Hickey
North Texas Municipal
Water District
(972) 442-5405
dhickey@ntmwd.com

This Water Resource and Emergency Management plan is based on the Texas Administrative Code in effect on June 25, 2013.



TABLE OF CONTENTS

1.	INTRODUCTION AND OBJECTIVES	1-1
2.	DEFINITIONS.....	2-2
3.	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES.....	3-1
4.	WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN	4-2
4.1	Provisions to Inform the Public and Opportunity for Public Input.....	4-2
4.2	Provisions for Continuing Public Education and Information	4-2
4.3	Procedures for Granting Variances to the Plan.....	4-6
4.4	Procedures for Enforcing Mandatory Water Use Restrictions.....	4-6
4.5	Coordination with the Regional Water Planning Group and NTMWD.....	4-7
4.6	Review and Update of Water Resource and Emergency Management Plan.....	4-7

1. INTRODUCTION AND OBJECTIVES

This document has been prepared as a Model Water Resource and Emergency Management Plan, intended to be available for use by North Texas Municipal Water District (NTMWD) Member Cities and Customers as they develop their own plans. This model plan addresses all of the current TCEQ requirements for a drought contingency plan¹. This model plan will replace the plans dated August 2004, April 2006 and March 2008.

The measures included in this Model Water Resource and Emergency Management Plan are intended to provide short-term water savings during drought or emergency conditions. Water savings associated with ongoing, long-term strategies are discussed in the *Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers*.²

The purpose of this model Water Resource and Emergency Management plan is as follows:

- To conserve the available water supply in times of drought and emergency
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.

The NTMWD supplies treated potable water to its Member Cities and Customers. This model plan was developed by NTMWD in consultation with its Member Cities and Customers. In order to adopt this model plan, each NTMWD Member City and Customer will need to adopt ordinance(s) or regulation(s) implementing the plan, including the determination of fines and enforcement procedures. The model plan calls for Member Cities and Customers to adopt water resource management stages initiated by NTMWD during a drought or water supply emergency. Member Cities and Customers may also adopt more stringent water resource management stages than NTMWD if conditions warrant.

In the absence of drought response measures, water demands tend to increase during a drought due to increased outdoor irrigation. The severity of a drought depends on the degree of depletion of supplies and on the relationship of demand to available supplies. The NTMWD considers a drought to end when all of its supply reservoirs refill to the conservation storage pool.

2. DEFINITIONS

1. AQUATIC LIFE means a vertebrate organism dependent upon an aquatic environment to sustain its lifeⁱ.
2. ATHLETIC FIELD means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools, professional sports, or sanctioned league playⁱⁱ.
3. COMMERCIAL FACILITY business or industrial buildings and the associated landscaping, but does not include the fairways, greens, or tees of a golf courseⁱ.
4. COMMERCIAL VEHICLE WASH FACILITY means a permanently-located business that washes vehicles or other mobile equipment with water or water-based products, including but not limited to self-service car washes, full service car washes, roll-over/in-bay style car washes, and facilities managing vehicle fleets or vehicle inventoryⁱ.
5. COOL SEASON GRASSES are varieties of turf grass that grow best in cool climates primarily in northern and central regions of the U.S. Cool season grasses include perennial and annual rye grass, Kentucky blue grass and fescuesⁱⁱⁱ.
6. CUSTOMERS include those entities to whom NTMWD provides water on a customer basis that are not members of NTMWD.
7. DESIGNATED OUTDOOR WATER USE DAY means a day prescribed by rule on which a person is permitted to irrigate outdoorsⁱ.

ⁱ Definitions from City of Austin Water Conservation and Drought Contingency Ordinance adopted August 16, 2012.
http://www.austintexas.gov/sites/default/files/files/Water/Conservation/Planning_and_Policy/ProposedCodeRevision_DRAFT_with_watering_schedule-8-15-2012.pdf

ⁱⁱ Definition from City of San Antonio Water Conservation Ordinance adopted 2005.
http://saws.org/conservation/ordinance/docs/Ch34_Ordinance_2009.pdf

ⁱⁱⁱ Definition developed by Freese and Nichols, Inc.

8. DRIP IRRIGATION is a type of micro-irrigation system that operates at low pressure and delivers water in slow, small drips to individual plants or groups of plants through a network of plastic conduits and emitters; also called trickle irrigation.^{iv}.
9. DROUGHT, for the purposes of this report, means an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply sources (in this case reservoirs) to be depleted^v.
10. EVAPOTRANSPIRATION abbreviated as ET represents the amount of water lost from plant material to evaporation and transpiration. The amount of ET can be estimated based on the temperature, wind, and relative humidityⁱⁱⁱ.
11. ET/SMART CONTROLLERS are irrigation controllers that adjust their schedule and run times based on weather (ET) data. These controllers are designed to replace the amount of water lost to evapotranspirationⁱⁱⁱ.
12. EXECUTIVE DIRECTOR means the Executive Director of the North Texas Municipal Water District and includes a person the Director has designated to administer or perform any task, duty, function, role, or action related to this plan or on behalf of the Executive Directorⁱⁱⁱ.
13. FOUNDATION WATERING means an application of water to the soils directly abutting the foundation of a building structureⁱ.
14. MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royce City, and Wylie, Texas.
15. NEW LANDSCAPE means vegetation: installed at the time of the construction of a residential or commercial facility; installed as part of a governmental entity's capital improvement project; installed to stabilize an area disturbed by constructionⁱ.

^{iv} Amy Vickers: Handbook of Water Use and Conservation, Amherst Massachusetts, June 2002

^v Freese and Nichols, Inc.: Water Conservation and Drought Contingency and Water Emergency Response Plan, prepared for North Texas Municipal Water District, Fort Worth, March 2008.

16. ORNAMENTAL FOUNTAIN means an artificially created structure (up to six feet in diameter) from which a jet, stream, valves and emission devices or flow of water emanates and is not typically utilized for the preservation of aquatic lifeⁱ.
17. PERMANANTLY INSTALLED IRRIGATION SYSTEM means a custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below groundⁱ.
18. RAIN/FREEZE SENSOR means a device designed to stop the flow of water to an automatic irrigation system when rainfall or freeze event has been detectedⁱⁱ.
19. RECLAIMED WATER means reclaimed municipal wastewater that has been treated to a quality that meets or exceeds the minimum standards of the 30 Texas Administrative Code, Chapter 210 and is used for lawn irrigation, industry, or other non-potable purposesⁱ.
20. SOAKER HOSE means a perforated or permeable garden-type hose or pipe that is laid above ground that provides irrigation at a slow and constant rateⁱ.
21. SPRINKLER means an above-ground water distribution device that may be attached to a garden hoseⁱ.
22. SWIMMING POOL means any structure, basin, chamber, or tank including hot tubs, containing an artificial body of water for swimming, diving, or recreational bathing, and having a depth of two (2) feet or more at any pointⁱⁱ.
23. WATER RESOURCE MANAGEMENT PLAN means a strategy or combination of strategies for temporary supply management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies required by Texas Administrative Code Title 30, Chapter 288, Subchapter B. This is sometimes called a drought contingency planⁱ

3. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code. For the purpose of these rules, a drought contingency plan is defined as “a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies.”¹

Minimum Requirements

TCEQ’s minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 4.1
- 288.20(a)(1)(B) – Provisions for Continuing Public Education and Information – Section 4.2
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 4.6
- 288.20(a)(1)(D) – Criteria for Initiation and Termination of Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(E) – Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions – Section 4.3
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage – Section 4.3
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(I) - Procedures for Granting Variances – Section 4.4
- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 4.5
- 288.20(a)(3) – Consultation with Wholesale Supplier – Sections 1, 4.2, and 4.3
- 288.20(b) – Notification of Implementation of Mandatory Measures – Section 4.3
- 288.20(c) – Review and Update of Plan – Section 4.7

4. WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

4.1 PROVISIONS TO INFORM THE PUBLIC AND OPPORTUNITY FOR PUBLIC INPUT

Member Cities and Customers will provide opportunity for public input in the development of this Water Resource and Emergency Management Plan by the following means:

- Providing written notice of the proposed plan and the opportunity to comment on the plan by newspaper, posted notice, and notice on the supplier's web site (if available).
- Making the draft plan available on the supplier's web site (if available).
- Providing the draft plan to anyone requesting a copy.
- Holding a public meeting.

4.2 PROVISIONS FOR CONTINUING PUBLIC EDUCATION AND INFORMATION

Member Cities and Customers will inform and educate the public about the Water Resource and Emergency Management Plan by the following means:

- Preparing a bulletin describing the plan and making it available at city hall and other appropriate locations.
- Making the plan available to the public through the supplier's web site (if available).
- Including information about the Water Resource and Emergency Management Plan on the supplier's web site (if available).
- Notifying local organizations, schools, and civic groups that staff are available to make presentations on the Water Resource and Emergency Management Plan (usually in conjunction with presentations on water conservation programs).
- At any time that the Water Resource and Emergency Management Plan is activated or the Water Resource and Emergency Management Plan changes, Member Cities and Customers will notify local media of the issues, the water resource management stage (if applicable), and the specific actions required of the public. The information will also be publicized on the supplier's web site (if available). Billing inserts will also be used as appropriate.

Initiation and Termination of Water Resource and Emergency Management Stages

Initiation of a Water Resource Management Stage

The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the implementation of a water resource management stage when one or more of the trigger conditions for that stage is met. The following actions will be taken when a water resource management stage is initiated:

- The public will be notified through local media and the supplier's web site (if available) as described in Section 4.2.
- Wholesale customers (if any) and the NTMWD will be notified by e-mail with a follow-up letter or fax that provides details of the reasons for initiation of the water resource management stage.
- If any mandatory provisions of the Water Resource and Emergency Management Plan are activated, Member Cities and Customers will notify the Executive Director of the TCEQ and the Executive Director of the NTMWD within 5 business days.
- Water Resource and Emergency Management Plan stages imposed by NTMWD action must be initiated by Member Cities and Customers.
- For other trigger conditions internal to a city or water supply entity, the City Manager, General Manager, Mayor, Chief Executive, or official designee may decide not to order the implementation of a water resource management stage or water emergency even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs. The reason for this decision should be documented.

Termination of a Water Resource Management Stage

The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the termination of a water resource management stage when the conditions for termination are met or at their discretion. The following actions will be taken when a water resource management stage is terminated:

- The public will be notified through local media and the supplier's web site (if available) as described in Section 4.2.
- Wholesale customers (if any) and the NTMWD will be notified by e-mail with a follow-up letter or fax.
- If any mandatory provisions of the Water Resource and Emergency Management plan that have been activated are terminated, Member Cities and Customers will notify the Executive Director of the TCEQ and the Executive Director of the NTMWD within 5 business days.

The City Manager, General Manager, Mayor, Chief Executive, or official designee may decide not to order the termination of a water resource management stage even though the conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the water resource management stage. The reason for this decision should be documented.

Water Resource and Emergency Management Plan Stages and Measures

Stage 1

Initiation and Termination Conditions for Stage 1

- The city manager must implement any action required by NTMWD. In addition, the city manager may order the implementation of any of the actions set forth in the stage 1 policy, as adopted by the city council by resolution.
 - Updated and maintained in the Code of Ordinances Chapter 110 Article VI
- Stage 1 may terminate when NTMWD terminates its Stage 1 condition or when the circumstances that caused the initiation of Stage 1 no longer prevail.

Goal for Use Reduction and Actions Available under Stage 1

The goal for water use reduction under Stage 1 is a five percent (5%) reduction in the amount of water produced by NTMWD from the previous annual payment period prior to drought restrictions. **If circumstances warrant or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction.**

Stage 2

Initiation and Termination Conditions for Stage 2

- The city manager must implement any action required by NTMWD. In addition, the city manager may order the implementation of any of the actions set forth in the stage 1 policy, as adopted by the city council by resolution.
 - Updated and maintained in the Code of Ordinances Chapter 110 Article VI
- Stage 2 may terminate when NTMWD terminates its Stage 2 condition or when the circumstances that caused the initiation of Stage 2 no longer prevail.

Goals for Use Reduction and Actions Available under Stage 2

The goal for water use reduction under Stage 2 is a reduction of ten percent (10%) in the amount of water obtained from NTMWD from the previous annual payment period prior to drought restrictions. **If**

circumstances warrant or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction

Stage 3

Initiation and Termination Conditions for Stage 3

- The city manager must implement any action required by NTMWD. In addition, the city manager may order the implementation of any of the actions set forth in the stage 1 policy, as adopted by the city council by resolution.
 - Updated and maintained in the Code of Ordinances Chapter 110 Article VI
- Stage 3 may terminate when NTMWD terminates its Stage 3 condition or when the circumstances that caused the initiation of Stage 3 no longer prevail.

Goals for Use Reduction and Actions Available under Stage 3

The goal for water use reduction under Stage 3 is a reduction of whatever amount is necessary in the amount of water obtained from NTMWD from the previous annual payment period prior to drought restrictions. **If circumstances warrant or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction.**

4.3 PROCEDURES FOR GRANTING VARIANCES TO THE PLAN

Updated and maintained in the Code of Ordinances Chapter 110 Article VI

4.4 PROCEDURES FOR ENFORCING MANDATORY WATER USE RESTRICTIONS

Mandatory water use restrictions may be imposed in Stage 1, Stage 2 and Stage 3 Water Resource and Emergency Management Plan stages. The penalties associated with the mandatory water use restrictions will be determined by each entity.

Updated and maintained in the Code of Ordinances Chapter 110 Article VI

4.5 COORDINATION WITH THE REGIONAL WATER PLANNING GROUP AND NTMWD

A letter sent to the Chairs of the Region C Water Planning Group and the North East Texas Water Planning Group with this model Water Resource and Emergency Management plan.

The suppliers will send a draft of its ordinance(s) or other regulation(s) implementing this plan to NTMWD for their review and comment. The supplier will also send the final ordinance(s) or other regulation(s) to NTMWD.

4.6 REVIEW AND UPDATE OF WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

As required by TCEQ rules, Member Cities and Customers must review the Water Resource and Emergency Management plan every five years. The plan will be updated as appropriate based on new or updated information.